EFFECTIVENESS OF COUPLE COUNSELLING VERSUS MATERNAL COUNSELLING IN PROMOTING EXCLUSIVE BREAST FEEDING: A RANDOMISED CONTROLLED TRIAL IN NYANDO DISTRICT, KENYA

BY

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OCTOBER, 2014
DECLARATION

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

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DEDICATION

This thesis is dedicated to the love and memory of my parents Mr. Joshua Ogada Athembo and Mrs. Alice Auma Ogada, and Brother Hanningtone Obilo. Thank you for always nurturing my dreams.
ACKNOWLEDGEMENT

I take this opportunity to thank my supervisors Dr. Sophie Ochola and Dr. Zandile Mchiza for their wise guidance, dedication and moral support that shaped the entire study. You have taught me more in life than just the academics.

I acknowledge the important roles played by Ms. Florence Akeyo and the entire research team, and Mr Leonard Otieno and Mr. Maurice Mutisya for the statistical analyses. The assistance accorded to the researcher by the staff of the following institutions in Nyando District is appreciated: Nyando District Health Management Team, Ahero District hospital, Nyando Community Health Units and Onjiko, Kochogo and Kakola (OKOKA) CBO (Community Based Organisation).

The author also wishes to thank the National Council of Science, Technology and Innovations for the financial support that saw the study come to fruition.

A very special gratitude goes to my husband, Mr. Godfrey Odinga, and sons Patrick and Alex for your continued inspiration, support and always believing in me. My deepest appreciation is accorded to God the Almighty who has continued to open the doors to many blessings and held my hand in my journey through life. May the Almighty be glorified.
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DEFINITION OF TERMS

Colostrum: A thick yellow fluid first secreted by the breast after birth to nourish the born baby. It contains large amounts of immune factors, proteins, minerals and carotenoids (WHO, 2008).

Exclusive breastfeeding: Giving a baby no other food or drink (not even water), apart from breast milk (including expressed breast milk), except for vitamins, mineral supplements or medicines in form of syrups or drops (UNICEF, 2007).

Mixed feeding: Feeding an infant with breast milk and any solid, semi-solid and/or liquid food including non-human milk and formula (WHO, 2008).

Optimal breastfeeding: Introducing breast milk within 1 hour, exclusive breastfeeding for 6 months of life and breastfeeding up to 2 years of life (Mullany et al., 2007; UNICEF, 2011).

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

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

Weanling dilemma: the dilemma suggesting that a breastfed child should regularly receive additional food 3-4 months after birth, often associated with the belief that breast milk is not enough for the child (McDade, 1998).
OPERATIONAL DEFINITION OF TERMS

**Continuous/ cumulative exclusive breastfeeding:** reporting exclusive breastfeeding on all 24-hour recall interviews (from 1st to 6th month post-partum).

**Counselling:** A two-way communication process where a person is guided by a counsellor to identify their problem, its causes and ways of solving it. It aims at voluntary change of behaviour in the counselled.

**Client:** the person being counselled.

**Couple:** A man and woman living together, whether married or not.

**Couinsellor:** The facilitator of the counselling process.

**Couple counselling:** A two-way communication process where a couple is guided into voluntarily adopting appropriate breast feeding practices.

**Cross-sectional exclusive breastfeeding rates:** rates based on only the reported breastfeeding practices of the last 24 hours without taking into account feeding practices during the other months.

**Maternal counselling:** A two-way communication process where a mother is guided into voluntarily adopting appropriate breast feeding practices.

**Paternal involvement:** Actions by the child’s father that provide support for breastfeeding mothers including moral support, assisting with infant care and / or other chores, participation in decision making about infant feeding.

**Knowledge:** This is awareness by an individual on the correct information on exclusive breastfeeding and breastfeeding in general judged by the responses to the questions administered during the interviews in this study.

**Attitudes:** This refers to an individual’s feeling or thoughts regarding various aspects of exclusive breastfeeding and breastfeeding.
## ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AHR</td>
<td>Adjusted Hazard Ratio</td>
</tr>
<tr>
<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
</tr>
<tr>
<td>ANC</td>
<td>Antenatal Care</td>
</tr>
<tr>
<td>BFHI</td>
<td>Baby Friendly Hospital Initiative</td>
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<tr>
<td>CBS</td>
<td>Central Bureau of Statistics</td>
</tr>
<tr>
<td>CHW</td>
<td>Community Health Worker</td>
</tr>
<tr>
<td>C-IMCI</td>
<td>Community Integrated Management of Childhood Illnesses</td>
</tr>
<tr>
<td>CORPs</td>
<td>Community’s Own Resource Persons</td>
</tr>
<tr>
<td>CVCT</td>
<td>Couples’ Voluntary Counselling and Testing</td>
</tr>
<tr>
<td>DHMT</td>
<td>Health Management Team</td>
</tr>
<tr>
<td>DHS</td>
<td>Demographic and Health Survey</td>
</tr>
<tr>
<td>DNO</td>
<td>District Nutrition Officer</td>
</tr>
<tr>
<td>EBF</td>
<td>Exclusive Breast Feeding</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus Group Discussion</td>
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<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<tr>
<td>IEC</td>
<td>Information, Education and Communication</td>
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<tr>
<td>ILO</td>
<td>International Labour Organisation</td>
</tr>
<tr>
<td>KCSE</td>
<td>Kenya Certificate of Secondary Education</td>
</tr>
<tr>
<td>KDHS</td>
<td>Kenya Demographic and Health Survey</td>
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<tr>
<td>KII</td>
<td>Key Informant Interview</td>
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<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<td>IMCI</td>
<td>Integrated Management of Childhood Illnesses</td>
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<td>IYCF</td>
<td>Infant and Young Child Feeding</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>MCH</td>
<td>Maternal and Child Health</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>MOPHS</td>
<td>Ministry of Public Health and Sanitation</td>
</tr>
<tr>
<td>OR</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>RR</td>
<td>Relative Risk</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>WFP</td>
<td>World Food Programme</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
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The World Health Organisation and United Nations’ Children’s Fund recommend exclusive breastfeeding (EBF) for 6 months. The prevalence of EBF among children below 6 months is 32% and 35% in Kenya and Nyanza province respectively. Despite fathers being identified as stakeholders in infant feeding, few interventions target them in activities to promote EBF. There is limited information on the effectiveness of breastfeeding interventions targeting fathers, particularly in sub-Saharan Africa. The purpose of this study was to compare the effectiveness of ‘Couple Counselling’ to ‘Maternal Counselling’ in promoting EBF practice, knowledge and attitudes among mothers and fathers, in Nyando District, Kenya. This was a community-based cluster-randomised trial in which study participants were assigned to three study groups- two experimental (maternal counselling and couple counselling) and one control, based on a ratio of 1:1:1. The final sample size for the study groups were as follows: 101 couples for the control group, 88 couples for maternal counselling and 91 couples for couple counselling. Breastfeeding counselling was conducted with mothers only in the maternal counselling group and with both mothers and fathers in the couple counselling group. Couples in the control group received no counselling from the research team. Participants in each of the experimental groups received a minimum of eight counselling sessions; 1 prenatally and 7 post-natally, on a monthly basis. To determine infant feeding practices, data was collected from mothers on a monthly basis in all study groups, through researcher-administered questionnaires. Focus group discussions and key informant interviews were conducted to collect qualitative data. Breastfeeding practices were determined based on 24-hour dietary recalls. Data was analysed using SAS version 9.2 software. From Kaplan Meier survival analysis, 12% of the infants in the control, 33% in the maternal and 44% in the couple counselling were exclusively breastfed continuously (without change) for 6 months. Significantly fewer infants in the maternal counselling group (Adjusted Hazard Ratio [AHR]: 0.63; CI: 0.50-0.80; p=0.001) and couple counselling group (AHR: 0.53; CI: 0.30-0.93; p=0.028) than in the control group were discontinued from EBF before the age of 6 months. Exclusive breastfeeding was not significantly different between the two experimental groups at 6 months (AHR: 0.81; CI 0.46-1.43; p=0.465). Maternal counselling resulted in significantly higher improvement in maternal breastfeeding knowledge (Difference in difference [DID] of -1.780, p=0.001), while couple counselling resulted in significantly higher improvements in maternal attitudes towards breastfeeding (DID of 3.381, p=0.001). Among the fathers, couple counselling led to significantly higher improvements in knowledge (DID of 2.600, p=0.001), and no significant differences in the change of attitudes among the experimental groups (DID of 0.637, p=0.299). Couple counselling was acceptable to 99.2% of the mothers and 87.6% of the fathers. Factors negatively influencing paternal involvement in breastfeeding issues were: time constraints (89.6%), gender roles (72.7%), limited information and unintentional exclusion of fathers by mothers from the breastfeeding process. The predictors of EBF were: being a female infant (AHR: 1.39; CI: 1.15-1.66; p<0.001), being a housewife (AHR: 0.65; CI: 0.5-0.84; p=0.001) and being of lower socio-economic status (AHR: 1.55; CI: 1.13-2.14; p=0.006). Younger mothers also tended to be more likely to exclusively breastfeed compared to older ones (AHR: 1.03; CI: 1.00-1.05; p=0.022). The findings of this study may be useful to the Ministry of Health and organisations concerned with children’s health to strengthen or re-design current EBF programmes and strategies to include the fathers.
CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Breast milk is the best source of nutrients and other immunological compounds for healthy child growth, development and survival (Black et al., 2008). Optimal breastfeeding includes the introduction of breast milk within 1 hour of birth, exclusive breastfeeding for at least 6 months of life, as well as continuing breastfeeding up to 2 years of life (Mullany et al., 2007; UNICEF, 2011). Scientific evidence shows that optimal breastfeeding enhances linear growth (Onyango 1999; Villapando, 2000) and can prevent up to 12% of all deaths and 10% of all morbidity among children aged below 5 years (Black et al., 2008; Fisk et al., 2010).

Sub-optimal breastfeeding is responsible for 45% of neonatal deaths due to infections, 30% of infant deaths due to diarrhoeal disease, and 18% of acute respiratory deaths in children aged less than 5 years globally. In the 2003 Lancet series, promotion of exclusive breastfeeding for 6 months followed by continued breastfeeding with appropriate complementary feeding were shown as the most effective public health interventions in reducing under-five mortality (Aryeetey & Goh, 2013; Jones et al., 2003). Moreover, a secondary analysis of sub-Saharan Africa data on nutrition-related indicators from sources such as the World Health Organisation (WHO), Demographic and Health Surveys (DHS) from Africa and the Food and Agriculture Organization (FAO) of the United Nations showed a negative association between the prevalence of exclusively breastfed infants and infant mortality rate (IMR) (Abrahams, Mchiza & Steyn, 2011). In this analysis, it was highlighted that for every 1% increase in number of infants that are exclusively breastfed for six months, the infant mortality rate decreases by 0.5 deaths per 1000 live births. The WHO and
United Nations Children’s Fund (UNICEF) recommend exclusive breastfeeding (giving a baby no other food or drink [not even water], apart from breast milk [including expressed breast milk], except for vitamins, mineral supplements or medicines in form of syrups or drops) for up to 6 months after birth (UNICEF, 2011).

The global target is to increase the rate of exclusive breast feeding among infants less than 6 months to at least 50% by the year 2022 (WHO, 2012). To achieve this, several strategies are in place. These include the Innocenti declaration, the Baby Friendly Hospital Initiative (BFHI), the Integrated Management of Childhood illnesses (IMCI), the Global and National Infant and Young Child Feeding (IYCF) strategies and the Millennium development goals (MDGs). In Kenya, the Ministry of Heath targets an annual increase of 3% for the country translating to a rate of 56% by the years 2016/2017 (Republic of Kenya, 2012).

The Kenya National Nutrition Action Plan 2012-2017 has mainstreamed promotion of exclusive breast feeding as one of the priority nutrition interventions in the country. Currently, IYCF counselling is done at government health facilities during growth monitoring and promotion and to mothers and/ or caregivers of children already or at risk of malnutrition. Counselling on IYCF has also been included in the roles of community health workers (CHWs) under the umbrella of the “Community Health Strategy”. Other community based initiatives include the Baby Friendly Community Initiative, Mother-to-mother support groups and Father-to-father support groups.

Sub-optimal IYCF has been identified as a leading cause of child under nutrition (Black et al., 2008; Black, Victora, Walker & Maternal and Child Nutrition Study
Group, 2013; Jones et al., 2003). Sub-optimal IYCF remains a challenge, especially in resource-limited settings. Africa has low rates of exclusive breastfeeding among infants aged less than 6 months (Table 1.1), with sub-Saharan African’s rates at 36% (UNICEF, 2014).

Table 1.1 Exclusive breastfeeding rates among infants aged below 6 months in selected areas

<table>
<thead>
<tr>
<th>Country</th>
<th>Exclusive breastfeeding rates among infants below 6 months of age</th>
</tr>
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<tbody>
<tr>
<td>World</td>
<td>38%</td>
</tr>
<tr>
<td>Least developed countries</td>
<td>48%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>36%</td>
</tr>
<tr>
<td>Eastern and Southern Africa</td>
<td>52%</td>
</tr>
<tr>
<td>Kenya</td>
<td>32%</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>52%</td>
</tr>
<tr>
<td>Tanzania</td>
<td>50%</td>
</tr>
<tr>
<td>Uganda</td>
<td>63%</td>
</tr>
<tr>
<td>Burundi</td>
<td>69%</td>
</tr>
<tr>
<td>Rwanda</td>
<td>85%</td>
</tr>
</tbody>
</table>

Source: UNICEF, 2014

There has been significant improvement in the exclusive breastfeeding rates among infants aged less than 6 months globally, and in Africa. Kenya has also seen an increase from 13% in 2003 to the current rate of 32% with a current median duration of exclusive breastfeeding of 2.6 months (Central Bureau of Statistics [CBS] Kenya, Ministry of Health [MOH] & O.R.C. Macro, 2004; KNBS & ICF Macro, 2010). Nevertheless, the rate declines from 52% at 0-1 month to 13.2% at 4-5 months, showing poor sustainability (KNBS & ICF Macro, 2010). These rates are also still below the global and national targets of 50% (Republic of Kenya, 2012). Notably, Kenya performs the worst when compared to the other Eastern African countries like Tanzania, Uganda, Rwanda, Burundi and Ethiopia (Table 1.1). There is therefore need
to identify interventions that increase and sustain exclusive breastfeeding for the recommended period so as to achieve the set targets.

One of the strategies promoted by WHO is counselling and supporting mothers on the appropriate feeding of infants and children (WHO, 2013). A review of several studies by WHO showed that counselling improves the prevalence of exclusive breastfeeding by 15% and above (WHO, 2013). Moreover, including the baby’s father in infant feeding has been shown to be one of the influences on initiation and duration of breastfeeding in countries like the United States (Cohen et al., 2002). More recently in Kenya, in Nyando, Kakamega and Embu, and Kibera informal settlements in Nairobi, fathers were identified as key players in maternal breastfeeding decision making (MoH & USAID, 2011; Nyanga et al., 2012; Ochola, 2008).

Due to socio-economic and cultural changes, women are spending more time at work and men’s roles are expanding to include infant care (Coleman & Garfield, 2004). These roles include participation in deciding infant feeding mode, involvement in child care and being the family protector and provider (Februhartanty et al., 2007). Several studies show that when fathers receive breastfeeding education, their participation in infant feeding increases, resulting in better maternal breastfeeding outcomes (Ingram & Johnson, 2004; Pisacane et al., 2005; Wolfberg et al., 2004). Most strategies to promote exclusive breastfeeding have however not included the fathers (Earle, 2000; Februhartanty et al., 2007).

Couple counselling is an approach that involves communication with both partners. It has been utilised to promote male participation in voluntary testing and prevention of
mother to child transmission of HIV and AIDS, with encouraging results in Kenya, Tanzania, Rwanda and Zambia (John et al., 2008; Mlay et al., 2008). The potential of the couple counselling approach in promoting exclusive breastfeeding however, has not been adequately investigated.

1.2 Problem statement

It is recognised that the age from conception to 23 months is critical. Known as the ‘window of opportunity’, preventing malnutrition during this period benefits children and society throughout their life. Similarly, damage caused by malnutrition at this time is largely irreversible, ultimately leading to considerable social, political and economic losses (The World Bank, 2006). In the last decade, more than a third of mortality among children aged less than 5 years was associated with under nutrition (UNICEF et al., 2010). Child malnutrition undermines progress towards the achievement of Kenya’s Vision 2030 and the Millennium development Goals (MDGs) (Republic of Kenya, 2012; WFP and DSM, 2008).

Despite the many efforts globally and locally, child malnutrition and mortality rates are still unacceptably high, with more than a third of child deaths in the last decade being associated with under nutrition (UNICEF et al., 2010). According to UNICEF (2012), infant and under-five mortality rates in Kenya were 55 and 85 per 100 live births respectively in the year 2010. This was an increase from rates reported in the Kenya Demographic and Health Survey (KDHS) 2008-2009, which were 52 and 74 per 1000 live births respectively for infant and under-five mortality (KNBS & ICF Marco, 2010). This makes Kenya one of the countries in the world whose reduction of under-five mortality was less than 1% annually in the last decade.
Kenya’s malnutrition rates are also still significantly high. About 35% of children in Kenya aged less than 5 years are stunted, 16% underweight and 7% wasted. In Nyanza province, the study area, about 26.9% of children aged below five years are stunted, 13.7% underweight and 3.2% wasted% (KNBS & ICF Marco, 2010). Sub-optimal infant and young child feeding is a leading cause of child under nutrition (Black et al., 2008; Black et al., 2013; Jones et al., 2003). Consequently, exclusive breastfeeding contributes significantly to the reduction in child malnutrition, morbidity and mortality (Republic of Kenya, 2012; WFP and DSM, 2008). The rate of exclusive breastfeeding in Kenya is low. The median duration of exclusive breastfeeding in Nyanza province is 0.6 months, with an exclusive breastfeeding rate of 35% (KNBS & ICF Marco, 2010; MOPHS, 2009). Nyanga et al., (2012) established that only a third (33%) of infants aged less than 6 months visiting Ahero District hospital in Nyando District are exclusively breastfed.

UNICEF recommends family and community-based approaches to complement the health facilities in promoting exclusive breastfeeding (UNICEF, 2010). In Kenya, the Ministry of Health is implementing the ‘Community Health Strategy’; the promotion of exclusive breastfeeding is one of the key activities. Community-based breastfeeding counselling interventions targeting the mothers show encouraging results. Maternal peer-counselling has been shown to significantly improve exclusive breastfeeding rates in Accra, Ghana, Dhaka, Bangladesh, Nairobi, Kenya and in Uganda, Burkina Faso and South Africa (Aidam, Perez-Escamilla & Larney, 2005; Haier et al., 2000; Ochola, Labadarios & Nduati, 2013; Tylleskar et al., 2011).
Although there are various strategies that have been used to promote exclusive breastfeeding among mothers, few have targeted fathers, therefore leaving them out despite being identified as important stakeholders (Lovera et al., 2010). The few studies targeting fathers have been conducted mainly in Western countries (Februhartanty et al., 2007), on breastfeeding in general and at health facility level. There is scarce information both globally and locally, on EBF interventions that focus on couples, particularly in the sub-Saharan Africa context. This study therefore tested the effectiveness of couple counselling and maternal counselling in promoting exclusive breastfeeding at community level.

1.3 Purpose of the study

The purpose of the study was to compare the effectiveness of couple counselling to maternal counselling in promoting exclusive breastfeeding.

1.4 Objectives of the study

1. To compare the impact of couple counselling and maternal counselling on exclusive breastfeeding rates in Nyando District.

2. To compare the influence of couple counselling and maternal counselling on maternal and paternal exclusive breastfeeding knowledge and attitudes in Nyando District.

3. To assess the acceptability of couple counselling among fathers and mothers in Nyando District.

4. To identify factors influencing paternal involvement in the promotion of exclusive breastfeeding in Nyando District.

5. To identify the predictors of exclusive breastfeeding in Nyando District.
1.5 Research hypotheses

Ho₁: There is no significant difference between couple counselling and maternal counselling in improving exclusive breastfeeding rates.

Ho₂: There is no significant difference between the influences of couple counselling and maternal counselling on maternal and paternal exclusive breastfeeding knowledge.

Ho₃: There is no significant difference between the influences of couple counselling and maternal counselling on maternal and paternal attitudes towards exclusive breastfeeding.

1.6 Significance of the Study

This study comes at a time when reducing child malnutrition and mortality is central in the global agenda. It is consistent with the objectives of both global and national initiatives and strategies related to IYCF. The information generated by this study may therefore be useful to the Ministry of Health and other stakeholders, particularly the NGOs concerned with children’s health. The “Community Health Strategy” in Kenya provides an avenue for the integration of the couple counselling strategy. The study has contributed knowledge to the ongoing research efforts on potential strategies to improve exclusive breastfeeding in sub-Saharan Africa. It is anticipated that the study will provide impetus for the mainstreaming of paternal participation in IYCF issues. It is hoped that future programmes will re-design the current counselling strategies to include the fathers.
1.7 Delimitation of the Study

The scope of the study was Nyando District, Kisumu County, and therefore the study findings can only be generalized to areas of similar circumstances.

1.8 Limitations of the Study

The practice of exclusive breastfeeding was determined based on maternal self-reports. No observation of exclusive breastfeeding was conducted. Nonetheless, many studies determining the practice of exclusive breastfeeding have been based on maternal reports. A study conducted by Ochola (2008) in Kibera slum of Nairobi in Kenya showed no difference between the exclusive breastfeeding rates from observations and maternal self-reports.
1.9 Conceptual Framework

The conceptual framework (Figure 1.1) was modified from those of Lutter (2000) and Ochola (2008).

Optimal infant feeding is dependent on the feeding choices made by the mothers and their ability or means to implement those feeding choices (proximate determinants). The mother’s choices and ability to implement these choices are dependent on the mother’s immediate experiences like the information from her environment and the
support she receives from her partner, family members, relatives, friends, fellow mothers, health workers and lay or peer counsellors (intermediate determinants). The information and support she gets could be in form of nutrition counselling, education and/or childcare.

There is need for positive support, reinforcement and encouragement for optimal infant feeding in her immediate surroundings and this is the family and community. Paternal support for infant feeding is part of the mother’s immediate experiences. In the community and within the family is the father of the child who is a major decision maker and influence on the mother. The father’s potential to support optimal infant feeding is an option that should thus be exploited. Other factors affecting the mother’s choices by influencing her immediate experiences include cultural norms, national policies and economic conditions (underlying determinants).

Through couple counselling, this study focused on fostering positive paternal attitudes towards exclusive breastfeeding, providing information on exclusive breastfeeding benefits and management, and enhancing the mothers’ ability to act on her breastfeeding choices due to increased support from her partner/ husband. It therefore focused on determinants of breastfeeding at all three levels on the conceptual framework.
CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

Optimal IYCF is one of the most important elements of achieving good child health, development and survival. Children who receive good nourishment grow and thrive physically, emotionally and cognitively (The World Bank, 2006). They are more likely than their poorly nourished age mates to reach their potential at school, consequently leading more productive lives. The age range from conception to 23 months is known as the ‘window of opportunity’ because preventing under nutrition during this period benefits children- and society in general- throughout their lifetime. The damage caused by under nutrition at this time is also to a large extent irreversible (The World Bank, 2006).

2.1 Prevalence of exclusive breastfeeding

Despite the well-recognized health benefits of exclusive breastfeeding, the practice is not widespread in the developing world and the increase at the global level is modest (Cai, Wardlaw & Brown, 2012). Trends on prevalence of exclusive breastfeeding in developing countries show an increase from 33% in 1995 to 39% in 2010 (Cai et al., 2012). The biggest improvement is experienced in West and Central Africa; this prevalence increased in almost all regions in the developing world. Globally, the current prevalence of exclusive breastfeeding among children below six months is at 38%, while in Asia, Africa and Sub-Saharan Africa, it is 41%, 34% and 36% respectively (UNICEF, 2014; UNICEF, 2012).

In the Eastern African region, Kenya has the lowest rate of exclusive breastfeeding among children below six months (32%), followed by 50% in Tanzania, 52% in
Ethiopia, 63% in Uganda, 69% in Burundi and 85% in Rwanda (UNICEF, 2014). In Kenya, exclusive breastfeeding is 13.2% in children aged 4-5 months down from 34.8% in those aged 2-3 months. From 0-1 month, 51.8% are exclusively breast fed (KNBS & ICF Marco, 2010). The median duration of exclusive breastfeeding in the country is 2.6 months. Nyanza province has the lowest breast feeding frequency, a median duration of exclusive breastfeeding of 0.6 months and an exclusive breastfeeding rate for infants below 6 months of 35% (KNBS & ICF Marco, 2010; MOPHS, 2009). A recent cross sectional study by Nyanga et al., (2012), established that a third (33%) of infants less than 6 months of age visiting Ahero District hospital in Nyando District were exclusively breastfed.

One weakness of the reported exclusive breastfeeding rates is that they are based on cross-sectional data. Cross-sectional data tend to give higher estimates and are thus useful for trend analysis rather than prevalence of exclusive breastfeeding. A study in Gampaha, Sri Lanka, showed a drop in the prevalence of exclusive breastfeeding rates from 71.3% in cross-sectional analysis to 65.9% in longitudinal analysis (Perera, Ranathunga, Fernando, Sampath & Samaranayake, 2012). Infants were followed up at 2, 4 and 6 months. The study experienced a disproportionately higher number of babies not on exclusive breastfeeding at four months, failing to attend the final follow up at the health facility. This further highlighted the inaccuracy of estimating exclusive breastfeeding rates by cross sectional studies. Similar observations were made between cross-sectional and longitudinal exclusive breastfeeding rates in Kibera, Nairobi by Ochola (2008).
A study in Sweden also showed a discrepancy between longitudinal and cross-sectional data (Aarts et al., 2000). The difference in the exclusive breastfeeding rate was over 40 percentage points at both 2 and 4 months of age (92% versus 51% at 2 months and 73% versus 30% at 4 months) and 9% points at 6 months (11% versus 1.8%). In Eastern Uganda, a study by Engebretsen et al., (2007), showed that the 24-hour recall gave a higher estimate of exclusive breastfeeding and predominant breastfeeding than the recall since birth method, with differences of 46% and 59% points at 2 and 4 months respectively. Tylleskar et al., (2011), found almost similar exclusive breastfeeding rates from a 24-hour recall and a 7-day recall for both intervention and control clusters in Burkina Faso, Uganda and South Africa.

2.2 Maternal and paternal knowledge and attitudes towards exclusive breastfeeding

2.2.1 Maternal exclusive breastfeeding knowledge and attitudes

Evidence suggests that breastfeeding knowledge and attitudes influence breastfeeding practices. Ochola (2008), found maternal correct knowledge of duration of breastfeeding to be associated with exclusive breastfeeding at 1, 2 and 3 months postpartum. Similarly, in Kersa, Ethiopia and in Kigoma, Tanzania, non-exclusive breastfeeding was associated with mothers whose knowledge about infant and young child feeding practices was low. In Ethiopia those with low knowledge were 3.4 less likely to practice exclusive breastfeeding, while in Tanzania, those with adequate knowledge were 5.4 more likely to be exclusively breastfeeding (Egata, Berhane & Worku, 2013; Nkala & Msuya, 2011). In contrast, no differences were seen among exclusive and non-exclusive breastfeeding mothers in terms of knowledge and attitudes toward breastfeeding in Saint Ann, Jamaica (Chatman et al., 2005).
Ludvigsson, (2003), also found in La Paz, Bolivia, that the attitudes of the mother, her partner and the infant’s grandmother towards breastfeeding did not influence the infant feeding pattern, exclusive breastfeeding included. Similarly, in Coventry, U.K, (Earle, 2000), found that both breast and bottle feeders possessed knowledge of the benefits of breast feeding, but this did not seem to influence decision making.

In Perth, Australia, breastfeeding duration was independently, positively associated with maternal infant feeding attitudes (Scott et al., 2006). Gijsbers, Mesters, Knottnerus and van Schayck, (2008), also showed a positive significant association between the duration of exclusive breast-feeding and the mother’s breastfeeding knowledge (p< 0.01) in Netherlands. Chinese mothers in Dublin, Ireland who had lower awareness score (OR = 2.98, 95% CI: 1.87-4.73), more misconceptions and negative attitudes (p< 0.05), and weaker cultural beliefs (p< 0.05) were also less likely to breastfeed (Zhou, Younger & Kearney, 2010). Most of these studies however were cross-sectional and thus may not show whether there are changes with time in relation to how knowledge and attitude influence breastfeeding.

In Abha, Saudi Arabia, most mothers (89.3%) participating in a cross-sectional descriptive study reported that colostrum is good for the baby, 1.3% considered it either not good or possibly detrimental to the child’s health and 9.4% did not know the answer. Only 28% knew exclusive breastfeeding should be 6 months (Al-Binali, 2012). Khassawneh, Khader, Amarin and Alkafajei (2006) in a cross-sectional study in North Jordan, found that women had positive attitudes towards breastfeeding. Similar findings were seen in Klang, Malaysia by Tan (2009). Ekambaram, Bhat, and Ahamed (2010) in a descriptive study in South India with 100 postnatal mothers
reports inadequate knowledge in areas of time of initiation of breastfeeding among 92% of mothers, colostrum feeding (56%), duration of exclusive breastfeeding (38%), knowledge on expressed breast milk (51%) and continuation of breastfeeding while baby is sick.

A study of Chinese women in Dublin, Ireland showed misconceptions and negative attitudes towards breastfeeding (Zhou et al., 2010). A study by Laanterä et al., (2010) in Finland showed the most usual lack of knowledge among mothers to be on how to increase lactation, sufficiency of breast milk in hot weather, sufficiency of breast milk for 4 months after birth, and the need to pump the breasts after alcohol consumption. Chezem, (2012), in Mid-west, U.S found that mothers planning exclusive breastfeeding expressed more favourable attitudes related to its naturalness.

In Mbale, Uganda, Engebretsen et al., (2011) observed that mothers regarded exclusive breastfeeding as inadequate, not feasible or even ‘harmful’. Three studies in Nigeria showed mixed results. According to Essien, Akpan, Ndebbio, and John, (2009), a majority (80%) of mothers in Calabar, Nigeria were aware of exclusive breastfeeding. In Enugu State, 50% of the mothers knew that feeding with only breast milk without the addition of water or food for six months was what exclusive breastfeeding entailed, 33% mothers believed that giving baby water once in a while also meant exclusive breastfeeding, while 8% of the women expressed no knowledge of exclusive breastfeeding (Uchenna, 2012). However, in Kware, Nigeria only 31% had adequate knowledge on exclusive breastfeeding according to Oche, Umar and Ahmed, (2011).
2.2.2 Paternal knowledge on and attitudes towards exclusive breastfeeding

Differences in the breastfeeding knowledge scores are reported among mothers and fathers. In a qualitative study conducted in 3 U.S cities through FGDs, fathers had favourable attitudes toward breastfeeding but did not articulate specific benefits to mothers or infants (Avery & Magnus, 2011). Chezem (2012), in Mid-west, U.S found that fathers planning exclusive breastfeeding expressed more favourable attitudes related to its naturalness. Fathers reported less favourable attitudes toward breastfeeding than mothers in some aspects, including disease protection ($p=0.004$), respect for breastfeeding women ($p=0.043$), and naturalness ($p=0.011$).

In Mbale, Uganda and Eastern and Western provinces in Kenya, studies observed that fathers regarded exclusive breastfeeding as inadequate, not feasible or even ‘harmful’ (Engebretsen et al., 2011; MOH & USAID, 2011). While most fathers (70.2%) in a study in Mongomo, Guinea Equatorial, thought exclusive breastfeeding should be for 4 months with 50% saying breastfeeding should be on demand for children of any age (Jimoh, 2004). Literature on paternal knowledge and attitude towards exclusive breastfeeding was limited.

2.3 Interventions to improve exclusive breastfeeding rates, knowledge and attitude

2.3.1 Interventions targeting mothers with information on breastfeeding

Peer-counsellors are shown to be effective in promoting exclusive breastfeeding in different contexts. A meta-analysis of 11 randomized controlled trials by Sudfeld, Fawzi and Lahariya, (2012), noted that peer support significantly decreased the risk of
discontinuing exclusive breastfeeding compared to control groups (RR: 0.71; 95% CI: 0.61–0.82). Similarly, a Cochrane meta-analysis by Britton, McCormick, Renfrew, Wade and King, (2007), reviewed 34 randomised and quasi-randomised controlled trials (29,385 mother-infant pairs) from 14 countries. They found that all forms of lay and professional support increase the duration of breastfeeding up to the first six months postpartum (RR: 0.91, 95% CI 0.86 - 0.96), and that the effect of any support on mothers exclusively breastfeeding is greater than on women continuing any form of breastfeeding (RR: 0.81, 95%CI 0.74 to 0.89) (Britton et al., 2007). This review found clear evidence of the benefit of support, but did not include the effect of the support from father, family members and mothers’ own social support networks during lactation.

A cluster randomised trial in Uganda, Burkina Faso and South Africa found low intensity peer-counselling effective in promoting exclusive breast feeding (Tylleskar et al., 2011). After 5 counselling visits, at 24 weeks, the prevalence based on 24-h recall were 73% versus 22% in the intervention and control clusters respectively in Burkina Faso; 59% and 15%, respectively, in Uganda; and 2% and <1%, respectively, in South Africa. The control and intervention groups differed significantly in exclusive breastfeeding rates with lowest changes in South Africa. The prevalence based on 7-day recall, were not significantly different from the 24 hour recall findings (Tylleskar et al., 2011). The findings of the study did not take into account mothers who had changed back and forth between exclusive and non-exclusive breastfeeding practices. Shifting back and forth between EBF and mixed feeding is not recommended. This is because during mixed feeding, the risk of infection from contaminated food, water or utensils, is increased.
There were also positive findings in a randomised trial in Dhaka, Bangladesh, that gave 15 counselling sessions to mothers (Haider, Ashworth, Kabir& Huttly, 2000). Seventy percent of the intervention group was exclusively breastfeeding at 5 months compared to 6% in the control group. Earlier studies in peri-urban Mexico City (Morrow et al., 1999), and Brazil (Leite et al., 1998), had indicated that maternal counselling was beneficial. In the Mexico study, at 3 months, mothers who received 6 counselling visits had significantly (p<0.001) higher exclusive breastfeeding rates (67%) followed by those who had 3 visits (50%) then least was the control group at 12% (Morrow et al., 1999). Similarly, in the Brazilian study, peer-counselling led to higher EBF rates (24.7%) in the intervention group compared to the control group (19.4%; p=0.044) (Leite et al., 1998). Another cluster-randomized controlled trial using peer-counsellors was conducted in Nairobi’s Kibera slum, Kenya. It reported improvements in exclusive breastfeeding following home-based intensive counselling on exclusive breastfeeding. The mothers who underwent the home-based counselling had 4 times increased likelihood to practise EBF compared to the control group (Ochola et al., 2013).

A study by Bhandari et al., (2003), in Haryana, India, promoted exclusive breastfeeding through monthly educational meetings among mothers after birth in intervention communities. Exclusive breastfeeding rates were significantly different at 3 months, (79% in the intervention and 48% in the control communities) and at 6 months (42% and 4% respectively). Another randomized controlled trial among Dutch women provided verbal and written advice about exclusive breastfeeding for 6 months (Gijsbers, Mesters, Knottnerus and van Schayck, 2008). Women who received
the educational programme were more likely to exclusively breastfeed for 6 months than the control group (48% versus 27%; p< 0.05).

Haidar and Zohreh (2009), also reported improvements in exclusive breastfeeding rates in Yazd, Iran following an educational program through group discussion, lectures and pamphlets targeting mothers in their 3rd trimester of pregnancy. Following the intervention, most (85%) of the mothers fed their children exclusively with mother's milk and 15% breast-fed together with formula. In Cairo, Egypt, 60 mothers and their preterm infants were randomly assigned to intervention and control groups. The intervention group got a five-session breastfeeding education package. The intervention group showed gradual improvement in the practice of expressing of breast milk, with 80% discharged on exclusive breastfeeding compared to 40% of the control group (Ahmed, 2008).

In the context of BFHI, mothers are sensitised about exclusive breastfeeding at the health facility. Researchers in Nigeria found better breastfeeding positions and practices among mothers delivering in an urban ‘baby friendly’ hospital than mothers delivering in a rural, non-BFHI health centre (Ojofeitimi et al., 2000). In Chile, Santiago, the first baby-friendly hospitals increased initiation of breastfeeding within the first two hours. With a strong Step 10 (creation of support networks for mothers at community level) and a monthly clinic, exclusive breastfeeding at 6 months increased from approximately 20% to over 60 % (UNICEF, 2007). In Ghana and Ethiopia, mother to mother support groups improved exclusive breastfeeding rates in the communities where they were initiated (WHO, 2008).
Nutrition education interventions also improve the knowledge and attitudes of participants with regard to exclusive breastfeeding. A cluster-randomized trial evaluating the effectiveness of an educational intervention on breastfeeding knowledge and attitudes of fifth grade children in Brazil showed that scores in the intervention group improved significantly, the effect lasting at least 3 months. The intervention had greater impact on the knowledge and attitudes of girls and on students between 9 and 11 years of age when compared with boys and students between 12 and 17 years old (Bottaro & Giugliani, 2009). Similarly, in Appalachian, U.S, an educational session that included an interactive game to occupational health science students resulted in improved knowledge and attitudes about breast-feeding benefits. Breastfeeding benefits for mothers recorded the greatest improvement (Seidel, Schetzina, Freeman, Coulter & Colgrove, 2013).

In Cairo, Egypt, 60 mothers and their preterm infants were randomly assigned to intervention and control groups. The intervention group got a five-session breastfeeding education package. Mother's knowledge significantly increased for the intervention group but not the control group (Ahmed, 2008). While in a quasi-experimental study in Taipei, Taiwan, 46 women received a 90-minute group educational programme on breast feeding during their 20th–36th week of pregnancy. The experimental group had higher scores in breastfeeding knowledge and breastfeeding attitude at three days postpartum (Lin, Chien, Tai & Lee, 2007). In another quasi-experimental study in Ayrshire, Scotland, 78% of mothers improved their attitude scores with a significant mean difference in attitude scores of 4.9%, \( P < 0.001 \). Ninety-six per cent (96%) of mothers had significant increase in their knowledge scores (the mean knowledge score difference was 10.4%; \( p < 0.001 \)). This
was after a breastfeeding peer-supporter training programme (Kempenaar & Darwent, 2013).

Haidar and Zohreh (2009), also reported improvements in knowledge and attitude in Yazd, Iran. In this study, mothers in their 3rd trimester underwent an educational program through group discussion, lectures and pamphlets. After the educational program, mothers' knowledge (38%) and attitude (12.3%) were significantly increased ($p=0.001$). The last three studies however had no control groups which would have shown stronger association between intervention and the study outcome. The studies only followed the participants for periods less than 6 months. Exclusive breastfeeding is recommended for 6 months and thus it would be useful to show the effectiveness of such interventions in sustaining the knowledge, attitude and practices for that period of time.

### 2.3.2 Interventions targeting fathers with information on breastfeeding

In some settings—mostly the developed countries, fathers have also been targeted with breastfeeding promotion interventions. In Baltimore U.S, Wolfberg et al., (2004), assessed an educational intervention using peer-educators to encourage fathers to advocate for and assist their partners in breastfeeding. There was a positive partner support in the intervention group (74%) compared to 41% in the control group, which resulted in increased breastfeeding. In Bristol, U.K, fathers and grandmothers were sensitised in an ante-natal session on benefits, their role and how to support breastfeeding mothers. Breastfeeding rates were significantly higher at 8 weeks in the intervention group than the wider population (Ingram & Johnson, 2004).
According to Jenkins et al., (2012), a District-wide campaign conducted in rural Zimbabwe to encourage exclusive breastfeeding improved knowledge in fathers. They combined traditional strategies of education, counselling and outreach through health service delivery with a road show ‘edutainment’ intervention to reach men and other community members. Road show exposure was more strongly associated with exclusive breastfeeding knowledge among men, closing the knowledge gap between men and women (Jenkins et al., 2012). The study however had not shown the effect of the intervention on exclusive breastfeeding practices as it was still ongoing.

A study conducted in Perth, Western Australia gave 45 one hour breastfeeding antenatal sessions for fathers by 5 male educators. At 6 weeks, mothers in the intervention group (77%) reported enjoying breastfeeding more than mothers in the control group (69%) whose partner did not receive the antenatal education session intervention women (Tohotoa, Maycock, Howat, Burns & Binns, 2010). The intervention succeeded in promoting positive attitudes towards breastfeeding in the women. While in Los Angeles, U.S, a corporate lactation program promoting breastfeeding through male employees increased breastfeeding duration, and paternal and female employee interest in breastfeeding and acquiring breast pumps respectively (Cohen, Lange & Slusser, 2002).

Similarly in Naples, Italy, a controlled trial trained fathers for 2 months on infant feeding, lactation problems and childcare. All mothers in the study were also given advice on exclusive breastfeeding. Prevalence of breastfeeding at 6 months differed significantly among the groups (25% in the intervention group and 15% in the control group) and at 12 months was 19% and 11% respectively (Pisacane, Continisio,
Aldinucci, D’Amora & Continisio, 2005). Additionally, significantly more mothers in the intervention group reported receiving support and relevant help with infant feeding management from their partners (91% compared to 34%).

Further, findings of a Porto Alegre study in Brazil gave positive indications. A study consisting of intervention by a trained paediatrician giving an educational session about breastfeeding, an 18-minute video on the subject, followed by an open discussion and distribution of an explanatory hand out, was conducted by Susin and Giugliani (2008). The inclusion of fathers in the intervention significantly decreased the risk of discontinuing exclusive breastfeeding before 6 months (HR, 0.80; 95% CI, 0.65-0.98). In contrast, a peer support program for Hispanic fathers in Texas, U.S, encouraging fathers to support spouses’ breastfeeding showed no significant difference in breastfeeding for 6 or more months between mothers whose partners participated in the program (63.4%) and those who received peer counselling only (54.6%), despite being more likely to continue breastfeeding past 6 months (Lovera, Sanderson, Bogle & Acosta, 2010). Literature on intervention studies targeting fathers was limited in developing countries, and more so in sub-Saharan Africa. The studies also mainly looked at the effect of these interventions on breastfeeding with few on exclusive breastfeeding.

2.3.3 Couple counselling

Couple counselling and testing is a methodology that has been applied in the context of HIV and AIDS to promote voluntary testing in pregnant women thus facilitate the ability to prevent mother to child transmission of HIV (Farquhar et al., 2004; John et al., 2008). The present study adopted the same methodology in the context of
exclusive breastfeeding. Since maternal counselling and paternal counselling have succeeded in many settings, this study attempted to combine the two target groups (mothers and fathers). Literature was hence reviewed for couple counselling in the context of HIV and AIDS.

In Moshi, Tanzania, men resisted couple counselling and testing for HIV but highly accepted testing of females only. The main reasons were gender roles and hierarchy (Falnes et al., 2011). In the study, mixed methods were used, including focus group discussions with fathers and mothers, in-depth interviews with fathers, mothers and health personnel, and a survey of 426 mothers. Among other programme components, infant feeding recommendations were met with continued resistance. In the same country, ante-natal clinics reported that couple counselling contributed to prevention of HIV transmission and good relationships between sero-discordant couples (Mlay, Lugina & Becker, 2008). This was a qualitative study using FGDs, and in-depth interviews (IDI). Many participants agreed on the importance of incorporating Couples’ Voluntary Counselling and Testing (CVCT) at Ante-natal clinics (ANC), while others expressed reservations due to the cultural belief that ANC is for women.

In Nairobi, Kenya, couple counselling and testing have averted many infant infections according to John et al., (2008). A different study in Nairobi also showed that couple counselling increased uptake of preventive measures like use of formula feeds and anti-retrovirals (Farquhar et al., 2004). HIV-1-seropositive women receiving couple counselling were 5-fold more likely to avoid breast-feeding (p = 0.03) compared to those counselled individually. While in Kigali, Rwanda and Lusaka, Zambia, Allen et al., (2007), also had positive findings. Kigali had higher uptake of couple counselling despite fewer invitations to come for couple counselling. Generally in most studies,
couple counselling improved male participation in prevention and testing for HIV. The effectiveness of the approach however, has not been tested in the promotion of exclusive breastfeeding.

2.4 Acceptability of couple counselling

Literature on the acceptability of male focused strategies was limited. Several studies showed that fathers felt left out of health education given by health service providers and other sources, related to breastfeeding. The studies reported the men feeling underserved and ignored. Such observations were made in Mbale, Uganda (Engebretsen et al., 2010), Eastern and Western Kenya (MOH & USAID, 2011), Brighton and Hove in the U.K (Sherriff & Hall, 2011) and Manisa, Turkey (Taşpınar et al., 2013). These findings are interesting because the majority of men in the study in Eastern and Western Kenya (MOH & USAID, 2011), and Mbale, Uganda (Engebretsen et al., 2010), were of the opinion that infant care and breastfeeding are the roles of women as prescribed by their cultural beliefs. Despite seeing it as a female role, the men wanted to be actively targeted with educative information on breastfeeding.

The studies also revealed that most fathers prefer the health system as a source of breastfeeding information. These sentiments were expressed by fathers in the study in Eastern and Western Kenya and Bristol, U.K (MOH & USAID, 2011; Powell & Baic, 2011). In the Bristol study, fathers preferred to have breastfeeding information delivered in an antenatal class environment rather than leaflets they had been given. The men in the study in the two Kenyan provinces (Eastern and Western) reported mainly getting information from occasional flyers brought home by women from clinics, radio, newspapers/magazines, and sometimes church (MOH & USAID, 2011).
Mothers in a qualitative study in north-eastern U.S. felt that fathers may benefit from more peer and professional support, lactation consultant service and breastfeeding education (Nickerson, Sykes & Fung (2012). Another study in a slum setting in Nairobi, Kenya, by Ochola (2008), also reported that mothers had similar sentiments. They felt that breastfeeding counselling should also target males who are often left out as stakeholders in infant feeding. This possibly implies that the mothers have a positive attitude towards couple counselling, as the same group also had positive attitude towards the breastfeeding counselling that they had received as mothers only.

In the Turkey study which had no intervention as part of the study, about half (48.8%) of the fathers expressed an interest in attending an educational programme on breastfeeding for fathers (Taşpınar et al., 2013). Further, Cohen, Lange, and Slusser, (2002) noted that participation in the Fathering Program (an intervention in which men are taught breastfeeding issues at work in a corporate setting) had grown since 1990. The study illustrates the viability of a breastfeeding support program that targets male employees in a corporate setting. It may be interpreted that increased participation in the program means having a positive attitude towards it. All the above studies did not indicate whether there was a general preference for group sessions like an ante-natal class or individual education sessions like counselling. This still remains less investigated.

Additionally, literature on the perceptions towards couple counselling were analysed from the context of HIV and AIDS. This is because the couple approach has been used for some time as part of the CVCT strategy. In Moshi, Tanzania, most men
resisted couple counselling and testing but highly accepted testing of women only, giving the main reasons as gender roles and hierarchy (Falnes et al., 2011). In contrast, another study in the same country showed that many participants agreed on the importance of incorporating CVCT at ANC, while others expressed reservations due to the cultural belief that ANC is for women (Mlay, Lugina & Becker, 2008). In the HIV and AIDS context, counselling and testing are integrated together. The above studies did not investigate the two components of the strategy independently. There are possibilities that the participants could have found the testing component less acceptable than the counselling component, due to reasons like HIV-related stigma among others.

2.5 Factors influencing paternal involvement in the promotion of exclusive breastfeeding

In order to design interventions that effectively include men in the breastfeeding process and consequently improve exclusive breastfeeding practice, there is need to understand the factors that enhance their involvement and those that are barriers. Several factors have been identified by researchers.

Gender roles and expectations associated with socio-economic and socio-cultural changes have led more women to spend more time at work, and fathers are increasingly becoming involved in infant care (Coleman & Garfield, 2004). These changes differ with the context. According to Februhartanty et al., (2007), child care is still outside the domain of role of fathers in Indonesia. Similarly, in Eastern and Western provinces of Kenya, a qualitative study by MOH and USAID, (2011), reported that men were not directly involved in the care of children aged less than 2
years. The main reason was the gender related roles as prescribed by the community which considered childcare as women’s work with men expected to provide food to mother and baby.

Studies in Dar es Salaam, Tanzania and Australia noted that the responsibilities of feeding the family and work affected fathers’ ability to be involved in parenting, including infant feeding (Mbekenga et al., 2011; St. John et al., 2005). In the Tanzanian study, the result had gender implications since it is the father that is expected to earn a living for the family culturally. The Australian study looked at the perspective that the father was working to ensure the family was catered for, but was not clear on whether this was prescribed by gender or simply because of economic and time reasons. So, cultural barriers like gender roles can influence paternal participation and support in infant feeding and consequently breastfeeding.

Several studies have also reported limited access by fathers to information on breastfeeding. The Tanzanian study by Mbekenga et al., (2011), reported that maternal and child health services exclude fathers and gave information in a way that lacked clarity. Similarly, findings from Eastern and Western provinces in the Kenyan study, revealed that most interventions on child care are aimed at mothers and that there are no specific forums for men (MOH & USAID, 2011).

Fathers in Hove and Brighton, U.K, also reported wanting to be more involved in preparation for, and supporting of breastfeeding (Sherriff & Hall, 2011). They reported requiring more relevant and accessible information, as opposed to what they received from leaflets. In a different part of the U.K (Bristol), Powell and Baic (2011), compared male partners of breastfeeding mothers to those of formula feeding
mothers. All partners reported receiving little or no advice on breastfeeding directed towards them, and a majority felt they were not included in education on breastfeeding from maternity services. Because of the small sample size of 8 fathers in the study, these findings may not be representative of fathers in the study area. It is important for the health systems to include fathers as one of the target groups for breastfeeding information, as this would enhance their involvement. From literature reviewed, many fathers feel left out of the process.

Paternal knowledge and perceptions may also influence the nature and extent of their support for exclusive breastfeeding. The majority of fathers did not believe that exclusive breastfeeding for the first six months is feasible in the Western and Eastern provinces of Kenya study by MOH and USAID, (2011). Similar findings were observed in a Focus Group Discussion (FGD) based qualitative study in rural and urban Mazabuka, Zambia (Fjeld et al., 2008). Fathers and grandmothers were found less knowledgeable towards exclusive breastfeeding and also often showed a negative attitude towards it. This was reported as a barrier as they considerably had authority over mothers on infant feeding decisions. In a qualitative study in Mbale, Eastern Uganda, both men and women regarded exclusive breastfeeding as ‘not enough’ or even ‘harmful’ (Engebretsen et al., 2011), Laanterä, Pietilä and Pölkki (2010), reported differences in breastfeeding knowledge among the mothers and fathers from 8 maternity healthcare clinics in Finland. The study however did web-based data collection and had a weak response rate of 123 pregnant mothers and 49 fathers completing the survey. This implies the result may only reflect those who accessed the internet, leaving out a significant portion of mothers and fathers. In the North Jakarta study, fathers’ attitude and lack of
knowledge led to lack of confidence in mothers’ ability to produce enough milk when infants cried. They consequently influenced mothers into early supplementation by formula (Septiari et al., 2006). De Montigny and Lacharite (2004), in their qualitative study also found that some fathers found breastfeeding was difficult because they did not know how to help when it was needed. While in Texas, men's attitudes about public images of breastfeeding and employers' accommodations for breastfeeding mothers was positively correlated with the choice of breast milk as the sole infant-feeding method (Vaaler et al., 2011).

A father’s perception of being included in infant feeding can also influence their input. A qualitative study done in Pernambuco, Brazil revealed that fathers felt excluded and insecure during breastfeeding, and this affected both their relationship with the wife and their level of participation in breastfeeding (Pontes et al., 2008). Mitchell-Box and Braun (2012), reports findings from a Special Supplemental Nutrition Program for Women, Infants and Children (WIC) clinics in Honolulu, Hawaii. In the study, men felt they were not involved in the breastfeeding decision and process, believing formula feeding was more convenient than breastfeeding. However, only 14 male partners of low-income pregnant women or new mothers were included in the study. This may not give a representative picture of the situation.

2.5.1 Paternal factors as determinants of breastfeeding

This section focuses on factors related to the child’s father. Women need pre- and postpartum support with that of her partner being very significant. Lack of physical and psychosocial support from family members, health professionals and peers is negatively associated with exclusive breastfeeding and duration of breastfeeding
Further, studies have shown that mothers appreciate partner's support for breastfeeding, including encouragement and understanding (Nickerson, Sykes & Fung, 2012).

Fathers’ opinions and cultural predispositions also have an influence. In Philippines, cultural norms among family members (father included), peers and society negatively influenced exclusive breastfeeding (Septiari et al., 2006). Arora et al., (2000), did a mail survey in Pennsylvania, U.S, and found the main reason for mother’s decision to initiate bottle feeding over breastfeeding to be mother’s perception of father’s preferences. In the Jakarta study, fathers’ attitude reduced mothers’ confidence in ability to produce enough breast milk when infants cried, leading to early formula supplementation (Septiari et al., 2006).

In a U.S cross-sectional study, hearing about breastfeeding benefits from her partner improved breastfeeding intentions of pregnant low income women (Humphreys, Thompson & Miner, 1998). Similarly, two longitudinal infant feeding studies in Perth, Australia, revealed that women who perceived their husbands to prefer breastfeeding were significantly more likely to leave hospital breastfeeding, and to be exclusively breastfeeding, than women who perceived their husbands to prefer formula feeding (Scott, Binns, Graham & Oddy, 2006). Vaaler et al., (2011), also found men's attitudes about public images of breastfeeding and employers' accommodations for breastfeeding mothers were positively associated with the choice of breast milk as the sole infant-feeding method.

A longitudinal study of 108 expectant couples in the U.K, found a significant positive correlation (r = 0.67; p< 0.001) between women’s infant feeding attitude with those of
their partners’ attitude (Scott, Shaker & Reid 2004). The study did not however highlight whether the women’s attitude were as a result of their partner’s attitude. This was highlighted in the prospective cohort study of 1069 Australian women (Scott, Landers, Hughes & Binns, 2001). The likelihood of breastfeeding at discharge was higher among women who perceived their partner preferred them to breastfeeding compared to women who perceived their partner preferred bottle feeding or were unsure about their baby’s feeding method (OR = 9.13, 95% CI 4.83–17.26).

A cross-sectional study of 420–502 mothers of infants aged 1 year or less in La Paz, Bolivia found contrasting results (Ludvigsson, 2003). Maternal or paternal attitudes towards breastfeeding did not influence the infant feeding pattern. Instead, women who had received breast feeding information from health care personnel before birth or on the maternity ward breastfed exclusively for a longer duration (adjusted p = 0.0233), and avoided prelacteal food to a greater extent (adjusted odds ratio [AOR] = 0.42; 95% CI 0.23–0.72).

Silva, Santiago and Lamonier (2012), reviewed 44 articles that highlighted the father as a crucial supporter due to his strong influence over mother’s decision to breastfeed and to maintain breastfeeding. They however say in the reading that the involvement of the father had different patterns: competition with the mother versus protection, exclusion versus increased strength in the family relationships, and support versus prejudices (Silva, Santiago & Lamonier, 2012). They however highlight that most of the research had a descriptive approach and that there were few studies on educational interventions. A study in Phnom Penh, Cambodia, showed that lack of paternal attendance at breastfeeding classes as a predictor for cessation of exclusive
breastfeeding in the first 6 months (OR = 1.93, 95% CI = 1.13-3.28, p < .05) (Sasaki et al., 2010). This was however a cross-sectional survey done with mothers of babies 6 to 24 months who visited the immunization clinic. Recall bias is thus a possibility and should be considered when interpreting the results.

Avery and Magnus (2011), reported women’s concern for infant-father bonding more than men and this could thus lead to their active decision to modify infant feeding to include the fathers. Earle, (2000), also indicated that a desire for male involvement influenced mother’s decision to bottle feed rather than breastfeed in Coventry, U.K. This was a prospective qualitative study with a sample size of 19. This small sample makes the results have less external validity and thus may not be interpreted to represent the majority views. Similarly, in South Africa’s Cape Metropole, 67% of women of high socio-economic class not breastfeeding perceived the benefits of infant formula to be that the father could help with the workload and does not feel left out (38%), among other reasons (Sowden, Marais & Beukes, 2009). These studies show that in an effort to include fathers, women may be making infant feeding decisions that are not appropriate.

A couple’s relationship influences breastfeeding partly by affecting father’s involvement. Kimani-Murage et al., (2011), in a longitudinal study in 4 slums in Nairobi, Kenya, identified maternal marital status as a predictor of exclusive breastfeeding. Mothers who were previously in union and those never in union had almost 3 and 2 fold higher hazards of stopping breastfeeding before the age of 12 months respectively compared to mothers in union (Kimani-Murage et al., 2011). The study did not however determine the reason for this difference and thus it may not be interpreted that married women breastfed better due to the support from the husband.
2.6 Predictors of exclusive breastfeeding

Several studies have reported the predictors of exclusive breastfeeding. A study in an informal settlement in Kibera, Nairobi in Kenya by Ochola (2008) identified predictors of exclusive breastfeeding to be: post-lacteal feeding, absence of breast health problems, household size, planned duration of breastfeeding and correct knowledge of duration for breastfeeding. While a Nigerian study showed girls were more likely to be exclusively breastfed than boys (Agho, Dibley, Odiase & Ogbonmwan, 2011). Similar findings were seen in Nairobi slums in Kenya (Kimani-Murage et al., 2011). Malhotra, Noheria, Amir, Ackerson & Subramanian (2008) and Sen (2001) found contrasting results in Gujarat India, where boys were more likely to be exclusively breastfed than girls. In Western India, Sapna et al., (2009), reported male infants, primiparity, receiving infant feeding advice, initiation of breastfeeding within one hour of birth and giving colostrum to the baby as independently associated with exclusive breastfeeding.

Another predictor of exclusive breastfeeding that has been identified in several studies is maternal age (Gionet, 2013; Jones, Kogan, Singh, Dee & Grummer-Strawn, 2011; Ukegbu, Ukegbu, Onyeonoro & Ubajaka, 2011). In the U.S, younger mothers were more likely to exclusively breastfeed than older ones (Jones, Kogan, Singh, Dee & Grummer-Strawn, 2011) while in Canada as a whole and Anambra state, Nigeria, older mothers were more likely to exclusively breastfeed (Gionet, 2013; Ukegbu et al., 2011). In contrast, Agu and Agu (2011) found maternal age to have no influence on exclusive breastfeeding in South Eastern Nigeria.
Several Asian countries (Lao, Mongolia and Vietnam), have also identified socio-economic status as a predictor to exclusive breastfeeding (OECD, 2012). Mothers who were poorer were more likely to exclusively breastfeed for 6 months than less poor ones. Studies done in Ethiopia and Canada demonstrated that the less poor or richer mothers were more likely to exclusively breastfeed for 6 months (Alemayehu et al., 2009; Gionet, 2013). No association was found between exclusive breastfeeding and socio-economic status in Rajkot, India by Chudasama et al., (2009a).

Maternal employment has also been found to be a predictor of exclusive breastfeeding in South-west Nigeria, Xinjiang, China, the Netherlands, and California, U.S (Agunbiade & Ogunleye, 2012; Fenglian, 2007; Gijsbers et al., 2008; Guendelman et al., 2009). Unemployed mothers were more likely to exclusively breastfeed in a study done in Goba, Ethiopia (Setegn et al., 2012). The rates of exclusive breastfeeding and its duration were found to be longer in countries with long periods of maternity or parental leave (Tarrant & Kearney, 2008). African countries, Kenya included, are among those with shorter maternity leaves (ILO, 2014).

2.7 Summary of literature review

The reviewed literature showed that fathers have an influence on breastfeeding and are important stakeholders in the IYCF process. The literature also showed that fathers face challenges in being involved in the breastfeeding process, most of which are modifiable such as inadequate knowledge and negative perceptions. Most of the literature however, does not reflect the sub-Saharan Africa situation, as most of the intervention studies involving male partners were conducted in developed countries. The intervention studies for promoting exclusive breastfeeding in the developed
countries were mainly targeted at one party- either the mother or father. Most of the studies looked at the effect of these interventions on breastfeeding in general and not on exclusive breastfeeding.

There is a need, therefore, to generate information relevant to sub-Saharan Africa in terms of promoting the practice of exclusive breastfeeding. Peer-maternal counselling has been demonstrated to positively influence exclusive breastfeeding rates in sub-Saharan Africa, and yet the rates are far from optimal. The impact of additional strategies such as couple counselling which have demonstrated to have a positive impact on averting infections in the context of HIV and AIDS should be tested. This study addressed this gap in knowledge by testing the effectiveness of couple counselling approach, in a developing country, Kenya.
CHAPTER THREE: METHODOLOGY

3.1 Research design

This was a community-based cluster-randomised controlled trial with qualitative and quantitative components. This design was selected because randomisation maximises comparability between groups and control over confounding factors. It also gives strong evidence of a causal relationship between the intervention and the outcome (Campbell, Machin and Walters, 2007).

3.2 Study variables

The study variables are described in Table 3.1.

Table 3.1: Study variables

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variables</th>
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| **Primary outcome:** Exclusive breastfeeding for the first 6 months after birth | **Demographic characteristics in terms of:**
| Maternal knowledge on exclusive breastfeeding | • Maternal and paternal ages in completed years |
| Paternal knowledge on exclusive breastfeeding | • Mother’s marital status |
| Maternal attitudes towards exclusive breastfeeding | • Parity of the mother |
| Paternal attitudes towards exclusive breastfeeding | **Socio-economic characteristics in terms of:**
| **Secondary outcomes:** | • Maternal and paternal occupations |
| Maternal knowledge on exclusive breastfeeding | • Maternal and paternal formal education levels |
| Paternal knowledge on exclusive breastfeeding | • Household asset ownership- items like phones, farm animals, furniture, vehicle |
| Maternal attitudes towards exclusive breastfeeding | **Counselling:**
| Paternal attitudes towards exclusive breastfeeding | • Couple Counselling – for both mothers and fathers |
|                      | • Maternal Counselling- for mothers only |
3.3 Study area

The study was conducted in Nyando District in Kisumu County. The District has a geographical area of 1,168.4 km² and is divided into 5 administrative divisions: Upper Nyakach, Lower Nyakach, Muhoroni, Nyando and Miwani (Republic of Kenya, 2002). The study focused on all the 17 sub-locations of Nyando Division. These were Tura, Kakola-Ahero, Kakola-Ombaka, Kochogo-North, Kochogo-Central, Kochogo-South, Kakmie, Kobongo, Katolo, Achego, Magina, Ayweyo, Nyakongo, Border I, Border II, Ayucha and Wang’ang’a sub-locations (Republic of Kenya, 2002).

The main economic activities in Nyando District were farming, fishing and small scale trade. Agriculture is the main livelihood activity, occupying about 60% of the total population. With an annual growth rate of 3.4% and an average population density of 284.6 people per km², the male to female ratio in Nyando District was 100:104 (Republic of Kenya, 2002). Ahero District hospital was used for recruitment and referrals of ill and/or malnourished mothers and children. This is a government operated health facility located in Nyando Division, bordering Miwani Division. Among the services offered in this facility were maternal and child health services such as antenatal care, post-natal care, growth monitoring and promotion, integrated management of childhood illnesses and delivery care.

3.4 Target population

The target population for all the three study groups was ‘pregnant’ couples (mother and father) in the third trimester attending Ahero District hospital.
3.4.1 Inclusion criteria

i. ‘Pregnant’ couples in the third trimester (37-40 weeks gestation)

ii. Couples living together

iii. Couples willing to participate in the study

iv. Couples planning to reside in the study area for at least 6 months post-partum

v. Couples willing to be visited in their homes

3.4.2 Exclusion criteria

i. Couples with either or both partners enrolled in another intervention on exclusive breastfeeding.

ii. Couples with the woman living with HIV. This is because there are specific infant feeding guidelines for women living with HIV, which may influence their infant feeding choices and practices. Including them in the study may have led to a bias in the results.

iii. Couples with the woman diagnosed with a chronic disease such as kidney disease, cardiovascular diseases or Type 2 Diabetes Mellitus, at a health facility. This is because women with these conditions may have different infant feeding guidelines from women not having the conditions, which could have influenced their practices and biased the results of the study.

iv. Couples in which the woman delivered infants with very low birth weight (<1500 grams) or congenital abnormalities were dropped from the study.
3.5 Sampling techniques

Multi-stage sampling technique was conducted. Nyando Division in Nyando District was purposively sampled because it is the catchment area for Ahero District hospital. This health facility was used for: recruitment of study participants, establishing the HIV status of the mothers and referral for any participants who required medical assistance during the study period. All the 17 sub-locations in Nyando Division were included in the study and randomized into the 3 study groups (one control and two experimental). Couples in the third trimester (37-40 weeks gestation) residing in these sub-locations formed the sampling frame.

3.5.1 Randomisation

A biostatistician randomly allocated the 17 clusters (sub-locations) into 3 study groups, using a formula generated in Microsoft office Excel 2007. This was based on a ratio of 1:1:1. Group 1 was the control, the maternal counselling was group 2 while couple counselling was group 3. Sub-locations, as opposed to individuals were randomised to minimise ‘contamination’ of information across the study groups. This is because changes in knowledge, attitude and practice of an individual may influence others close to them to do the same, for instance through sharing of the counselling information, thus influencing the study outcome (Campbell et al., 2007). Figure 3.1 illustrates the sampling and randomisation procedure.
3.5.2 Recruitment of study participants into the study

The recruitment of the study participants was done by the researcher assisted by breastfeeding counsellors. For a period of three months, every day, from Monday to Friday at 9.00 am to 1.00pm, the research team reported to the ANC clinic at Ahero District hospital from where the study participants were recruited. Participant eligibility was first established. A nurse at the ANC clinic at Ahero District hospital established the gestational age, HIV status and presence of chronic diseases (kidney disease, cardiovascular diseases, and Type 2 Diabetes Mellitus) of the mothers based on their medical records. The nurse referred clients who met the selection criteria to the recruiting team who further screened the mothers to establish that they met the inclusion criteria. Only those that met the inclusion criteria were recruited into the
study upon their informed consent. The participants were informed of the study objectives without revealing the study hypotheses. After a discussion on what the study was about, that participation was voluntary, and that all information would be treated with confidentiality, informed consent was then sought from the woman. This was followed by an appointment to see her partner/husband to also secure his informed consent. After accepting to participate in the study by signature or thumbprint, the couples were allocated to the study groups, by the researcher, based on their sub-location of residence. This procedure was followed until the desired sample size was achieved.

3.5.3 Blinding

Blinding was done to control for bias, as indicated below:

i. The biostatistician who conducted the randomisation of the sub-locations into study groups was blinded to the study group treatment and hypotheses of the study.

ii. The enumerators and participants were blinded to the hypotheses of the study.

It was not possible, however, to conceal the treatment offered to the study groups from the breastfeeding counsellors since they were the ones doing the counselling.

3.6 Sample size determination

The calculated sample size was 240 couples (80 couples for each study group). This was calculated for a two sided significance of 5%, power of 80% and a moderate anticipated standardized effect of 0.5 as recommended by Cohen (1988) and Campbell et al., (2007). To cater for attrition, the calculated sample size was increased by 20%.
The formula used was:

\[ m = 16 \left( \frac{\sigma_{\text{plan}}}{\delta_{\text{plan}}} \right)^2 = \frac{16}{\Delta^2_{\text{plan}}} \]

Where \( \sigma_{\text{plan}} \) was the anticipated standard deviation of outcome measure, \( \delta_{\text{plan}} \) was the anticipated effect size and \( \Delta_{\text{plan}} \) was the anticipated standardized effect, which was moderate in the case of this study (Campbell et al., 2007).

\[ m = 16 \div (0.5)^2 \]
\[ = 64 \]

Increase by 20% = 64 + 13
\[ = 77 \]

This was rounded off to 80 per study group. During the study, 280 couples were recruited: 101 for the control group, 88 for maternal counselling and 91 for the couple counselling group. More participants were recruited into the control group to cater for an expected higher drop-out rate in this group since the group was not receiving anything from the study. It was expected that participants in this group were likely to be less motivated to stay in the study for the whole period.

3.7 Selection and training of research team

The research team was composed of the following:

**Breastfeeding counsellors**: Six counsellors were selected following an advertisement in the division where the study was conducted by the researcher. Criteria for selection were:

- Minimum of Kenya Certificate of Secondary Education (KCSE);
- Good command of English and Dholuo (the local language);
- Resident in the study area for the entire research period;
- Good interpersonal and communication skills; and
- Having participated in a survey was an added advantage
The counsellors were then trained for a period of 50 hours by the researcher assisted by the District Nutrition Officer (DNO). The training content was based on the WHO course on infant and young child feeding counselling: an integrated course (WHO, 2006), and this was adapted to the training needs of the counsellors. In addition, counselling content targeting fathers was included. The training was conducted through brainstorming, lectures, discussions, demonstrations and role-play.

The training covered paternal support for exclusive breastfeeding, benefits of exclusive breastfeeding for 6 months, appropriate breastfeeding practices and management of breastfeeding (colostrum feeding, initiation of breastfeeding, baby positioning and attachment, maternal diet and rest) (Appendix O). Communication, interpersonal and counselling skills were also extensively covered. In addition, standardization of counselling sessions’ content and procedures was conducted during the training of the breastfeeding counsellors to ensure uniformity. A test on breastfeeding knowledge was administered to the counsellors before and after the training; all the counsellors passed the test.

**Enumerators:** Six enumerators were selected based on the same criteria as the breastfeeding counsellors. The enumerators were trained for seven days by the researcher. The training content included the explanation of: the study objectives, research ethics, and responsibilities of the enumerators, analysis of the research instruments to ensure that the questions were correctly understood and interpreted and interview skills. Demonstrations and role-plays were conducted to ensure that the enumerators understood the questions and learnt the appropriate interviewing skills.
In addition, the enumerators practiced how to record participants’ responses in the questionnaires.

**Focus group discussion moderators:** FGDs were facilitated by the researcher assisted by the two selected moderators. The two moderators (one male and one female) were selected based on the following qualities: empathy, cultural sensitivity, respect and interest in people and ability to speak the local language (Dholuo). They also had to have prior short-course training in infant and young child feeding. They were also trained by the researcher for 2 days on moderation skills for FGDs and on the FGD guides with mothers and fathers. Demonstrations and role plays were also conducted during the training.

### 3.8 Description of the study interventions

After recruitment and baseline data collection, interventions were administered to mothers and / or fathers by the researcher assisted by the breastfeeding counsellors in the research team, depending on their study group (Figure 3.2).
RECRUITMENT OF STUDY PARTICIPANTS

- Identification, informed consent and recruitment of study participants at Ahero District Hospital
- Eligibility criteria:
  - ‘Expectant’ couples in 3rd trimester (37-40 weeks), HIV Negative, living in study area for at least 6 months post-partum, willing to be visited at home

Randomization of participants into study groups based on sub-location

- Control Group (Study group 1)
- Maternal Counselling (Study group 2)
- Couple Counselling (Study group 3)

Collection of baseline data on IYCF knowledge, perceptions and practices

INTERVENTION AND DETERMINATION OF INFANT FEEDING PRACTICES

- Control group (Study group 1)
  - No intervention from the research team; followed the standard IYCF service protocol provided by health facilities
  - Monthly data collection on exclusive breastfeeding (for a period of 6 months)

- Maternal counselling group (Study group 2)
  - Monthly Maternal counselling (mothers only) sessions from third trimester to 6 months post-partum
  - Monthly data collection on exclusive breastfeeding (for a period of 6 months)

- Couple counselling group (Study group 3)
  - Monthly couple counselling (mothers and fathers) sessions from third trimester to 6 months post-partum
  - Monthly data collection on exclusive breastfeeding (for a period of 6 months)

Figure 3.2: A schematic representation of the study activities
3.8.1 The schedule and content of the counselling sessions

Control group (study group 1): This group received no intervention from the research team. They were however not restricted from following the standard health facility MCH service protocol. At the health facility, health education sessions were given to mothers in groups by the nurse at the maternal and child health (MCH) clinics. The health education sessions covered IYCF as one of the topics and were conducted during pre-natal period at the ante-natal clinics, upon delivery of the baby at maternity wards and after delivery at the well-baby clinics at the MCH clinic. The education sessions were for mothers whose babies showed normal growth and no signs of malnutrition in terms of height and weight deficits. However, those mothers with malnourished children were referred to the nutritionist stationed at the health facility for individualised counselling sessions on IYCF.

Maternal counselling (study group 2): In this group mothers alone, without their partners, were counselled on exclusive breastfeeding at home, on a monthly basis, by the researcher assisted by the breastfeeding counsellors in the research team. This was done beginning at baseline (37-40 weeks gestation) on a monthly basis up to the time when the infants were 6 months old (Figure 3.3). Counselling services were conducted at home and each participant in this group had a minimum of eight contacts with a counsellor (1 ante-natal and 7 post-natal). The counselling content included: benefits of exclusive breastfeeding and management of breastfeeding; giving colostrum, timely initiation of breastfeeding, positioning and attachment of the baby to the breast, maternal diet and rest. Maternal confidence in exclusive breastfeeding and how to manage breastfeeding challenges were also covered in the sessions. Participants who were not available during the weekdays were scheduled for the
weekends. The participants in this group were also not restricted from following the standard health facility MCH service protocol.

**Couple counselling (study group 3):** For this group, couples (mother and father) were counselled on exclusive breastfeeding, on a monthly basis, by the researcher assisted by the breastfeeding counsellors in the research team. This was done beginning at baseline (37-40 weeks gestation) on a monthly basis, up to the time when the infants were aged 6 months (Figure 3.3). Counselling services were conducted at home and each participant in this group had a minimum of eight contacts with a counsellor (1 ante-natal and 7 post-natal). The counselling content for both mother and father included: benefits of exclusive breastfeeding and management of breastfeeding (giving colostrum, timely initiation of breastfeeding, positioning and attachment of the baby to the breast, maternal diet and rest). Maternal confidence in exclusive breastfeeding and how to manage breastfeeding challenges were also covered in the sessions. In addition, fathers were counselled on benefits of paternal support and participation in breast feeding, and roles fathers can play in promoting exclusive breastfeeding. Participants who were not available during the weekdays were scheduled for the weekends. The participants in this group were also not restricted from following the standard health facility MCH service protocol.
Counselling content for couple counselling group
(Mothers and fathers)

- Exclusive breast feeding (what it is and benefits)
- Importance of giving colostrum, no pre-lacteals
- Timely initiation of breastfeeding
- Additional content for fathers: Benefits of paternal support for exclusive breastfeeding

- Benefits of exclusive breastfeeding
- Baby positioning and attachment
- Breastfeeding on demand
- Maternal diet and rest
- Additional content for fathers: Roles fathers can play in promoting exclusive breastfeeding

- Management of exclusive breast feeding
- Maternal diet and rest
- Additional content for fathers: reinforcing maternal confidence, and paternal support for exclusive breastfeeding

- Exclusive and continued breastfeeding
- Appropriate complementary feeding
- Additional content for fathers: Continued paternal support for exclusive breastfeeding

- Continued breastfeeding
- Appropriate complementary feeding
- Additional content for fathers: Continued paternal support for optimal infant feeding

Monthly schedule

1st session (prenatal at 37-40 weeks gestation): at baseline

2nd session within 1 week post-partum

3rd, 4th, 5th and 6th sessions at 1, 2, 3 and 4 months post-partum respectively

7th session at 5 months post-partum

8th session at 6 months post-partum

Counselling content for maternal counselling group (mothers only)

- Exclusive breast feeding (what it is and benefits)
- Importance of giving colostrum, no pre-lacteals
- Timely initiation of breastfeeding

- Benefits of exclusive breastfeeding
- Baby positioning and attachment
- Breastfeeding on demand
- Maternal diet and rest

- Management of exclusive breast feeding
- Maternal diet and rest

- Exclusive and continued breastfeeding
- Appropriate complementary feeding

- Continued breastfeeding
- Appropriate complementary feeding

Figure 3.3: The schedule of the counselling sessions and counselling content for the experimental groups
3.8.2 Description of counselling sessions

Control group (study group 1): This study group was not given any breastfeeding counselling by the research team.

Maternal counselling (study group 2): The counselling sessions were held face to face at the study participant’s home. All counselling sessions were standardized in terms of content and procedures.

A counselling session began with creating rapport and confidence between the counsellor (the researcher assisted by the breastfeeding counsellors in the research team) and the participant. The counsellor then enquired about the infant feeding practices, challenges, experiences and concerns of the participant. Whenever possible, she would also observe the mother breastfeeding the infant so as to identify any gaps that needed to be addressed. This was then followed by the scheduled counselling content for that day, which was also dependent on the age of the infant and concerns raised by the mother in the early part of the counselling session.

The counselling sessions were concluded with a summary of the main points on exclusive breastfeeding, especially those covered on that day’s session. The counsellor would then leave after setting up an appointment for the next session. The typical sessions would last between 15-30 minutes, and additional counselling was done when needed. During the sessions, the counsellor ensured that it was a two-way discussion. She would listen attentively to the participant, maintain eye contact, ask open questions and avoid judgmental statements and actions. She would also reinforce
good practices through praise. Efforts were made to create a free and friendly atmosphere as possible. The counselling sessions were conducted in privacy.

**Couple counselling (study group 3):** The couples (mother and father) in this group were counselled together and in privacy. The counselling sessions were similar to those of the maternal counselling group in terms of venue, steps and content. However, additional messages were given to the father. When a partner was found absent for a second consecutive time for the same planned session, the one present was counselled and the other counselled at a later date when available. This was however rare as re-appointments were scheduled for days that both partners were present.

### 3.9 Management of appointments and follow-up

After recruitment, if available, telephone contacts of the participant(s) were taken by the researcher assisted by the breastfeeding counsellors in the research team. At the end of every visit, the counsellor and the participant(s) would agree on the date of the next visit, which was recorded by the counsellor in her diary and on a similar diary that was left with the participant(s). On the eve of the next visit, the counsellor reminded the couple or mother of the coming counselling session. Each counsellor kept a monthly planner for the purposes of follow-up and reminders to avoid forgotten or late visits. After each counselling session, the date and time of the completed session was indicated both on the planner and the visits’ records file for records purposes. The same procedures were also followed by the enumerators for data collection sessions. The counselling and data collection sessions for the same participant were done on different days of the month and were both done at home at
times suggested by the study participants. The data collection sessions preceded the counselling sessions. On occasions where a participant was not available at home, an alternative venue was agreed upon, mainly at work for those employed in the informal sectors. This was however a rare occurrence.

3.10 Research instruments

3.10.1 Data collection instruments

Questionnaires

Ten structured researcher-administered questionnaires with both open and close-ended questions were used to collect data. Of these, 8 were administered to the mothers on a monthly basis while 2 were administered to the fathers at baseline and at the end of the study (6 months post-partum), by the researcher assisted by the enumerators in the research team. Each of the questionnaires elicited information as follows:

- **The mothers’ baseline questionnaires (Appendix I):** These were administered to mothers in all the three study groups, after informed consent was granted, but before any counselling had been done. The questionnaires elicited information on socio-demographic characteristics of the mothers in terms of age, marital status, type of marriage and parity. Levels of education, occupation, type of housing, living conditions and asset ownership were also asked as proxy socio-economic measures. The feeding history for older children and feeding intentions for the unborn baby were also collected including age of introduction of complementary foods and breastfeeding.

Information collected was also on mother’s breastfeeding knowledge and attitudes, mainly on the initiation of breastfeeding, and the benefits and
adequacy of exclusive breastfeeding. The aspects of attitude measured were mainly on exclusive breastfeeding and whether fathers have a role to play in infant feeding or not. In addition, each of these questionnaires had a section on reproductive history and father related factors such as fathers accompanying their partners to antenatal clinics and assisting in infant feeding.

The fathers’ baseline questionnaires (Appendix M): Similarly, these questionnaires were administered to fathers in all the three study groups, after informed consent was granted, but before any counselling had been done. The questionnaires elicited information on socio-demographic characteristics of the fathers in terms of: age, marital status, type of marriage and household size. Levels of education, occupation, type of housing, living conditions and asset ownership were also asked as proxy socio-economic measures. Information on father’s breastfeeding knowledge and attitudes was also collected and were mainly on the benefits and adequacy of exclusive breastfeeding. The aspects of attitude measured were mainly on exclusive breastfeeding and whether fathers have a role to play in infant feeding or not. The questionnaires also elicited information on whether fathers accompanied their partners to ANC or not.

- The second questionnaire (Appendix J): This questionnaire was administered to mothers in all the three study groups. It was used to collect information on delivery history and information on occurrences immediately post-delivery. It was administered to all mothers within the 1st week after delivery. The baby’s sex, date of birth, birth weight, current weight, and rank among siblings was recorded on this questionnaire from the maternal and child health booklets where available.
The questionnaire also had questions eliciting information on the delivery in terms of place of delivery, and whether mother was assisted or not by a skilled health worker.

The early infant feeding practices were investigated through questions on baby’s first feed, time of initiation to breastfeeding, whether and what pre-lacteals were given and whether postnatal counselling on breastfeeding was done. Further, the infant feeding practices in the last 24 hours and the health status of both mother and baby since birth were also elicited, with questions on whether the baby had received any breast milk, liquids and/ or solid or semi-solid foods, reasons for the type of feeding, whether mother and baby had been unwell and whether there were any challenges to breastfeeding experienced so far.

- **The third to seventh questionnaires (Appendix K):** These were administered to mothers in all the three study groups at 1, 2, 3, 4 and 5 months after delivery and all had similar questions. These were on the infant feeding practices in the last 24 hours prior to the interview and the health status of both mother and baby in the last 2 weeks. The questions solicited information on whether the baby had received any breast milk, liquids and/ or solid or semisolid foods in the last 24 hours, reasons for the type of feeding, whether mother and baby had been unwell, whether there were any challenges to breastfeeding experienced so far and if mother had attempted to express breast milk in the last one month.
- **The mothers’ eighth (exit) questionnaire (Appendix L):** These were the final questionnaires administered to mothers in all three study groups at 6 months post-partum. They had questions on the infant feeding practices in the last 24 hours, the health status of both mother and baby in the last 2 weeks, exclusive breastfeeding knowledge and attitude, and fathers’ participation in infant feeding. The questions focused on whether the baby had received any breast milk, liquids and/or solid or semi-solid foods in the last 24 hours, reasons for the type of feeding, whether mother and baby had been unwell, whether there were any challenges to breastfeeding experienced and if mother had attempted to express breast milk in the last one month.

In addition, there was a section on exclusive breastfeeding knowledge and attitudes. The last section of questionnaire had questions that were study-group specific. The questions focused on the experiences, attitudes, and thoughts of the participants on the type of breastfeeding counselling they had and/or would like to receive. These included the aspects they found most and least useful, whether in their opinion the counselling should become standard practice and whether the counselling had influenced their breastfeeding knowledge, attitude and practices.

- **The fathers’ exit questionnaire (Appendix N):** These were the second and final questionnaires administered to fathers in all three study groups, and this was at 6 months post-partum. They had questions on exclusive breastfeeding knowledge and attitudes. Questions in the last section of each questionnaire were study-group specific, and had questions that elicited information on the
experiences, attitudes, and thoughts of the participants on the type of breastfeeding counselling they had and/ or would like to receive. These included aspects they found most and least useful, whether in their opinion the counselling should become standard practice and whether counselling had influenced their breastfeeding knowledge, attitude and practices.

**Key informant interview (KII) guides (Appendix O):** These were administered to the District Nutrition Officer and the nurse in-charge at the MCH clinic at Ahero District hospital, by the researcher. They elicited information on prevalent IYCF practices, reasons for these practices, and IYCF interventions in the area.

**Focus group discussion (FGD) guides (Appendices P-T):** These were used during FGDs to collect qualitative information on breastfeeding practices, perceptions, challenges and coping mechanisms. Different FGD guides were used for each of the following target groups:

- Mothers who had exclusively breastfed for 6 months from each of the three study groups. Each study group had its own FGD guide (Appendix P).
- Mothers who had not exclusively breastfed for 6 months from each of the three study groups. Each study group had its own FGD guide (Appendix Q).
- Fathers who had received counselling from the study team (couple counselling group/ group 3) (Appendix R).
- Fathers who neither they nor their partner/partners had received counselling from the study team (control group/ group 1) (Appendix S).
- Fathers who had not received counselling but whose partner had received counselling from the study team (maternal counselling group/ group 2) (Appendix S).
• The breastfeeding counsellors in the research team (Appendix T).

• The Community Health Workers (CHWs) working in Nyando Division (Appendix T).

3.11 Validity and reliability of research instruments

3.11.1 Validity

To ensure validity, two standard previously validated questionnaires from WHO and from Ochola (2008) were modified accordingly and used for this study. These questionnaires were also evaluated by the study supervisors who are experts in the subject area.

3.11.2 Reliability

During the training and pilot study, standardization of data collection procedures, and counselling sessions’ content and procedures was done for both the enumerators and breastfeeding counsellors. The enumerators were trained on how to ask all the questions and record responses to ensure uniformity and avoid creating bias. The test-retest method was used to establish the reliability of the questionnaires during the pilot study (Murphy & Davidshofer, 2005). Each questionnaire was administered twice to the same respondent at an interval of two days. The correlation coefficients (95% confidence interval) for the questionnaires were satisfactory as follows:

• Baseline questionnaire for all mothers - 0.87 (0.70-0.91)

• Baseline questionnaire for all fathers - 0.78 (0.62-0.88)

• Second questionnaire for all mothers - 0.76 (0.61-0.82)

• Third questionnaire for all mothers - 0.85 (0.71-0.90)

• Eighth (exit) questionnaire for all mothers - 0.86 (0.74-0.92)
Exit questionnaire for all fathers - 0.89 (0.81-0.93)

3.12 Data collection techniques and schedule

Data collection in this study was done concurrently with counselling sessions at the homes of the participants. Quantitative data was collected through face to face interviews while qualitative data was collected through FGDs and KII at the end of the study. These were conducted by the researcher assisted by the enumerators in the research team.

3.12.1 Interviews

Interviews with mothers: A total of 8 face to face interviews were held with all mothers from all the three study groups, with the aid of researcher-administered questionnaires (Figure 3.4). The schedule of the interviews was as follows:

- Baseline interview held prenatally (within the first week after recruitment into the study)
- 2\textsuperscript{nd} interview within 1 week after delivery
- 3\textsuperscript{rd}, 4\textsuperscript{th}, 5\textsuperscript{th}, 6\textsuperscript{th} and 7\textsuperscript{th} interview at 1, 2, 3, 4, and 5 months post-partum respectively
- 8\textsuperscript{th} (exit) interview at 6 months post-partum

Interviews with fathers: All the fathers in all the three study groups were interviewed twice (Figure 3.4) as follows:

- Baseline interview held prenatally (at baseline within the first week after recruitment into the study)
- 2\textsuperscript{nd} (exit) interview at 6 months post-partum
Figure 3.4: The schedule of the interviews for fathers and mothers in all three study groups
Key informant interviews

Key Informant Interviews (KII) were conducted by the researcher at the health facility (Ahero District hospital) with the DNO and Nurse in charge of the MCH clinic. Notes were taken during the KII and the KII guides helped direct the interviews.

3.12.2 Focus Group Discussions

To generate information on the perceptions, challenges in exclusive breastfeeding and coping mechanisms, focus group discussions (FGDs) were conducted at the end of the study period. One Focus group discussion (FGD) was conducted with the breastfeeding counsellors in the research team, and another one with the CHWs. Also, at 6 months post-partum, a total of 17 FGDs were held with mother groups and father groups categorised as follows:

- Two focus groups from each of the two experimental groups and one focus group for the control group composed of mothers who had exclusively breastfed for 6 months;

- Two focus groups from each of the three study groups composed of mothers who had not exclusively breastfed for 6 months;

- Two focus groups composed of fathers who neither themselves nor their partner/wives had received counselling from the study team (control group/group 1);

- Two focus groups composed of fathers who had not received counselling but whose partner/wife had received counselling from the study team (maternal counselling group/group 2);
• Two focus groups composed of fathers who had received counselling from the study team (couple counselling group/ group 3);

• One focus group composed of the breastfeeding counsellors in the research team. This was aimed at gathering information on their experiences, observations and recommendations, particularly on the two counselling strategies; and

• One focus group composed of the CHWs working in Nyando Division. This was aimed at gathering information on their experiences, observations and recommendations for IYCF in the division.

A group consisted of 8-10 participants each and discussions lasted between 60 and 90 minutes. Discussions with fathers and mothers were conducted separately to allow for free expression of thoughts in the groups that would have been limited if they were put together. The discussions were held at 6 months post-partum at a local community based organisation’s (CBO) compound (Okoka CBO). This venue was selected because it was free of distractions and allowed for some privacy. It was also centrally placed and thus convenient to participants from the different sub-locations.

Each FGD was conducted by two team members; a moderator and an observer-recorder. The discussions among the mothers were facilitated by the researcher assisted by a female nurse trained in lactation management, while those among the fathers were facilitated by the researcher assisted by a male Community Health Worker who also had prior training on infant and young child feeding. The researcher in addition moderated the FGDs for the breastfeeding counsellors and the CHWs. The
observer-recorder recorded the deliberations during the discussions and recorded body language and other group dynamics.

The FGDs begun with a welcome word from the moderator, followed by introductions, a brief overview of the topic and then the objectives and rules of the discussion. The moderator sought informed consent, and also explained that; participation was voluntary, the session was being recorded, all information would be treated with confidentiality and that no opinion was ‘wrong’ or ‘right’. To encourage in-depth exploration of a particular issue, the moderators probed, kept an open mind and were respectful. To maximise participation of all members, quiet and shy participants were encouraged to participate while domineering participants were managed tactfully. At the end of the discussions, the moderators summarised the discussions to ensure correct interpretation as well as to allow the participants to elaborate their points further.

3.13 Data analysis and presentation

Quantitative data analysis: Data was entered in Epi-info version 3.5.1 and exported to Ms Access 2007 for cleaning. It was then exported to SAS version 9.2 for analysis. Descriptive statistics such as frequencies, percentages, means and standard deviations were used to report socio-economic characteristics, demographic characteristics, infant characteristics, and infant feeding history and intentions. Inferential statistics such as relative risks and hazard ratios were calculated to show the likelihood of exclusive breastfeeding among the different study groups.
ANOVA was used to test for differences between continuous variables of normal distribution such as: parity, intended duration of exclusive breastfeeding and birth weight. Chi-square and Fisher’s exact test were used to test for association between categorical variables such as: age, marital status, knowledge and attitude aspects, and exclusive breastfeeding rates, early infant feeding practices, delivery care and aspects of knowledge attitude. Kaplan-Meier survival analysis was conducted to analyse for since birth/cumulative exclusive breastfeeding rates among the three study groups. Cox regression analysis was also conducted to test for the impact of the two counselling strategies on exclusive breastfeeding rates. In addition, adjustment was done during the analysis to take care of the design effect since sub-locations (clusters) rather than individual participants were randomly placed to study groups. Statistical significance was set at $p<0.05$.

Exclusive breastfeeding was determined based on a 24-hour recall and the WHO definition for exclusive breastfeeding was the basis for analysing breastfeeding practices (WHO 2007). For knowledge and attitudes, individual participant’s responses were scored then mean scores of the groups calculated. Knowledge scores were based on correct answers on breastfeeding questions (Parmenter and Wardle, 2000), where a correct answer was scored 1 point and an incorrect answer was not awarded any point. A total score was then calculated. Attitude was scored on a 5 point Likert sale ranging from strongly agree (5 points) to strongly disagree (1 point). Difference in difference (double difference) was calculated for both knowledge and attitude scores to enable comparison between baseline and end line and between changes among study groups. Data has been presented in tables, bar charts and survival curves.
Qualitative data analysis: For qualitative data, content analysis was conducted. Themes were first identified based on the study objectives and new themes that emerged from the data collected were incorporated during analysis. The FGDs and KIIIs were manually transcribed, coded then summarised according to these themes; factors enhancing exclusive breastfeeding, challenges to exclusive breastfeeding, challenges for fathers’ involvement in breastfeeding, cultural beliefs about breastfeeding and sources of information on exclusive breastfeeding. This was done for each study group. Analysis and inference of information from each theme was then done and used to triangulate the quantitative information collected using the questionnaires.

3.14 Logistical and ethical considerations

Authority to conduct the study was granted by Graduate school, Kenyatta University. A research permit was granted by the National Commission for Science, Technology and Innovations (NACOSTI) (Appendix F). Ethical clearance was obtained from the Kenyatta National Hospital/ University of Nairobi Ethics and Research Committee (Appendix G). Participants were informed that confidentiality would be ensured by having no names in the research tools and that the information collected was to be used only for the purposes of the study.

Before recruitment and inclusion into the study, written and signed or thumb printed informed consent was sought from all study participants. The informed consent form was in both English and local language of the area (Dholuo) to cater for participants who did not understand either language (Appendices A and B). The study objectives, procedures, benefits, risks and schedule were explained to the eligible participants before recruitment. Participants were recruited upon their informed consent. They
then signed or thumb-printed the informed consent form in the presence of a witness. In cases where a participant was unable to read, the informed consent form was read aloud to them. Each participant retained a copy of the signed/thumb-printed informed consent form, while the researcher retained one copy. Participation into the study was voluntary, and those not willing to participate were not recruited into the study.

The couples in the pilot study and those excluded from the study were counselled on the appropriate infant feeding practices for their own benefit, free of charge. Additionally, participants (women and children) who were found ill, malnourished and/or experiencing serious lactation or breastfeeding problems during the study period were referred to the health facility for specialised attention.

3.15 Pilot study

A pilot study was conducted on 33 couples with similar characteristics to the sample, and this group was not included in the main study. This was mainly to validate and standardize the study procedures and research instruments. Questions in the instruments were tested for clarity, consistency, coherence and sensitivity. For the counsellors, the pilot study provided the opportunity to practically apply the learnt skills, an experience of the possible challenges that would be faced during the main study, and how to deal with these challenges.

The pilot study was conducted for two and a half months with participants from 3 sub-locations in the neighbouring Miwani division which was similar to the study site. The participants were divided into three study groups of 11 couples each. The activities for each pilot group were as outlined in Figure 3.5.
The interventions/treatments received by the participants differed according to the study group as follows:

**Control group (group 1):** These were 11 couples. The group got no intervention from the research team during the pilot study. They however followed the standard
IYCF services protocol of the health facility. After the pilot study was completed (2 months post-partum), couples in this group were counselled until the babies were aged 6 months, as a free benefit from the study.

**Maternal counselling group (group 2):** In this group mothers alone were counselled 4 times on exclusive breastfeeding, by the breastfeeding counsellors of the study, as part of the pilot study. The first counselling session was in the third trimester (39-40 weeks) of pregnancy, followed by others at one week, 1 month and 2 months postpartum. Similar to the pilot control group, after the pilot study was completed (2 months post-partum), couples in this group were counselled until the babies were aged 6 months, as a free benefit from the study. They were not restricted from following the standard health facility IYCF services during the pilot study.

**Couple counselling group (group 3):** For this group, couples (mother and father) were counselled together 4 times on exclusive breastfeeding, by the breastfeeding counsellors of the study, as part of the pilot study. The first counselling session was at baseline, followed by others at one week, 1 month and 2 months post-partum. Similar to the other two pilot groups, after the pilot study was completed (2 months post-partum), couples in this group were counselled until the babies were aged 6 months, as a free benefit from the study. They were not restricted from following the standard health facility IYCF services during the pilot study.

All three study groups were subjected to the same number and type of questionnaires. Data was collected from all the three pilot study groups on infant feeding at times outlined as follows, using the following questionnaires:
- At baseline - baseline questionnaire for all mothers
- At baseline - baseline questionnaire for all fathers
- Within 1st week after delivery – second questionnaire for all mothers
- 1 month post-partum - third questionnaire for all mothers
- 2 months post-partum - eighth (exit) questionnaire for all mothers
- 2 months post-partum - Exit questionnaire for all fathers

The wordings of two questions in the questionnaires were revised as a result. The findings of the pilot study are attached as Appendix U.
CHAPTER FOUR: RESULTS

4.0 Introduction
The purpose of the study was to compare the effectiveness of couple counselling to maternal counselling in promoting exclusive breastfeeding. Findings of this study are presented in this chapter.

4.1 Recruitment process and trial profile for study participants
A total of 574 couples were screened for eligibility. Of those screened, 293 were eligible and 280 of those eligible consented to participate in the study. All 280 couples who consented to participate were recruited; 101, 88 and 91 couples each for the control, maternal and couple counselling groups respectively (Figure 4.1). A total of 18 couples (17.8%) in the control group, 5 couples (5.7%) in the maternal counselling group and 3 couples (3.3%) in the couple counselling group were lost to follow up.

In the control group, the reasons for dropping out of the study were: couple separated (2), infants died (2), 6 gave no reason and 8 wanted payment so as to continue participating in the study. In the maternal counselling group, the reasons for dropping out of the study were: couple separated (1), infants died (1) and 2 wanted payment so as to continue participating in the study. In the couple counselling group, 1 couple separated and 1 infant died (Figure 4.1). This resulted in 254 couples and their infants completing the study at 6 months post-partum (83, 83 and 88 for the control, maternal and couple counselling groups respectively). Additionally, one couple in the maternal counselling group had a very low birth weight baby while another in the couple
counselling group had a still birth. These two couples discontinued participation from the study after delivery (Figure 4.1).

Figure 4.1: Flow diagram on the enrolment of the study participants
FINDINGS AT BASELINE

4.2 Baseline comparison of maternal and paternal demographic and socio-economic characteristics by study groups

4.2.1 Maternal demographic and socio-economic characteristics by study groups

The overall mean age of the mothers was 24.5±0.6 years with the youngest and oldest mothers being 15 years and 40 years old, respectively. The majority of the mothers (53.6%) were aged below 25 years, followed by those aged between 25-35 years at 41%, then 5.4% for those aged 35 years or more (Table 4.1). Almost all (98.6%) the mothers were married, 0.4% were single, while 1.1% were not sure of their marital status. As expected based on the ages of the mothers, most had less than 3 children (65.5%), followed by between 3-5 children at 30.2% and a few (4.3)% had 6 or more children. Most mothers (73.4%) had primary level education, while 23.7% had secondary education. Only 2.5% had tertiary education while those with no education were 0.4% (Table 4.1). No significant differences were observed between the study groups in terms of maternal age, parity and marital status.
### Table 4.1: Maternal demographic and socio-economic characteristics by study group

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Study groups</th>
<th>Chi-square/ANOVA p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Control</td>
</tr>
<tr>
<td></td>
<td>N=278</td>
<td>N=101</td>
</tr>
<tr>
<td>Age (mean±SD)</td>
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<td>23.9±0.5</td>
</tr>
<tr>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Age in complete years</td>
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</tr>
<tr>
<td>&lt;25</td>
<td>149(53.6)</td>
<td>64(63.4)</td>
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<tr>
<td>25-35</td>
<td>114(41.0)</td>
<td>30(29.7)</td>
</tr>
<tr>
<td>&gt;35</td>
<td>15(5.4)</td>
<td>7(6.9)</td>
</tr>
<tr>
<td>Marital status</td>
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<td></td>
</tr>
<tr>
<td>Do not know</td>
<td>3(1.1)</td>
<td>2(2.0)</td>
</tr>
<tr>
<td>Married</td>
<td>274(98.6)</td>
<td>99(98.0)</td>
</tr>
<tr>
<td>Single</td>
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<td>0(0.0)</td>
</tr>
<tr>
<td>Parity</td>
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<td></td>
</tr>
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<td>0</td>
<td>50(18.0)</td>
<td>24(23.8)</td>
</tr>
<tr>
<td>1-2</td>
<td>132(47.5)</td>
<td>47(46.5)</td>
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<tr>
<td>3-5</td>
<td>84(30.2)</td>
<td>28(27.7)</td>
</tr>
<tr>
<td>6+</td>
<td>12(4.3)</td>
<td>2(2.0)</td>
</tr>
</tbody>
</table>

### 4.2.2 Paternal demographic and socio-economic characteristics by study groups

More than half of the fathers (55.4%) were aged between 25-34 years, while 32% were 35 years or older. Slightly more than a tenth (12.6%) were aged less than 25 years. The fathers in the couple counselling group were significantly older than those of the control and maternal counselling groups (ANOVA; p=0.023) (Table 4.2).
Table 4.2: Paternal demographic and socio-economic characteristics by study group

<table>
<thead>
<tr>
<th>Characteristic</th>
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<th>Chi-square/ ANOVA p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=278</td>
<td>N=101</td>
</tr>
<tr>
<td>Age (mean±)</td>
<td>31.5±0.9</td>
<td>31.2±0.8a</td>
</tr>
<tr>
<td>N (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Age in complete years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25</td>
<td>35(12.6)</td>
<td>13(12.9)</td>
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<td>25-35</td>
<td>154(55.4)</td>
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<td>&gt;35</td>
<td>89(32.0)</td>
<td>25(24.8)</td>
</tr>
<tr>
<td>Marital status</td>
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<td>Do not know</td>
<td>3(1.1)</td>
<td>2(2.0)</td>
</tr>
<tr>
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<tr>
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<td>12(4.3)</td>
<td>2(2.0)</td>
</tr>
</tbody>
</table>

*Significant at p<0.05; Note: ab values within a row with different superscript letters are significantly different (p<0.05)

More than half the fathers (57.9%) had primary education, while 35.2%, 5.8% and 1.1% had secondary, tertiary and no education respectively (Table 4.2). In terms of occupation, 37.8% were farmers, 28.4% business men, 20.9% had professional work such as teaching and accounting, while 13% were fishermen. The fathers in the three study groups were similar in demographic characteristics with the exception of age (Table 4.2).

4.3 Maternal and paternal antenatal clinic visits by study groups

The overall mean gestation age for women at recruitment was 38.7 ±0.6 weeks, while the overall gestational age at first antenatal clinic (ANC) visit for the current pregnancy was 24.6 ± 7.1 weeks. The mean number of ANC visits at 37-40 weeks
was 2.2 ±1.0. The study groups did not differ significantly in the mean gestational age at recruitment (t-test: 1.70; p=0.185) and the number of ANC visits at 37-40 weeks gestation (t-test: 2.28; p=0.105) (Table 4.3). Most men (77.7%) had never visited the ANC clinic with their partners for the current pregnancy, while only 21.2% had visited with their partners in past pregnancies at least once. There was no significant difference in fathers (Chi-square: 4.200; p=0.122) who accompanied their partners to the ANC among the study groups (20.8%, 27.6% and 15.6% for control, maternal and couple counselling groups respectively).

Table 4.3: Maternal and paternal ANC visits by study groups

<table>
<thead>
<tr>
<th>ANC characteristic</th>
<th>Study groups</th>
<th>Test statistic</th>
<th>Chi-square/ANOVA P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANC characteristic</strong></td>
<td><strong>Total N=278</strong></td>
<td><strong>Control N=101</strong></td>
<td><strong>Maternal N=87</strong></td>
</tr>
<tr>
<td>Gestational age at baseline [mean ± sd]</td>
<td>38.7±0.6</td>
<td>38.6 ±0.7</td>
<td>38.7±0.6</td>
</tr>
<tr>
<td>Number of maternal ANC visits at baseline [mean ± sd]</td>
<td>2.2±1.0</td>
<td>2.4± 0.9</td>
<td>2.1± 1.0</td>
</tr>
<tr>
<td>Father had accompanied partner to ANC at least once at baseline [n (%)]</td>
<td>59 (21.2)</td>
<td>21 (20.8)</td>
<td>24 (27.6)</td>
</tr>
</tbody>
</table>

4.4 Infant feeding history and future feeding intentions for the unborn child

4.4.1 Infant feeding history

There were no significant differences in the mother’s duration of exclusive breastfeeding in the past, among the study groups (Chi-square: 0.116; p=0.943). The mean duration of exclusive breastfeeding was 3.4 ±1.9, 2.8 ±1.9 and 3.1 ±1.7 months respectively for the control, maternal and couple counselling groups. Overall, seventy
eight percent (78%) of women from all the three study groups had breastfed in the past, while 22% had not. Fathers whose children had breastfed in the past were asked what role they had played. Most (62.7%) reported having played a role in deciding infant feeding mode for their past infants, while 79.3% reported that they had availed food for their partner, 86.6% reported having provided moral support to their partner, 54.4% were involved in infant care, while 20.7% reported playing no role at all. The majority of fathers (95.4%) felt adequately involved in infant feeding issues of their children, with 67.7% reporting that they would like to increase their involvement.

4.4.2 Infant feeding intentions for the unborn infants

4.4.2.1 A comparison of infant feeding intentions between mothers and fathers

The intended duration of exclusive breastfeeding by the fathers was significantly lower compared to the mothers (t-test: p = 0.002). No significant differences were observed among fathers and mothers feeding intentions in terms of intention to breastfeed, intended duration of breastfeeding and intended age of introduction of solids/semi-solid foods (Table 4.4). All (100%) mothers intended to breastfeed their infants. The intended mean duration of breastfeeding was 22.3±9.0 months. The mothers’ intended duration for exclusive breastfeeding was 4.8±2.1 months (Table 4.4), while the intended age of introduction of semi-solid /solids was 7.3±5.2 months. Among the fathers, the intended duration for exclusive breastfeeding for the index infants (unborn baby) was 4.2±2.1 months while the intended age of introduction of semi-solid /solids was 6.9±2.9 months. Similar to the mothers, most (99.6%) fathers intended for their infants to be breastfed and the intended duration for breastfeeding was 21.0±7.2 months.
Table 4.4: A comparison of maternal and paternal infant feeding intentions between mothers and fathers

<table>
<thead>
<tr>
<th>Infant feeding intentions for the unborn infant</th>
<th>Mothers (N=278)</th>
<th>Fathers (N=278)</th>
<th>Test statistic</th>
<th>T-test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intended length of breastfeeding in months</td>
<td>Mean ±sd</td>
<td>Mean ±sd</td>
<td>1.91</td>
<td>0.061</td>
<td></td>
</tr>
<tr>
<td>Intended length of exclusive breastfeeding in months</td>
<td>4.8±2.1</td>
<td>4.2±2.1</td>
<td>3.19</td>
<td>0.002*</td>
<td></td>
</tr>
<tr>
<td>Intended age of introduction of semi-solids/solids in months</td>
<td>7.3±5.2</td>
<td>6.9±2.6</td>
<td>1.11</td>
<td>0.266</td>
<td></td>
</tr>
</tbody>
</table>

*Significantly different at p<0.05

4.4.2.2 A comparison of infant feeding intentions by study group

There were no significant differences in the future feeding intentions of the mothers and fathers among the study groups (Table 4.5).

Table 4.5: Comparison of maternal and paternal infant feeding intentions by study groups

<table>
<thead>
<tr>
<th>Infant feeding intentions for unborn Infant</th>
<th>Control N=101</th>
<th>Maternal N=87</th>
<th>Couple N=90</th>
<th>ANOVA (F-statistic)</th>
<th>ANOVA P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal intended duration of breastfeeding in months</td>
<td>21.5± 7.0</td>
<td>21.3± 10.4</td>
<td>24.1± 9.3</td>
<td>2.67</td>
<td>0.071</td>
</tr>
<tr>
<td>Maternal intended duration of exclusive breastfeeding in months</td>
<td>5.0± 1.8</td>
<td>4.4± 2.2</td>
<td>4.8± 2.2</td>
<td>7.71</td>
<td>0.183</td>
</tr>
<tr>
<td>Paternal intended duration of exclusive breastfeeding in months</td>
<td>5.1± 1.8</td>
<td>4.9± 1.9</td>
<td>4.5± 2.1</td>
<td>1.78</td>
<td>0.171</td>
</tr>
</tbody>
</table>
4.5 Maternal and paternal knowledge on breastfeeding at baseline

4.5.1 A comparison between maternal and paternal knowledge on breastfeeding at baseline

The proportion of mothers who knew that breast milk protects baby against infections was 78.4%, breast milk is nutritious (90.3%), breastfeeding prevents pregnancy (19.8%), breast milk should be baby’s first food (95.7%), baby should be put on the breast within 1 hour after delivery (87.4%), colostrum should be given to the baby (76.6%), baby should be breastfed on demand (83.5%), baby should be breastfed for 24 months or more (72.3%), and that baby should be exclusively breastfed for 6 months (52.9%).

Table 4.6: Maternal and paternal knowledge on breastfeeding at baseline

<table>
<thead>
<tr>
<th>Aspects of knowledge</th>
<th>Total (N=556) n (%)</th>
<th>Mothers (N=278) n (%)</th>
<th>Fathers (N=278) n (%)</th>
<th>Chi-Square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast milk protects baby against infections</td>
<td>407(73.2)</td>
<td>218(78.4)</td>
<td>189(68)</td>
<td>2.418</td>
<td>0.120</td>
</tr>
<tr>
<td>Breast milk is nutritious</td>
<td>480(86.3)</td>
<td>251(90.3)</td>
<td>229(82.3)</td>
<td>2.138</td>
<td>0.144</td>
</tr>
<tr>
<td>Breastfeeding prevents pregnancy</td>
<td>91(16.3)</td>
<td>55(19.8)</td>
<td>36(12.9)</td>
<td>1.633</td>
<td>0.202</td>
</tr>
<tr>
<td>Baby should be put on the breast within 1 hour</td>
<td>424(76.8)</td>
<td>243(87.4)</td>
<td>183(65.8)</td>
<td>19.51</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>after delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colostrum should be given to the baby</td>
<td>428(77.5)</td>
<td>213(76.6)</td>
<td>215(78.2)</td>
<td>0.073</td>
<td>0.787</td>
</tr>
<tr>
<td>Baby should be breastfed for 24 months or more</td>
<td>384(69.1)</td>
<td>201(72.3)</td>
<td>183(65.8)</td>
<td>0.792</td>
<td>0.374</td>
</tr>
<tr>
<td>Baby should be exclusively breastfed for 6 months</td>
<td>252(45.3)</td>
<td>147(52.9)</td>
<td>105(37.8)</td>
<td>4.600</td>
<td>0.032*</td>
</tr>
</tbody>
</table>

*Significantly different at p<0.05
For the fathers, 68% knew that breast milk protects baby against infections, 82.3% knew that breast milk is nutritious, 12.9% knew that breastfeeding prevents pregnancy. A majority (90.2%) knew that breast milk should be baby’s first food, while 65.8% and 78.2% knew that baby should be put on the breast within 1 hour after delivery, and that colostrum should be given to the baby, respectively. Those who knew that baby should be breastfed on demand were 82.7%, that baby should be breastfed for 24 months or more were 65.8%, and that baby should be exclusively breastfed for 6 months were 37.8%. There was no significant difference in most knowledge aspects between the mothers and fathers (Table 4.6). The exceptions to this were knowledge that baby should be put on the breast within 1 hour (Chi-square test: p<0.001) and that babies should be exclusively breastfed for six months (Chi-square test: p=0.032).

4.5.2 A comparison of maternal and paternal knowledge on breastfeeding by study group at baseline

No significant differences were observed in the knowledge levels between mothers in the three study groups, and between fathers in the three study groups (Table 4.7). This implies that at baseline, the groups were similar in terms of knowledge on breastfeeding. About half of the mothers and slightly more than a third of fathers in all three study groups knew the recommended duration for exclusive breastfeeding. Most mothers and fathers in the three study groups knew that breast milk is nutritious, that it protects baby against infections and that baby should be put on the breast within an hour of delivery. Similar observations were made of the knowledge on the recommended duration for breastfeeding and that colostrum should be given to the baby.
Table 4.7: Maternal and paternal knowledge on breastfeeding by study group at baseline

<table>
<thead>
<tr>
<th>Aspects of knowledge</th>
<th>Total (N=278)</th>
<th>Control (N=101)</th>
<th>Maternal (N=87)</th>
<th>Couple (N=90)</th>
<th>Chi-Square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast milk protects baby against infections</td>
<td>Mothers</td>
<td>218(78.4)</td>
<td>80(79.2)</td>
<td>67(77.0)</td>
<td>71(78.9)</td>
<td>0.584</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>189(68.0)</td>
<td>70(69.3)</td>
<td>53(60.9)</td>
<td>66(73.3)</td>
<td>4.438</td>
</tr>
<tr>
<td>Breast milk is nutritious</td>
<td>Mothers</td>
<td>251(90.3)</td>
<td>91(90.1)</td>
<td>78(89.7)</td>
<td>82(91.1)</td>
<td>0.119</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>229(82.3)</td>
<td>82(81.2)</td>
<td>69(79.3)</td>
<td>78(86.7)</td>
<td>3.740</td>
</tr>
<tr>
<td>Baby should be put on the breast within 1 hour after delivery</td>
<td>Mothers</td>
<td>243(87.4)</td>
<td>87(86.1)</td>
<td>79(90.8)</td>
<td>77(85.5)</td>
<td>3.067</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>183(65.8)</td>
<td>62(61.4)</td>
<td>62(71.3)</td>
<td>59(65.6)</td>
<td>4.331</td>
</tr>
<tr>
<td>Colostrum should be given to the baby</td>
<td>Mothers</td>
<td>213(76.6)</td>
<td>76(75.2)</td>
<td>66(75.9)</td>
<td>71(78.9)</td>
<td>3.567</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>215(78.2)</td>
<td>73(72.3)</td>
<td>71(81.6)</td>
<td>71(78.8)</td>
<td>5.314</td>
</tr>
<tr>
<td>Baby should be breastfed for 24 months or more</td>
<td>Mothers</td>
<td>201(72.3)</td>
<td>71(70.3)</td>
<td>64(73.6)</td>
<td>66(73.3)</td>
<td>0.510</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>183(65.8)</td>
<td>70(69.3)</td>
<td>53(60.9)</td>
<td>60(66.7)</td>
<td>4.438</td>
</tr>
<tr>
<td>Baby should be exclusively breastfed for 6 months</td>
<td>Mothers</td>
<td>147(52.9)</td>
<td>49(48.5)</td>
<td>51(58.6)</td>
<td>47(52.2)</td>
<td>3.378</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>105(37.8)</td>
<td>34(33.7)</td>
<td>33(37.9)</td>
<td>38(42.2)</td>
<td>0.294</td>
</tr>
</tbody>
</table>
4.5.3 Access and sources of information on exclusive breastfeeding at baseline

A pooled analysis was conducted for mothers and fathers from all the study groups to allow for the comparison of access to information on exclusive breastfeeding. A significantly higher proportion of mothers (77%) than fathers (45.8%) had received information on exclusive breastfeeding (Chi-square: 55.73; p<0.001). Among those mothers who had ever received information on exclusive breastfeeding, the main sources of information were health facility at 93.9%, followed by mass media (radio, magazines, newspapers and the internet) at 6.5% and TBAs at 2.3%. Interestingly, only 0.5% of the mothers received information from family or relatives and 1.4% from friends. For the fathers, the main sources of information on breastfeeding were also health facility (49.2%) and radio (38.9%) (Table 4.8).
Table 4.8: Sources of breastfeeding information for mothers and fathers

<table>
<thead>
<tr>
<th>Aspect of information</th>
<th>Mothers</th>
<th></th>
<th>Fathers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=278</td>
<td>%</td>
<td>N=275</td>
<td>%</td>
</tr>
<tr>
<td>Received information on breastfeeding:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>214</td>
<td>77</td>
<td>126</td>
<td>45.8</td>
</tr>
<tr>
<td>No</td>
<td>64</td>
<td>23</td>
<td>149</td>
<td>54.2</td>
</tr>
<tr>
<td>Sources of information</td>
<td>N=214</td>
<td>%</td>
<td>N=126</td>
<td>%</td>
</tr>
<tr>
<td>Health facility</td>
<td>201</td>
<td>93.9</td>
<td>62</td>
<td>49.2</td>
</tr>
<tr>
<td>CHWs</td>
<td>178</td>
<td>83.2</td>
<td>8</td>
<td>6.3</td>
</tr>
<tr>
<td>Mass media (radio, television, newspapers, magazines and internet)</td>
<td>14</td>
<td>6.5</td>
<td>49</td>
<td>38.9</td>
</tr>
<tr>
<td>Traditional Birth attendant (TBA)</td>
<td>5</td>
<td>2.3</td>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>Friends, family, relatives, others</td>
<td>4</td>
<td>1.9</td>
<td>8</td>
<td>6.4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>2.3</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>When breastfeeding information was received**</td>
<td>N=214</td>
<td>%</td>
<td>N=126</td>
<td>%</td>
</tr>
<tr>
<td>During antenatal clinics for the present pregnancy</td>
<td>185</td>
<td>86.4</td>
<td>46</td>
<td>36.5</td>
</tr>
<tr>
<td>At the time of delivery of other babies</td>
<td>9</td>
<td>4.2</td>
<td>4</td>
<td>3.2</td>
</tr>
<tr>
<td>After delivery of past babies before leaving the hospital of other babies</td>
<td>4</td>
<td>1.9</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>During post-natal clinics of past babies</td>
<td>17</td>
<td>7.9</td>
<td>3</td>
<td>2.4</td>
</tr>
<tr>
<td>Maternal and child clinic</td>
<td>11</td>
<td>5.1</td>
<td>2</td>
<td>1.6</td>
</tr>
<tr>
<td>In the non-perinatal period</td>
<td>2</td>
<td>0.9</td>
<td>8</td>
<td>6.3</td>
</tr>
<tr>
<td>Preferred source of breastfeeding information**</td>
<td>N=278</td>
<td>%</td>
<td>N=275</td>
<td>%</td>
</tr>
<tr>
<td>Health facility</td>
<td>236</td>
<td>84.9</td>
<td>207</td>
<td>75.3</td>
</tr>
<tr>
<td>Family, relatives, friends</td>
<td>28</td>
<td>10.1</td>
<td>29</td>
<td>10.5</td>
</tr>
<tr>
<td>Traditional birth attendant</td>
<td>12</td>
<td>4.3</td>
<td>10</td>
<td>3.6</td>
</tr>
<tr>
<td>Mass media (radio, television, newspapers, magazines and internet)</td>
<td>9</td>
<td>3.2</td>
<td>25</td>
<td>9.1</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
<td>3.6</td>
<td>18</td>
<td>6.5</td>
</tr>
</tbody>
</table>

**Multiple response
4.6 Maternal and paternal attitudes on breastfeeding at baseline

The exclusive breastfeeding attitudes were measured on a 5 point Likert scale ranging from strongly agree, agree, uncertain, disagree and strongly disagree. Only 28.1% of the mothers and 27.3% of the fathers concurred that exclusive breastfeeding for 6 months is adequate for the baby. Among the mothers’ about three quarters (76.6%) concurred that exclusive breastfeeding for 6 months is feasible, 80.2% that exclusive breastfeeding for 6 months is good for the baby, 76.6% that colostrum should be given to the baby and 95.7% that breast milk should be baby’s first food (Table 4.9). Only 12.6% felt that before initiation of breastfeeding, there are some solids/ liquids (prelacteals) that should be given to the baby. Mothers’ attitudes towards paternal involvement in breastfeeding also revealed that most of them felt that fathers should be involved in the breastfeeding issues of the baby. Almost all (90.6%) felt that both mother and father should decide on the mode of feeding the baby; 88.1% felt that fathers should be involved in the breastfeeding of the baby (either agreed or strongly agreed).

Among the fathers, about two thirds (66.5%) concurred that exclusive breastfeeding for 6 months is feasible, 72% that exclusive breastfeeding for 6 months is good for the baby, 78.2% that colostrum should be given to the baby and 90.2% that breast milk should be baby’s first food. On the other hand, only 7.3% concurred that prelacteals should be given to the baby. A majority (94.9%) of the fathers felt that both mother and father should decide mode of feeding the baby and 93.4% felt that fathers should be involved in the breastfeeding of the baby.
Table 4.9: Maternal and paternal attitudes towards breastfeeding at baseline

<table>
<thead>
<tr>
<th>Aspects of attitude</th>
<th>Maternal N=278</th>
<th>Paternal N=275</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Exclusive breastfeeding for 6 months is feasible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Disagree</td>
<td>25</td>
<td>28</td>
</tr>
<tr>
<td>Uncertain</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Agree</td>
<td>47</td>
<td>54</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>166</td>
<td>129</td>
</tr>
<tr>
<td>Exclusive breastfeeding for 6 months is good for the baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>26</td>
<td>36</td>
</tr>
<tr>
<td>Disagree</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>Uncertain</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Agree</td>
<td>48</td>
<td>56</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>175</td>
<td>142</td>
</tr>
<tr>
<td>Exclusive breastfeeding for 6 months is adequate for the baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>147</td>
<td>119</td>
</tr>
<tr>
<td>Disagree</td>
<td>36</td>
<td>42</td>
</tr>
<tr>
<td>Uncertain</td>
<td>17</td>
<td>39</td>
</tr>
<tr>
<td>Agree</td>
<td>41</td>
<td>23</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>203</td>
<td>196</td>
</tr>
<tr>
<td>Breast milk should be baby’s first food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Uncertain</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Agree</td>
<td>63</td>
<td>52</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>203</td>
<td>196</td>
</tr>
<tr>
<td>Before initiation of breastfeeding, there are some solids/liquids (prelacteals) that should be given to the baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>188</td>
<td>188</td>
</tr>
<tr>
<td>Disagree</td>
<td>49</td>
<td>58</td>
</tr>
<tr>
<td>Uncertain</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Agree</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>Both mother and father should decide mode of feeding the baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>Disagree</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Uncertain</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Agree</td>
<td>76</td>
<td>88</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>176</td>
<td>173</td>
</tr>
<tr>
<td>Fathers should be involved in the breastfeeding of the baby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>Disagree</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Uncertain</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Agree</td>
<td>74</td>
<td>112</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>171</td>
<td>145</td>
</tr>
<tr>
<td>Breastfeeding is a mothers issue and fathers should not be involved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>165</td>
<td>140</td>
</tr>
<tr>
<td>Disagree</td>
<td>49</td>
<td>62</td>
</tr>
<tr>
<td>Uncertain</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>25</td>
<td>41</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>39</td>
<td>32</td>
</tr>
</tbody>
</table>

Proportions of mothers and fathers that agreed and strongly agreed were further merged to allow for statistical analysis comparing maternal and paternal attitudes
towards exclusive breastfeeding. No significant differences were found between mothers’ and fathers’ attitudes towards breastfeeding (Table 4.10).

Table 4.10: A comparison of maternal and paternal attitudes on breastfeeding at baseline

<table>
<thead>
<tr>
<th>Aspects of attitude</th>
<th>Total (N=553)</th>
<th>Mothers (N=278)</th>
<th>Fathers (N=275)</th>
<th>Chi-Square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive breastfeeding for 6 months is feasible</td>
<td>396(71.7)</td>
<td>213(76.6)</td>
<td>183(66.5)</td>
<td>2.506</td>
<td>0.114</td>
</tr>
<tr>
<td>Exclusive breastfeeding for 6 months is good for baby</td>
<td>421(76.3)</td>
<td>223(80.2)</td>
<td>198(72.0)</td>
<td>1.848</td>
<td>0.174</td>
</tr>
<tr>
<td>Exclusive breastfeeding for 6 months is adequate for the baby</td>
<td>153(27.7)</td>
<td>78(28.1)</td>
<td>75(27.3)</td>
<td>0.016</td>
<td>0.899</td>
</tr>
<tr>
<td>Colostrum should be given to the baby</td>
<td>428(77.5)</td>
<td>213(76.6)</td>
<td>215(78.2)</td>
<td>0.073</td>
<td>0.787</td>
</tr>
<tr>
<td>Breast milk should be baby’s first food</td>
<td>514(93.1)</td>
<td>266(95.7)</td>
<td>248(90.2)</td>
<td>2.308</td>
<td>0.129</td>
</tr>
<tr>
<td>Both mother and father should decide mode of feeding the baby</td>
<td>513(92.9)</td>
<td>252(90.6)</td>
<td>261(94.9)</td>
<td>3.660</td>
<td>0.056</td>
</tr>
<tr>
<td>Fathers should be involved in breastfeeding of baby</td>
<td>502(90.9)</td>
<td>245(88.1)</td>
<td>257(93.5)</td>
<td>1.745</td>
<td>0.187</td>
</tr>
</tbody>
</table>

Proportions that agreed or strongly agreed with the statement

The proportions of mothers and fathers that agreed and strongly agreed were further merged and analysed by study group. No significant differences were observed in the attitudes of mothers and fathers in the three study groups (Table 4.11).
Table 4.11: Maternal and paternal attitudes on breastfeeding by study group at baseline

<table>
<thead>
<tr>
<th>Aspects of attitude</th>
<th>Total (N=278)</th>
<th>Control (N=101)</th>
<th>Maternal (N=87)</th>
<th>Couple (N=90)</th>
<th>Chi-Square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive breastfeeding for 6 months is feasible</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers</td>
<td>213(76.6)</td>
<td>78(77.2)</td>
<td>67(77.0)</td>
<td>68(75.6)</td>
<td>0.582</td>
<td>0.746</td>
</tr>
<tr>
<td>Fathers</td>
<td>183(66.5)</td>
<td>71(70.3)</td>
<td>53(60.9)</td>
<td>59(65.6)</td>
<td>4.438</td>
<td>0.108</td>
</tr>
<tr>
<td>Exclusive breastfeeding for 6 months is good for baby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers</td>
<td>223(80.2)</td>
<td>83(82.2)</td>
<td>69(79.3)</td>
<td>71(78.9)</td>
<td>2.579</td>
<td>0.277</td>
</tr>
<tr>
<td>Fathers</td>
<td>198(72.0)</td>
<td>71(70.3)</td>
<td>73(83.9)</td>
<td>69(76.7)</td>
<td>5.271</td>
<td>0.906</td>
</tr>
<tr>
<td>Exclusive breastfeeding for 6 months is adequate for the baby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers</td>
<td>78(28.1)</td>
<td>26(25.7)</td>
<td>30(34.5)</td>
<td>22(24.4)</td>
<td>3.029</td>
<td>0.210</td>
</tr>
<tr>
<td>Fathers</td>
<td>75(27.3)</td>
<td>23(22.8)</td>
<td>27(31.0)</td>
<td>25(27.8)</td>
<td>3.567</td>
<td>0.168</td>
</tr>
<tr>
<td>Colostrum should be given to the baby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers</td>
<td>213(76.6)</td>
<td>71(70.3)</td>
<td>69(79.3)</td>
<td>73(81.1)</td>
<td>5.226</td>
<td>0.281</td>
</tr>
<tr>
<td>Fathers</td>
<td>215(78.2)</td>
<td>76(75.2)</td>
<td>67(77.0)</td>
<td>72(80.0)</td>
<td>5.314</td>
<td>0.070</td>
</tr>
<tr>
<td>Breast milk should be baby’s first food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers</td>
<td>266(95.7)</td>
<td>94(93.1)</td>
<td>82(94.3)</td>
<td>83(92.2)</td>
<td>0.469</td>
<td>0.825</td>
</tr>
<tr>
<td>Fathers</td>
<td>248(90.2)</td>
<td>83(82.2)</td>
<td>81(93.1)</td>
<td>84(93.3)</td>
<td>0.128</td>
<td>0.940</td>
</tr>
<tr>
<td>Fathers should be involved in breastfeeding of baby</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers</td>
<td>245(88.1)</td>
<td>86(85.1)</td>
<td>78(89.7)</td>
<td>81(91.1)</td>
<td>0.217</td>
<td>0.743</td>
</tr>
<tr>
<td>Fathers</td>
<td>257(93.5)</td>
<td>95(94.1)</td>
<td>81(93.1)</td>
<td>81(90.0)</td>
<td>0.246</td>
<td>0.881</td>
</tr>
</tbody>
</table>
FINDINGS AFTER INTERVENTION

4.7 Comparison of baseline characteristics among fathers and mothers who completed the study and those lost to follow-up

Table 4.12: Comparison of baseline characteristics among fathers and mothers who completed the study and those lost to follow-up

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Participants who completed study N=254</th>
<th>Participants lost to follow-up (N=24)</th>
<th>Chi-square/t-test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographic characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean maternal age ± sd</td>
<td>24.4 ± 5.3</td>
<td>25.8± 0.5</td>
<td></td>
<td>0.190</td>
</tr>
<tr>
<td>Mean paternal age ± sd</td>
<td>31.5± 8.4</td>
<td>31.3± 6.5</td>
<td></td>
<td>0.885</td>
</tr>
<tr>
<td>Mean maternal parity ± sd</td>
<td>2.2 ± 1.8</td>
<td>2.1± 1.3</td>
<td></td>
<td>0.767</td>
</tr>
<tr>
<td>Mean paternal parity ± sd</td>
<td>2.3± 1.6</td>
<td>2.0± 1.4</td>
<td></td>
<td>0.405</td>
</tr>
<tr>
<td>Mean household size ± sd</td>
<td>4.4± 2.0</td>
<td>4.35± 1.5</td>
<td></td>
<td>0.901</td>
</tr>
<tr>
<td><strong>Maternal education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None and primary</td>
<td>75.6%</td>
<td>70.8%</td>
<td></td>
<td>0.179</td>
</tr>
<tr>
<td>Secondary and above</td>
<td>24.4%</td>
<td>29.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maternal Occupation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farming</td>
<td>39.8%</td>
<td>29.1%</td>
<td></td>
<td>0.006*</td>
</tr>
<tr>
<td>Business</td>
<td>29.9%</td>
<td>50.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>3.5%</td>
<td>8.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housewives</td>
<td>26.8%</td>
<td>3.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mean duration of exclusive breastfeeding in past ± sd</strong></td>
<td>3.6 ± 1.9</td>
<td>4.0 ± 1.7</td>
<td></td>
<td>0.320</td>
</tr>
<tr>
<td><strong>Mean knowledge score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers ± sd</td>
<td>5.1± 2.3</td>
<td>5.4± 2.4</td>
<td></td>
<td>0.217</td>
</tr>
<tr>
<td>Fathers ± sd</td>
<td>6.2± 2.3</td>
<td>6.3± 2.1</td>
<td></td>
<td>0.346</td>
</tr>
<tr>
<td><strong>Mean attitude score</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers ± sd</td>
<td>13.2± 2.1</td>
<td>13.6± 2.2</td>
<td></td>
<td>0.154</td>
</tr>
<tr>
<td>Fathers ± sd</td>
<td>16.7± 2.1</td>
<td>16.1± 2.6</td>
<td></td>
<td>0.982</td>
</tr>
<tr>
<td><strong>Has ever received information on breastfeeding:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mothers</td>
<td>75.8%</td>
<td>83.3%</td>
<td></td>
<td>0.322</td>
</tr>
<tr>
<td>Fathers</td>
<td>43.7%</td>
<td>62.5%</td>
<td></td>
<td>0.059</td>
</tr>
</tbody>
</table>

*Significant at p<0.05
With the exception of maternal occupation, there were no significant differences in the baseline characteristics of study participants lost to follow-up and those who completed the study. Of those who were lost to follow up, the majority (50%) were business women (Table 4.12).

4.8 Delivery care by study group

About two thirds (66.9%) of all the deliveries were conducted by skilled attendants at health facilities while deliveries assisted by un-skilled persons were 33.1%. Of those assisted by an un-skilled person, the majority (83.9%) were assisted by a TBA, followed by the mother herself (14%) (Table 4.13). Deliveries were mainly at health facilities (66.9%), followed by 26.3% of the mothers who delivered at home. Most deliveries (96.4%) were normal and 3.6% were through caesarean sections.

There was no significant difference in the skilled or un-skilled assistance during delivery (Fisher’s exact test; p= 0.602) and in the place of delivery (Fisher’s exact test: p= 0.065) among the study groups. Deliveries at health facilities were 69.5%, 75.6% and 55.6% for infants in the control, maternal counselling and couple counselling groups respectively. Mothers who delivered at home were 23.8% in the control, 22.1% in maternal counselling and 33.3% in couple counselling. Almost all mothers (99.5%) who delivered at health facilities roomed-in with their babies, with no significant difference among the study groups (Fisher’s exact test; p= 0.612).
<table>
<thead>
<tr>
<th></th>
<th>Study group</th>
<th>Fisher’s exact test; P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Control</td>
</tr>
<tr>
<td>Place of delivery</td>
<td>N=281</td>
<td>N=105</td>
</tr>
<tr>
<td>Health facility</td>
<td>188 (66.9)</td>
<td>73 (69.5)</td>
</tr>
<tr>
<td>Home</td>
<td>74 (26.3)</td>
<td>25 (23.8)</td>
</tr>
<tr>
<td>TBA’s House</td>
<td>17 (6.1)</td>
<td>6 (5.7)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (0.7)</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Person who attended to mothers who</td>
<td>N=93</td>
<td>N=32</td>
</tr>
<tr>
<td>delivered out of health facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBA</td>
<td>78 (83.9)</td>
<td>27 (84.4)</td>
</tr>
<tr>
<td>Self</td>
<td>13 (14.0)</td>
<td>5 (15.6)</td>
</tr>
<tr>
<td>Friend or relative</td>
<td>2 (2.1)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Other</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Rooming in</td>
<td>N=188</td>
<td>N=73</td>
</tr>
<tr>
<td>Yes</td>
<td>187 (99.5)</td>
<td>73 (100)</td>
</tr>
<tr>
<td>No</td>
<td>1 (0.5)</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

1Stayed in the same room as baby after delivery (for health facility deliveries)
4.9 Infant characteristics by study groups

Of the 281 infants delivered, 51.6% were male, while 48.4% were female. The infants were not significantly different among the study groups, in terms of sex (Chi-square test: p= 0.185). The birth weights were only available for mothers who delivered at a health facility and were not significantly different among the study groups (Fisher’s exact test; p= 0.070). The overall mean birth weight for these infants was 3.2±1.78kgs. In the control group, the mean birth weight was 3.2±1.72 kgs, while in the maternal counselling and couple counselling groups, the mean birth weights were 3.2±1.83 kgs and 3.3±1.79 kgs respectively. Table 4.14 summarises the sex and birth weights of the infants in the study.

Table 4.14: Infant sex and birth weight by study groups

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Study groups</th>
<th>Chi-square/ANOVA</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Control (N=105)</td>
<td>Maternal (N=86)</td>
</tr>
<tr>
<td>Sex (N=281)</td>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Male</td>
<td>145 (51.6)</td>
<td>48 (45.7)</td>
<td>44 (51.2)</td>
</tr>
<tr>
<td>Female</td>
<td>136 (48.4)</td>
<td>57 (54.3)</td>
<td>42 (48.8)</td>
</tr>
<tr>
<td>Birth weight</td>
<td>N=185</td>
<td>N=71</td>
<td>N=65</td>
</tr>
<tr>
<td>&lt;2500gms</td>
<td>5 (2.7)</td>
<td>0 (0.0)</td>
<td>5 (7.7)</td>
</tr>
<tr>
<td>2500- &gt;4000gms</td>
<td>180 (97.3)</td>
<td>71 (100.0)</td>
<td>60 (92.2)</td>
</tr>
<tr>
<td>Birth weight in grams</td>
<td>Mean ± SD</td>
<td>3.2±1.78</td>
<td>3.2±1.72</td>
</tr>
</tbody>
</table>
4.10 Early infant feeding practices by study groups

Mothers were interviewed within 1 week after delivery to establish early infant feeding practices. Almost all the infants (99.6%) had been breastfed since birth, while 99.3% had been breastfed in the last 24 hours prior to the interview. Most of the infants (96.1%) had been initiated to breastfeeding within 1 hour of birth. Across the study groups, there was a significant difference in the timeliness of initiating breastfeeding (Fisher’s exact test; p=0.026) All infants in the couple counselling group had been initiated to breastfeeding within 1 hour of birth (Table 4.15). In all the study groups, breast milk was the first feed to be given to most of the infants (99.3%) after delivery and this was not significantly different among the three study groups (Fisher’s exact test: p=0.756).

Significantly more infants in the control group (14.3%) were given post lacteals (solid or liquid given within three days of delivery) compared to the maternal counselling (1.2%) and couple counselling group (1.1%) (Fisher’s exact test: p<0.001). From the findings of logistic regression analysis, both experimental groups (maternal and couple counselling) were 99% less likely than the control group to give post-lacteal feeds (Adjusted relative risk [ARR]: 0.01; CI 0.00-0.07; p=0.001 and ARR: 0.01; CI 0.00-0.07; p<0.001 respectively).
Table 4.15: Early infant feeding practices by study group

<table>
<thead>
<tr>
<th></th>
<th>Study group</th>
<th>Fisher's exact test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Control</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Timely initiation of breastfeeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>270 (96.1)</td>
<td>100 (95.2)</td>
</tr>
<tr>
<td>No</td>
<td>11 (3.9)</td>
<td>5 (4.8)</td>
</tr>
<tr>
<td>First feed to baby after delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast milk</td>
<td>277 (99.3)</td>
<td>104 (99.1)</td>
</tr>
<tr>
<td>Plain water</td>
<td>2 (0.7)</td>
<td>1 (0.9)</td>
</tr>
<tr>
<td>Given post-lacteals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>17 (6.1)</td>
<td>15 (14.3)</td>
</tr>
<tr>
<td>No</td>
<td>262 (93.9)</td>
<td>90 (85.7)</td>
</tr>
<tr>
<td>Baby was breastfed in the last 24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>279 (99.3)</td>
<td>105 (100.0)</td>
</tr>
<tr>
<td>No</td>
<td>2 (0.7)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Baby was exclusively breastfed in last 24 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>267 (95.0)</td>
<td>94 (89.5)</td>
</tr>
<tr>
<td>No</td>
<td>14 (5.0)</td>
<td>11 (10.5)</td>
</tr>
</tbody>
</table>

* Significantly different at p<0.05

1 Timely initiation= initiation within 1 hour of birth
2 Post-lacteals= fluids or solids given to infants within three days of delivery after initiation of breastfeeding

Of those given post-lacteals, plain water was the most common (52.9%), followed by sugar or glucose solution (23.5%), with those given salt solution, vegetable, and herbs at 5.9% each. Salt-sugar solution, porridge and cow milk were each given to 11.8% of the babies. Most mothers gave post-lacteals because they thought the baby got hungry
(52.9%) or to soothe baby’s stomach pain (52.9%). Only one mother (5.9%) gave a post-lacteal because she was advised by a relative and another one (5.9%) because she thought she was not producing enough milk.

4.11 Impact of maternal and couple counselling on exclusive breastfeeding rates

4.11.1 Cross-sectional exclusive breastfeeding rates by infant age and study groups

Cross-sectional exclusive breastfeeding rates are based on only the reported breastfeeding practices of the last 24 hours without taking into account any changes in the feeding practices reported during the other months. Information on exclusive breastfeeding was obtained by asking the mothers what their infant had been fed on in the last 24 hours prior to the interview, on a monthly basis. Table 4.16 shows the cross-sectional exclusive breastfeeding rates on a monthly basis, by study group. In all the 6 months, the couple counselling group had the highest exclusive breastfeeding rate, followed by the maternal counselling group and the lowest rates were observed in the control group. Exclusive breastfeeding rates were significantly higher in the couple counselling group in all the 6 months with the exception of the month 4. At 4 months of age, exclusive breastfeeding rates among the study groups were not significantly different (Chi-square: p=0.185).
Table 4.16: Cross-sectional exclusive breastfeeding rates by infant age and study groups

<table>
<thead>
<tr>
<th>Infant age in months</th>
<th>Total</th>
<th>Control</th>
<th>Maternal</th>
<th>Couple</th>
<th>Chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>227(81.2)</td>
<td>72(70.6)</td>
<td>74(85.1)</td>
<td>81(91.0)</td>
<td>14.211</td>
<td>0.001*</td>
</tr>
<tr>
<td>2</td>
<td>218(78.4)</td>
<td>68(67.3)</td>
<td>71(84.5)</td>
<td>79(88.8)</td>
<td>13.862</td>
<td>0.001*</td>
</tr>
<tr>
<td>3</td>
<td>211(75.9)</td>
<td>63(61.8)</td>
<td>69(79.3)</td>
<td>79(88.8)</td>
<td>20.770</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>4</td>
<td>137(51.7)</td>
<td>41(45.1)</td>
<td>44(51.8)</td>
<td>52(58.4)</td>
<td>03.377</td>
<td>0.185</td>
</tr>
<tr>
<td>5</td>
<td>126(49.6)</td>
<td>31(37.3)</td>
<td>42(50.6)</td>
<td>51(57.9)</td>
<td>07.890</td>
<td>0.021*</td>
</tr>
<tr>
<td>6</td>
<td>82(32.3)</td>
<td>12(14.5)</td>
<td>31(37.3)</td>
<td>39(44.3)</td>
<td>19.081</td>
<td>0.001*</td>
</tr>
</tbody>
</table>

*Chi-square significant at p<0.05

4.11.2 Continuous/cumulative exclusive breastfeeding rates since birth by infant age and study groups

Continuous/ cumulative exclusive breastfeeding since birth refers to mothers who consistently practised exclusive breastfeeding without changing to any other feeding practice up to 6 months post-partum. The overall median length of continuous exclusive breastfeeding was 4 (range: 4-5) months. For the control group, the median length of continuous exclusive breastfeeding was 3 months (range: 2-4), while for the maternal and couple counselling groups, the median length of continuous exclusive breastfeeding was 4 months (range: 4-5). The two experimental groups (maternal and couple counselling) had significantly higher continuous exclusive breastfeeding rates for all 6 months, compared to the control group.

At 6 months of age, 12.1% of the infants in the control, 32.5% in the maternal and 43.2% in the couple counselling continuously breastfed exclusively for 6 months.
(Chi-square : 20.43; p=0.001) (Figure 4.2). In all the other months (1-5), the exclusive breastfeeding rates among the study groups (control versus experimental) depicted in Figure 4.2 were significantly different (Chi-square: 14.21; p=0.001 at first month, Chi-square:11.79; p=0.003 at second month, Chi-square: 17.98; p=0.001 at third month, Chi-square: 7.91; p=0.019 at fourth month and Chi-square: 12.4; p=0.002 at fifth month). No significant differences were however observed in the continuous exclusive breastfeeding rates between the couple counselling and maternal counselling groups.

Figure 4.2: Continuous exclusive breastfeeding rates by infant age and study group

The couple counselling was more likely than the control, to be exclusively breastfeeding during all 6 months (Table 4.17), while the maternal counselling group was more likely than the control, to be exclusively breastfeeding during months 1, 3,
4, 5 and 6. At month 2, there was no significant difference in the likelihood to still be exclusively breastfeeding, between the maternal counselling and control groups.

Table 4.17: Relative risk for exclusive breastfeeding in the first 6 months by study group

<table>
<thead>
<tr>
<th>Infant age in months</th>
<th>Study group</th>
<th>Relative risk</th>
<th>95% CI</th>
<th>Chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Control</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal</td>
<td>0.54</td>
<td>0.307</td>
<td>0.953</td>
<td>4.84</td>
</tr>
<tr>
<td></td>
<td>Couple</td>
<td>0.31</td>
<td>0.148</td>
<td>0.632</td>
<td>12.44</td>
</tr>
<tr>
<td>2</td>
<td>Control</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal</td>
<td>0.68</td>
<td>0.448</td>
<td>1.028</td>
<td>3.51</td>
</tr>
<tr>
<td></td>
<td>Couple</td>
<td>0.45</td>
<td>0.270</td>
<td>0.740</td>
<td>11.21</td>
</tr>
<tr>
<td>3</td>
<td>Control</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal</td>
<td>0.65</td>
<td>0.467</td>
<td>0.914</td>
<td>6.66</td>
</tr>
<tr>
<td></td>
<td>Couple</td>
<td>0.46</td>
<td>0.306</td>
<td>0.687</td>
<td>16.84</td>
</tr>
<tr>
<td>4</td>
<td>Control</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal</td>
<td>0.76</td>
<td>0.580</td>
<td>0.999</td>
<td>4.01</td>
</tr>
<tr>
<td></td>
<td>Couple</td>
<td>0.68</td>
<td>0.511</td>
<td>0.909</td>
<td>7.18</td>
</tr>
<tr>
<td>5</td>
<td>Control</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal</td>
<td>0.78</td>
<td>0.637</td>
<td>0.951</td>
<td>6.25</td>
</tr>
<tr>
<td></td>
<td>Couple</td>
<td>0.69</td>
<td>0.551</td>
<td>0.855</td>
<td>11.99</td>
</tr>
<tr>
<td>6</td>
<td>Control</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal</td>
<td>0.77</td>
<td>0.653</td>
<td>0.912</td>
<td>9.77</td>
</tr>
<tr>
<td></td>
<td>Couple</td>
<td>0.65</td>
<td>0.530</td>
<td>0.788</td>
<td>20.51</td>
</tr>
</tbody>
</table>

*Significant at p<0.05

Kaplan Meier survival analysis was also conducted to show the trends in continuous exclusive breastfeeding from month one to month six (Figure 4.3).
Figure 4.3: Kaplan-Meier survival estimates of exclusive breastfeeding among all study groups combined.

Exclusive breastfeeding was significantly different among the study groups (Chi-square: 56.78; p=0.001), and couple counselling had the highest prevalence (Figure 4.4). At month 1, the exclusive breastfeeding was 71% for the control group, 86% for the maternal counselling group and 91% for the couple counselling group. This reduced to 12% for control, 33% for maternal and 44% for couple counselling groups at 6 months of age.
Additionally, Cox regression analysis indicated that the likelihood for exclusive breastfeeding continuously for 6 months was not significantly different among the maternal counselling (AHR: 0.81; CI 0.46-1.43; p=0.465) compared to the couple counselling group. In contrast, the maternal counselling group was 37% less likely to discontinue exclusively breastfeed before 6 months (AHR: 0.63; 95% CI 0.40-0.99; p=0.044) compared to the control group. Similarly, the couple counselling group was 48% less likely to discontinue exclusively breastfeed before 6 months (AHR: 0.52; 95% CI 0.33-0.82; p=0.005) compared to the control group (Table 4.18).
Table 4.18: Cumulative risk to discontinue exclusive breastfeeding in the first 6 months by study group

<table>
<thead>
<tr>
<th>Study group</th>
<th>6 Months</th>
<th>95% CI</th>
<th>6 Months</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted Hazard Ratio</td>
<td>Lower</td>
<td>Upper</td>
<td>P-value</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maternal</td>
<td>0.66</td>
<td>0.54</td>
<td>0.81</td>
<td>0.117</td>
</tr>
<tr>
<td>Couple</td>
<td>0.53</td>
<td>0.43</td>
<td>0.65</td>
<td>0.000*</td>
</tr>
<tr>
<td>Control</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maternal</td>
<td>0.66</td>
<td>0.54</td>
<td>0.81</td>
<td>0.001*</td>
</tr>
<tr>
<td>Couple</td>
<td>0.53</td>
<td>0.43</td>
<td>0.66</td>
<td>0.000*</td>
</tr>
<tr>
<td>Maternal</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Couple</td>
<td>0.80</td>
<td>0.63</td>
<td>1.01</td>
<td>0.059</td>
</tr>
</tbody>
</table>

*Significant at p<0.05

4.12 The influence of couple counselling and maternal counselling on exclusive breastfeeding knowledge and attitudes

The influence of the two counselling strategies on maternal and paternal breastfeeding knowledge and attitudes was determined at six months post-partum.

4.12.1 The influence of couple counselling and maternal counselling on maternal exclusive breastfeeding knowledge by study group

Breastfeeding counselling by the research team improved some aspects of maternal knowledge (Table 4.19).
Table 4.19: The influence of counselling on maternal knowledge on breastfeeding at 6 months post-partum by study group

<table>
<thead>
<tr>
<th>Aspects of maternal knowledge</th>
<th>Study groups</th>
<th>Chi-Square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Control N=83</td>
<td>Maternal N=83</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Breast milk is nutritious</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>236 (92.9)</td>
<td>74 (89.2)</td>
<td>79 (95.2)</td>
</tr>
<tr>
<td>No</td>
<td>18 (7.1)</td>
<td>9 (10.8)</td>
<td>4 (4.8)</td>
</tr>
<tr>
<td>Breast milk should be baby’s first food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>237 (93.3)</td>
<td>74 (89.2)</td>
<td>78 (94)</td>
</tr>
<tr>
<td>No</td>
<td>17 (6.7)</td>
<td>9 (10.8)</td>
<td>5 (6)</td>
</tr>
<tr>
<td>Baby should be put on the breast within 1 hour after delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>196 (77.2)</td>
<td>55 (66.3)</td>
<td>66 (79.5)</td>
</tr>
<tr>
<td>No</td>
<td>58 (22.8)</td>
<td>28 (33.7)</td>
<td>17 (20.5)</td>
</tr>
<tr>
<td>Baby should be breastfed on demand</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>241 (94.9)</td>
<td>75 (90.4)</td>
<td>80 (96.4)</td>
</tr>
<tr>
<td>No</td>
<td>13 (5.1)</td>
<td>8 (9.6)</td>
<td>3 (3.6)</td>
</tr>
<tr>
<td>Correct definition of exclusive breastfeeding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>230 (90.6)</td>
<td>64 (77.1)</td>
<td>80 (96.4)</td>
</tr>
<tr>
<td>No</td>
<td>24 (9.4)</td>
<td>19 (22.9)</td>
<td>3 (3.6)</td>
</tr>
<tr>
<td>Baby should be breastfed exclusively for 6 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>233 (91.7)</td>
<td>67 (80.7)</td>
<td>80 (96.4)</td>
</tr>
<tr>
<td>No</td>
<td>21 (8.3)</td>
<td>16 (19.3)</td>
<td>3 (3.6)</td>
</tr>
<tr>
<td>Baby should be breastfed for 24 months or more</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>184 (72.4)</td>
<td>45 (54.2)</td>
<td>62 (74.7)</td>
</tr>
<tr>
<td>No</td>
<td>70 (27.6)</td>
<td>38 (45.8)</td>
<td>21 (25.3)</td>
</tr>
</tbody>
</table>

*Significant at p<0.05

Significantly higher proportions of mothers in the experimental groups knew that babies should be initiated to breastfeeding within 1 hour of birth (Chi square test: 9.330; p=0.009). Similarly, significantly higher proportions of mothers in the
experimental groups could define exclusive breastfeeding correctly (Chi square test: 26.000; p=0.001); knew that babies should be exclusively breastfed for 6 months (Chi square test: 20.500; p=0.001) and knew that babies should be breastfed for 24 months or more (Chi square test: 24.510; p=0.001) (Table 4.19).

The mothers were also scored on a total of 8 knowledge questions shown in Table 4.19. Each correct answer earned 1 mark while wrong answers scored no marks. A total score was then calculated for each participant based on the number of correct answers. Based on the individual total scores, the study group mean scores were then calculated. To establish whether there had been improvements, deteriorations or no change in the mothers’ knowledge in the 6 months, the differences in mean knowledge score at baseline and end line were calculated.

The mother’s mean knowledge score increased significantly across all study groups (t-test; p=0.001) in the 6 months after delivery, indicating that most mothers got some information during the 6 months that improved their knowledge on breastfeeding (Table 4.20). The control group had the least changes in mean knowledge score (0.9). The maternal counselling group had the highest end line mean knowledge score (7.8±2.3) as well as the largest improvement in mean knowledge score, followed by the couple counselling group at 7.5±2.1. Worth noting is that the maternal counselling group had the lowest score at baseline, although insignificantly different from the other groups.
Table 4.20: Influence of counselling on maternal knowledge scores by study group

<table>
<thead>
<tr>
<th>Study group</th>
<th>Baseline mean score ±SD</th>
<th>End line mean score ± SD</th>
<th>Difference (±SE)</th>
<th>T-test P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (group 1)</td>
<td>5.6±2.2</td>
<td>6.5±2.3</td>
<td>0.9(0.4)</td>
<td>0.001*</td>
</tr>
<tr>
<td>Maternal (group 2)</td>
<td>4.2±2.1</td>
<td>7.8±2.3</td>
<td>3.6(0.2)</td>
<td>0.001*</td>
</tr>
<tr>
<td>Couple (group 3)</td>
<td>5.8±2.1</td>
<td>7.5±2.1</td>
<td>1.7(0.3)</td>
<td>0.001*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Baseline Difference</th>
<th>End line Difference</th>
<th>Difference in Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean of group 2 minus mean of group 1</td>
<td>-1.4</td>
<td>1.2</td>
<td>2.6</td>
</tr>
<tr>
<td>Mean of group 3 minus mean of group 2</td>
<td>1.6</td>
<td>-0.3</td>
<td>-1.9</td>
</tr>
<tr>
<td>Mean of group 3 minus mean of group 1</td>
<td>0.2</td>
<td>0.9</td>
<td>0.7</td>
</tr>
</tbody>
</table>

*Significant at p<0.05
1Standard error

Findings in Table 4.20 also indicate that differences in the changes in the mean maternal knowledge score between baseline and end line (difference in difference or double difference) were significant when all study groups were compared (p<0.05) (Table 4.20). There were significantly higher changes in the mean knowledge scores in maternal counselling group compared to both control and couple counselling groups. The couple counselling group had significantly higher improvements than the control group. The mothers in the maternal counselling group thus gained the most knowledge followed by couple counselling then the control group.
4.12.2 The influence of couple counselling and maternal counselling on paternal exclusive breastfeeding knowledge by study group

Breastfeeding counselling by the research team also improved the knowledge on exclusive breastfeeding among the fathers. Differences in father’s knowledge among the study groups were significant in most aspects (Chi square test and Fisher’s exact test: \( p<0.05 \)), except for knowledge that breast milk is nutritious which showed no significant difference across the groups (Chi square test: \( p=0.154 \)) (Table 4.21). Fathers in the couple counselling group were generally more knowledgeable on breastfeeding compared to the other 2 study groups at 6 months post-partum. This was expected since the fathers in this group received counselling while those in the other study groups did not.

From logistic regression, the fathers in the maternal counselling group were 55% less likely than the control group to know that infants should be exclusively breastfed for 6 months (Odds ratio [OR]: 0.45; CI: 0.23-0.87; \( p=0.017 \)), while the couple counselling group was 17 times more likely than the control group to know (OR: 17.08; CI: 6.69-43.63; \( p<0.001 \)). Similarly, fathers in the maternal counselling group were 52% less likely than the control group to know that children should be breastfed for 24 months or more (OR: 0.48; CI: 0.25-0.90; \( p=0.023 \)), while the couple counselling group was 11 times more likely than the control group to know (OR: 11.93; CI: 3.43-41.48; \( p<0.001 \)).
Table 4.21: Paternal knowledge on breastfeeding 6 months post-partum

<table>
<thead>
<tr>
<th>Study groups</th>
<th>N=252</th>
<th>Chi-Square</th>
<th>Fisher’s exact test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Control N=81</td>
<td>Maternal N=83</td>
<td>Couple N=88</td>
</tr>
<tr>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
</tr>
</tbody>
</table>

Breast milk is nutritious

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>211 (83.7)</td>
<td>41 (16.3)</td>
</tr>
<tr>
<td>Maternal</td>
<td>66 (81.5)</td>
<td>15 (18.5)</td>
</tr>
<tr>
<td>Couple</td>
<td>66 (79.5)</td>
<td>17 (20.5)</td>
</tr>
<tr>
<td></td>
<td>79 (89.8)</td>
<td>9 (10.2)</td>
</tr>
<tr>
<td></td>
<td>3.740</td>
<td>0.154</td>
</tr>
</tbody>
</table>

Breast milk should be baby’s first food

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>244 (96.8)</td>
<td>8 (3.2)</td>
</tr>
<tr>
<td>Maternal</td>
<td>74 (91.4)</td>
<td>7 (8.6)</td>
</tr>
<tr>
<td>Couple</td>
<td>83 (100.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td></td>
<td>87 (98.9)</td>
<td>1 (1.1)</td>
</tr>
<tr>
<td></td>
<td>0.002*</td>
<td></td>
</tr>
</tbody>
</table>

Baby should be put on the breast within 1 hour after delivery

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>192 (76.2)</td>
<td>60 (23.8)</td>
</tr>
<tr>
<td>Maternal</td>
<td>60 (74.1)</td>
<td>21 (25.9)</td>
</tr>
<tr>
<td>Couple</td>
<td>49 (59.0)</td>
<td>34 (41.0)</td>
</tr>
<tr>
<td></td>
<td>83 (94.3)</td>
<td>5 (5.7)</td>
</tr>
<tr>
<td></td>
<td>29.605</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

Baby should be breastfed on demand

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>222 (88.1)</td>
<td>30 (11.9)</td>
</tr>
<tr>
<td>Maternal</td>
<td>68 (84.0)</td>
<td>13 (16.0)</td>
</tr>
<tr>
<td>Couple</td>
<td>69 (83.1)</td>
<td>14 (16.9)</td>
</tr>
<tr>
<td></td>
<td>85 (96.6)</td>
<td>3 (3.4)</td>
</tr>
<tr>
<td></td>
<td>0.009*</td>
<td></td>
</tr>
</tbody>
</table>

Correct definition of exclusive breastfeeding

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>140 (55.6)</td>
<td>112 (44.4)</td>
</tr>
<tr>
<td>Maternal</td>
<td>36 (44.4)</td>
<td>45 (55.6)</td>
</tr>
<tr>
<td>Couple</td>
<td>22 (26.5)</td>
<td>61 (73.5)</td>
</tr>
<tr>
<td></td>
<td>82 (93.2)</td>
<td>6 (6.8)</td>
</tr>
<tr>
<td></td>
<td>82.874</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

Baby should be breastfed exclusively for 6 months

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>187 (74.2)</td>
<td>65 (25.8)</td>
</tr>
<tr>
<td>Maternal</td>
<td>56 (69.1)</td>
<td>25 (30.9)</td>
</tr>
<tr>
<td>Couple</td>
<td>51 (61.4)</td>
<td>32 (38.6)</td>
</tr>
<tr>
<td></td>
<td>80 (90.9)</td>
<td>8 (9.1)</td>
</tr>
<tr>
<td></td>
<td>20.975</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

Baby should be breastfed for 24 months or more

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>186 (73.8)</td>
<td>66 (26.2)</td>
</tr>
<tr>
<td>Maternal</td>
<td>57 (70.4)</td>
<td>24 (29.6)</td>
</tr>
<tr>
<td>Couple</td>
<td>44 (53.0)</td>
<td>39 (47.0)</td>
</tr>
<tr>
<td></td>
<td>85 (96.6)</td>
<td>3 (3.4)</td>
</tr>
<tr>
<td></td>
<td>&lt;0.001*</td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p<0.05

The fathers were scored on a total of 9 knowledge questions and the differences in mean knowledge score at baseline and end line were calculated. The fathers’ knowledge score increased in both experimental groups (maternal and couple
counselling), but interestingly reduced in the control group (Table 4.22). The changes in the maternal and control groups however were not significant (t-test; p>0.05). While the changes (improvement in knowledge) in the couple counselling group were significant (t-test; p=0.001).

Table 4.22: Influence of counselling on paternal knowledge scores by study group

<table>
<thead>
<tr>
<th>Study group</th>
<th>Baseline mean score ± SD</th>
<th>End line mean score ± SD</th>
<th>Difference (±SE)</th>
<th>T-test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (group 1)</td>
<td>6.5±2.4</td>
<td>6.3±2.4</td>
<td>-0.2(0.4)</td>
<td>0.656</td>
<td></td>
</tr>
<tr>
<td>Maternal (group 2)</td>
<td>5.8±2.1</td>
<td>6.0±2.2</td>
<td>0.2(0.3)</td>
<td>0.410</td>
<td></td>
</tr>
<tr>
<td>Couple (group 3)</td>
<td>6.3±2.2</td>
<td>9.2±2.1</td>
<td>2.9(0.3)</td>
<td>0.001*</td>
<td></td>
</tr>
</tbody>
</table>

Mean of group 2 minus mean of group 1
-0.7 -0.3 0.4 0.229

Mean of group 3 minus mean of group 2
0.6 3.2 2.6 0.001*

Mean of group 3 minus mean of group 1
-0.1 2.9 3.0 0.001*

*Significant at p<0.05
1Standard error

The differences in the mean knowledge scores at baseline and end line (difference in difference or double difference) were compared across the study groups. The findings indicate that there were no significant changes in the difference in mean scores at baseline and end line (6 months post-partum) between the control and maternal groups (t-test; p=0.229). While the changes in the differences between the couple counselling group compared to the other two groups were significant (t-test; p=0.001). This indicates that the counselling had a significant influence on the knowledge of
fathers that received it, and this difference was an improvement from baseline. Furthermore, the influence of couple counselling on paternal knowledge was significantly higher than from maternal counselling.

4.12.3 The influence of couple counselling and maternal counselling on maternal attitudes towards exclusive breastfeeding by study group

To establish the impact of the two counselling strategies on maternal attitudes, the attitudes were again measured six months post-partum, on a 5 point Likert scale which ranged from strongly agree, agree, uncertain, disagree and strongly disagree. Overall, those that concurred (either agreed or strongly agreed) with the positive statements on breastfeeding were the majority (Table 4.23). Slightly less than three quarters (74.0%) concurred that exclusive breastfeeding for 6 months is feasible, 57.5% that exclusive breastfeeding for 6 months is adequate for the baby, 80.3% that exclusive breastfeeding for 6 months is good for the baby, 76.4% that colostrum should be given to the baby and 95.7% that breast milk should be baby’s first food.

The attitudes of the mothers towards paternal involvement in breastfeeding also revealed that most mothers felt that fathers should be involved in breastfeeding issues of the baby. Almost all (95.3%) felt that both mother and father should decide mode of feeding the baby, 94.1% felt that fathers should be involved in the breastfeeding of the baby, while 11% felt that breastfeeding is a mothers issue and fathers should not be involved (either agreed or strongly agreed). Worth noting is the fact that only 8.2% of the women at baseline and 10.6% at end line reported expressing of breast milk as acceptable, and would consider doing it. The reason cited for this was that expressing breast milk is considered a taboo in the local community.
<table>
<thead>
<tr>
<th>Aspects of attitude by study group</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group (N=83)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is feasible</td>
<td>6 (7.2)</td>
<td>8 (9.6)</td>
<td>16 (19.3)</td>
<td>42 (50.6)</td>
<td>11 (13.3)</td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is adequate for the baby</td>
<td>4 (4.8)</td>
<td>26 (31.3)</td>
<td>10 (12.0)</td>
<td>41 (49.4)</td>
<td>2 (2.4)</td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is good for the baby</td>
<td>5 (6.0)</td>
<td>8 (9.6)</td>
<td>4 (4.8)</td>
<td>59 (71.1)</td>
<td>7 (8.4)</td>
</tr>
<tr>
<td>• Fathers should be involved in the breastfeeding of the baby</td>
<td>0 (0)</td>
<td>4 (4.8)</td>
<td>1 (1.2)</td>
<td>19 (22.9)</td>
<td>59 (71.1)</td>
</tr>
<tr>
<td>• Breastfeeding is a mothers issue and fathers should not be involved</td>
<td>14 (16.9)</td>
<td>57 (68.7)</td>
<td>7 (8.4)</td>
<td>3 (3.6)</td>
<td>2 (2.4)</td>
</tr>
<tr>
<td>Maternal counselling group (N=83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is feasible</td>
<td>6 (7.2)</td>
<td>8 (9.6)</td>
<td>6 (7.2)</td>
<td>52 (62.5)</td>
<td>11 (13.3)</td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is adequate for the baby</td>
<td>6 (7.2)</td>
<td>18 (21.7)</td>
<td>11 (13.3)</td>
<td>41 (49.4)</td>
<td>7 (8.4)</td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is good for the baby</td>
<td>2 (2.4)</td>
<td>4 (4.8)</td>
<td>3 (3.6)</td>
<td>57 (68.7)</td>
<td>17 (20.5)</td>
</tr>
<tr>
<td>• Fathers should be involved in the breastfeeding of the baby</td>
<td>1 (1.2)</td>
<td>0 (0)</td>
<td>1 (1.2)</td>
<td>25 (30.1)</td>
<td>56 (67.5)</td>
</tr>
<tr>
<td>• Breastfeeding is a mothers issue and fathers should not be involved</td>
<td>9 (10.8)</td>
<td>51 (61.4)</td>
<td>6 (7.2)</td>
<td>13 (15.7)</td>
<td>4 (4.8)</td>
</tr>
<tr>
<td>Couple counselling group (N=88)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is feasible</td>
<td>6 (6.8)</td>
<td>7 (8.0)</td>
<td>3 (3.4)</td>
<td>61 (69.3)</td>
<td>11 (12.5)</td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is adequate for the baby</td>
<td>4 (4.5)</td>
<td>16 (18.2)</td>
<td>13 (14.8)</td>
<td>46 (52.3)</td>
<td>9 (10.2)</td>
</tr>
<tr>
<td>• Exclusive breastfeeding for 6 months is good for the baby</td>
<td>6 (6.8)</td>
<td>9 (10.2)</td>
<td>6 (6.8)</td>
<td>59 (67.0)</td>
<td>8 (9.1)</td>
</tr>
<tr>
<td>• Fathers should be involved in the breastfeeding of the baby</td>
<td>1 (1.1)</td>
<td>3 (3.4)</td>
<td>4 (4.5)</td>
<td>22 (25.0)</td>
<td>58 (65.9)</td>
</tr>
<tr>
<td>• Breastfeeding is a mothers issue and fathers should not be involved</td>
<td>15 (17.0)</td>
<td>59 (67.0)</td>
<td>8 (9.0)</td>
<td>5 (5.7)</td>
<td>1 (1.1)</td>
</tr>
</tbody>
</table>
Attitude questions were scored a maximum of 5 points; a response of strongly agree scored 5 points, agree scored 4, uncertain scored 3, disagree scored 2 and 1 point was awarded for strongly disagree. Mothers were scored on a total of 6 questions making the maximum total attitude score possible per mother, 30 points. The change that occurred in the mean attitude score in the 6 months was calculated for all study groups. The mother’s mean attitude score increased significantly across all study groups (t-test; p=0.001) in the 6 months after delivery, indicating that many mothers got some information during the 6 months that improved their attitude on breastfeeding (Table 4.24). The control group had the highest improvement in mean attitude score (9.2±0.3). The maternal counselling group had the least end line mean attitude score (18.5±2.1) as well as the smallest improvement in mean attitude score, followed by the couple counselling group (21.7±2.4).

Table 4.24: Influence of counselling on maternal attitude scores by study group

<table>
<thead>
<tr>
<th>Maternal</th>
<th>Mean attitude score</th>
<th>T-test</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study group</td>
<td>Baseline mean score ± SD</td>
<td>End line mean score ± SD</td>
<td>Difference (SE)</td>
</tr>
<tr>
<td>Control (group 1)</td>
<td>13.3±2.9</td>
<td>22.5±2.2</td>
<td>9.2(0.3)</td>
</tr>
<tr>
<td>Maternal (group 2)</td>
<td>13.1±2.7</td>
<td>18.5±2.1</td>
<td>5.4(0.4)</td>
</tr>
<tr>
<td>Couple (group 3)</td>
<td>12.9±2.6</td>
<td>21.7±2.4</td>
<td>8.8(0.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Baseline difference</th>
<th>End line difference</th>
<th>Difference in difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean of group 2 minus mean of group 1</td>
<td>0.2</td>
<td>4.0</td>
<td>-3.8</td>
</tr>
<tr>
<td>Mean of group 3 minus mean of group 2</td>
<td>0.2</td>
<td>-3.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Mean of group 3 minus mean of group 1</td>
<td>0.4</td>
<td>0.8</td>
<td>-0.4</td>
</tr>
</tbody>
</table>

*Significant at p<0.05
1Standard error
The differences in the mean maternal attitude score changes between baseline and end line (difference in difference or double difference) were significant when maternal counselling group was compared to the control group and the couple counselling group (t-test; \( p=0.001 \)). When the couple counselling group was compared to the control group, no significant differences were seen in the differences of the two groups at the two points in time (t-test; \( p=0.143 \)). There was therefore a significantly higher change in the mean attitude scores of the couple counselling group compared to the maternal counselling group.

4.12.4 The influence of couple counselling and maternal counselling on paternal exclusive breastfeeding attitudes by study group

To establish the impact of the two counselling strategies on paternal attitudes, the attitudes were scored similar to the mothers. Like mothers, many of the fathers also concurred (either agreed or strongly agreed) with the positive statements on breastfeeding (Table 4.25). Almost half (43.3%) concurred that exclusive breastfeeding for 6 months is feasible, 57.9% that exclusive breastfeeding for 6 months is adequate for the baby, 82.3% that exclusive breastfeeding for 6 months is good for the baby and 80% that colostrum should be given to the baby. The attitudes of the fathers towards paternal involvement in infant feeding showed that 95.7% felt that they should be involved and 9.8% felt that breastfeeding is a mothers’ issue and fathers should not be involved. Additionally, 89.8% of the fathers would have liked to be involved in the feeding issues of their children (Table 4.25).
Table 4.25: Paternal attitudes on breastfeeding 6 months post-partum by study group

<table>
<thead>
<tr>
<th>Aspects of attitude by study group</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control group (N=83)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Exclusive breastfeeding for 6 months is feasible</td>
<td>2 (2.4)</td>
<td>3 (3.6)</td>
<td>19 (22.9)</td>
<td>41 (49.4)</td>
<td>18 (21.7)</td>
</tr>
<tr>
<td>- Exclusive breastfeeding for 6 months is adequate for the baby</td>
<td>8 (9.6)</td>
<td>7 (8.4)</td>
<td>22 (26.5)</td>
<td>27 (32.5)</td>
<td>19 (22.9)</td>
</tr>
<tr>
<td>- Exclusive breastfeeding for 6 months is good for the baby</td>
<td>8 (9.6)</td>
<td>7 (8.4)</td>
<td>4 (4.8)</td>
<td>46 (55.4)</td>
<td>18 (21.7)</td>
</tr>
<tr>
<td>- Fathers should be involved in the breastfeeding of the baby</td>
<td>0 (0)</td>
<td>4 (4.8)</td>
<td>0 (0)</td>
<td>20 (24.1)</td>
<td>59 (71.1)</td>
</tr>
<tr>
<td>- Breastfeeding is a mothers issue and fathers should not be involved</td>
<td>16 (19.3)</td>
<td>49 (59.0)</td>
<td>7 (8.4)</td>
<td>8 (9.6)</td>
<td>3 (3.6)</td>
</tr>
</tbody>
</table>

| Maternal counselling group (N=83)                                       |                   |          |           |       |                |
| - Exclusive breastfeeding for 6 months is possible                      | 2 (2.4)           | 11 (13.3)| 19 (22.9) | 38 (45.8) | 13 (15.7)      |
| - Exclusive breastfeeding for 6 months is adequate for the baby        | 8 (9.6)           | 17 (20.5)| 14 (16.7) | 23 (28.5) | 21 (25.3)      |
| - Exclusive breastfeeding for 6 months is good for the baby            | 0 (0)             | 8 (9.6)  | 16 (19.3) | 14 (16.7) | 45 (54.2)      |
| - Fathers should be involved in the breastfeeding of the baby          | 1 (1.2)           | 1 (1.2)  | 1 (1.2)   | 55 (66.2) | 25 (30.1)      |
| - Breastfeeding is a mothers issue and fathers should not be involved  | 9 (10.8)          | 56 (67.5)| 6 (7.2)   | 8 (9.6)   | 4 (4.8)        |

| Couple counselling group (N=88)                                         |                   |          |           |       |                |
| - Exclusive breastfeeding for 6 months is possible                      | 2 (2.3)           | 4 (4.5)  | 9 (10.2)  | 50 (56.8) | 23 (26.1)      |
| - Exclusive breastfeeding for 6 months is adequate for the baby        | 4 (4.5)           | 7 (8.0)  | 20 (22.7) | 38 (43.2) | 19 (21.6)      |
| - Exclusive breastfeeding for 6 months is good for the baby            | 0 (0)             | 1 (1.1)  | 1 (1.1)   | 7 (8.0)   | 79 (89.8)      |
| - Fathers should be involved in the breastfeeding of the baby          | 1 (1.1)           | 3 (3.4)  | 0 (0)     | 6 (6.8)   | 78 (88.6)      |
| - Breastfeeding is a mothers issue and fathers should not be involved  | 4 (4.5)           | 82 (93.2)| 0 (0)     | 1 (1.1)   | 1 (1.1)        |
Fathers were scored on a total of 6 questions making the maximum total attitude score possible per person 30 points. Similar to knowledge, individual participant attitudes scores were calculated, which then allowed for the calculation of the study group mean attitude score. The father’s mean attitude score increased in all study groups, but this increase was only significant (t-test; p<0.05) among the two experimental groups (maternal and couple counselling) and not in the control group (t-test; p>0.05). (Table 4.26). The couple counselling group had the highest improvement in the attitude scores when post-intervention (6 months post-partum) scores were compared with the baseline scores (1.6). This was followed by the maternal counselling group (1.0) and last was the control group with an increase of 0.5.

Table 4.26: Influence of counselling on paternal attitude scores by study group

<table>
<thead>
<tr>
<th>Study group</th>
<th>Baseline mean score ± SD</th>
<th>End line mean score ± SD</th>
<th>Difference (±SE)</th>
<th>T-test P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (group 1)</td>
<td>17.9± (3.7)</td>
<td>18.4±2.1</td>
<td>0.5(0.5)</td>
<td>0.256</td>
</tr>
<tr>
<td>Maternal (group 2)</td>
<td>16.1±2.7</td>
<td>17.1±2.4</td>
<td>1.0(0.4)</td>
<td>0.014*</td>
</tr>
<tr>
<td>Couple (group 3)</td>
<td>17.6±2.7</td>
<td>19.2±2.4</td>
<td>1.6(0.4)</td>
<td>0.001*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mean of group 2 minus mean of group 1</th>
<th>Baseline difference</th>
<th>End line difference</th>
<th>Difference in difference</th>
<th>T-test P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.8</td>
<td>-1.4</td>
<td>0.4</td>
<td>0.143</td>
</tr>
<tr>
<td>Mean of group 3 minus mean of group 2</td>
<td>1.5</td>
<td>2.1</td>
<td>0.6</td>
<td>0.299</td>
</tr>
<tr>
<td>Mean of group 3 minus mean of group 1</td>
<td>-0.4</td>
<td>0.7</td>
<td>1.1</td>
<td>0.024*</td>
</tr>
</tbody>
</table>

*Significant at p<0.05
1Standard error

Further, the difference in differences indicate that there were no significant changes in the difference in mean scores at baseline and end line (6 months post-partum)
between the control and maternal groups (t-test; p=0.143), and between the maternal and couple counselling group (t-test; p=0.299). Changes in the differences between the couple counselling group compared to the control group were significant (t-test; p=0.024). This indicates that couple counselling had a significant positive influence on fathers’ attitudes. The influence of couple counselling on paternal attitude was however not significantly higher than that of maternal counselling (t-test; p=0.299).

4.13 Acceptability of couple counselling among mothers and fathers

Mothers and fathers in all 3 study groups were asked questions at the end of the intervention to assess their opinions towards couple counselling and whether they would recommend for the strategy to become standard health facility practice. In addition, those who had received counselling were asked the positive aspects of the counselling and areas that needed improvement.

4.13.1 Acceptability of couple counselling among mothers and fathers

Most mothers in all the study groups (99.2%) found couple counselling acceptable, and 97.6% would recommend for it to become standard practice by health workers. Ninety nine percent (99%) indicated that they would like their partners counselled on exclusive breastfeeding in future. Similarly, most fathers in all the study groups (87.6%) found couple counselling acceptable, and 83.6% would recommend for it to become standard practice by health workers. The majority of fathers (86.8%), also indicated that they would like to be counselled on exclusive breastfeeding in future.

Despite high levels of acceptability among both sexes, a significantly higher proportion of mothers than fathers found couple counselling acceptable (Chi-square: p=0.001), would like fathers to be counselled on infant feeding in future (Chi-square:
p=0.001) and would recommend couple counselling to be standard health service (Chi-square: p=0.001) (Table 4.27). One of the major challenges to couple counselling cited was availability of fathers at home, as mentioned in the FGDs and KIIIs with the DNO and nurse in charge of the MCH clinic.

Table 4.27: Acceptability of couple counselling among mothers and fathers from all study groups

<table>
<thead>
<tr>
<th>Aspect of acceptability</th>
<th>Total (N=504)</th>
<th>Fathers (N=250)</th>
<th>Mothers (N=254)</th>
<th>Chi-square</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Find couple counselling acceptable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>471 (93.5)</td>
<td>219 (87.6)</td>
<td>252 (99.2)</td>
<td>0.001*</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>33 (6.5)</td>
<td>31 (12.4)</td>
<td>2 (0.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would fathers to be counselled on infant feeding issues in future</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>469 (93.1)</td>
<td>217 (86.8)</td>
<td>252 (99.2)</td>
<td>0.001*</td>
<td></td>
</tr>
<tr>
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<td>35 (6.9)</td>
<td>33 (13.2)</td>
<td>2 (0.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommend couple counselling rather than maternal counselling as standard practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Yes</td>
<td>457 (90.7)</td>
<td>209 (83.6)</td>
<td>248 (97.6)</td>
<td>0.001*</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>47 (9.3)</td>
<td>41 (16.4)</td>
<td>6 (2.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at p<0.05

4.13.2 Acceptability of couple counselling among mothers and fathers by study groups

Overall, a majority (99.2%) of mothers found couple counselling acceptable. No significant differences were observed in the acceptability of couple counselling among the study groups (Fisher’s exact test: p=0.606). All (100%) mothers in the maternal counselling group, 98.9% in the couple counselling group and 98.8% in the control group found couple counselling acceptable.
Table 4.28: Acceptability of couple counselling among mothers and fathers by study group

| Aspect of acceptability | Study groups | | | | | \hline
| | Total N=252 | Control N=83 | Maternal N=83 | Couple N=88 | Chi-square/Fisher's exact test | P-value |
| | N=83 | n (%) | n (%) | n (%) | n (%) | |
| Maternal | | | | | | |
| Couple counselling acceptable | | | | | | |
| Yes | 250 (99.2) | 82 (98.8) | 83 (100) | 87 (98.9) | 0.606 |
| No | 2 (0.8) | 1 (1.2) | 0 (00) | 1 (1.1) | |
| Would like fathers counselled on infant feeding issues in future | | | | | | |
| Yes | 250 (99.2) | 82 (98.8) | 83 (100) | 87 (98.9) | 0.606 |
| No | 2 (0.8) | 1 (1.2) | 0 (00) | 1 (1.1) | |
| Recommend couple counselling over maternal counselling as standard practice | | | | | | |
| Yes | 246 (97.6) | 80 (96.4) | 83 (100) | 85 (96.6) | 0.217 |
| No | 6 (2.4) | 3 (3.6) | 0 (00) | 3 (3.4) | |
| Paternal | | | | | | |
| Couple counselling acceptable | | | | | | |
| Yes | 221 (87.7) | 53 (65.4) | 81 (97.6) | 87 (98.9) | <0.001* |
| No | 31 (12.3) | 28 (34.6) | 2 (2.4) | 1 (1.1) | |
| Would like to be counselled on infant feeding issues in future | | | | | | |
| Yes | 219 (86.9) | 52 (64.2) | 80 (96.4) | 87 (98.9) | <0.001* |
| No | 33 (13.1) | 29 (35.8) | 3 (3.6) | 1 (1.1) | |
| Recommend couple counselling over maternal counselling as standard practice | | | | | | |
| Yes | 211 (83.7) | 58 (71.6) | 68 (81.9) | 85 (96.6) | <0.001* |
| No | 41 (16.3) | 23 (28.4) | 15 (18.1) | 3 (3.4) | |

*Significant at p<0.05
Overall, a majority (87.7%) of fathers found couple counselling acceptable. Significantly higher percentages of fathers in the couple counselling group (98.9%) and 97.6% in the maternal counselling group found couple counselling acceptable (Fisher’s exact test: p<0.001). A majority of fathers from the control (71.6%), maternal counselling (81.9%) and couple counselling (96.6%) groups also indicated that couple counselling should become standard health service practice (Fisher’s exact test: p<0.001) (Table 4.28).

Acceptability of couple counselling was also discussed in the FGDs with mothers, fathers, CHWs and breastfeeding counsellors in the research team. Most participants were in agreement that both mothers and fathers should be counselled on exclusive breastfeeding. A mother from the maternal counselling group summed it up as: “You know when the father of the child is also taught about breastfeeding by a health worker, he is more willing to provide what I need to successfully exclusively breastfeed. Fathers sometimes think that we are exaggerating what we have been taught at the hospital.” A father from the control group FGD stated “Our wives listen to us more than the health workers and when I know what she should be doing, I will remind her”. The CHWs were also in favour of including fathers in counselling on infant feeding. “Including the father increases the chances that the mother will keep in line with the recommendation to exclusively breastfeed for 6 months, as she will be getting moral support from him.”
4.13.3 Mothers’ and fathers’ likes and dislikes about couple counselling

The participants were asked the aspects of couple counselling that they found acceptable and those that they did not. The participants in the FGDs from the couple counselling groups felt that the counselling brought a sense of unity between couples in the breastfeeding. A mother commented, “I found my husband was more involved in the breastfeeding issues and this brought us closer as a family.” The two-way communication nature of the counselling was also liked by mothers in the two intervention groups, “The fact that I am able to ask the counsellor questions and be answered really made it good.”

The convenience of the counselling venue and the continuous nature were well received by mothers in the couple counselling group, “The constant follow-up really motivated me to continue with exclusive breastfeeding.” And “I liked the fact that we did not have to go with my husband all the way to the hospital. This was very convenient.” An important finding is that men in all three study groups considered themselves left out of breastfeeding promotion activities, “We are left out in the education given about breastfeeding of our own children. We would like to be educated together with our wives so that we know what is required of us. You know, our wives listen to us more than the health workers and when I know what she should be doing, I will remind her”. The CHWs were in agreement as they reported some of the limitations they see with the IYCF education given at community level, “We mainly discuss health issues with mothers and assist in times of emergency. The father has not been targeted in IYCF education.” Therefore, the fact that men were targeted in this case was an aspect that resonated well with both mothers and fathers.
Mothers and fathers who had received counselling were asked the information they found most and least useful in the counselling they had received. The aspects identified were mainly on the counselling content. Among the mothers, the most useful information were: importance of relaxation in milk let-down (63.8%), proper attachment of baby to the breast during feeding (63.8%), health benefits of exclusive breastfeeding over mixed feeding in the first 6 months of life (63.4%) and the roles of a father in supporting a mother in breastfeeding (62.9%). The least useful information according to the mothers was expressing of breast milk as stated by 69.7% and that breastfeeding helps control pregnancy (68.5%). On the other hand, the fathers who had received counselling cited the most useful aspects as: expressing of breast milk (75%), ways in which a father can support a breastfeeding mother (75%), importance of relaxation in milk let-down (64.3%), and the benefits of exclusive breastfeeding for 6 months (56%). The least useful information according to counselled fathers was that breastfeeding helps control pregnancy (75.8%).

Expressing of breast milk as a content of counselling received both strong positive and negative reactions (Table 4.29). A mother from the FGD for maternal counselling group commented, “In our community, a woman only expresses breast milk when her baby has died. Expressing breast milk for a baby who is alive is like wishing that they die. It is a big curse.” Some fathers’ sentiments were also captured by one FGD participant from the couple counselling group “Some of what is taught is against what we know. How can my wife be encouraged to milk herself? We only milk animals.” The findings of the KIIs and FGD held with the CHWs were in agreement with the fact that expressing breast milk is a taboo among the local community and this made it a challenge to discuss it.
Among women in the FGDs, written Information, Education and Communication (IEC) material on IYCF messages at health facilities were reported not to be appropriate to the mothers’ needs, “The posters and pamphlets are in English and Kiswahili. I cannot read either language.” This was in comparison to the counselling in which the local language was used and the women could better comprehend the messages.

4.13.4 Challenges experienced in couple counselling

The FGDs held with the research team breastfeeding counsellors revealed challenges faced, which could provide some insight to improve similar programmes in future. Missed appointments were reported as a challenge, “Especially with the fathers and working women, it forces you to come again or look for them at work.” This was particularly noticeable after the 3rd month post-partum as a number of women returned to income generating activities. The implication of missed appointments for the couple counselling was that the counsellor had to search for 2 people (mother and father) as compared to only one person for the maternal counselling group (Table 4.29).

In general, the work was very fulfilling as reported by the breastfeeding counsellors, “The men are very receptive of the idea since they do not have other places where they are taught.” The women in the couple counselling group were reported to be more attentive and committed compared to the maternal counselling group. The aspects that were liked most by the participants were also investigated through FGDs with the breastfeeding counsellors. They reported “Women appreciate the demonstration on baby attachment to the breast. Men really liked the fact that they
are included in the information dissemination. Most fathers liked information on the benefits of exclusive breastfeeding to the baby and tips on how they can support their breastfeeding partners.”

As expected, there were receptive and less receptive clients, “Some clients required repeat counselling so as to be convinced to try and continue with exclusive breastfeeding.” Another challenge reported at the beginning of the study was the association of exclusive breastfeeding with HIV positive mothers, thus stigmatising the counselling process. There was also a general concern on the frequency of the counselling as expressed by the men in the FGDs in the three groups. Most felt that getting time would be a challenge if the sessions were frequent, “Teaching sessions should not be too frequent since we understand things very fast. We have to go out and earn some money for the day and find it hard to be waiting to be taught on breastfeeding.”
### Table 4.29: Summary of FGD findings on aspects of couple counselling liked and disliked by mothers and fathers, and challenges to breastfeeding counsellors

<table>
<thead>
<tr>
<th>Theme</th>
<th>Focus group</th>
<th>Discussion findings</th>
</tr>
</thead>
</table>
| **Aspects of couple counselling liked** | Mothers     | - Unified the family and improved relation between wife and husband  
- The two-way communication allowing for feedback  
- Home as a venue was convenient for both fathers and mothers  
- Information on: importance of relaxation for milk let-down, proper attachment of baby to the breast during breastfeeding, health benefits of exclusive breastfeeding to the baby, roles that a father can play to promote exclusive breastfeeding, expressing of breast milk |
|                           | Fathers      | - The fact that it included fathers as a target group  
- Unified the family  
- The two-way communication allowing for feedback  
- Information on: importance of relaxation for milk let-down, proper attachment of baby to the breast during breastfeeding, health benefits of exclusive breastfeeding to the baby, roles that a father can play to promote exclusive breastfeeding, expressing of breast milk |
| **Aspects of couple counselling disliked** | Mothers     | - Least useful information: expressing of breast milk, that exclusive breastfeeding helps prevent pregnancy |
|                           | Fathers      | - Least useful information: expressing of breast milk, that exclusive breastfeeding helps prevent pregnancy  
- Counselling sessions too frequent |
| **Challenges of couple counselling** | Breastfeeding counsellors | - Time constraints for fathers  
- Gender roles  
- Association of exclusive breastfeeding counselling with HIV resulting in stigma  
- Fathers not always able to keep appointments because they have to fend for family |
|                           | Community Health Workers (CHWs) | - Time constraints for fathers  
- Feeding children is a culturally determined gendered role  
- Multiple roles to play by the CHW therefore increased workload |
|                           | Mothers      | - Time constraints for fathers  
- Feeding children is a culturally determined gendered role |
|                           | Fathers      | - Time constraints for fathers  
- Feeding children is a culturally determined gendered role |
4.14 Paternal involvement in the promotion of exclusive breastfeeding

4.14.1 Paternal involvement in infant feeding by time and study group

Overall, most fathers had not accompanied their partners or infant to the MCH clinic, just as they had not done so for the ANC clinics. In the first week after birth, 25.3% of the fathers had accompanied their partners to the MCH clinic; 33% of the maternal group, 22.9% of the control and 21.1% of the couple counselling group accompanied their partners to the MCH clinic. The study groups did not significantly differ in this respect (Chi-square test: p=0.168). Similarly, at 6 months post-partum, most fathers had not accompanied their partners to the MCH clinic, as only about a quarter of them (25.2%) had done so (Figure 4.5). Thirty three percent (33%) of fathers from the maternal group had accompanied their partner to the clinic, followed by 22.9% in the control and 21.6% in the couple counselling group. The study groups did not significantly differ in this respect (Chi-square test; p=0.168).

Figure 4.5: Paternal MCH attendance and deciding mode of infant feeding by time and study group
Mothers were asked about paternal involvement in infant feeding at first week and 6 months after delivery. At the first week, most fathers (96.8%) ensured that there was adequate food for the breastfeeding mothers, and provided moral support (85.1%). About half (49.5%) helped with infant care like washing and carrying the baby while 24.6% purchased food for the infant. Similar findings were observed at 6 months post-partum.

In the first week after delivery, there was a higher tendency of parents in the couple counselling group (90% mothers and 91.1% fathers) to decide the mode of breastfeeding for the infant compared to the maternal and control groups (72.1% mothers and 41.9% fathers) and (81% mothers and 49.5% fathers) respectively. In these two latter groups, the health workers played a role for more couples in deciding mode of infant feeding (30.2% in maternal) and (24.8% in control) than in the couple counselling group where health workers played a role for only 2.2%.

4.14.2 Factors influencing paternal involvement in exclusive breastfeeding

Almost all mothers (97.6%) reported that the father had provided adequate breastfeeding support. All mothers in the couple counselling (100%), 99% in the control group and 93% in the maternal counselling group reported adequate support from the partner/husband (Fisher’s exact test: p=0.005).

In the FGD with fathers from the control group, the importance of exclusive breastfeeding was not appreciated by many participants. “Our mothers gave us food very early, before 6 months of age and we grew up well. I don’t see the big issue about exclusive breastfeeding.” Fathers in the FGDs in the three groups indicated limited opportunities to breastfeeding information as a reason for limited knowledge
and ability to support their partners. They expressed sentiments of being left out of the breastfeeding process, “Women are targeted with information everywhere; the ANC clinics, by CHWs, and thus are better placed to make breastfeeding decisions and care for the baby. The health systems do not directly target us.”

Culturally prescribed gender roles were also cited as a factor influencing the level of involvement in the feeding of their infants as stated by 72.7% of the fathers. Feeding and care of infants and children was culturally a woman’s responsibility and fathers who got involved may have been seen to lose their status in society. This particular topic resulted in heated debate among participants in both the control and maternal counselling groups. Some of the arguments were as follows: “You know we were not created to do certain things. It is just not in us. Mine is to ensure that there is enough food for my wife and children.” This was supported by another, “God created women with breasts for a reason and it is their responsibility to feed children. Can you imagine a grown man pestering the wife to breastfeed? Some of these things are not for black people.” Candidly stated by one participant in the control group, “A baby becomes the father’s when they start walking. Before then, it is the mother’s.”

Those opposed to the idea of gender roles in infant feeding however argued that, “The baby belongs to both of us. We should assist each other in all things concerning the baby. Today’s world is different.” There were less disagreements among the men in the couple counselling FGD. Most supported the idea of sharing the responsibility, although with conditions “As long as my wife does not end up disrespecting me for helping her out.”
The feeling of being an outsider in the breastfeeding process also came up as a barrier to fathers getting involved: “Fellow men will tell you, women change after giving birth. The attention she used to give you is all diverted to the baby. They leave out the men completely. We do not want to compete with the babies.” Time constraints was unanimously mentioned as a major factor by 89.6% of the fathers from all three study FGDs: “After working the whole day, you just want to rest when you get home. She can take care of the feeding.” And, “Where is the time? I have to work the whole day.”

These findings were in agreement with those from the FGDs with the CHWs and research team breastfeeding counsellors who reported that finding fathers at home for the counselling sessions needed relatively more planning than for mothers. Most men worked outside the home and spent most of the day out fending for the family. The CHWs also reported that their duties are numerous and that IYCF education was mainly given to mothers. In addition, the KIIIs with the DNO and head nurse at the MCH clinic concurred that fathers did not attend the ANC and MCH clinics frequently for them to benefit adequately from the nutrition education offered at the health facilities.

4.15 Factors influencing exclusive breastfeeding in Nyando District

Interviews with fathers and mothers revealed that less than a third of the fathers (25.3%) accompanied their partners to ANC and / or MCH clinics between the baseline data collection and when the infant was aged 6 months. This limited the opportunities to reinforce messages on exclusive breastfeeding among fathers. From the KIIIs held with the District Nutrition Officer (DNO) and Nurse in charge of the
MCH clinic, it emerged that many pregnant women in the area do not attend ANC and MCH clinics as recommended and many also do not deliver at health facilities. Most women were also reported to come to the ANC alone, without their partners.

The FGDs held with mother not practising exclusive breastfeeding from the 3 study groups identified mother returning to work as a constraint to exclusive breastfeeding, “Exclusive breastfeeding is not easy. These days even women have to earn a living. So I may not stay at home for 6 months just breastfeeding.” This was consistent with the quantitative findings that showed maternal occupation as a predictor of exclusive breastfeeding. Some mothers did not believe in exclusive breastfeeding, “We are taught to exclusively breastfeed for 6 months but it is not realistic. Without even water?” And, “My other children were given food before 6 months and are alive and well. What has changed?” Some fathers from the control group were not convinced that exclusive breastfeeding for six months is possible, “Surely, we give water even to the domestic animals that we keep. How can we leave our baby without water for 6 months?”

Mothers who exclusively breastfed in the three groups however, agreed that exclusive breastfeeding was beneficial based on their experiences. Positive infant outcomes encouraged the practice of exclusive breastfeeding. One mother reported, “The health of this baby has been different from my other children and that of my sister-in-law’s baby who is the same age as him. Exclusive breastfeeding is really good.” The same mothers reported coping with the challenge of being away from the house by carrying the baby everywhere they went.
4.16 Predictors of exclusive breastfeeding in Nyando District

The predictors of exclusive breastfeeding were tested in a multi-variate analysis. The following variables were tested to establish whether they predict the practice of exclusive breastfeeding: maternal characteristics; knowledge on exclusive breastfeeding, attitude towards exclusive breastfeeding, occupation, age, parity and educational level. Infant sex, household socio-economic status and counselling were also tested. The findings showed that mothers in the experimental groups were significantly less likely to discontinue exclusive breastfeeding before 6 months compared to mothers in the control group (AHR: 0.63; CI: 0.40-0.99; p=0.044 for maternal counselling and AHR: 0.52; CI: 0.33-0.82; p=0.005 for couple counselling). Further, the likelihood to exclusively breastfeed among women in professional jobs and business were not significantly different from women farmers (Table 4.30). Housewives however, were 35% less likely to discontinue exclusively breastfeeding compared to farmers (AHR: 0.65; CI: 0.5-0.84; p=0.001). Female infants were 3.4 times more likely to be exclusively breastfed for 6 months compared to males (AHR: 1.39; CI: 1.15-1.66; p<0.001).

Maternal age was also a predictor of exclusive breastfeeding with younger mothers (AHR: 1.03; CI: 1.00-1.05; p=0.022) significantly more likely to exclusively breastfeed for 6 months, than older ones (Table 4.30). For every unit increment in maternal age, the odds of mixed feeding increased by 3%. The socio-economic status of the mother as determined by asset ownership was also a predictor of exclusive breastfeeding. Mothers in the least poor quintile were one and a half times more likely to discontinue exclusively breastfeeding than those in the poorest quintile, before 6 months (AHR: 1.55; CI: 1.13-2.14; p=0.006).
Table 4.30: Predictors of exclusive breastfeeding

<table>
<thead>
<tr>
<th>Variable</th>
<th>95% CI</th>
<th>Adjusted Hazard Ratio</th>
<th>Lower</th>
<th>Upper</th>
<th>P-value</th>
</tr>
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<td>Breastfeeding knowledge score</td>
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<td>1.06</td>
<td>0.816</td>
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<tr>
<td>Breastfeeding attitude score</td>
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<td>1.01</td>
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<td>Control</td>
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<tr>
<td>Maternal</td>
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</tr>
<tr>
<td>Boy</td>
<td>1.39</td>
<td>1.15</td>
<td>1.66</td>
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<td>Housewives</td>
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<td>Least poor quintile</td>
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<td>2.14</td>
<td>0.006*</td>
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<td>Mother’s education level</td>
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<td></td>
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<td></td>
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<td>None/primary</td>
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<tr>
<td>Secondary plus</td>
<td>0.95</td>
<td>0.74</td>
<td>1.21</td>
<td>0.653</td>
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</tr>
<tr>
<td>Theta</td>
<td>0.11*</td>
<td>(0.06)</td>
<td></td>
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</tbody>
</table>

*Significant at p<0.05
Maternal knowledge and attitude towards exclusive breastfeeding, parity and educational level did not predict the practice of exclusive breastfeeding (Table 4.30). In summary, the predictors of exclusive breastfeeding were; being a housewife, being a younger mother, female infants, a mother from a lower socio-economic status and having received counselling on exclusive breastfeeding.
CHAPTER FIVE: DISCUSSION

5.0 Introduction

This was a cluster-randomised controlled trial to test the influence of couple counselling and maternal counselling on exclusive breastfeeding knowledge, attitude and rates. The study also investigated the acceptability of couple counselling as a strategy, the factors influencing paternal involvement in the promotion of exclusive breastfeeding and the predictors of exclusive breastfeeding.

5.1 The impact of couple counselling and maternal counselling on exclusive breastfeeding rates

The promotion and support of exclusive breastfeeding is a global priority because of the health, growth and developmental benefits it confers to children and society in general (Black et al., 2008; The World Bank, 2006). By contributing to the reduction in child malnutrition, morbidity and mortality, exclusive breastfeeding contributes to the achievement of Kenya’s Vision 2030 and all the Millennium Development Goals (MDGs) (Republic of Kenya, 2012; WFP and DSM, 2008). The WHO estimates that improvement of exclusive breastfeeding practices, adequate and timely complementary feeding and continued breastfeeding for up to 2 years or beyond, could save the lives of 1.5 million children under 5 years of age annually (WHO, 2013). Despite showing a rising trend, the rates of exclusive breastfeeding in Africa are still low (UNICEF 2012; WHO, 2012). In Kenya, the prevalence of exclusive breastfeeding among infants less than 6 months (32%) is still below the WHO global target of at least 50% by the year 2022 (WHO, 2012); and Kenya’s targeted annual increase of 3% that translates to a rate of 56% by the years 2016/2017 (Republic of Kenya, 2012).
In the current study, both maternal and couple counselling led to significantly higher rates of exclusive breastfeeding, thus concurring with the findings of other studies that educational support for mothers improves exclusive breastfeeding (Britton et al., 2007; Ochola et al., 2013; Sudfeld et al., 2012; Tylleskar et al., 2011). Studies have reported the need to include fathers as important stakeholders in the feeding of their children (Februhartanty et al., 2007; MoH & USAID, 2011; Ochola et al., 2013). Literature on intervention studies targeting fathers in developing countries, particularly sub-Saharan Africa, is however still limited. In Kenya, no study has scientifically tested the impact of fathers in the promotion of exclusive breastfeeding.

This study has demonstrated that couple counselling strategy is as effective as maternal counselling in improving consistent exclusive breastfeeding for 6 months. The hypothesis that there is no significant difference in couple counselling and maternal counselling in improving exclusive breastfeeding rates was supported by the findings and was therefore not rejected. Lovera et al., (2010) had similar findings. They found no significant difference in exclusive breastfeeding for 6 or more months between mothers whose partners got peer-support and those who received maternal peer-counselling only, in Hispanic couples in Texas, U.S.

On the contrary, a study done in Naples, Italy, found that educating fathers on exclusive breastfeeding resulted in better exclusive breastfeeding rates (Pisacane et al., 2005). An intervention study in Brazil giving breastfeeding education to fathers gave mixed results. The mother-father group had higher exclusive breastfeeding rates than the mothers-only group at 4 months. At 6 months, inclusion of the fathers increased exclusive breastfeeding rates only when they had higher education level
Other studies done on the impact of educating the father on the breastfeeding found that this resulted in better breastfeeding rates, regardless of whether he was educated alone or together with his partner. These were done in Bristol, U.K, and Baltimore, U.S. (Ingram & Johnson, 2004; Wolfberg et al., 2004). Jenkins et al., (2012) identified constraints to increasing exclusive breastfeeding rates in Zimbabwe and most of the developing world. One important constraint they identified is that key decision makers (fathers/partners and other family members) are often poorly informed about exclusive breastfeeding and do not attend ANC clinics where health information is routinely provided. The inclusion of the father as a target for exclusive breastfeeding information is thus important, as was done in this study.

Couple counselling led to better exclusive breastfeeding outcomes compared to maternal counselling although the difference was not significant. The couple counselling group had significantly fewer infants given post-lacteals. Few infants in all three study groups were given pre-lacteals. Findings from the latest KDHS show that about 41.8% and 46.1% of children in Kenya and Nyanza respectively, are given prelacteals (KNBS & ICF Marco, 2010). As expected, exclusive breastfeeding rates took a downward trend as the infant grew older. This is consistent with trends in Kenya and most countries in the world, which shows that exclusive breastfeeding reduces with age (KNBS & ICF Marco, 2010; UNICEF, 2012).

The findings of this study are also consistent with other studies conducted in sub-Saharan Africa which showed that peer-counselling of mothers led to significant improvements in exclusive breastfeeding rates (Ochola et al., 2013; Tylleskar et al., 2011). These were in Kenya, Uganda, Burkina Faso and South Africa. Other studies
conducted in Netherlands and Bangladesh similarly found peer-counselling of mothers effective in improving exclusive breastfeeding rates (Gijsbers et al., 2008; Haider et al., 2000). Haidar and Zohreh (2009) also reported improvements in exclusive breastfeeding rates in Yazd, Iran, after an educational program of group discussions, lectures and pamphlets.

Timely initiation of breastfeeding (within 1 hour of delivery), has been shown to have benefits for both mother and infant (WHO, 2009). In the current study, a majority of the study participants met the Kenya’s MoH and WHO recommendation to initiate breastfeeding within 30 minutes and 1 hour after delivery respectively (GoK et al., 2011; WHO, 2009). Fifty eight percent of children in Kenya are initiated to breastfeeding within one hour of birth, with Nyanza province having 61.3% initiated within 1 hour (KNBS & ICF Marco, 2010). The unexpected finding that place of delivery was not associated with early exclusive breastfeeding or timely initiation of breastfeeding could have been due to the fact that most (66.9%) of all the deliveries were at a health facility. Similar findings of association between place of delivery and exclusive breastfeeding were seen in Western India (Sapna et al., 2009) and in Ghana (Tampah-Naah & Kumi-Kyereme, 2013).

5.2 The influence of couple counselling and maternal counselling on maternal and paternal knowledge exclusive breastfeeding

The marked improvement in paternal knowledge associated with couple counselling was not unexpected since the fathers in this group received information in counselling from the research team. Fathers in the other two study groups showed no significant change in their knowledge despite having had a baby for the past 6 months. This was
in agreement with the finding that fathers got limited access to breastfeeding information in the study site. It also implies that the mothers in the maternal counselling group were not sharing the information received during the counselling sessions with their partners.

Similarly, in Manisa, Turkey, previous education on lactation and breastfeeding had a positive effect on fathers’ knowledge on exclusive breastfeeding (Taşpınar et al., 2013). A District-wide campaign conducted in rural Zimbabwe to encourage exclusive breastfeeding also led to improved knowledge of fathers (Jenkins et al., 2012). The campaign was a combination of traditional strategies of education, counselling and outreach through health service delivery with a road show ‘edutainment’ intervention to reach men and other community members. Road show exposure was more strongly associated with knowledge on exclusive breastfeeding among men, closing the knowledge gap between men and women (Jenkins et al., 2012). The impact of the intervention on exclusive breastfeeding practices had not been established as the study was still ongoing.

There is need to address the knowledge gap on the correct definition of exclusive breastfeeding, which was evident among all fathers at baseline and among the non-counselling fathers after intervention. The fact that exclusive breastfeeding means not giving even water was not well known. A study in Enugu, Nigeria, by Uchenna (2012), found that mothers believed that giving the baby water once in a while also meant exclusive breastfeeding. Other knowledge areas that need improvement in the study area among the fathers is the duration of exclusive breastfeeding and the duration of breastfeeding in general.
Also expected, was the finding that mothers in all study groups had considerable improvement in the knowledge levels, 6 months post-partum. This finding that mothers in the control group also improved on knowledge on exclusive breastfeeding can be attributed to the fact that the standard Ministry of Health services provide mothers with education on IYCF both at health facility and community levels (MOPH, 2007). Most mothers therefore, are likely to get information on exclusive breastfeeding. Additionally, a majority of the mothers delivered at health facilities, which usually provide exclusive breastfeeding education during the stay at the facility following delivery. The finding that maternal counselling was associated with higher improvement in knowledge among the mothers in maternal counselling group compared to couple counselling was unexpected. A possible explanation for this could be that mothers in the maternal counselling group would have been keener on the content of the counselling knowing that they were being taught alone, while the mothers in couple counselling group may have felt the responsibility for learning was shared with the father of the child who was also counselled.

The finding that counselling of mothers on breastfeeding improved knowledge significantly is not uncommon. Gijsbers et al., (2008) found the same in Dutch women. Similarly, in Cairo, Egypt, mothers’ knowledge significantly increased after breastfeeding education (Ahmed, 2008). While in Taipei, Taiwan, a 90-minute group educational programme on breastfeeding during their 20th–36th week of pregnancy led to higher scores in breastfeeding knowledge at 3 days postpartum (Lin, Chien, Tai & Lee, 2007). In Ayrshire, Scotland, breastfeeding peer-supporter training programme also improved maternal knowledge scores (Kempenaar & Darwent, 2013). Haidar and Zohreh (2009) also reported improvements in knowledge and
attitude in Yazd, Iran, after an educational program of group discussions, lectures and pamphlets. In the current study, mothers were generally more knowledgeable about exclusive breastfeeding than fathers. Fjeld et al., (2008) also reported fathers in Mazabuka, Zambia as less knowledgeable on exclusive breastfeeding, than mothers.

Despite the mothers being well informed, knowledge on timely initiation of breastfeeding and the recommended duration of breastfeeding was significantly relatively less in the control group compared to the two experimental groups. A positive finding was that both fathers and mothers in the study were knowledgeable on the benefits of exclusive breastfeeding. These findings disprove the hypothesis that there is no significant difference between the influences of couple counselling and maternal counselling on maternal and paternal exclusive breastfeeding knowledge. The hypothesis was thus rejected.

5.3 The influence of couple counselling and maternal counselling on maternal and paternal attitudes towards exclusive breastfeeding

The attitudes of the significant persons in the mother’s life are an important determinant of her exclusive breastfeeding attitude, behaviour and breastfeeding success (Scott et al., 2004; Swanson & Power, 2005). It is therefore important to promote positive attitudes towards exclusive breastfeeding among the infants’ fathers. Since couple counselling was associated with significantly better improvements in maternal attitudes than maternal counselling, the hypothesis that there is no significant difference between the influences of couple counselling and maternal counselling on maternal and paternal exclusive breastfeeding attitude was rejected. Other intervention studies reporting improved maternal attitude after exclusive breastfeeding
education include those done in Cairo, Egypt, Yazd, Iran, Ayrshire, Scotland, and Taipei, Taiwan (Ahmed, 2008; Haidar & Zohreh, 2009; Kempenaar & Darwent, 2013; Lin, Chien & Lee, 2008).

There was an attitude gap in both mothers and fathers as they believed exclusive breastfeeding for 6 months may be inadequate for the baby. This was evident both before and after intervention. The likelihood to succeed at changing health related behaviour is reduced when an individual does not fully believe in the possibility to succeed beyond the perceived barriers (Bauer, Liou & Sokolik, 2012). Another attitude gap that did not change significantly due to counselling was the negative perceptions on the expression of breast milk as this was a taboo in the study community. This negative perception towards expressed breast milk presented challenges to mothers who have to be away from the infant for significant amounts of time in a day before the infant is 6 months of age. Attitude shifts in these particular aspects of exclusive breastfeeding is therefore important, for the achievement of better exclusive breastfeeding rates in the study area.

Additionally, a fairly large number of participants in the current study did not believe that exclusive breastfeeding means not giving the baby water. In Enugu, Nigeria, similar observations were made by Uchenna (2012). His study reported mothers fearing for the safety of expressed breast milk, and trauma from expressing breast milk as barriers to exclusive breastfeeding Uchenna (2012). In the same study, as many as 88% of the women reported interference from mothers-in-law to give water as a major socio-cultural problem, and a feeling that the baby will “dry up” if not given water or other fluids (50%), (Uchenna, 2012). In contrast, however, this
present study found that mothers-in-law and other relatives were not major influencers of mothers’ attitudes towards exclusive breastfeeding.

The highest improvement in fathers’ attitudes was as expected, in the couple counselling group, as fathers in this group were the only ones who received face to face counselling on exclusive breastfeeding. Similar findings were observed in Manias, Turkey. Previous education on lactation and breastfeeding had a positive effect on fathers’ attitudes toward breastfeeding (Taşpınar et al., 2013). Similarly, a corporate lactation program promoting breastfeeding through male employees in Los Angeles, U.S, increased paternal interest in breastfeeding (Cohen et al., 2002).

Paternal exclusive breastfeeding attitude was related to maternal attitude in the current study, which is consistent with several studies done elsewhere. A study in Perth, Australia, reported women who perceived their husbands to prefer breastfeeding to be significantly more likely to leave hospital breastfeeding, and to be exclusively breastfeeding, than a woman who perceived her husband to prefer formula feeding (Scott et al., 2006). In the same area, Tohotoa et al., (2010) reported mothers whose partners had received breastfeeding education enjoying breastfeeding more than those whose partners had not. The most common reasons for bottle-feeding in north-western Pennsylvania included mother’s perception of father’s attitude, more information in prenatal class and media and family support (Arora et al., 2000). Fathers’ and mothers’ positive attitudes partly predicted breastfeeding practice by 12% in Bukittinggi Municipality, Indonesia (Evaren, Hakimi & Padmawati, 2010). Chezem (2012) also found that fathers and mothers planning exclusive breastfeeding expressed
more favourable attitudes related to naturalness and closeness than their mixed-feeding peers.

Food and nutrition attitudes and behaviour take time to change due to the intertwined and competing social, psychological and environmental influences (Bauer et al., 2012). This implies that strategies targeting fathers with non-traditional topics like infant feeding should not expect rapid attitude shifts. Moreover, the improvements that are seen globally and locally in maternal exclusive breastfeeding attitudes have taken time and continuous promotion to achieve (WHO, 2008). The change in paternal attitudes will most likely be gradual and would require continuous efforts.

5.4 The acceptability of couple counselling among the couples

It is useful to investigate the opinions of participants about strategies used in promoting exclusive breastfeeding. This informs the process of designing the strategies to make them friendly and acceptable. The novelty of couple counselling on exclusive breastfeeding as an approach, and the cultural barriers assumed in such strategies make this a critical component of the study. Literature on the acceptability of male focused strategies was scarce.

On the whole, couple counselling was acceptable to most study participants irrespective of gender or study group. This is in agreement with the findings on attitudes where more than three quarters of all participants in the study groups either agreed or strongly agreed that both mother and father should be involved in the breastfeeding of their infant. The significantly higher acceptability among the couple and maternal counselling groups can be attributed to the fact that they had some experience of what counselling on exclusive breastfeeding was about, from the study.
A possible explanation is that the couple counselling group having experienced it first hand, had fewer reservations about it, while the maternal counselling group probably likened it to the counselling that the mother had received, of which they had seen the benefits. The control group on the other hand probably had some reservations, given that this is about infant feeding and men may not readily feel comfortable. They had not had the opportunity to demystify what couple counselling was.

The fact that the majority would recommend for couple counselling to become standard practice may also be related to the fact that most men felt left out of the formal health system in terms of information on IYCF. They reported wanting to be included more in breastfeeding promotion efforts. Similar observations were made in Mbale, Uganda, Eastern and Western Kenya, Brighton and Hove in the U.K and Manisa, Turkey (Engebretsen et al., 2010; MoH & USAID, 2011; Sherriff & Hall, 2011; Taşpınar et al., 2013). Men in these studies reported feeling left out by the health system on infant feeding issues. One benefit of face to face counselling is that by allowing for immediate feedback, the questions and concerns of the client can be addressed by counsellor.

It emerged from the interviews with KII s that most fathers and mothers prefer the health workers as a source of breastfeeding information since they felt that they were well trained and knowledgeable. Similar sentiments were expressed by fathers in studies done in Kenya and Bristol, U.K (MoH & USAID, 2011; Powell & Baic, 2011) respectively. In the Bristol study, fathers preferred to have breastfeeding information delivered in an antenatal class environment rather than leaflets they had been given. The men in the study in the two Kenyan provinces (Eastern and Western) reported
mainly getting information from occasional flyers brought home by women from clinics, radio, newspapers/magazines, and sometimes church.

As to whether a facility-based or home-based approach would be preferable and workable, is an area that needs further investigation. The use of health facility based workers however, may be met with challenges. Silva et al., (2012), found from an integrative review of literature that health professionals were reported as reference sources of education, but were unprepared to assist the parents. In the current study, more than two thirds of men had never accompanied their partner to the ANC or MCH clinics. The same was observed in the study by MoH and USAID in Eastern and Western Kenya (MoH & USAID, 2011). Further, the inconsistent availability of men at home, was cited as a possible challenge to the couple counselling strategy in the FGDs and KII. Additionally, the inadequate number of community health workers, coupled with the many responsibilities they undertake may present challenges to implementing the strategy at community level.

The radio emerged as an important source of breastfeeding information for the men in this setting, with more than three quarters of the households owning one. The influence of this information on their knowledge and attitude was however not determined in this study. According to the latest KDHS, 80.5% and 77% of women listen to the radio at least once a week, in Nyanza province and Kenya respectively. While for men, 95.4% and 89.8% in Nyanza province and Kenya respectively listen to the radio once a week (KNBS & ICF Marco, 2010).

An assessment of a national mass-media campaign in Honduras reported that it increased exclusive breastfeeding from 48% to 70% at 1 month, from 24% to 31% at
4 months, and from 7% to 12% at 6 months of age (Hernandez et al., 1995). Mattar et al., (2007), however argue that print and audio visual educational material are not enough and thus face to face discussions are needed for impact. With the advancement in technology that includes radios as a feature in mobile phones, and the mobile phone coverage increasing in Kenya (KNBS & ICF Marco, 2010), this is a potential exclusive breastfeeding promotion avenue.

5.5 Factors influencing paternal involvement in the promotion of exclusive breastfeeding

In order to actively include fathers in the breastfeeding process, it is important to understand the factors influencing their ability to give full support to their partners. Silva, Santiago and Lamonier (2012) reviewed literature and found that the involvement of the father in breastfeeding takes different patterns: competition with the mother versus protection, exclusion versus increased strength in the family relationships and support versus prejudices. Februhartanty et al., (2007) also identified degrees of involvement of fathers in breastfeeding as a fathering style ranging from the very involved to the detached. In north-eastern U.S, Nickerson, Sykes and Fung (2012) found that mothers appreciated the support from fathers for breastfeeding continuation, including encouragement and understanding. The factors influencing paternal involvement in this study were mainly practical aspects, with the exception of cultural influences. An important finding of this study is that most fathers would like to support their breastfeeding partners. This was not unique to this study as similar results were found in Mbale, Uganda and Eastern and Western Kenya (Engebretsen et al., 2010; MoH & USAID, 2011).
Lack of enough time was identified as a constraint to paternal involvement in breastfeeding by the fathers. The main reason for lack of time was going to work during most hours of the day in order to provide for the family. Studies in Dar-es-Salaam, Tanzania and Australia also noted that breadwinning responsibilities and work affected fathers’ ability to be involved in parenting, including infant feeding (Mbekenga et al., 2011; St. John et al., 2005). In light of this constraint of time, the father’s preference for health workers as a source of information and the fact that they rarely visit the ANC and MCH clinics, the potential success of fathers going to health facilities for breastfeeding information should be investigated further.

Belief in stereotype gender roles can adversely affect the willingness of men to be involved in what is typically a female domain. The fathers in this study highlighted the fact that one of the factors influencing their involvement in breastfeeding of their infants was that it was culturally prescribed as a women’s role. Februhartanty et al., (2007) reports the same for Indonesian fathers, so does Engebretsen et al., (2010) in Mbale, Uganda, and MoH and USAID (2011) in Eastern and Western Kenya. These studies found that men are not involved in direct care and nurturing of younger infants in the community because culturally, it is considered women’s work. Instead, men will engage in roles like provision of food for the family and discipline. These were also the evident roles played by men in the current study. Also similar is the finding that despite the cultural prescriptions, men are very interested in getting involved in the breastfeeding of their infants.

Globally, significant socio-economic and socio-cultural changes have occurred in gender roles and expectations. The marked rise in the time women spend at work have
been accompanied with fathers increasingly becoming involved in infant care (Coleman & Garfield, 2004). The findings of this study revealed a similar trend, although presenting a socio-economic and socio-cultural irony. On one hand the women mentioned returning to income generating activities as a challenge to exclusive breastfeeding, yet they were expected to care for the infants as a maternal role. On the other hand, the men identified their paternal role of providing for the family as a barrier to their involvement.

With both parents expected to be involved in income generation, the socio-economic and socio-cultural roles with regard to infant feeding need more team work among the couples. Fathers, like mothers, thus need better planning in order to simultaneously be involved in infant care as well as their usual breadwinning activities (Februhartanty et al., 2007; Pruett, 1998). The fact that couple counselling led to significant improvements in men being involved in deciding infant feeding mode is not unique to this study. Similar observations were made in Naples, Italy and Perth (Australia) where interventions targeted at fathers increased their involvement in the breastfeeding of their infants (Pisacane et al., 2005; Tohotoa et al., 2010).

Fathers’ knowledge on certain aspects, particularly what exclusive breastfeeding entails, was found not to be optimal in the current study. This finding was consistent with those of Kenosi, Hawkes, Dempsey & Ryan (2013) among Irish fathers, and Fjeld et al., (2008) in Lusaka, Zambia. The study in Eastern and Western provinces in Kenya also reported the fact that fathers did not see exclusive breastfeeding for 6 months as feasible (MoH & USAID, 2011). In efforts to make fathers supporters for
exclusive breastfeeding, there is need to improve their ability to support by improving their knowledge and attitudes.

One of the contributing factors to limited knowledge is usually lack of access to information. A consistent finding among fathers in most settings which was also evident in this study is that fathers do not have ready access to information on exclusive breastfeeding. This is despite recommendations that exclusive breastfeeding information should be expanded to actively target fathers. Other studies also report that fathers felt that breastfeeding promotions by the formal health systems were targeted at mothers only, and did not actively include the fathers (Fjeld et al., 2008; Kenosi et al., 2013; Mbekenga et al., 2011; Powell & Baic, 2011). Most fathers in the present study never received information on breastfeeding from the health facility in the entire duration of the study (37th week of pregnancy to 6 months post-partum).

A father’s perception of being included can also influence their input. A qualitative study done in Pernambuco, Brazil, revealed that fathers felt excluded and insecure during breastfeeding, and this affected both their relationship with the wife and their level of participation in breastfeeding (Pontes et al., 2008). Mitchell-Box and Braun (2012) in Honolulu, Hawaii also found that men felt left out of the infant feeding process. The current study similarly identified the feeling of fathers being excluded as a deterrent to support exclusive breastfeeding. This particular aspect may be addressed by health workers as part of the information given to mothers at health facilities. Mothers can be informed of the importance of making the fathers feel included and used as means to pass positive messages on exclusive breastfeeding to their partners, who in most cases do not attend ANC and/ or MCH clinics.
5.6 Predictors of exclusive breastfeeding in Nyando District

It is important to understand the factors that predicted the practice of exclusive breastfeeding, so as to develop interventions that mitigate these factors. In this study, infant sex, maternal age, maternal occupation and household wealth index were found to predict exclusive breastfeeding practice. In this regard, female infants, younger mothers, housewives and mothers of lower socio-economic status were more likely to practice exclusive breastfeeding.

Similar findings were observed in a Nigerian study (Agho, Dibley, Odiase & Ogbonmwan, 2011) and in Nairobi slums in Kenya (Kimani-Murage et al., 2011), where girls were more likely to be exclusively breastfed than boys. A possible explanation for this finding is the belief that boys are more demanding in terms of feeding than girls and would thus need more than breast milk. On the contrary, boys in some parts of urban and Gujarat India, were more likely to be exclusively breastfed than girls (Malhotra et al., 2008; Sen, 2001). The explanation in this case was that the boys were more valued and thus given better care than the girls. In Western India, Sapna et al., (2009), reported male infants, primiparity, receiving infant feeding advice, initiation of breastfeeding within one hour of birth and giving colostrum to the baby as independently associated with exclusive breastfeeding. Chudasama, Amin and Parikh (2009a) however, found no gender bias in exclusive breastfeeding in Rajkot, India.

For maternal age, similar findings to this study were observed in the U.S, with younger mothers more likely to exclusively breastfeed than older ones (Jones, Kogan, Singh, Dee & Grummer-Strawn, 2011). In contrast, older mothers were more likely to
exclusively breastfeed in Kenya’s Kibera, Nairobi, (Ochola, 2008). Similar observations of older women being more likely to exclusively breastfeed were made in Canada as a whole and in Anambra state, Nigeria (Gionet, 2013; Ukegbu et al., 2011). Agu and Agu (2011) found maternal age to have no influence on exclusive breastfeeding in South Eastern Nigeria.

It would appear that younger mothers in the current study were more willing to adopt exclusive breastfeeding as opposed to the older ones who already had pre-formed infant feeding habits from past experience. The socio-economic status (wealth index) as a determinant of exclusive breastfeeding in this study showed similarity with several Asian countries (Lao, Mongolia and Vietnam), where poorer mothers were more likely to exclusively breastfeed for 6 months than less poor ones (OECD, 2012). While in Ethiopia and Canada, the less poor/richer mothers were more likely to exclusively breastfeed for 6 months (Alemayehu et al., 2009; Gionet, 2013). Chudasama et al., (2009a; 2009b), on the other hand, found no association between socio-economic status and exclusive breastfeeding in Rajkot, India.

The fact that housewives in the current study were more likely to exclusively breastfeed compared to those in some form of occupation may be attributed to the fact that they spent more time at home, thus were together with the infant for longer periods. As reported in the FGDs, mothers found themselves ‘forced’ to introduce other foods in order to go back to work or to income generating activities. This coupled with the fact that most of the women did not believe in expressing breast milk may have contributed to early cessation of exclusive breastfeeding. Being unemployed was also found to be associated with exclusive breastfeeding in Goba,
Ethiopia (Setegn et al., 2012). Maternal occupation or returning to work similarly affected exclusive breastfeeding in South-west Nigeria, Xinjiang, China, the Netherlands, and California, U.S (Agunbiade & Ogunleye, 2012; Fenglian, 2007; Gijsbers et al., 2008; Guendelman et al., 2009). The fact that many employed women in Kenya have to go back to work after 3 months maternity leave implies that they will be separated from the infant before the age of 6 months. The exclusive breastfeeding guidelines encourage expressing breast milk as a coping strategy. With such a setting where expressing breast milk is a taboo, this becomes a challenge.

Mothers in self-employment who run the business or work themselves may be at an increased risk to cease exclusive breastfeeding even earlier than those in formal employment. This is because a day of absence translates into no income for the day. A 6-months absence would therefore have even bigger effects on their income. The rates of exclusive breastfeeding and its duration has been found to be longer in countries with long periods of maternity or parental leave, such as the Nordic countries, Hungary and the Czech Republic. Britain and Ireland however show different trends (Tarrant & Kearney, 2008). In other countries, particularly the developed world, maternity leaves have been lengthened to as long as 1 year (International Labour Organisation [ILO] 2014). The long maternity leave provides other health benefits apart from exclusive breastfeeding, to the infant and mother. This would then imply that countries should consider lengthening the maternity leaves to at least 6 months to secure the desired exclusive breastfeeding rates. African countries, Kenya included, are among those with shorter maternity leaves (ILO, 2014).
The findings of this study support observations by other studies that peer-counselling improves exclusive breastfeeding rates. The study’s findings further indicate that overall, couple counselling would result in better exclusive breast feeding outcomes in terms of timely initiation of breastfeeding, post-lacteal feeding, maternal attitudes and paternal knowledge on breastfeeding. Couple counselling resulted in a difference of 31.1%, while maternal counselling resulted in a 20.5% difference in continuous exclusive breastfeeding rates, when compared to the control group. Despite not being statistically significant, couple counselling resulted in continuous exclusive breastfeeding rates of 10.7% higher than maternal counselling. It has taken Kenya 5 years to increase the exclusive breastfeeding rates by 19% (from 13% in 2003 to 32% in 2008) (CBS, MOH & O.R.C. Macro, 2004; KNBS & ICF Macro, 2010). Moreover, the KDHS is based on cross-sectional data which usually gives a higher prevalence. It would then be argued that couple counselling would result in achieving the country’s exclusive breastfeeding target faster than maternal counselling.

This was the first study in Kenya to test the effectiveness of couple counselling vis-a-vis maternal counselling. Probably because of the gender-related implications of infant feeding, a large shift in attitudes and practices may not have been observed. Culture is dynamic and it is expected that routine campaigns of longer duration would familiarise the general population on paternal involvement in infant feeding thus resulting in better outcomes. These findings in addition indicate that a comprehensive approach is needed to improve and sustain the rates of exclusive breastfeeding in the country. Other interventions in addition to nutrition education or counselling of both parents should thus be strengthened. This would be a worthwhile investment as Kenya’s future is largely based on the nutrition and health status of the children.
CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter provides an overview of the study, focusing on the main findings, conclusions and recommendations for policy, practice and further research.

6.2 Summary

There is overwhelming scientific evidence that maternal counselling improves the practice of exclusive breastfeeding. Less investigated is the influence of counselling both the father and mother on improving exclusive breastfeeding rates. This was a community-based cluster-randomised study that aimed to compare the effectiveness of couple counselling to maternal counselling in promoting exclusive breastfeeding. Quantitative and qualitative data was collected to get an in-depth understanding of the factors enhancing and the barriers to the practice of exclusive breastfeeding in Nyando District.

The findings indicate that breastfeeding counselling significantly improved the exclusive breastfeeding rates, knowledge and attitudes of mothers and fathers. Couple counselling was found to be acceptable to most study participants, with the main barriers for paternal involvement in promotion of exclusive breastfeeding being: time constraints, culturally defined gender roles, limited opportunities to get information on exclusive breastfeeding and unintentional exclusion of the father by the mother from the breastfeeding process. Maternal age and occupation, infant sex and household socio-economic (wealth) status were the predictors of exclusive breastfeeding.
6.3 Conclusions

The following conclusions are made based on the study objectives and findings:

1. Couple counselling resulted in higher exclusive breastfeeding rates than maternal counselling. The cumulative risk for cessation of exclusive breastfeeding in the first six months after birth was however not significantly different for the two counselling strategies.

2. Couple counselling resulted in significantly higher improvements in paternal EBF knowledge, while maternal counselling resulted in significantly higher improvement in maternal EBF knowledge.

3. Couple counselling resulted in significantly higher improvements in maternal EBF attitudes, while no significant differences was observed in the influence of the two counselling strategies on paternal attitudes.

4. Couple counselling was acceptable to both mothers and fathers.

5. Factors influencing paternal involvement in the promotion of exclusive breastfeeding were mainly:

- Time constraints because fathers had to fend for their families
- Culturally defined gender roles which imply that feeding and care of infants and children are mothers’ responsibility and fathers who get involved tend to compromise their status in society
- Limited opportunities for fathers to get information on exclusive breastfeeding. Fathers felt ignored by the mainstream health services in terms of infant feeding promotion activities
• Limited opportunities for fathers to get involved due to mother’s focus shifting to the infant and unintentionally excluding the father, during infancy.

6. The predictors of exclusive breastfeeding in Nyando District were; being a female infant, a younger mother, a housewife and coming from a poorer household.

Two of the three study hypotheses were therefore rejected and one was supported as indicated below:

Ho₁: There is no significant difference between couple counselling and maternal counselling in improving exclusive breastfeeding rates was not rejected;

Ho₂: There is no significant difference between the influences of couple counselling and maternal counselling on maternal and paternal exclusive breastfeeding knowledge was rejected; and

Ho₃: There is no significant difference between the influences of couple counselling and maternal counselling on maternal and paternal attitudes on exclusive breastfeeding was rejected

6.4 Recommendations

6.4.1 Recommendations for policy and practice

6.4.1.1 Recommendations for policy

i. The Ministries of Health and Labour should strengthen maternity and paternity protection policies and legislation to ensure financial safety-nets for self-employed parents and adequate length of maternity and paternity leaves for parents in formal employment.
6.4.1.2 Recommendations for practice

i. Strategies that ensure that fathers are mainstreamed into the IYCF education given at health facilities and at community level should be strengthened by Ministry of Health and other stakeholders. The health workers may for instance organise fathers’ days at the health facility and community levels, preferably on weekends, to sensitize fathers on infant feeding issues.

ii. The strategies formulated by Ministry of Health to promote exclusive breastfeeding among fathers should take into account male-related challenges such as time constraints, availability and cultural sensitivities. The use of the mass media, specifically the radio, as a means to improve paternal awareness in this setting should be considered as this was found to have wide coverage and a major source of information for men.

iii. Health workers who disseminate exclusive breastfeeding information to mothers should ensure that key messages are reinforced to improve exclusive breastfeeding knowledge, attitude and practice. These include; the fact that exclusive breastfeeding for 6 months is feasible, proper attachment and positioning of the baby to the breast during feeding, and expressing of breast milk.
6.4.2 Recommendations for further research

The following are recommendations for further research:

i. The effectiveness of a health facility based couple counselling or education strategy promoting exclusive breastfeeding.

ii. Testing of various strategies on how to implement couple counselling effectively by MOH and other stakeholders.

iii. The influence of mass media messages, particularly the radio, on paternal exclusive breastfeeding knowledge, attitude and practice. With the advancement in technology that includes radios as a feature in mobile phones, and the mobile phone coverage increasing in Kenya, this is a potential exclusive breastfeeding promotion avenue that should be investigated.

iv. An investigation on exclusive breastfeeding promotion strategies that target men at their places of work.

v. The feasibility of CHWs incorporating exclusive breastfeeding promotion for couples given their heavy workload.
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Family/ infant code: .......................  Family name: ...................

Study Title: Promoting Optimal Infant Feeding through ‘Couple Counselling’: A Randomised Controlled Trial in Nyando District, Kenya.

Principal Investigator: Irene Ogada

Introduction:
Hello Sir/Madam,
I am an employee and student at Kenyatta University. We are carrying out a study on infant feeding and would appreciate your participation in the study. This form gives you information on the study procedures and your rights as a participant. Participation is voluntary, and your decline to participate does not interfere in any way with your rights or treatment as a client to the health facility.

This study has been approved by the Kenyatta National Hospital/ University of Nairobi research and ethics committee (KNH/UON/ERC) and the National Council of Science and Technology. The information will help the Ministry of Public Health and Sanitation and other stakeholders to plan and design programmes that cater for both parents in relation to infant feeding.

Study Objective: The purpose of the study is to assess the effectiveness of couple counselling in promoting exclusive breastfeeding.

Study schedule and specimen collection: The study involves 13 counselling sessions at your home from the third trimester of your pregnancy until when your baby is 12 months old. The counselling will include information on benefits and management of optimal infant feeding. In addition, every month, an enumerator will collect information on infant feeding and morbidity from you and take your baby’s length and weight for purposes of monitoring.
**Your responsibilities:** You are expected to let researchers visit you at home, answer questions related to the study, allow taking of weight and height of your baby by research team and report infant feeding problems to the research team.

**Confidentiality:** All information that you provide to our study team will be treated with utmost confidence and your identity will not be reported or revealed.

**Benefits:** The participants will benefit from free counselling on optimal infant feeding at home and from growth monitoring of their babies.

**Risks:** The study has no potential risks to the participants. No research-related injuries are anticipated. This is because no medications, chemicals or foods will be administered to the participants.

**Alternative treatments:** You should continue to seek clinic services from the health facility as you would have done.

**Voluntarism:** Participation is voluntary and should you want to discontinue or decline to answer any questions, feel free to do so. We however encourage you to participate in the study as the findings will be important for designing infant feeding programmes in future.

**Payment:** You will not receive any payment for participating into the study. Similarly, you will not be charged any fee for participating into the study.

**CONTACTS:**
**Researchers’ contact:** Should you have any questions concerning the study that you feel are not addressed, you may enquire further from the principal investigator at the phone number- 0723955466. Kenyatta University, Department of Foods, Nutrition & Dietetics, P.O. Box 43844, Nairobi – Kenya.

**KNH/UON/ERC contact:** Should you have any questions or complaints about your rights as a participant concerning the study, you may enquire further from the Kenyatta National Hospital/ University of Nairobi research and ethics committee.

Please indicate your willingness to participate in the study by either signing or putting your left thumb print in the allocated space below.

**Family/ infant code: ........................**  **Family name: .................**

**Signature/ Thumb print of father:** _________  **Date:** __________________________

**Signature/ Thumb print of mother:** _________  **Date:** __________________________

**Witness:** Name: ________________________ Signature/ Thumb print: _____________
TRANSLATED INFORMED CONSENT AND INTRODUCTION FORM  
(DHOLUO LANGUAGE)

KENYATTA UNIVERSITY  
DEPARTMENT OF FOODS, NUTRITION & DIETETICS  
P.O. BOX 43844, NAIROBI - KENYA  
TEL: 8711622, 8710901-8710910 EXT. 57139  
Email: dfoodsnutrition@yahoo.com  
Website: http://www.ku.ac.ke

Nonro: Puonjo pidho mar nyothindo maber kwom mine gi wuone e Nyando District, Kenya.  
Janonro maduong’: Irene Ogada

Amosi,  
An japuonjre kendo atiy e mbalarainy mar Kenyatta. Wangi chenro mar nono weche mag dhoth kod pidho nyithindo. Fom ni nyisi kaka nonro no dhi bet gi haki magi. Bet e nonro ni en kuom hero mari kendo tamruok mari e bet e nonro ni ok moni biro e osiptal yudo thieth.

Nonro ni oyudo rusa koa kuom komiti mar nonro mar osiptal maduong’ mar Kenyatta gi mbalariany mar Nairobi (KNH/UON/ERC) kod National Council of Science and Technology. Weche ma biro nenore e nonro ni biro konyo Migao mar Ngima gi ler gi migao mamoko e riwo wuone e chenrogi mag kaka nyithindo ipidho

Chenro: Nonro ni biro puonji dwe ka dew nyadipar kod adek e odi chakre ka ipek wige 32 nyaka ka nyathini en dwe apar kod ariyo. Ibiro penji penjo e wi pidho nyathi, to kendo kilo kod bor mar nyathini ibiro pim dwe ka dwe. Gigi duto ibiro tim e odi kata dalani. Shida moro amora maingo e pidh mar nyadhi to inyis jononro kata jo osiptal.

Pand: Weche duto ma ibiro wacho kodwa en siri marwa kod kendo nyingi ok bi tigo sama ripot igloo.

Faida: Ibiro yudo pwonj ma nono e odi ewi pidho nyathi kendo kilo gi bor mar nyathini ibiro pimo nono e odi.

Hinyrwuok: Onge hinyruok ma nenore ni biro wuok e nonroni nikech onge yedhe, chiemo kata kemikol ma ibiro miyi.
Thieth ma moko: Dhi mbele gi dhi hosiptal kak isebet ka idhi.

En yiero mari: Betni e nonro ni en yiero mari. Kaponi idwaro weyo bet e nonro kata ok idwar dwoko penjo moro amora, in dhuulo mar timo kamano. Kata kamano, wa jiwi mondo ibed e nonro ni nikech obiro konyo sirikal e loso chenro mag kak ipidho nyithindo.

Chudo: Onge chul moro amora ma ibiro miyi kwom bet e nonro ni. Kendo onge chudo moro amora be maibiro kwai mondo igol.

Tudruok: Kaponi ingi penjo ewi nonro ni to tudri kodaw e adres ni:
Namba simo: 0723955466. Adres: Kenyatta University, Department of Foods, Nutrition & Dietetics, P.O. Box 43844, Nairobi – Kenya.

Kaponi ingi penjo kata wach machandi ewi nonro ni to tudri kod komiti mar nonro mar osiptal maduong’ mar Kenyatta gi mbalariany mar Nairobi (KNH/UON/ERC).

Kapo ni iyie bet e nonro ni to go sei kata lweti piny ka.

Namba mar famili/ Nyathi:____________ Nying famili:____________
Sei/ Lwet Baba: _________ Tarik: ____________________________
Sei/ Lwet Mama: _________ Tarik: ____________________________

Saidi:
Nying saidi:_______________________ Sei/ Lwet saidi: ___________
Study Title: Promoting Optimal Infant Feeding through ‘Couple Counselling’: A Randomised Controlled Trial in Nyando District, Kenya.

Principal Investigator: Irene Ogada

Introduction:
Hello Sir/Madam,
I am an employee and student at Kenyatta University. We are carrying out a study on infant feeding and would appreciate your participation in the study. This form gives you information on the study procedures and your rights as a participant. Participation is voluntary, and your decline to participate does not interfere in any way with your rights or treatment as a client to the health facility.

This study has been approved by the Kenyatta National Hospital/ University of Nairobi research and ethics committee (KNH/UON/ERC) and the National Council of Science and Technology. The information will help the Ministry of Public Health and Sanitation and other stakeholders to plan and design programmes that cater for both parents in relation to infant feeding.

Study Objective: The purpose of the study is to assess the effectiveness of couple counselling in promoting exclusive breastfeeding.

Study schedule and specimen collection: You will be involved in one focus group discussion that will last about 60-90 minutes. These discussions will be audio tape recorded and no specimen will be collected from you.

Your responsibilities: You are expected to express your views on the topics that arise during the discussion. It is also important to respect fellow participants in the discussions and know that no answer is “wrong” or “right”.
Confidentiality: All information that you provide to our study team will be treated with utmost confidence and your identity will not be reported or revealed.

Benefits: The participants will benefit from free counselling on optimal infant feeding at home and from growth monitoring of their babies.

Risks: The study has no potential risks to the participants. No research-related injuries are anticipated. This is because no medications, chemicals or foods will be administered to the participants.

Voluntarism: Participation is voluntary and should you want to discontinue or decline to answer any questions, feel free to do so. We however encourage you to participate in the study as the findings will be important for designing infant feeding programmes in future.

Payment: You will receive a payment of 300 Kenyan shillings for participating in the discussions. You will not be charged any fee for participating in the discussion.

CONTACTS:
Researchers’ contact: Should you have any questions concerning the study that you feel are not addressed, you may enquire further from the principal investigator at the phone number- 0723955466. Kenyatta University, Department of Foods, Nutrition & Dietetics, P.O. Box 43844, Nairobi – Kenya.

KNH/UON/ERC contact: Should you have any questions or complaints about your rights as a participant concerning the study, you may enquire further from the Kenyatta National Hospital/ University of Nairobi research and ethics committee.

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

Signature/ Thumb print: __________    Date: ______________________

Witness:
Name: ___________________    Signature/ Thumb print: __________
TRANSLATED INFORMED CONSENT FORM FOR MOTHERS AND FATHERS IN FOCUS GROUP DISCUSSIONS (DHOLUO LANGUAGE)

KENYATTA UNIVERSITY
DEPARTMENT OF FOODS, NUTRITION & DIETETICS
P.O. BOX 43844, NAIROBI - KENYA
TEL: 8711622, 8710901-8710910 EXT. 57139
Email: dfoodsnutrition@yahoo.com
Website: http://www.ku.ac.ke

Nonro: Puonjo pidho mar nyothindo maber kwom mine gi wuone e Nyando District, Kenya.
Janonro maduong’: Irene Ogada

Amosi,
An japuonjre kendo atiyo e mbalarainy mar Kenyatta. Wangi chenro mar nono weche mag dhoth kod pidho nyithindo. Fom ni nyisi kaka nonro no dhi bet gi haki magi. Bet e nonro ni en kuom hero mari kendo tamruok mari e bet e nonro ni ok moni biro e osiptal yudo thieth.

Nonro ni oyudo rusa koa kuom komiti mar nonro mar osiptal maduong’ mar Kenyatta gi mbalariany mar Nairobi (KNH/UON/ERC) kod National Council of Science and Technology. Weche ma biro nenore e nonro ni biro konyo Migao mar Ngima gi ler gi migao mamoko e riwo wuone e chenrogi mag kaka nyithindo ipidho.

Chenro: Ubiro wuoyo ka ugo mbaka e wi pidh mag nyidhindo dichiel kuom kind dakika 60 gi 90. Duondu ibiro maki gi kaset sama wagoyo mbaka go.

Pand: Weche duto ma ibiro wacho kodwa en siri marwa kodi kendo nyingi ok bi tigo sama ripot igloo.

Faida: Ibiro yudo pwonj ma nono e odi ewi pidho nyathithi kendo kilo gi bor mar nyathini ibiro pimo nono e odi.

Hinyrwuok: Onge hinyruok ma nenore ni biro wuok e nonroni nikech onge yedhe, chiemo kata kemikol ma ibiro miyi.
En yiero mari: Betni e nonro ni en yiero mari. Kaponi idwaro weyo bet e nonro kata ok idwar dwoko penjo moro amora, in dhuolo mar timo kamano. Kata kamano, wajiwi mondo ibed e nonro ni nikech obiro konyo sirikal e loso chenro mag kak ipidho nyithindo.

Chudo: Ibiro chuli siling mia adek kuom bet e nonro ka ugo mbaka dichiel.

Tudruok: Kaponi ingi penjo ewi nonro ni to tudri kodaw e adres ni:
Namba simo: 0723955466. Adres: Kenyatta University, Department of Foods, Nutrition & Dietetics, P.O. Box 43844, Nairobi – Kenya.

Kaponi ingi penjo kata wach machandi ewi nonro ni to tudri kod komiti mar nonro mar osiptal maduong’ mar Kenyatta gi mbalariany mar Nairobi (KNH/UON/ERC).

Kapo ni iyie bet e nonro ni to go sei kata lweti piny ka.

Sei/ Lweti: ___________    Tarik: ______________________

Saidi:
Nying saidi: ____________________    Sei/ Lwet saidi: ___________
APPENDIX C: INFORMED CONSENT FORM FOR FOCUS GROUP DISCUSSIONS HELD WITH BREASTFEEDING COUNSELLORS AND CHWs IN

KENYATTA UNIVERSITY
DEPARTMENT OF FOODS, NUTRITION & DIETETICS
P.O. BOX 43844, NAIROBI - KENYA
TEL: 8711622, 8710901-8710910 EXT. 57139
Email: dfoodsnutrition@yahoo.com
Website: http://www.ku.ac.ke

Study Title: Promoting Optimal Infant Feeding through ‘Couple Counselling’: A Randomised Controlled Trial in Nyando District, Kenya.

Principal Investigator: Irene Ogada

Introduction:
Hello Sir/Madam,
I am an employee and student at Kenyatta University. We are carrying out a study on infant feeding and would appreciate your participation in the study. This form gives you information on the study procedures and your rights as a participant. Participation is voluntary, and your decline to participate does not interfere in any way with your rights or treatment as a client to the health facility.

This study has been approved by the Kenyatta National Hospital/ University of Nairobi research and ethics committee (KNH/UON/ERC) and the National Council of Science and Technology. The information will help the Ministry of Public Health and Sanitation and other stakeholders to plan and design programmes that cater for both parents in relation to infant feeding.

Study Objective: The purpose of the study is to assess the effectiveness of couple counselling in promoting exclusive breastfeeding.

Study schedule and specimen collection: You will be involved in one focus group discussion that will last about 60-90 minutes. These discussions will be audio tape recorded and no specimen will be collected from you.

Your responsibilities: You are expected to express your views on the topics that arise during the discussion. It is also important to respect fellow participants in the discussions and know that no answer is “wrong” or “right”.

Confidentiality: All information that you provide to our study team will be treated with utmost confidence and your identity will not be reported or revealed.

Risks: The study has no potential risks to the participants. No research-related injuries are anticipated. This is because no medications, chemicals or foods will be administered to the participants.

Voluntarism: Participation is voluntary and should you want to discontinue or decline to answer any questions, feel free to do so. We however encourage you to participate in the study as the findings will be important for designing infant feeding programmes in future.

Payment: You will receive a payment of 300 Kenyan shillings for participating in the discussions. You will not be charged any fee for participating in the discussions.

CONTACTS:
Researchers’ contact: Should you have any questions concerning the study that you feel are not addressed, you may enquire further from the principal investigator at the phone number- 0723955466. Kenyatta University, Department of Foods, Nutrition & Dietetics, P.O. Box 43844, Nairobi – Kenya.

KNH/UON/ERC contact: Should you have any questions or complaints about your rights as a participant concerning the study, you may enquire further from the Kenyatta National Hospital/ University of Nairobi research and ethics committee;

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

Signature/ Thumb print: ____________ Date: ____________________

Witness:

Name: ________________________ Signature/ Thumb print: ____________
APPENDIX D: INFORMED CONSENT FORM FOR HEALTH WORKERS IN KEY INFORMANT INTERVIEWS

KENYATTA UNIVERSITY
DEPARTMENT OF FOODS, NUTRITION & DIETETICS
P.O. BOX 43844, NAIROBI - KENYA
TEL: 8711622, 8710901-8710910 EXT. 57139
Email: dfoodsnutrition@yahoo.com
Website: http://www.ku.ac.ke

Study Title: Promoting Optimal Infant Feeding through ‘Couple Counselling’: A Randomised Controlled Trial in Nyando District, Kenya.

Principal Investigator: Irene Ogada

Introduction:
Hello Sir/Madam,
I am an employee and student at Kenyatta University. We are carrying out a study on infant feeding and would appreciate your participation in the study. This form gives you information on the study procedures and your rights as a participant. Participation is voluntary, and your decline to participate does not interfere in any way with your rights or treatment as a client to the health facility.

This study has been approved by the Kenyatta National Hospital/ University of Nairobi research and ethics committee (KNH/UON/ERC) and the National Council of Science and Technology. The information will help the Ministry of Public Health and Sanitation and other stakeholders to plan and design programmes that cater for both parents in relation to infant feeding.

Study Objective: The purpose of the study is to assess the effectiveness of couple counselling in promoting exclusive breastfeeding.

Study schedule and specimen collection: You will be involved in one in-depth interview that will last about 60-90 minutes and the interview will be audio tape recorded. No specimen will be collected from you.

Your responsibilities: You are expected to express your organisations’ and your own views on the questions asked. It is also important to be as accurate as possible.
**Risks:** The study has no potential risks to the participants. No research-related injuries are anticipated. This is because no medications, chemicals or foods will be administered to the participants.

**Voluntarism:** Participation is voluntary and should you want to discontinue or decline to answer any questions, feel free to do so. We however encourage you to participate in the study as the findings will be important for designing infant feeding programmes in future.

**Payment:** You will receive a payment of 300 Kenyan shillings for participating in the interview. You will not be charged any fee for participating in the interview.

**CONTACTS:**
**Researchers’ contact:** Should you have any questions concerning the study that you feel are not addressed, you may enquire further from the principal investigator at the phone number- 0723955466. Kenyatta University, Department of Foods, Nutrition & Dietetics, P.O. Box 43844, Nairobi – Kenya.

**KNH/UON/ERC contact:** Should you have any questions or complaints about your rights as a participant concerning the study, you may enquire further from the Kenyatta National Hospital/ University of Nairobi research and ethics committee;

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

**Signature/ Thumb print:** __________  
**Date:** ______________________

**Witness:**

**Name:** _______________  
**Signature/ Thumb print:** __________

APPENDIX E: TRAINING CONTENT FOR BREASTFEEDING COUNSELLORS

This was a 50 hour training course and the trainees were tested both before and after the training on knowledge and practical counselling skills through written tests and role-play. The training covered the following areas:

- Benefits of breastfeeding in general and of exclusive breastfeeding for first 6 months after birth
- The composition of human breast milk
- Dangers of artificial and mixed feeding
- The WHO recommended infant feeding practices
- The anatomy of the breast
- The hormonal control of breast milk production and let down
- Good positioning and attachment of a baby to the breast
- Colostrum feeding
- Initiation of breastfeeding
- Rooming in after birth
- Breastfeeding on demand
- Maternal diet and rest
- Common lactation and breastfeeding problems
- Appropriate complementary feeding- timeliness, adequacy, responsive feeding and safety. In addition, frequency, dietary diversity and energy density will also be covered. This section will be covered towards the end of the fifth month.

In addition, communication, interpersonal and counselling skills were covered to include:

- Creating rapport with clients
- Building paternal support for exclusive breastfeeding
- Building maternal and paternal confidence in exclusive breastfeeding
- Use of non-verbal and verbal techniques to encourage clients to communicate
- Responding to a mother’s and father’s feelings with empathy
- Avoid being judgemental but being open minded

The methods for learning were by lectures, group discussions, demonstrations and role-play. Training and education material used included brochures, flip charts, counselling cards and booklets. Models of babies and the breast were also used.
APPENDIX F: RESEARCH AUTHORIZATION (PERMIT)

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

Telephone: 254-020-2213471,2214139
254-020-310571,2213123, 2219420
Fax: 254-020-318245,318249
when replying please quote
secretary@ncst.go.ke

Our Ref:  NCST/RCD/12A/012/65

Date: 20th September 2012

Irene Awuor Ogada
Kenyatta University
P.O.Box 43844-00100
Nairobi

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Promoting optimal infant feeding through “couple counselling”: A randomised controlled trial in Nyando District, Kenya.” I am pleased to inform you that you have been authorized to undertake research in Nyando District for a period ending 30th March, 2014.

You are advised to report to the District Commissioner, the District Education Officer and the District Medical Officer of Health, Nyando District before embarking on the research project.

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

Said Hussein
FOR: SECRETARY/CEO

Copy to:

The District Commissioner
The District Education Officer
The District Medical Officer of Health
Nyando District.

"The National Council for Science and Technology is Committed to the Promotion of Science and Technology for National Development."
APPENDIX G: ETHICAL APPROVAL

Irene Awour Ogada
Dept.of Foods, Nutrition and Dietetics
School of Applied Human Sciences
Kenyatta University

Dear Ms. Ogada

Research proposal: “Promoting Optimal Infant feeding through ‘Couple counseling’;
A randomized controlled trial in Nyando District, Kenya” (P104/02/2012)

This is to inform you that the KNH/UoN-Ethics & Research Committee (KNH/UoN-ERC) has reviewed and approved your above revised research proposal. The approval periods are 3rd September 2012 to 2nd September 2013.

This approval is subject to compliance with the following requirements:

a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH/UoN ERC before implementation.
c) Death and life threatening problems and severe adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH/UoN ERC within 72 hours of notification.
d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH/UoN ERC within 72 hours.
e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (Attach a comprehensive progress report to support the renewal).
f) Clearance of export of biological specimens must be obtained from KNH/UoN-Ethics & Research Committee for each batch of shipment.
g) Submission of an executive summary report within 90 days upon completion of the study.

This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/or plagiarism.

For more details consult the KNH/UoN ERC website www.uonbi.ac.ke/activities/KNHUoN

"Protect to Discover"
APPENDIX H: MAP OF NYANDO DISTRICT
APPENDIX I: BASELINE QUESTIONNAIRE FOR MOTHERS
(Administered within a week of recruitment to women in all study groups in third trimester).

INSTRUCTIONS:

• It is very important that you ask each question exactly as it is written on the questionnaire and ensure that the meaning of each question remains the same as originally intended. If the respondent does not understand the question, you may need to use extra probing questions.

• To indicate the responses given for questions that coded responses and a box [ ], place a line across the corresponding box for that response as shown [ ]

• Most questions have pre-coded responses. Do not read these choices aloud. When you ask a question, you should listen to the respondent’s answer, and then indicate on the code next to the pre-coded response that best matches the answer.

• A respondent may not know the answer to a question or refuse to answer. However, you must record an answer for all questions that you ask the respondent. Do not leave any questions blank.

• Some questions have a “don’t know” answer code. Indicate on that code if the respondent is unable to remember despite the probing questions. For questions without a “don’t know” answer code and the respondent truly cannot remember despite your probing, or refuses to answer, you should leave the question blank and write a comment on the questionnaire, in the margin on the right.

• Use the margins to make notes on anything out of the ordinary or any problems you may encounter during the interview.

• Throughout the questionnaire, there are statements that appear in ALL CAPITAL LETTERS, in **bold** and *Italic Font*. These are interviewer instructions, and should not be read aloud to the respondent.

• Skip patterns- Ask the respondent only those questions relevant to their situation. For some questions, you will skip to the next appropriate question, or end the interview, if the respondent gives a particular response.

• Privacy- Some of the questions are sensitive, concerning children who may have died. It is important to try to find the most private space possible for asking the questions.

Date of interview: ________ Questionnaire serial number: _________

Interviewer Name: ______

Study group: ______________
Family/ Infant code: ________ Village of residence: ________

RECORD THE ANSWERS TO THE FOLLOWING FROM THE ANTE-NATAL CARD:

Last monthly period (LMP): _______ Expected date of delivery (EDD): _______

Age of pregnancy in weeks: ____________
SECTION A: DEMOGRAPHIC AND SOCIO ECONOMIC INFORMATION

A1. Age of mother in complete years: ________________

A2. Marital status:
   1=Married [ ]
   2=Single [ ]
   3=Widowed [ ]
   4=Separated [ ]

A3. If married, does your spouse live with you?
   1=Yes [ ]
   0=No [ ]

A4. If married, is it a polygamous marriage?
   1=Yes [ ]
   0=No [ ]

A5. How many children do you have? ______________________

A6. How many people live with you in this household? ______________

A7. What is your religion?
   1=Christian [ ]
   2=Traditional [ ]
   3=Muslim [ ]
   4=Others (specify) _________

A8. What is your highest level of education?
   1=None [ ]
   2=Primary [ ]
   3=Secondary [ ]
   4=College/University [ ]

A9. What is your spouse’s highest level of education?
   1=None [ ]
   2=Primary [ ]
   3=Secondary [ ]
   4=College/University [ ]

A10. What is your main occupation?
    1=Farming [ ]
    2=Business[ ]
    3=Professional (teacher, social worker, e.t.c) (specify) _________
    4=Others (specify) ______________
    5= Housewife [ ]

A11. What is your spouse’s main occupation?
    1=Farming [ ]
    2=Business [ ]
    3=Fishing [ ]
    4=Professional (teacher, social worker, e.t.c) (specify) ______________
    5=Others (specify) ______________
A12. Do you live in a:
   1=Rented house [ ]
   2=Own house in parental compound [ ]
   3= Own house in own compound [ ]

*If RENTED, go to question A13*
*If NOT rented, skip to question A14*

A13. If rented, how much rent do you pay per month? Ksh_______________

A14. What is the number of rooms in your house? ________Rooms.

**HOUSING CONDITIONS**

A15. Wall of the house is made of:
   1=Iron sheets [ ]
   2=Burnt bricks [ ]
   3=Mud and wooden poles [ ]
   4=Mud and cement [ ]
   5=Cement/stone blocks [ ]
   6=Timber [ ]
   7=Other (specify)___________________ [ ]

A16. Roof of the house is made of:
   1=Iron sheets [ ]
   2=Tiles [ ]
   3=Grass thatched [ ]
   4=Other (specify)____________________[ ]

A17. Floor of the house is made of:
   1=Earthen [ ]
   2=Cement [ ]
   3=Other (specify)___________________ [ ]

A18. What is your main source of lighting?
   1=Kerosene [ ]
   2=Candle [ ]
   3=Electricity [ ]
   4=Solar [ ]
   5=Other (specify)____________________ [ ]

A19. What is your main source of cooking fuel?
   1=Firewood [ ]
   2=Charcoal [ ]
   3=Kerosene [ ]
   4=Gas [ ]
   5=Electricity [ ]
   6=Other (specify)______________[ ]
A20. Do you possess the following items?

<table>
<thead>
<tr>
<th>Item</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Radio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Bicycle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Motorcycle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Television</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Vehicle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Sofa-set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Video (Vcd/Dvd)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many acres? __</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j) Cows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many? __</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k) Goats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many? __</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l) Sheep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many? __</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m) Chicken</td>
<td></td>
<td></td>
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<tr>
<td>How many? __</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n) Others (specify)___</td>
<td></td>
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</tr>
<tr>
<td>How many? __</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A21. What is your main source of water?

**Tick ALL responses given**

1= River[ ]
2= Pond[ ]
3 = Tap[ ]
4= Own well[ ]
5= Communal well[ ]
6= Other (specify) ______________[ ]

A22. How many litres of water do you use access per day? __________ Litres

A23. How do you treat or make safe your water for cooking and drinking?

**Tick ALL responses given**

1= Chemical (waterguard, etc)[ ]
2= Boiling[ ]
3 = Other (specify) ______________[ ]

A24. How do you dispose of your domestic refuse?

**Tick ALL responses given**

1= Compost pit/ heap [ ]
2= Burning[ ]
3 = Feed to livestock[ ]
4= Throw anywhere[ ]
5= Other (specify) ______________[ ]
A25. How do you dispose of the human faecal refuse?
   1= Own pit latrine[  ]
   2= Other’s pit latrines[  ]
   3= Flashable toilet[  ]
   4= Digging and covering[  ]
   5= On the ground uncovered[  ]
   6= Other (specify) __________________[ ]

SECTION B: REPRODUCTIVE AND INFANT FEEDING HISTORY
B1. How many children have you given birth to? _____________

B2. How many of them are alive? ______________

B3. At how many months/weeks of this pregnancy did you start going to the ante-natal clinic? [CHECK CLINIC CARD] _____

B4. How many times have you attended the Ante-natal clinic in the present pregnancy? [CHECK CLINIC CARD] _____

B5. Have you had any complications with this pregnancy?
   1= Yes [ ]
   0= No [ ]
   If YES, go to question B6
   If NO, skip to question B7

B6. If YES, what complications have you had?
   ____________________________________________________________

B7. Did you breastfeed your youngest child?
   1= Yes [ ]
   0= No [ ]
   If NO, go to question B8
   If YES, skip to question B9

B8. Why did you not breastfeed your youngest child?
   Tick ALL responses given
   1= Had to go back to work [ ]
   2= Health reasons (specify) __________________________ [ ]
   3= Customs and beliefs (specify) ____________________ [ ]
   4= Other (specify) _________________________________ [ ]

B9. At what age did you introduce water to your children/child in the past? _______ Months

B10. At what age did you introduce liquids to your children/child in the past? ____ Months

B11. At what age did you introduce semi-solid/ solid foods to your children/child in the past? _______ Months
SECTION C: BREASTFEEDING KNOWLEDGE AND ATTITUDES

C1. Have you ever received information on breastfeeding?
1=Yes [ ]
0=No [ ]

If YES, go to question C2
If NO, skip to question C4

C2. What/who was the source of the information?

Tick ALL responses given
1=Hospital/health facility designated worker [ ]
2=Traditional birth attendant [ ]
3=Family/relatives (specify) ______________ [ ]
4=Friends [ ]
5=Media (radio, television, newspapers, magazines, internet) (specify) _____ [ ]
6=Other (specify) ______________________ [ ]

If hospital/health facility (1), go to question C3
If not hospital/health facility (2-6), go to question C4

C3. When did you receive this breastfeeding information?

Tick ALL responses given
1=During antenatal clinics for the present pregnancy [ ]
2=At the time of delivery of past babies [ ]
3=After delivery of past babies before leaving the hospital of past babies [ ]
4=During post-natal clinics of past babies [ ]
5=Maternal and child clinic [ ]
6=In the non-perinatal period [ ]

C4. What/whom is your preferred source of information on breastfeeding?

Tick ALL responses given
1=Hospital/health facility designated worker [ ]
2=Traditional birth attendant [ ]
3=Family/relatives (specify) ______________ [ ]
4=Friends [ ]
5=Media (radio, television, newspapers, magazines, and internet) (specify) _____ [ ]
6=Other (specify) ______________________ [ ]

C5. Why? ____________________________________________________________

C6. What is the role of breastfeeding? [PROBE]

Tick ALL responses given
1=Do not know[ ]
2=Breast milk is nutritious [ ]
3=It protects against infection[ ]
4=It prevents pregnancy[ ]
5=It is inexpensive[ ]
6=Others (specify) ______________________ [ ]
C7. What should a baby be given immediately after a safe delivery?

Tick ALL responses given

1= Breast milk [ ]
2= Cow milk [ ]
3= Infant formula [ ]
4= Plain water [ ]
5= Salt solution [ ]
6= Salt-sugar solution [ ]
7= Glucose or sugar solution [ ]
8= Other (specify) ____________________________ [ ]

If 1 (BREASTMILK), go to question C8
If 2-8 (NOT BREASTMILK), skip to question C9

C8. If breastmilk, why?

________________________________________________________

C9. If not breastmilk, why?

________________________________________________________

C10. When should a baby be put on the breast after a safe delivery?

1= Do not know [ ]
2= Immediately [ ]
3= Within 30 minutes [ ]
4= Within 1 hour after delivery [ ]
5= Between 2-8 hours after delivery [ ]
6= Between 2-8 hours after delivery [ ]
7= 9 or more hours after delivery [ ]
8= Other (specify) __________ [ ]

C11. How frequently should a baby be breastfed?

1= On demand [ ]
2= By routine [ ]
3= Other (specify) ______________ [ ]

C12. For how long should a baby be breastfed? ________ Months

C13. What helps to increase the flow of breast milk? [PROBE]

Tick ALL responses given

1= Do not know [ ]
2= Frequent breastfeeding [ ]
3= Making sure that the breast is always emptied [ ]
4= Putting the baby correctly to the breast [ ]
5= Support from family/friends/health workers [ ]
6= Good feelings by the mother [ ]
7= Others (specify) _________________________ [ ]
C14. Why may a baby not obtain adequate breast milk? [PROBE]

**Tick ALL responses given**

1 = Do not know [ ]
2 = Putting the baby to the breast infrequently [ ]
3 = Allowing the baby to suckle for only short periods [ ]
4 = Improper positioning of the baby to the breast [ ]
5 = Worries/discomfort of the mother [ ]
6 = Others (specify) __________________ [ ]

C15. At what age should a baby be introduced to water? __________ Months

C16. At what age should a baby be introduced to liquid foods? __________ Months

C17. At what age should a baby be introduced to solid/semi-solid foods? _____ Months

**ATTITUDES**

*Favourable statements:*

Key: -2 = Strongly disagree; -1 = Disagree; 0 = Uncertain; 1 = Agree; 2 = Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C17. Exclusive breastfeeding for 6 months is possible</td>
<td></td>
</tr>
<tr>
<td>C18. Exclusive breastfeeding for 6 months is good for the baby</td>
<td></td>
</tr>
<tr>
<td>C19. Breast milk is the first feed a baby should be given first after birth</td>
<td></td>
</tr>
</tbody>
</table>

*Unfavourable statements:*

Key: 2 = Strongly disagree; 1 = Disagree; 0 = Uncertain; -1 = Agree; -2 = Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C20. Breast milk alone is inadequate for a 0-6 months old baby</td>
<td></td>
</tr>
<tr>
<td>C21. The first thick yellowish milk (colostrum) should not be fed to a baby</td>
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</tr>
<tr>
<td>C22. Before initiation of breast feeding, there are some solids/liquids that should be given to the baby</td>
<td></td>
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</tbody>
</table>
SECTION D: FATHER RELATED FACTORS

D1. Has your baby’s father attended any ante-natal visits with you for the past pregnancies?
1=Yes [ ]
0=No [ ]

D2. Has your baby’s father attended any ante-natal visits with you for the present pregnancy?
1=Yes [ ]
0=No [ ]

D3. During the ante-natal visits, has the health worker ever requested to see the baby’s father?
1=Yes [ ]
0=No [ ]

D4. In the past, who decided on the mode of feeding for your baby?
Tick ALL responses given

1=Baby’s mother [ ]
2=Baby’s father [ ]
3= Relatives (specify) ________________ [ ]
4=Friends [ ]
5=Health worker [ ]
6=Other (specify) _________________ [ ]

D5. Did the father play any role in the feeding of the children/child in the past?
1=Yes [ ]
0=No [ ]
If YES, go to question D6
If NO, skip to question D7

D6. If Yes, what role did he play?
Tick ALL responses given

1=Moral support [ ]
2=Infant care [ ]
3=Decision making on infant feeding mode [ ]
4=Purchase of infant food[ ]
5=Ensuring adequate food for breastfeeding mother [ ]
6=Other (specify) _________________[ ]

D7. In the past, did the baby’s father provide adequate support for breastfeeding?
1=Yes [ ]
0=No [ ]
ATTITUDES

Favourable statements:
Key: -2= Strongly disagree; -1=Disagree; 0= Uncertain; 1 =Agree; 2=Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>D8. Both mother and father should decide the mode of breastfeeding the baby?</td>
<td></td>
</tr>
<tr>
<td>D9. Fathers should be involved in breast feeding of the baby?</td>
<td></td>
</tr>
</tbody>
</table>

Unfavourable statements:
Key: 2= Strongly disagree; 1=Disagree; 0= Uncertain; -1 =Agree; -2=Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>D10. Breastfeeding is a mother’s issue and fathers should not be involved</td>
<td></td>
</tr>
</tbody>
</table>

SECTION E: INFANT FEEDING INTENTIONS

E1. Do you intend to breastfeed the baby you are expecting?
1=Yes [ ]
0=No [ ]

If YES, go to question E2
If NO, skip to question E3

E2. For how long do you intend to breastfeed the baby to be born? _____ Months

E3. Why do you intend not to breastfeed the baby to be born? _____ Months

E4. When do you intend to introduce water to the baby? _____ Months

E5. When do you intend to introduce liquids to the baby? _____ Months

E6. When do you intend to introduce solid/semi-solid foods to the baby? _____ Months

E7. Do you intend to consult when deciding on the mode of feeding for your baby?
1=Yes [ ]
0=No [ ]

E8. If so, who?
Tick ALL responses given
1=Baby’s father [ ]
2=Relatives (specify) ____________________ [ ]
3=Friends[ ]
4=Health worker [ ]
5=Other (specify) ____________________ [ ]

E9. If so, why?
APPENDIX J: QUESTIONNAIRE FOR SECOND INTERVIEW WITH MOTHERS
(Administered within a week after delivery to women in all three study groups).

Date of interview: _______ Questionnaire serial number: _______

Interviewer ID: ______

Study group: ____________
Family/ Infant code: ________ Village of residence: _______

BABIES BIODATA

Record the responses to the following questions from the baby’s card, if available. If not available, ask mother to give the information:

Name of baby: ______________________

Sex: 1=Male [ ]

2=Female [ ]

Date of birth: ______________________

Age of baby in days: __________________

Baby’s birth weight: _________________

Mother’s weight alone (to the nearest 0.1kg): _________________

Mother’s weight when holding the baby (to the nearest 0.1kg): _________________

Baby’s present length (to the nearest 0.1cm): _________________

Mother’s height (to the nearest 0.1cm): _________________

Baby’s Head Circumference: _________________

Rank of baby among siblings (1st 2nd born): _______

Number of children in the family less than 2 years old, excluding the present baby: __________

Number of children in the family less than 5 years old, excluding the present baby: __________

In sections from page 2 onwards, the term [NAME] is for name of the index baby
SECTION A: DELIVERY PROFILE
A1. Where did you deliver [NAME]?
   1=Health facility [ ]
   2=Home [ ]
   3=At a traditional birth attendant’s (TBA’s) house [ ]
   4= Other (specify) ____________ [ ]
If HEALTH FACILITY (1), skip to question A3
If not Health facility (2-4), go to question A7

A2. Which facility did you deliver at? ____________

A3. What kind of delivery did you have?
   1=Normal [ ]
   2=Cesarean [ ]
   3=Other (specify) ____________ [ ]

A4. How many days did you stay in hospital after the delivery? ____________

A5. Did you stay in the same room with [NAME] after delivery at the health facility?
   1=Yes [ ]
   0=No [ ]

A6. Did you stay in the same bed with [NAME] after delivery at the health facility?
   1=Yes [ ]
   0=No [ ]

A7. Who assisted you in the delivery?
   1=TBA [ ]
   2=Self [ ]
   3=Friend/relative/neighbour [ ]
   4=Other (specify) ____________ [ ]

SECTION B: FEEDING INITIATION
B1. Have you breastfed [NAME] since delivery?
   1=Yes [ ]
   0=No [ ]
If YES, go to question B2
If NO, skip to question B12

B2. What was the first feed given to [NAME] after the delivery?
   1=Breast milk [ ]
   2=Cowmilk [ ]
   3=Infant formula [ ]
   4=Plain water [ ]
   5=Salt solution [ ]
   6=Salt-sugar solution [ ]
   7=Glucose or sugar solution [ ]
   8=Other (specify) ____________________________ [ ]
If BREASTMILK (1), skip to question B3
If not breastmilk (2-8), go to question B4

B3. What was the reason for giving [NAME] breastmilk? ________________
B4. What was the reason for giving [NAME] this liquid/solid? [PROBE]
1=Infant perceived as unwell
2=Mother was unwell
3=Delayed milk production from the mother
4=Other (specify) ________________________________

B5. How long after delivery did you first put [NAME] to the breast?
1=Immediately
2=Within 30 minutes
3=Within 1 hour after delivery
4=Between 2-8 hours after delivery
5=9 or more hours after delivery
6=Other (specify) ________________________________

If (1), skip to question B6
If (2-4), go to question B7

B6. Why? ________________________________

B7. Why? ________________________________

B8. In the first 3 days after delivery, was [NAME] fed anything else other than or in addition to breast milk?
1=Yes
2=No

If YES, go to question B9
If NO, skip to question B11

B9. If yes, what liquids/solids were given?
Tick ALL responses given
1=Cowmilk
2=Infant formula
3=Plain water
4=Salt solution
5=Salt-sugar solution
6=Glucose or sugar solution
7=Porridge/Cereals
8=Fruit/vegetable
9=Juice/tea
10=Honey
11=Herbs
12=Other (specify) ________________________________
B10. Why did you give [NAME] these liquids/solids?

**Tick ALL responses given**

1=Baby gets hungry [ ]
2=Mother not producing enough milk [ ]
3=Advised by relatives/friends/neighbors [ ]
4=Advised by health care providers [ ]
5=Advised by TBA [ ]
6=To soothe stomach pain [ ]
7=Other (specify) ________________________________ [ ]

B11. Are you still breastfeeding [NAME]?

1=Yes [ ]
0=No [ ]

*If YES, go to question B12*
*If NO, skip to question B13*

B12. If Yes, Why? [PROBE] __________________________

B13. If No, Why? [PROBE] __________________________

B14. Did you receive counselling on infant feeding during the pregnancy and/or at delivery of [NAME]?

1=Yes [ ]
0=No [ ]

*If YES, go to question B15*
*If NO, skip to question B18*

B15. Who counselled you? [PROBE]

**Tick ALL responses given**

1=Hospital/health facility designated worker [ ]
2=The K.U research team[ ]
3=Family/relatives (specify)______________ [ ]
4=Friends[ ]
5=Traditional birth attendant[ ]
6=Other (specify) ________________________________ [ ]

*If hospital/health facility (1), go to question B16*
*If research team (2), go to question B17*
*If (3-6), go to question B18*

B16. When did you receive the breastfeeding counselling?

**Tick ALL responses given**

1=During antenatal clinics[ ]
2=At the time of delivery [ ]
3=After delivery before leaving the hospital [ ]
4=During post-natal clinics [ ]
5=During MCH clinics [ ]
6=Other (specify) ________________________________ [ ]
B17. When did you receive the breastfeeding counselling?

Tick ALL responses given
1=During antenatal period [ ]
2=At the time of delivery [ ]
3=After delivery [ ]
4= Other (specify) ________________________________ [ ]

B18. When did you receive the breastfeeding counselling?

Tick ALL responses given
1=During antenatal period [ ]
2=At the time of delivery [ ]
3=After delivery [ ]
4= Other (specify) ________________________________ [ ]

B19. Have you received any other information on breastfeeding apart from the counselling?

1=Yes [ ]
0=No [ ]

If YES, go to question B20
If NO, skip to question C1

B20. Specify the source of information ______________________

B21. Specify the nature of information (education, advert) ______________________

SECTION C: BREASTFEEDING PRACTICES BASED ON 24-HOUR RECALL

C1. Has [NAME] been breastfed or given breastmilk yesterday during the day or at night?

1=Yes [ ]
0=No [ ]

If YES, skip to question C4
If NO, go to question C2

C2. Why did you not breastfeed [NAME]?

Tick ALL responses given
1=The baby has been unwell [ ]
2=Had to go back to work [ ]
3=Mother unwell [ ]
4=Other (specify) ________________________________ [ ]

C3. Do you intend to resume breastfeeding [NAME]?

2=Unsure [ ]
1=Yes [ ]
0=No [ ]
C4. I would now like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your baby had the item even if it was combined with other foods.

Yesterday, during the day or at night, did [NAME] receive any of the following?

Ask about EVERY liquid. If item was given, circle ‘1.’ If item was not given, circle ‘0.’ If the mother does not remember, is unsure or does not know, circle ‘0.’

EVERY LINE MUST HAVE A CODE.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Unsure/ Does not remember/ Does not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Soup/ clear broth</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Cow milk</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Infant formula</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Plain water</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Salt solution</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>Salt-sugar solution</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>Glucose or sugar solution</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>Juice or juice drinks</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>Other (specify)</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

If response is YES, in any of the liquids above go to question C6
If NO, skip to question C7

C6. Why did you give [NAME] these liquids/solids?

Tick ALL responses given
1=Baby gets hungry [ ]
2=Mother not producing adequate milk [ ]
3=Mother experiencing breast problems [ ]
4=Advised by relatives/friends/neighbors [ ]
5=Advised by health worker (specify) ____________________________ [ ]
6=Advised by TBA [ ]
7=To sooth stomach pain [ ]
8=Other (specify) ____________________________________________[ ]
C7.  Please tell me everything that [NAME] ate yesterday during the day or night (whether at home or outside the home).

Think about when [NAME] first woke up yesterday. Did [NAME] eat anything at that time?

**KEEP PROBING** ‘Anything else?’ until the participant says ‘nothing else.’ If nothing else was given when the infant first got up, ask:

What did [NAME] do after that? Did [NAME] eat anything at that time?

If yes, ask: Please tell me everything [NAME] ate at that time. **PROBE:** ‘Anything else?’ until participant says ‘nothing else.’

If participant mentions mixed dishes like a sauce or stew, probe: **What ingredients were in that [MIXED DISH]?” PROBE: ‘Anything else?’ Until participant says ‘nothing else.’

If foods are used in small amounts for seasoning or as a condiment, include them under the condiments food group.

Repeat questions above until participant says the child went to sleep until the next day

**INSTRUCTIONS FOR RECORDING RESPONSES**

As the participant recalls each food, underline the food in the food groups below.

If a food recalled by the participant is not listed in any of the food groups below, write the food in the box labeled ‘other foods’, at the end.

Once the participant tells you everything she remembers the infant eating yesterday during the day or at night, look at each food group. If one or more foods in a food group is underlined, circle ‘1’ in the column to the right.

Now return to the list of foods. Are there any food groups with no ‘1’ circled? Read the entire list of food items in that line to the participant. If she indicates that one or more of the foods has been given to the child, underline that food and circle ‘1.’ If none of the foods has been given to the child, circle ‘0.’ If the mother does not remember, is unsure or does not know, circle ‘2’

**EVERY LINE MUST HAVE A CODE.**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Unsure/ Does not remember/ Does not know</th>
<th>Specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
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<tr>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
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<td>3</td>
<td>1</td>
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<td>4</td>
<td>1</td>
<td>0</td>
<td>2</td>
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<td></td>
<td>Description</td>
<td>1</td>
<td>0</td>
<td>2</td>
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<td>-----------------------------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>Meat/ fish/ chicken/ organ meat <em>(SPECIFY)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Porridge/ ugali, Bread, rice, noodles, or other foods made from grains</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
<td>White potatoes, white yams, manioc, cassava, or any other foods made from roots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Eggs</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10</td>
<td>Cheese, yogurt, or other milk products?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>11</td>
<td>Any oil, fats or butter, or foods made with any of these?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Foods made with red palm oil, red palm nut and red palm nut pulp sauce?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Any sugary foods such as chocolates, sweets, candies, pastries, cakes or biscuits?</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>14</td>
<td>Condiments for flavor such as chilies, spices, herbs or fish powder?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Other (specify)</td>
<td></td>
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</tbody>
</table>

If response is YES, in any of the foods above go to question C9  
If NO, skip to question D1

C9. Why did you give [NAME] the foods?  
**Tick ALL responses given**  
1=Baby gets hungry [ ]  
2=Mother not producing adequate milk [ ]  
3=Mother experiencing breast problems [ ]  
4=Advised by relatives/friends/neighbors [ ]  
5=Advised by health worker (specify) ________________________[ ]  
6=Advised by TBA [ ]  
7=To soothe stomach pain [ ]  
8=Other (specify) ________________________[ ]
SECTION D: FATHER RELATED FACTORS

D1. Has your baby’s father attended any clinic visits with you for [NAME]?

1=Yes [ ]
0=No [ ]

D2. During clinic visits, has the health worker ever requested to see the baby’s father?

1=Yes [ ]
0=No [ ]

D3. Who decided the mode of feeding for [NAME]?
Tick ALL responses given
1=Baby’s mother [ ]
2=Baby’s father [ ]
3=Relatives (specify) ________________ [ ]
4=Friends [ ]
5=Health worker [ ]
6=Other (specify) ________________ [ ]

D4. What role does the father play in infant feeding of [NAME]?
Tick ALL responses given
1=Moral support [ ]
2=Infant care[ ]
3=Decision making on infant feeding mode [ ]
4=Purchase of infant food [ ]
5=Ensuring adequate food for breastfeeding mother [ ]
6=Other (specify) ________________[ ]

D5. Does the baby’s father provide adequate support for breastfeeding?

1=Yes[ ]
0=No[ ]

SECTION E: MATERNAL AND INFANT HEALTH STATUS

E1. Has [NAME] been unwell since birth?

1=Yes [ ]
0=No [ ]

If YES, go to question E2
If NO, skip to question E11

E2. What was [NAME] suffering from? [PROBE]
Tick ALL responses given
1=Vomiting [ ]
2=Common cold/ flu [ ]
3=Diarrhea [ ]
4=Cough [ ]
5=Fever [ ]
6=Malaria [ ]
7=Other (specify) __________________________ [ ]
E3. Did you seek medical care for [NAME]?
   1=Yes [  ]
   0=No [  ]
   \textit{If YES, skip to question E7}
   \textit{If NO, go to question E4}

E4. If NO, did you self-medicate [NAME]?
   1=Yes[  ]
   0=No [  ]
   \textit{If YES, go to question E5}
   \textit{If NO, skip to question E6}

E5. What did you give [NAME]? _______________________

E6. Why did you not seek medical assistance?
   ____________________________________________
   \textit{[NOW SKIP TO E8]}

E7. Where did you seek the medical care?
   \textit{Tick ALL responses given}
   1=Public health facility [  ]
   2=Private health facility [  ]
   3=Gave herbal medicine [  ]
   4=Bought drugs from a chemist/shop [  ]
   5=Traditional healer [  ]
   6=Other (specify) ___________________________________

E8. Is [NAME] currently on any treatment?
   1=Yes[  ]
   0=No[  ]

E9. Has the BABY’S illness/treatment influenced breastfeeding?
   1=Yes [  ]
   0=No[  ]
   \textit{If YES, go to question E10}
   \textit{If NO, skip to question E11}

E10. How has the illness influenced [NAME] breastfeeding?
   1=Reduced breastfeeding [  ]
   2=Increased breastfeeding [  ]
   3=Stopped breastfeeding [  ]
   4=Other (specify) __________________________________ [  ]

E11. Have you (MOTHER) experienced any challenges in breastfeeding your baby?
   1=Yes[  ]
   0=No [  ]
   \textit{If YES, go to question E12}
   \textit{If NO, skip to question E16}
E12. What challenges have you experienced?

**Tick ALL responses given**
1=Inadequate breastmilk [ ]
2=Baby refusing to breastfeed [ ]
3=Pain in breasts [ ]
4=Lack of time [ ]
5=Other (specify) ____________________________________________ [ ]

E13. Have the challenges influenced breastfeeding?

1=Yes
0=No

*If YES, go to question E14
If NO, skip to question E15*

E14. How have the challenges influenced breastfeeding?

**Tick ALL responses given**
1=Reduced breastfeeding [ ]
2=Increased breastfeeding [ ]
3=Ceased breastfeeding [ ]
4=Other (specify) ____________________________________________ [ ]

E15. How have you dealt with the challenges?

**Tick ALL responses given**
1= Sought attention from public health facility [ ]
2=Sought attention from private health facility [ ]
3= Taken herbal medicine [ ]
4=Bought drugs from a chemist/shop [ ]
5=Traditional healer [ ]
6=Sought advice from friends/relatives/neighbours [ ]
7=Done nothing [ ]
8=Other (specify) _____________________________ [ ]

E16. Have you (MOTHER) been unwell in the last two weeks?

1=Yes [ ]
0=No [ ]

*If YES, go to question E15
If NO, the questions end*

E17. What were you suffering from? ____________________________

E18. Did/ has YOUR illness influenced the breastfeeding?

1=Yes [ ]
0=No [ ]

*If YES, go to question E19
If NO, the questions end*

E19. How did YOUR illness influence breastfeeding?

**Tick ALL responses given**
1=Reduced breastfeeding [ ]
2=Increased breastfeeding [ ]
3=Ceased breastfeeding [ ]
4=Other (specify) ____________________________________________ [ ]
APPENDIX K: QUESTIONNAIRE FOR THIRD TO SEVENTH INTERVIEWS WITH MOTHERS
(Administered monthly from 1 to 5 months after delivery to women in all three study groups).

Date of interview: ________  Questionnaire serial number: ____________

Interviewer ID: ______

Study group: ________________
Family/ Infant code: ________  Village of residence: ________

BABIES BIODATA

Record the responses to the following questions from the baby’s card, if available. If not available, ask mother to give the information:

Name of baby : ______________________

Sex:  1=Male [ ]
      2=Female [ ]

Date of birth : __________________________

Age of baby in weeks:__________________

Mother’s weight alone: 1st Reading ___ kg; 2nd Reading____ kg

Mother’s weight when holding baby : 1st Reading ___ kg; 2nd Reading____ kg

Baby’s present length (to the nearest 0.1cm): 1st Reading _____ cm; 2nd Reading_______cm

Baby’s Head Circumference : 1st Reading _____ cm; 2nd Reading_______cm

In section A to D, the term [NAME] is for the name of the index baby
SECTION A: BREASTFEEDING PRACTICES BASED ON 24-HOUR RECALL

A1. Has [NAME] been breastfed or given breastmilk yesterday during the day or at night?
   1=Yes [  ]
   0=No[  ]

If YES, skip to question A4
If NO, go to question A2

A2. Why did you not breastfeed [NAME]?
   Tick ALL responses given
   1=The baby has been unwell [  ]
   2=Had to go back to work [  ]
   3=Mother unwell[  ]
   4=Other (specify) ____________________________[  ]

A3. Do you intend to resume breastfeeding [NAME]?
   2=Unsure[  ]
   1=Yes[  ]
   0=No[  ]

A4. I would now like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your baby had the item even if it was combined with other foods.

Yesterday, during the day or at night, did [NAME] receive any of the following?

Ask about EVERY liquid. If item was given, circle ‘1.’ If item was not given, circle ‘0.’ If the mother does not remember, is unsure or does not know, circle ‘0.’

EVERY LINE MUST HAVE A CODE.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Unsure/ Does not remember/ Does not know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Soup/ clear broth</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2 Cow milk</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>3 Infant formula</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>4 Plain water</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5 Salt solution</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>6 Salt-sugar solution</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>7 Glucose or sugar solution</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>8 Juice or juice drinks</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>9 Other (specify)</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

If response is YES, in any of the liquids above go to question A6
If NO, skip to question A7
A6. Why did you give [NAME] these liquids?

*Tick ALL responses given*

1 = Baby gets hungry [ ]
2 = Mother not producing adequate milk [ ]
3 = Mother experiencing breast problems [ ]
4 = Advised by relatives/friends/neighbors [ ]
5 = Advised by health worker (specify) _________________________ [ ]
6 = Advised by TBA [ ]
7 = To sooth stomach pain [ ]
8 = Other (specify) ________________________________ [ ]

A7. Please tell me everything that [NAME] ate yesterday during the day or night (whether at home or outside the home).

Think about when [NAME] first woke up yesterday. Did [NAME] eat anything at that time?

**KEEP PROBING ‘Anything else?’ until the participant says ‘nothing else.’** If nothing else was given when the infant first got up, ask:

What did [NAME] do after that? Did [NAME] eat anything at that time?

**If yes, ask:** Please tell me everything [NAME] ate at that time. **PROBE:** ‘Anything else?’ until participant says ‘nothing else.’

If participant mentions mixed dishes like a sauce or stew, probe: **What ingredients were in that [MIXED DISH]?** **PROBE:** ‘Anything else?’ Until participant says ‘nothing else.’

**If foods are used in small amounts for seasoning or as a condiment, include them under the condiments food group.**

**Repeat questions above until participant says the child went to sleep until the next day**

**INSTRUCTIONS FOR RECORDING RESPONSES**

As the participant recalls each food, underline the food in the food groups below. If a food recalled by the participant is not listed in any of the food groups below, write the food in the box labeled ‘other foods’, at the end.

Once the participant tells you everything she remembers the infant eating yesterday during the day or at night, look at each food group. If one or more foods in a food group is underlined, circle ‘1’ in the column to the right.

Now return to the list of foods. Are there any food groups with no ‘1’ circled? Read the entire list of food items in that line to the participant. If she indicates that one or more of the foods has been given to the child, underline that food and circle ‘1.’ If none of the foods has been given to the child, circle ‘0.’ If the mother does not remember, is unsure or does not know, circle ‘2’
EVERY LINE MUST HAVE A CODE.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Unsure/ Does not remember/ Does not know</th>
<th>Specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dark green vegetables</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Fruit (SPECIFY)</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cereals</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Any foods made from beans, peas, lentils or nuts, including Legumes</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Meat/ fish/ chicken/ organ meat (SPECIFY)</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Porridge/ ugali, Bread, rice, noodles, or other foods made from grains</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>White potatoes, white yams, manioc, cassava, or any other foods made from roots</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside?</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Eggs</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Cheese, yogurt, or other milk products?</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Any oil, fats or butter, or foods made with any of these?</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Foods made with red palm oil, red palm nut and red palm nut pulp sauce?</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Any sugary foods such as chocolates, sweets, candies, pastries, cakes or biscuits?</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Condiments for flavor such as chilies, spices, herbs or fish powder?</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Other (specify)</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

If response is YES, in any of the foods above go to question A9
If NO, skip to question B1
A9. Why did you give [NAME] the foods? (Tick all applicable responses)

Tick ALL responses given
1=Baby gets hungry[ ]
2=Mother not producing adequate milk[ ]
3=Mother experiencing breast problems[ ]
4=Advised by relatives/friends/neighbors[ ]
5=Advised by health worker (specify) __________________________[ ]
6=Advised by TBA[ ]
7=To soothe stomach pain[ ]
8=Other (specify) __________________________________________[ ]

SECTION B: MATERNAL AND INFANT HEALTH STATUS

B1. Has [NAME] been unwell in the last two weeks?
   1=Yes[ ]
   0=No [ ]

If YES, go to question B2
If NO, skip to question B9

B2. What was [NAME] suffering from?

Tick ALL responses given
1=Vomiting[ ]
2=Common cold/flu[ ]
3=Diarrhea[ ]
4=Cough [ ]
5=Fever [ ]
6=Malaria[ ]
7=Other (specify) __________________________[ ]

B3. Did you seek medical care for [NAME] when he/she were unwell?
   1=Yes [ ]
   0=No[ ]

If YES, skip to question B5
If NO, go to question B4

B4. Why did you not seek medical assistance?

_________________________________________________________________

B5. Where did you seek the medical care?

Tick ALL responses given
1=Public health facility [ ]
2=Private health facility[ ]
3=Gave herbal medicine[ ]
4=Bought drugs from a chemist/shop[ ]
5=Traditional healer [ ]
6=Other (specify) __________________________[ ]
B6. Is [NAME] currently on any treatment?
   1=Yes [  ]
   0=No [  ]

   **If YES, go to question B7**
   **If NO, skip to question B8**

B7. Has the illness/treatment influenced [NAME] breastfeeding?
   1=Yes [  ]
   0=No [  ]

   **If YES, go to question B8**
   **If NO, skip to question B9**

B8. How has the illness of [NAME] influenced breastfeeding?
   1=Reduced breastfeeding [  ]
   2=Increased breastfeeding[  ]
   3=Ceased breastfeeding [  ]
   4=Other (specify) _______________________________________________

B9. Have you (MOTHER) experienced any challenges in breastfeeding [NAME]?
   1=Yes [  ]
   0=No [  ]

   **If YES, go to question B10**
   **If NO, skip to question B14**

B10. What challenges have you experienced?

   **Tick ALL responses given**
   1=Inadequate breastmilk [  ]
   2=Baby refusing to breastfeed [  ]
   3=Pain in breasts[  ]
   4=Other (specify) _______________________________________________

B11. Have the challenges interfered with breastfeeding?
   1=Yes [  ]
   0=No [  ]

   **If YES, go to question B12**
   **If NO, skip to question B13**

B12. How have the challenges influenced breastfeeding?

   **Tick ALL responses given**
   1=Reduced breastfeeding [  ]
   2=Increased breastfeeding [  ]
   3=Ceased breastfeeding [  ]
   4=Other (specify) _______________________________________________
B13. How have you dealt with the challenges?

Tick ALL responses given
1= Sought attention from public health facility [ ]
2= Sought attention from private health facility [ ]
3= Taken herbal medicine [ ]
4= Bought drugs from a chemist/shop [ ]
5= Traditional healer [ ]
6= Sought advice from friends/relatives/neighbours [ ]
7= Done nothing [ ]
8= Other (specify) ________________________________________ [ ]

B14. Have you (MOTHER) been unwell in the last two weeks?
1= Yes [ ]
0= No [ ]

If YES, go to question B15
If NO, the questions C1

B15. What were you suffering from?

B16. Did/ has YOUR illness influenced breastfeeding [NAME]?
1= Yes [ ]
0= No [ ]

If YES, go to question B17
If NO, go to question B18

B17. How did YOUR illness influence breastfeeding?

Tick ALL responses given
1= Reduced breastfeeding [ ]
2= Increased breastfeeding [ ]
3= Ceased breastfeeding [ ]
4= Other (specify) ____________________________________________ [ ]

B18. Since delivery, have you left [NAME] at home when going out of the home either for short or long periods?
1= Yes [ ]
0= No [ ]

If YES, go to question B19
If NO, go to question B20

B19. During the periods you were away, what food/liquid did [NAME] take?
1= Breastmilk [ ]
2= Other [ ]
B20. Have you attempted to express breastmilk since [NAME] was born?
   1=Yes[  ]
   0=No[  ]

*If YES, go to question B22*
*If NO, go to question B21*

B21. If No, Why? _________________________________

*Now go to question B22*

B22. What is your opinion on expressing breastmilk?

____________________________________________________________________
____________________________________________________________________
APPENDIX L: QUESTIONNAIRE FOR EIGHTH (EXIT) INTERVIEW WITH MOTHERS

(Administered 6 months after delivery to women in all three study groups).

Date of interview: ________       Questionnaire serial number: ________

Interviewer ID: ______

Study group: ________________

Family/ Infant code: _________    Village of residence: ________

BABIES BIODATA

Record the responses to the following questions from the baby’s card, if available. If not available, ask mother to give the information:

Name of baby : ______________________

Sex:

1=Male [ ]

2=Female [ ]

Date of birth : ______________________

Age of baby in weeks:__________________

Mother’s weight alone : 1st Reading _____ kg; 2nd Reading_____ kg

Mother’s weight when holding baby: 1st Reading _____ kg; 2nd Reading_____ kg

Mother’s height: 1st Reading _____ cm; 2nd Reading_____ cm

Baby’s present length: 1st Reading _____ cm; 2nd Reading_____ cm

Baby’s Head Circumference : 1st Reading _____ cm; 2nd Reading_____ cm

In section A to G, the term [NAME] is for the name of the index baby
SECTION A: BREASTFEEDING PRACTICES BASED ON 24-HOUR RECALL

A1. Has [NAME] been breastfed or given breastmilk yesterday during the day or at night?
    1=Yes [ ]
    0=No[ ]

If YES, skip to question A4
If NO, go to question A2

A2. Why did you not breastfeed [NAME]?
    Tick ALL responses given
    1=The baby has been unwell [ ]
    2=Had to go to work [ ]
    3=Mother unwell[ ]
    4=Other (specify) ________________________________[ ]

A3. Do you intend to resume breastfeeding [NAME]?
    2=Unsure[ ]
    1=Yes[ ]
    0=No[ ]

A4. I would now like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your baby had the item even if it was combined with other foods.

Yesterday, during the day or at night, did [NAME] receive any of the following?

Ask about EVERY liquid. If item was given, circle ‘1’. If item was not given, circle ‘0.’ If the mother does not remember, is unsure or does not know, circle ‘0.’

EVERY LINE MUST HAVE A CODE.

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<th>No</th>
<th>Unsure/Does not remember/Does not know</th>
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<td>2</td>
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<tr>
<td>9</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

If response is YES, in any of the liquids above go to question A6
If NO, skip to question A7
A6. Why did you give [NAME] these liquids?

Tick ALL responses given
1=Baby gets hungry [ ]
2=Mother not producing adequate milk [ ]
3=Mother experiencing breast problems [ ]
4=Advised by relatives/friends/neighbors [ ]
5=Advised by health worker (specify) _________________________ [ ]
6=Advised by TBA [ ]
7=To soothe stomach pain [ ]
8= Had to go to work [ ]
9=Other (specify) _________________________ [ ]

A7. Please tell me everything that [NAME] ate yesterday during the day or night (whether at home or outside the home).

Think about when [NAME] first woke up yesterday. Did [NAME] eat anything at that time?

KEEP PROBING ‘Anything else?’ until the participant says ‘nothing else.’ If nothing else was given when the infant first got up, ask:

What did [NAME] do after that? Did [NAME] eat anything at that time?

If yes, ask: Please tell me everything [NAME] ate at that time. PROBE: ‘Anything else?’ until participant says ‘nothing else.’

If participant mentions mixed dishes like a sauce or stew, probe: What ingredients were in that [MIXED DISH]? PROBE: ‘Anything else?’ Until participant says ‘nothing else.’

If foods are used in small amounts for seasoning or as a condiment, include them under the condiments food group.

Repeat questions above until participant says the child went to sleep until the next day

INSTRUCTIONS FOR RECORDING RESPONSES

As the participant recalls each food, underline the food in the food groups below.
If a food recalled by the participant is not listed in any of the food groups below, write the food in the box labeled ‘other foods’, at the end.

Once the participant tells you everything she remembers the infant eating yesterday during the day or at night, look at each food group. If one or more foods in a food group is underlined, circle ‘1’ in the column to the right.

Now return to the list of foods. Are there any food groups with no ‘1’ circled? Read the entire list of food items in that line to the participant. If she indicates that one or more of the foods has been given to the child, underline that food and circle ‘1.’ If
none of the foods has been given to the child, circle ‘0.’ If the mother does not remember, is unsure or does not know, circle ‘2’

**EVERY LINE MUST HAVE A CODE.**

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<th></th>
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<th>No</th>
<th>Does not remember/ Does not know</th>
<th>Specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dark green vegetables</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Fruit <em>(SPECIFY)</em></td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Cereals</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Any foods made from beans, peas, lentils or nuts, including – Legumes</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Meat/ fish/ chicken/ organ meat <em>(SPECIFY)</em></td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Porridge/ ugali, Bread, rice, noodles, or other foods made from grains</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>White potatoes, white yams, manioc, cassava, or any other foods made from roots</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside?</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Eggs</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Cheese, yogurt, or other milk products?</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Any oil, fats or butter, or foods made with any of these?</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>Foods made with red palm oil, red palm nut and red palm nut pulp sauce?</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Any sugary foods such as chocolates, sweets, candies, pastries, cakes or biscuits?</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>Condiments for flavor such as chilies, spices, herbs or fish powder?</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>Other <em>(specify)</em></td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

*If response is YES, in any of the foods above go to question A9  
If NO, skip to question A 10*
A9. Why did you give [NAME] the foods? (Tick all applicable responses)

**Tick ALL responses given**

1 = Baby gets hungry[ ]
2 = Mother not producing adequate milk[ ]
3 = Mother experiencing breast problems[ ]
4 = Advised by relatives/friends/neighbors[ ]
5 = Advised by health worker (specify) _________________________[ ]
6 = Advised by TBA[ ]
7 = To soothe stomach pain[ ]
8 = Had to go to work [ ]
9 = Other (specify) ____________________________[ ]

A10. At what age did you introduce [NAME] to liquid foods? ______________

A11. At what age did you introduce [NAME] to semi-solid foods? ______________

**SECTION B: MATERNAL AND INFANT HEALTH STATUS**

B1. Has [NAME] been unwell in the last two weeks?

1 = Yes[ ]
0 = No [ ]

*If YES, go to question B2*

*If NO, skip to question B9*

B2. What was [NAME] suffering from?

**Tick ALL responses given**

1 = Vomiting[ ]
2 = Common cold/ flu[ ]
3 = Diarrhea[ ]
4 = Cough [ ]
5 = Fever [ ]
6 = Malaria[ ]
7 = Other (specify) ____________________________[ ]

B3. Did you seek medical care for [NAME] when he/she were unwell?

1 = Yes [ ]
0 = No [ ]

*If YES, skip to question B5*

*If NO, go to question B4*

B4. Why did you not seek medical assistance?
__________________________________________________________________

B5. Where did you seek the medical care?

**Tick ALL responses given**

1 = Public health facility [ ]
2 = Private health facility[ ]
3 = Gave herbal medicine[ ]
4 = Bought drugs from a chemist/shop [ ]
5 = Traditional healer [ ]
6 = Other (specify) ____________________________[ ]
B6. Is [NAME] currently on any treatment?
   1=Yes [ ]
   0=No [ ]

   If YES, go to question B7
   If NO, skip to question B8

B7. Has the illness/treatment influenced the baby’s breastfeeding?
   1=Yes [ ]
   0=No [ ]

   If YES, go to question B8
   If NO, skip to question B9

B8. How has the illness of [NAME] influenced breastfeeding?
   1=Reduced breastfeeding [ ]
   2=Increased breastfeeding [ ]
   3=Ceased breastfeeding [ ]
   4=Other (specify) _______________________________ [ ]

B9. Have you (MOTHER) experienced any challenges in breastfeeding [NAME]?
   1=Yes [ ]
   0=No [ ]

   If YES, go to question B10
   If NO, skip to question B14

B10. What challenges have you experienced?
   Tick ALL responses given
      1=Inadequate breastmilk [ ]
      2=Baby refusing to breastfeed [ ]
      3=Pain in breasts [ ]
      4=Other (specify) _______________________________ [ ]

B11. Have the challenges influenced breastfeeding?
   1=Yes [ ]
   0=No [ ]

   If YES, go to question B12
   If NO, skip to question B13

B12. How have the challenges influenced breastfeeding?
   Tick ALL responses given
      1=Reduced breastfeeding [ ]
      2=Increased breastfeeding [ ]
      3=Ceased breastfeeding [ ]
      4=Other (specify) _______________________________ [ ]
B13. How have you dealt with the challenges?

**Tick ALL responses given**
1= Sought attention from public health facility
2= Sought attention from private health facility
3= Taken herbal medicine
4= Bought drugs from a chemist/shop
5= Traditional healer
6= Sought advice from friends/relatives/ neighbours
7= Done nothing
8= Other (specify) _____________________________

B14. Have you (MOTHER) been unwell in the last two weeks?
1= Yes
0= No

*If YES, go to question B15*
*If NO, the questions C1*

B15. What were you suffering from?

B16. Did/ has YOUR illness influence breastfeeding of [NAME]?
1= Yes
0= No

*If YES, go to question B17*
*If NO, go to question B18*

B17. How did YOUR illness affect breastfeeding?

**Tick ALL responses given**
1= Reduced breastfeeding
2= Increased breastfeeding
3= Ceased breastfeeding
4= Other (specify) _____________________________

B18. Since delivery, have you left [NAME] at home when going out of the home either for short or long periods?
1= Yes
0= No

*If YES, go to question B19*
*If NO, go to question B20*

B19. During the periods you were away, what food/liquid did [NAME] take?
1= Breastmilk
2= Other
B20. Have you attempted to express breastmilk since the baby was born?

1=Yes[  ]
0=No[  ]

*If YES, go to question B22*

*If NO, go to question B21*

B21. If No, Why? _________________________________

*Now go to question B22*

B22. What is your opinion on expressing breastmilk?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
SECTION C: MATERNAL KNOWLEDGE AND ATTITUDES TOWARDS EXCLUSIVE BREASTFEEDING

C1. What is the role of breastfeeding? [PROBE]

Tick ALL responses given

1. Do not know[ ]
2. Breast milk is nutritious[ ]
3. It protects against infection[ ]
4. It prevents pregnancy[ ]
5. It is inexpensive[ ]
6. Others (specify) __________________[ ]

C2. How often should a baby be breastfed?

1. On demand[ ]
2. By routine[ ]
3. Other (specify) _______________________________________[ ]

C3. For how long should a baby be breastfed? ________ Months

C4. What helps to increase the flow of breast milk? [PROBE]

Tick ALL responses given

1. Do not know[ ]
2. Frequent breastfeeding[ ]
3. Making sure that the breast is always emptied[ ]
4. Putting the baby correctly to the breast[ ]
5. Support from family/friends/health workers[ ]
6. Good feelings by the mother[ ]
7. Others (specify) ___________________________[ ]

C5. Why may a baby not obtain adequate breast milk? [PROBE]

Tick ALL responses given

1. Do not know[ ]
2. Putting the baby to the breast infrequently[ ]
3. Allowing the baby to suckle for only short periods[ ]
4. Improper holding of the baby to the breast[ ]
5. Worries/discomfort of the mother[ ]
6. Others (specify) ___________________________[ ]

C6. At what age should a baby be introduced to water? ________ Months

C7. At what age should a baby be introduced to liquid foods? ________ Months

C8. At what age should a baby be introduced to solid foods? ________ Months
ATTITUDES

Favourable statements:
Key: -2= Strongly disagree; -1=Disagree; 0= Uncertain; 1 =Agree; 2=Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C9. Exclusive breastfeeding for 6 months is feasible</td>
<td></td>
</tr>
<tr>
<td>C10. Exclusive breastfeeding for 6 months is good for the baby</td>
<td></td>
</tr>
<tr>
<td>C11. Breast milk is the first feed a baby should be given first after birth</td>
<td></td>
</tr>
</tbody>
</table>

Unfavourable statements:
Key: 2= Strongly disagree; 1=Disagree; 0= Uncertain; -1 =Agree; -2=Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C12. Breast milk alone is inadequate for a 0-6 months old baby</td>
<td></td>
</tr>
<tr>
<td>C13. Before initiation of breast feeding, there are some solids/ liquids that should be given to the baby</td>
<td></td>
</tr>
</tbody>
</table>

SECTION D: FATHER RELATED FACTORS

D1. Has your your husband/ partner attended any infant clinic visits with you for [NAME]?
   1=Yes[ ]
   0=No [ ]

D2. During the clinic visits, has the health worker ever requested to see your husband/ partner?
   1=Yes[ ]
   0=No [ ]

D3. What role did your husband/ partner play in breast feeding of [NAME]?
   Tick ALL responses given
   1=He played NO role [ ]
   2=Moral support [ ]
   3=Infant care[ ]
   4=Decision making on infant feeding mode[ ]
   5=Purchase of infant food[ ]
   6=Ensuring adequate food for breastfeeding mother [ ]
   7=Other (specify) _____________________[ ]

D4. Is your husband/ partner providing adequate support for breastfeeding?
   1=Yes [ ]
   0=No [ ]
QUESTIONS ONLY FOR MOTHERS IN THE EXPERIMENTAL GROUP 1 (MATERNAL COUNSELLING)

SECTION E : ATTITUDES ABOUT THE COUNSELLING

E1. Have you received information on breastfeeding apart from that provided by the research counsellors?
   1=Yes[ ]
   0=No[ ]

*If YES, go to question E2
*If NO, skip to question E5

E2. What was the source of the information?

Tick ALL responses given
   1=Hospital/ health facility designated worker [ ]
   2=Traditional birth attendant [ ]
   3=Family/relatives (specify)______________[ ]
   4= Friends[ ]
   5=Media (radio, television, newspapers, magazines and internet)[ ]
   6=Other (specify) __________________ [ ]

E3. When did you receive this breastfeeding information?

Tick ALL responses given
   1=During antenatal clinics[ ]
   2=At the time of delivery[ ]
   3=After delivery before leaving the hospital[ ]
   4=During post-natal clinics of past babies[ ]
   5=Other (specify) __________________________ [ ]

E4. Were there differences between the counselling you received from the research counsellors and those from other sources in terms of :

(Insert number code of response)

<table>
<thead>
<tr>
<th>Aspects of difference</th>
<th>Were there differences?</th>
<th>Research team was better / worse than the other source?</th>
<th>Explanation of differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2= YES</td>
<td>2= BETTER</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0= NO</td>
<td>1= WORSE</td>
<td></td>
</tr>
</tbody>
</table>

   a Counselling content
   b Venue
   c Timing in line with baby's age
   d Frequency
   e Counsellors
   f Other differences not mentioned above
E5. Did you like the counselling you received from the research counsellors in terms of : *(Insert number code of response)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Aspects liked</th>
<th>Aspects disliked</th>
<th>Reasons for response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2= YES</td>
<td>1=SOME ASPECTS</td>
<td>0= NO</td>
<td></td>
</tr>
<tr>
<td>a Content of the counselling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Venue of the counselling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Timings of the counselling in relation to baby’s age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d Frequency of the counselling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e Mode of delivery-trained counsellors, face to face ?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f Other aspects that you liked that are not mentioned above</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E6. Did you learn anything new from the counselling from the research counsellors?

1=Yes [ ]
0=No [ ]

*If YES, go to question E7*

*If NO, skip to question E8*

E7. What new thing(s) did you learn from the counselling ?

_____________________________________________________________________

E8. Did the counselling you receive from the research team influence your breastfeeding practices ?

1=Yes [ ]
0=No [ ]

*If YES, go to question E9*

*If NO, skip to question E10*
E9. How did the counselling from the research team influence your breastfeeding practices?

__________________________________________________________

E10. What about the counselling did you find most useful?

__________________________________________________________

E11. What about the counselling did you find least useful?

__________________________________________________________

E12. Which aspects about the counselling would you suggest improvement/ different approach?

__________________________________________________________

E13. Would you recommend for the breastfeeding counselling you received from the research team to become standard government practice?

1=Yes [ ]
0=No [ ]

E14. Did you experience any challenges in practicing any of the aspects of what you had been counselled about?

1=Yes [ ]
0=No [ ]

If YES, go to question E15
If NO, skip to question E17

E15. What challenges did you experience?

_____________________________________________________________________

E16. How have you dealt with the challenges?

Tick ALL responses given

1= Sought attention from public health facility [ ]
2=Sought attention from private health facility [ ]
3= Taken herbal medicine [ ]
4=Bought drugs from a chemist/shop [ ]
5=Traditional healer [ ]
6=Sought advice from friends/reltives/neighbours[ ]
7= Sought advice from K.U research team [ ]
8=Done nothing[ ]
9=Other (specify) _____________________________ [ ]

E17. Do you think counselling both you and your husband/partner instead of just counselling you the mother would have benefitted your breastfeeding practice?

1=Yes[ ]
0=No[ ]

If YES, go to question E18
If NO, skip to question E19
E18. If YES, why?_________________________________________________

E19. If NO, why?_________________________________________________

E20. Do you think that counselling both you and your husband/ partner would have resulted into increased paternal participation in breast feeding, as compared to counselling you alone?
   1=Yes [ ]
   0=No [ ]

E21. Would you like increased participation of your husband/ partner in infant feeding issues?
   1=Yes [ ]
   0=No [ ]

E22. Would you like your husband/ partner to be counselled on infant feeding issues in future?
   1=Yes [ ]
   0=No[ ]

   If YES, go to question E23
   If NO, skip to question E24

E23. If YES, why?_________________________________________________

E24. If NO, why?_________________________________________________

E25. Would you recommend for couple counselling on infant feeding to become standard government practice?
   1=Yes [ ]
   0=No [ ]

   If YES, go to question E26
   If NO, skip to question E27

E26. If YES, Why? ___________________________________________________

E27. If NO, Why?
QUESTIONS ONLY FOR MOTHERS IN EXPERIMENTAL GROUP 2 (COUPLE COUNSELLING)

SECTION F : ATTITUDES ABOUT THE COUNSELLING

F1. Have you received information on breastfeeding apart from that provided by the research counsellors?
   1=Yes[ ]
   0=No[ ]

   If YES, go to question F2
   If NO, skip to question F5

F2. What was the source of the information?

   Tick ALL responses given
   1=Hospital/health facility designated worker [ ]
   2=Traditional birth attendant [ ]
   3=Family/relatives (specify)_________ [ ]
   4=Friends[ ]
   5=Media (radio, television, newspapers, magazines and internet) [ ]
   6=Other (specify) ______________________ [ ]

F3. When did you receive this breastfeeding information?

   Tick ALL responses given
   1=During antenatal clinics[ ]
   2=At the time of delivery [ ]
   3=After delivery before leaving the hospital [ ]
   4=During post-natal clinics of past babies [ ]
   5=Other (specify) ______________________________[ ]

F4. Were there differences between the counselling you received from the research counsellors and those from other sources in terms of:

   (Insert number code of response)

<table>
<thead>
<tr>
<th>Aspects of difference</th>
<th>Were there differences?</th>
<th>Research team was better/worse than the other source?</th>
<th>Explanation of differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2= YES 0= NO</td>
<td>2= BETTER 1= WORSE</td>
<td></td>
</tr>
<tr>
<td>a Counselling content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Venue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Timing in line with baby’s age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d Frequency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e Counsellors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f Other differences not mentioned above</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
F5. Did you like the counselling you received from the research counsellors in terms of: *(Insert number code of response)*

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Aspects liked</th>
<th>Aspects disliked</th>
<th>Reasons for response</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Content of the counselling</td>
<td>2= YES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1=SOME ASPECTS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0= NO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Venue of the counselling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c Timings of the counselling in relation to baby’s age</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>d Frequency of the counselling</td>
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<td>e Mode of delivery-trained counsellors, face to face?</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f Other aspects that you liked that are not mentioned above</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

F6. Did you learn anything new from the counselling from the research counsellors?  
  1=Yes[ ]  
  0=No[ ]  
*If YES, go to question F7  
If NO, skip to question F8*

F7. What new thing(s) did you learn from the counselling?  
_____________________________________________________

F8. Did the counselling you receive from the research team influence your breastfeeding practices?  
  1=Yes [ ]  
  0=No[ ]  
*If YES, go to question F9  
If NO, skip to question F10*
F9. How did the counselling influence your breastfeeding practices?
_____________________________________________________________________

F10. What about the counselling did you find most useful?
_____________________________________________________________________

F11. What about the counselling did you find least useful?
_____________________________________________________________________

F12. Which aspects about the counselling would you suggest improvement/ different approach?
_____________________________________________________________________

F13. Would you recommend for the breastfeeding counselling you received from the research team to become standard government practice?
   1=Yes [ ]
   0=No [ ]

F14. Did you experience challenges in practicing any aspects of what you had been counselled about?
   1=Yes [ ]
   0=No [ ]
If YES, go to question F15
If NO, skip to question F17

F15. What challenges did you experienced?
___________________________________________________________________

F16. How have you dealt with the challenges? Tick ALL responses given
   1= Sought attention from public health facility [ ]
   2=Sought attention from private health facility [ ]
   3= Taken herbal medicine [ ]
   4=Bought drugs from a chemist/shop [ ]
   5=Traditional healer [ ]
   6=Sought advice from friends/reltives/neighbours [ ]
   7= Sought advice from K.U research team [ ]
   8=Done nothing [ ]
   9=Other (specify) _____________________________ [ ]

F17. Do you think counselling both you and your husband/partner instead of just counselling you the mother benefitted your breastfeeding practice?
   1=Yes [ ]
   0=No [ ]
If YES, go to question F18
If NO, skip to question F19

F18. If YES, Why? ________________________________________________
F19. If NO, Why? _____________________________________________________

F20. Do you think that counselling both you and your husband/ partner influenced paternal participation in breastfeeding, as compared to counselling you alone?

1=Yes [ ]
0=No [ ]

F21. Would you like increased involvement of your husband/ partner in breastfeeding issues?

1=Yes [ ]
0=No [ ]

F22. Did you like that your husband/ partner was counselled on infant feeding issues?

1=Yes [ ]
0=No [ ]

*If YES, go to question F23
If NO, skip to question F24*

F23. If YES, Why? ________________________________________________

F24. If NO, Why? ________________________________________________

F25. Would you like your husband/ partner to be counselled on infant feeding issues in future?

1=Yes[ ]
0=No[ ]

*If YES, go to question F26
If NO, skip to question F27*

F26. If YES, Why? ________________________________________________

F27. If NO, Why? ________________________________________________

F28. Would you recommend for couple counselling on infant feeding to become standard government practice?

1=Yes [ ]
0=No [ ]

*If YES, go to question F29
If NO, skip to question F30*

F29. If YES, Why? ________________________________________________

F30. If NO, Why? ________________________________________________
QUESTIONS ONLY FOR MOTHERS IN CONTROL GROUP

SECTION G : ATTITUDES ABOUT THE COUNSELLING

G1. Have you received information on breastfeeding?
   1=Yes [ ]
   0=No [ ]
   If YES, go to question G2
   If NO, skip to question G14

G2. What was the source of the information?
   Tick ALL responses given
   1=Hospital/ health facility designated worker [ ]
   2=Traditional birth attendant [ ]
   3=Family/relatives (specify)____________________ [ ]
   4= Friends [ ]
   5=Media (radio, television, newspapers, magazines and internet) [ ]
   6=Other (specify) ____________________________ [ ]

G3. When did you receive this breastfeeding information?
   Tick ALL responses given
   1=During antenatal clinics [ ]
   2=At the time of delivery [ ]
   3=After delivery before leaving the hospital [ ]
   4=During post-natal clinics of past babies [ ]
   5=Other (specify) ____________________________[ ]

G4. Did you learn anything new ?
   1=Yes[ ]
   0=No[ ]
   If YES, go to question G5
   If NO, skip to question G6

G5. What new thing(s) did you learn ?
   _________________________________________________________________

G6. Did the information you receive influence your breastfeeding practices ?
   1=Yes [ ]
   0=No[ ]
   If YES, go to question G7
   If NO, skip to question G8

G7. How did it influence your breastfeeding practices ?
   _________________________________________________________________

G8. What about the information did you find most useful ?
   _________________________________________________________________

G9. What about the information did you find least useful ?
   _________________________________________________________________
G10. Which aspects about the information would you suggest improvement/ different approach? _______________________________________________________

G11. Did you experience challenges in practicing any aspects of what you had learnt about?

1=Yes [ ]
0=No [ ]

If YES, go to question G12
If NO, skip to question G14

G12. What challenges did you experience?
_______________________________________________________________

G13. How have you dealt with the challenges?
Tick ALL responses given
1= Sought attention from public health facility [ ]
2= Sought attention from private health facility [ ]
3= Taken herbal medicine [ ]
4= Bought drugs from a chemist/shop [ ]
5= Traditional healer [ ]
6= Sought advice from friends/ relatives/ neighbours [ ]
7= Sought advice from K.U research team [ ]
8= Done nothing [ ]
9= Other (specify) _____________________________ [ ]

G14. Do you think counselling you alone would benefit your breastfeeding practice?
1=Yes [ ]
0=No [ ]

G15. Do you think counselling both you and your husband/partner would benefit your breastfeeding practice?
1=Yes [ ]
0=No [ ]

If YES, go to question G16
If NO, skip to question G17

G16. If YES, Why? __________________________________________________________

G17. If NO, Why? __________________________________________________________

G18. Do you think that counselling both you and your husband/partner would influence paternal participation in breast feeding, as compared to counselling you alone?
1=Yes [ ]
0=No [ ]

G19. Would you like increased involvement of your husband/partner in breastfeeding issues?
1=Yes [ ]
0=No [ ]
G20. Would you like your partner to be counselled on infant feeding issues in future?  
   1=Yes[  ]  
   0=No[  ]  
   **If YES, go to question G21**  
   **If NO, skip to question G22**

G21. If YES, Why? ________________________________________________

G22. If NO, Why? ________________________________________________

G23. Would you recommend for couple counselling on infant feeding to become standard government practice?  
   1=Yes[  ]  
   0=No [  ]  
   **If YES, go to question G24**  
   **If NO, skip to question G25**

G24. If YES, Why? ________________________________________________

G25. If NO, Why? ________________________________________________
APPENDIX M: BASELINE QUESTIONNAIRE FOR INTERVIEW WITH FATHERS
(Administered within a week of recruitment to women in all study groups in third trimester).

INSTRUCTIONS:
• It is very important that you ask each question exactly as it is written on the questionnaire and ensure that the meaning of each question remains the same as originally intended. If the respondent does not understand the question, you may need to use extra probing questions.
• To indicate the responses given for questions that coded responses and a box [ ], place a line across the corresponding box for that response as shown [ ].
• Most questions have pre-coded responses. Do not read these choices aloud. When you ask a question, you should listen to the respondent’s answer, and then indicate on the code next to the pre-coded response that best matches the answer.
• A respondent may not know the answer to a question or refuse to answer. However, you must record an answer for all questions that you ask the respondent. Do not leave any questions blank.
• Some questions have a “don’t know” answer code. Indicate on that code if the respondent is unable to remember despite the probing questions. For questions without a “don’t know” answer code and the respondent truly cannot remember despite your probing, or refuses to answer, you should leave the question blank and write a comment on the questionnaire, in the margin on the right.
• Use the margins to make notes on anything out of the ordinary or any problems you may encounter during the interview.
• Throughout the questionnaire, there are statements that appear in ALL CAPITAL LETTERS, in bold and Italic Font. These are interviewer instructions, and should not be read aloud to the respondent.
• Skip patterns- Ask the respondent only those questions relevant to their situation. For some questions, you will skip to the next appropriate question, or end the interview, if the respondent gives a particular response.
• Privacy- Some of the questions are sensitive, concerning children who may have died. It is important to try to find the most private space possible for asking the questions.

Date of interview: ________    Questionnaire serial number: ________

Interviewer Name: ________

Study group: ________________
Family/Infant code: ________    Village of residence: ________
SECTION A: DEMOGRAPHIC AND SOCIO ECONOMIC INFORMATION

A1. Age of father in complete years: _________________

A2. Marital status:
   1=Married [ ]
   2=Single [ ]
   3=Widowed [ ]
   4=Separated [ ]

A3. If married, does your spouse live with you?
   1=Yes [ ]
   0=No [ ]

A4. If married, is it a polygamous marriage?
   1=Yes [ ]
   0=No [ ]

A5. How many children do you have? ______________________________

A6. How many people live with you in this household? _______________

A7. What is your religion?
   1=Christian [ ]
   2=Traditional [ ]
   3=Muslim [ ]
   4=Others (specify) _________ [ ]

A8. What is your highest level of education?
   1=None [ ]
   2=Primary [ ]
   3=Secondary [ ]
   4=College/University [ ]

A9. What is your spouse’s highest level of education?
   1=None [ ]
   2=Primary [ ]
   3=Secondary [ ]
   4=College/University [ ]

A10. What is your main occupation?
    1=Farming [ ]
    2=Business [ ]
    3=Professional (teacher, social worker, e.t.c) (specify) _________[ ]
    4=Others (specify) ___________________________ [ ]

A11. What is your spouse’s main occupation?
    1=Farming [ ]
    2=Business [ ]
    3=Fishing [ ]
    4=Professional (teacher, social worker, e.t.c) (specify) ________________ [ ]
    5=Others (specify) ___________________________ [ ]
A12. Do you live in a:
1=Rented house [ ]
2=Own house in parental compound[ ]
3= Own house in own compound [ ]
If RENTED, go to question A13
If NOT rented, skip to question A14

A13. If rented, how much rent do you pay per month? Ksh_______________

A14. What is the number of rooms in your house? _______Rooms.

HOUSING CONDITIONS

A15. Wall of the house is made of:
1=Iron sheets [ ]
2=Burnt bricks [ ]
3=Mud and wooden poles [ ]
4=Mud and cement [ ]
5=Cement/stone blocks [ ]
6=Timber [ ]
7=Other (specify)__________________ [ ]

A16. Roof of the house is made of:
1=Iron sheets [ ]
2=Tiles [ ]
3=Grass thatched [ ]
4=Other (specify)__________________[ ]

A17. Floor of the house is made of:
1=Earthen [ ]
2=Cement [ ]
3=Other (specify)__________________ [ ]

A18. What is your main source of lighting?
1=Kerosene [ ]
2=Candle [ ]
3=Electricity [ ]
4=Solar [ ]
5=Other (specify)__________________ [ ]

A19. What is your main source of cooking fuel?
1=Firewood [ ]
2=Charcoal [ ]
3=Kerosene [ ]
4=Gas [ ]
5=Electricity [ ]
6=Other (specify)__________________[ ]
A20. Do you possess the following items?

<table>
<thead>
<tr>
<th>Item</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Radio</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Bicycle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Motorcycle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Television</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Vehicle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Sofa-set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Video (Vcd/Dvd)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Land</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How many Acres?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j) Cows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>k) Goats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>l) Sheep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m) Chicken</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION B: REPRODUCTIVE AND INFANT FEEDING HISTORY

B1. How many children have you had? _______________

B2. How many of them are alive? _______________

B3. How many times have you attended the Ante-natal clinic with your partner in the present pregnancy? ______

SECTION C: BREASTFEEDING KNOWLEDGE AND ATTITUDES

C1. Have you ever received information on breastfeeding?

1=Yes [ ]
0=No[ ]

If YES, go to question C2
If NO, skip to question C4

C2. What/ who was the source of the information?

Tick ALL responses given

1=Hospital/ health facility designated worker [ ]
2=Traditional birth attendant [ ]
3=Family/relatives (specify)______________ [ ]
4= Friends[ ]
5=Media (radio, television, newspapers, magazines, internet) (specify) ______ [ ]
6=Other (specify) ______________________ [ ]

If hospital/ health facility (1), go to question C3
If not hospital/ health facility (2-6), go to question C4
C3. When did you receive this breastfeeding information?

**Tick ALL responses given**
1=During antenatal clinics for the present pregnancy [ ]
2=At the time of delivery of past babies [ ]
3=After delivery of past babies before leaving the hospital of past babies [ ]
4=During post-natal clinics of past babies [ ]
5=Maternal and child clinic [ ]
6=In the non-perinatal period [ ]

C4. What /whom is you preferred source of information on infant feeding?

**Tick ALL responses given**
1=Hospital/ health facility designated worker [ ]
2=Traditional birth attendant [ ]
3=Family/relatives (specify)____________________ [ ]
4= Friends [ ]
5=Media(radio, television, newspapers, magazines and internet)(specify)____ [ ]
6=Other (specify) __________________________ [ ]

C5. Why? ____________________________________________________________

C6. What is the role of breastfeeding? [PROBE]

**Tick ALL responses given**
1=Do not know [ ]
2= Breast milk is nutritious [ ]
3=It protects against infection [ ]
4=It prevents pregnancy [ ]
5=It is inexpensive [ ]
6=Others (specify) __________________________ [ ]

C7. What should be given to a baby immediately after a safe delivery?

**Tick ALL responses given**
1=Breast milk [ ]
2=Cow milk [ ]
3=Infant formula [ ]
4=Plain water [ ]
5=Salt solution [ ]
6=Salt-sugar solution [ ]
7=Glucose or sugar solution [ ]
8=Other (specify) __________________________ [ ]

*If 1 (BREASTMILK), go to question C8*
*If 2-8 (NOT BREASTMILK), skip to question C9*

C8. If breastmilk, why?
________________________________________________________

C9. If not breastmilk, why? __________________________________________
C10. When should a baby be put on the breast after a safe delivery?
1=Do not know [ ]
2=Immediately [ ]
3=Within 30 minutes [ ]
4=Within 1 hour after delivery [ ]
5=Between 2-8 hours after delivery [ ]
6=Between 2-8 hours after delivery [ ]
7=9 or more hours after delivery [ ]
8=Other (specify) ___________ [ ]

C11. How frequently should a baby be breastfed?
1=On demand [ ]
2=By routine [ ]
3=Other (specify) _______________ [ ]

C12. For how long should a baby be breastfed? ___________ Months

C13. What helps to increase the flow of breast milk? [PROBE]
Tick ALL responses given
1=Do not know [ ]
2=Frequent breastfeeding [ ]
3=Making sure that the breast is always emptied [ ]
4=Putting the baby correctly to the breast [ ]
5=Support from family/friends/health workers [ ]
6=Good feelings by the mother [ ]
7=Others (specify) ________________________ [ ]

C14. Why may a baby not obtain adequate breast milk? [PROBE]
Tick ALL responses given
1=Do not know [ ]
2=Putting the baby to the breast infrequently [ ]
3=Allowing the baby to suckle for only short periods [ ]
4=Improper positioning of the baby to the breast [ ]
5=Worries/discomfort of the mother [ ]
6=Others (specify) ________________________ [ ]

C15. At what age should a baby be introduced to water? ___________ Months

C16. At what age should a baby be introduced to liquid foods? ___________ Months

C17. At what age should a baby be introduced to solid/semi-solid foods? ____ Months
**ATTITUDES**

_Favourable statements:_
Key: -2= Strongly disagree; -1=Disagree; 0= Uncertain; 1 =Agree; 2=Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C17. Exclusive breastfeeding for 6 months is possible</td>
<td></td>
</tr>
<tr>
<td>C18. Exclusive breastfeeding for 6 months is good for the baby</td>
<td></td>
</tr>
<tr>
<td>C19. Breast milk is the first feed a baby should be given first after birth</td>
<td></td>
</tr>
</tbody>
</table>

_Unfavourable statements:_
Key: 2= Strongly disagree; 1=Disagree; 0= Uncertain; -1 =Agree; -2=Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>C20. Breast milk alone is inadequate for a 0-6 months old baby</td>
<td></td>
</tr>
<tr>
<td>C21. The first thick yellowish milk (colostrum) should not be fed to a baby</td>
<td></td>
</tr>
<tr>
<td>C22. Before initiation of breast feeding, there are some solids/ liquids that should be given to the baby</td>
<td></td>
</tr>
</tbody>
</table>

**SECTION D: FATHER RELATED FACTORS**

D1. Have you ever attended any ante-natal visits with your partner for the past pregnancies?
   1=Yes [ ]
   0=No [ ]

D2. Have you attended any ante-natal visits with your partner for the present pregnancy?
   1=Yes [ ]
   0=No [ ]

D3. Have the health worker at the Ante-natal clinic ever requested to see you?
   1=Yes [ ]
   0=No [ ]

D4. In the past, who decided on the mode of feeding for your baby?
   **Tick ALL responses given**
   1=Baby’s mother [ ]
   2=Baby’s father [ ]
   3=Relatives (specify) ______________________ [ ]
   4=Friends [ ]
   5=Health worker [ ]
   6=Other (specify) ______________________ [ ]

D5. Did you play any role in the feeding of the children/child in the past?
   1=Yes [ ]
   0=No [ ]

*If YES, go to question D6*
*If NO, skip to question D7*
D6. If Yes, what role did you play?  
**Tick ALL responses given**  
1=Moral support [ ]  
2=Infant care[ ]  
3=Decision making on infant feeding mode [ ]  
4=Purchasing of infant food [ ]  
5=Ensuring adequate food for breastfeeding mother [ ]  
6=No role [ ]  
7=Breastfeeding is a woman’s issue [ ]  
8=Other (specify) __________________ [ ]

D7. Do you feel adequately included in breastfeeding issues of your children?  
1=Yes [ ]  
0=No [ ]

D8. Would you like your involvement in breastfeeding issues increased?  
1=Yes [ ]  
0=No [ ]

D9. What role would you like to play in the feeding of your children/child?  
**Tick ALL responses given**  
1=Moral support [ ]  
2=Infant care [ ]  
3=Decision making on infant feeding mode[ ]  
4=Purchasing of infant food [ ]  
5=Ensuring adequate food for breastfeeding mother [ ]  
6=No role [ ]  
7=Other (specify) __________________ [ ]

D10. In your opinion, did you provide adequate support to your partner for breastfeeding in the past?  
1=Yes [ ]  
0=No [ ]

**ATTITUDES**

Favourable statements:  
Key: -2= Strongly disagree; -1=Disagree; 0= Uncertain; 1 =Agree; 2=Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>D11. Both mother and father should decide the mode of breastfeeding the baby?</td>
<td></td>
</tr>
<tr>
<td>D12. Fathers should be involved in breast feeding of the baby?</td>
<td></td>
</tr>
<tr>
<td>D13. I would like to be involved in the feeding issues of my children</td>
<td></td>
</tr>
</tbody>
</table>
SECTION E: INFANT FEEDING INTENTIONS

E1. Do you intend for the mother to breastfeed the baby you are expecting?
   1=Yes [ ]
   0=No [ ]

*If YES, go to question E2*
*If NO, skip to question E3*

E2. For how long do you intend for the baby to be breastfed? _____ Months

E3. Why do you intend not to have the baby breastfed? __________________________

E4. When do you intend for water to be introduced to the baby to be born? _____

E5. When do you intend for liquids to be introduced to the baby to be born? __

E6. When do you intend for solids/semi-solid foods to be introduced to the baby to be born? _____

E7. Do you intend for anybody to be consulted when deciding on the mode of feeding for your baby?
   1=Yes [ ]
   0=No [ ]

E8. If so, who?

*Tick ALL responses given*
   1=Baby’s mother [ ]
   2=Relatives (specify) ________________ [ ]
   3=Friends [ ]
   4=Health worker [ ]
   5=Other (specify) _________________ [ ]

E9. If so, why?
   ____________________________________________________________
APPENDIX N: QUESTIONNAIRE FOR SECOND (EXIT) INTERVIEW
WITH FATHERS

(Administered six months after delivery to fathers in all study groups).

Date of interview: ________    Questionnaire serial number: ________

Interviewer Name: ______

Study group: ________________
Family/ Infant code: _________    Village of residence: ________

Father’s weight: 1st Reading ___ kg; 2nd Reading_____ kg

Father’s height: 1st Reading ___ cm; 2nd Reading____cm

SECTION A: BREASTFEEDING KNOWLEDGE AND ATTITUDES

A1. Have you received information on breastfeeding?
   1=Yes [ ]
   0=No [ ]

If YES, go to question A2
If NO, skip to question A4

A2. What was the source of the information?
Tick ALL responses given
   1=Hospital/ health facility designated worker [ ]
   2=Traditional birth attendant [ ]
   3=Family/relatives (specify)____________________ [ ]
   4= Friends [ ]
   5=Media (radio, television, newspapers, magazines and internet) [ ]
   6=K.U research team [ ]
   7=Other (specify) ____________________________ [ ]

If hospital/ health facility, go to question C3

A3. When did you receive this breastfeeding information?
Tick ALL responses given
   1=During antenatal period for the present baby [ ]
   2=At the time of delivery of the present baby [ ]
   3=After delivery before leaving the hospital of the present baby [ ]
   4=During post-natal period of the present baby [ ]
   5=Other (specify) ____________________________ [ ]
A4. What /whom is your preferred source of information on breastfeeding?

**Tick ALL responses given**
1=Hospital/ health facility designated worker [ ]
2=Traditional birth attendant [ ]
3=Family/relatives (specify)______________ [ ]
4= Friends[ ]
5=Media(radio, television, newspapers, magazines and internet)(specify)____ [ ]
6=No one [ ]
7=Other (specify)____________________ [ ]

A5. Why? __________________________________________________________

A6. What is the role of breastfeeding? *PROBE*

**Tick ALL responses given**
1= Do not know[ ]
2= Breast milk is nutritious[ ]
3=It protects against infection[ ]
4=It prevents pregnancy[ ]
5=It is inexpensive[ ]
6=Others (specify) _________________ [ ]

A7. What should a baby be given immediately after a safe delivery?

**Tick ALL responses given**
1=Breast milk [ ]
2=Cow milk [ ]
3=Infant formula [ ]
4=Plain water [ ]
5=Salt solution [ ]
6=Salt-sugar solution [ ]
7=Glucose or sugar solution [ ]
8=Other (specify) __________________[ ]

*If 1 (BREASTMILK), go to question A8*
*If 2-8 (NOT BREASTMILK), skip to question A9*

A8. If breastmilk, why? _______________________________________________

A9. If not breastmilk, why? __________________________________________

A10. When should a baby be put on the breast after a safe delivery?
1=Do not know[ ]
2=Immediately[ ]
3=Within 30 minutes [ ]
4=Within 1 hour after delivery [ ]
5=Between 2-8 hours after delivery [ ]
6=Between 2-8 hours after delivery [ ]
7=9 or more hours after delivery [ ]
8=Other (specify) ___________ [ ]
A11. How often should a baby be breastfed?
   1=On demand [ ]
   2=By routine [ ]
   3= Other (specify) ________________________________ [ ]

A12. For how long should a baby be breastfed? ________ Months

A13. What helps to increase the flow of breast milk? [PROBE]
   
   Tick ALL responses given
   1= Do not know [ ]
   2= Frequent breastfeeding [ ]
   3= Making sure that the breast is always emptied [ ]
   4= Putting the baby correctly to the breast [ ]
   5= Support from family/friends/health workers [ ]
   6= Good feelings by the mother [ ]
   7= Others (specify) ____________________________ [ ]

A14. Why may a baby not obtain adequate breast milk? [PROBE]
   
   Tick ALL responses given
   1= Do not know [ ]
   2= Putting the baby to the breast infrequently [ ]
   3= Allowing the baby to suckle for only short periods [ ]
   4= Improper positioning of the baby to the breast [ ]
   5= Worries/discomfort of the mother [ ]
   6= Others (specify) ____________________________ [ ]

A15. At what age should a baby be introduced to water? _________ Months

A16. At what age should a baby be introduced to liquid foods? __________ Months

A17. At what age should a baby be introduced to solid/semi-solid foods? _____ Months

SECTION B: FATHER RELATED FACTORS

B1. Have you ever attended any child clinic visits with your partner for the present baby?
   1=Yes [ ]
   0=No [ ]

B2. During the visits by your partner to the clinic, has the health worker ever requested to see you?
   1=Yes [ ]
   0=No [ ]

B3. Do you feel adequately included in breastfeeding issues of your child/children?
   1=Yes [ ]
   0=No [ ]
B4. Who decided the mode of feeding for the present baby?

**Tick ALL responses given**
1=Baby’s mother [ ]
2=Baby’s father [ ]
3=Relatives (specify) _______________ [ ]
4=Friends [ ]
5=Health worker [ ]
6=Other (specify) _________________ [ ]

B5. What role are you playing in breast feeding of this baby?

**Tick ALL responses given**
1= No role [ ]
2=Infant care [ ]
3=Decision making on infant feeding mode [ ]
4=Purchase of infant food [ ]
5=Ensuring adequate food for breastfeeding mother [ ]
6= Moral support [ ]
7=Other (specify) _________________ [ ]

B6. What role would you like to play in breast feeding of your baby?

**Tick ALL responses given**
1= No role [ ]
2=Infant care [ ]
3=Decision making on infant feeding mode [ ]
4=Purchase of infant food [ ]
5=Ensuring adequate food for breastfeeding mother [ ]
6= Moral support [ ]
7=Other (specify) _________________ [ ]

B7. Have you and your wife/ partner experienced challenges in the breastfeeding of your baby?

*If YES, go to question B8*
*If NO, skip to question B10*

B8. What challenges have you experienced?

_____________________________________________________________________
_____________________________________________________________________

B9. How did you deal with these challenges?

**Tick ALL responses given**
1= Sought attention from public health facility[ ]
2=Sought attention from private health facility [ ]
3= Taken herbal medicine[ ]
4=Bought drugs from a chemist/shop [ ]
5=Traditional healer [ ]
6=Sought advice from friends/relatives/neighbours[ ]
7=Done nothing[ ]
8=Other (specify) ____________________________ [ ]
B10. Do you think you are providing adequate support to your wife/partner for breastfeeding of your baby?

1 = Yes [ ]
0 = No [ ]

**ATTITUDE**

*Favourable statements:*
Key: -2 = Strongly disagree; -1 = Disagree; 0 = Uncertain; 1 = Agree; 2 = Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>B11. Both mother and father should decide the mode of breastfeeding the baby?</td>
<td></td>
</tr>
<tr>
<td>B12. Fathers should be involved in breeding the baby?</td>
<td></td>
</tr>
<tr>
<td>B13. I would like to be involved in the feeding issues of my children</td>
<td></td>
</tr>
</tbody>
</table>

*Unfavourable statements:*
Key: 2 = Strongly disagree; 1 = Disagree; 0 = Uncertain; -1 = Agree; -2 = Strongly agree

<table>
<thead>
<tr>
<th>Factors</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>B14. Breastfeeding is a mother’s issue and fathers should not be involved</td>
<td></td>
</tr>
</tbody>
</table>
QUESTIONS ONLY FOR FATHERS IN THE EXPERIMENTAL GROUP 1 (MATERNAL COUNSELLING)

SECTION C : ATTITUDES ABOUT THE COUNSELLING

C1. Did you learn anything new from the counselling the research team gave your wife/partner?
   1=Yes [ ]
   0=No [ ]

If YES, go to question C2
If NO, skip to question C3

C2. What new thing(s) did you learn?
_____________________________________________________________________
_____________________________________________________________________

C3. Did the counselling your wife/partner receive from the research team influence your involvement in breastfeeding?
   1=Yes [ ]
   0=No [ ]

If YES, go to question C4
If NO, skip to question C5

C4. How did the counselling your wife received from the research team influence your involvement in breastfeeding?
_____________________________________________________________________
_____________________________________________________________________

C5. What about the counselling did you find most useful?
_____________________________________________________________________
_____________________________________________________________________

C6. What about the counselling did you find least useful?
_____________________________________________________________________
_____________________________________________________________________

C7. Which aspects about the counselling would you suggest improvement/different approach?
_____________________________________________________________________
_____________________________________________________________________

C8. Did you experience challenges in practicing any aspects of what your wife had been counselled about?
   1=Yes [ ]
   0=No [ ]

If YES, go to question C9
If NO, skip to question C10
C9. What challenges did you experience?
_____________________________________________________________________
_____________________________________________________________________

C10. Do you think counselling both you and your wife/partner instead of just counselling you wife/partner alone would have benefitted her breastfeeding practice?

1=Yes [ ]
0=No [ ]

If YES, go to question C11
If NO, skip to question C12

C11. If YES, Why? ______________________________________________________

C12. If NO, Why?
____________________________________________________

C13. Do you think that counselling both you and your wife/partner would have resulted in your increased participation in breast feeding, as compared to counselling her alone?

1=Yes [ ]
0=No [ ]

C14. Would you like your participation in breastfeeding issues increased?

1=Yes [ ]
0=No [ ]

C15. Would you like to be counselled on infant feeding issues in future?

1=Yes [ ]
0=No [ ]

If YES, go to question C16
If NO, skip to question C17

C16. If YES, Why? ______________________________________________________

C17. If NO, Why? ______________________________________________________
C18. Would you recommend for couple counselling rather than maternal counselling to become standard government practice?
   1=Yes [ ]
   0=No [ ]

If YES, go to question C19
If NO, skip to question C20

C19. If YES, Why? ___________________________________________________

C20. If NO, Why? ___________________________________________________

C21. Would you recommend for the breastfeeding counselling your wife received from the research team to become standard practice?
   1=Yes [ ]
   0=No [ ]

If YES, go to question C22
If NO, skip to question C23

C22. If YES, Why? ___________________________________________________

C23. If NO, Why? ___________________________________________________
QUESTIONS ONLY FOR FATHERS IN EXPERIMENTAL GROUP 2 (COUPLE COUNSELLING)

SECTION D: ATTITUDES ABOUT THE COUNSELLING

D1. Did you like the counselling you received from the research team in terms of:

(Insert number code of response)

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
<th>Aspects liked</th>
<th>Aspects disliked</th>
<th>Reasons for like/ dislike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you like the content of the counselling?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you like the venue of the counselling?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you like the timings of the counselling in relation to baby’s age?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you like the frequency of the counselling?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you like the mode of delivery - face to face?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Did you like the inclusion of partners in counselling?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other aspects that you liked that are not mentioned above?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

D2. Did you learn anything new from the counselling from the research team?  

1=Yes [ ]  
0=No [ ]  

If YES, go to question D3  
If NO, skip to question D4
D3. What new thing(s) did you learn from the counselling?

_____________________________________________________________________
_____________________________________________________________________

D4. Did the counselling you received from the research team influence your involvement in breastfeeding?

1=Yes [ ]
0=No [  ]

*If YES, go to question D5*
*If NO, skip to question D6*

D5. How did the counselling from the research team influence your involvement in breastfeeding?

_____________________________________________________________________
_____________________________________________________________________

D6. What about the counselling did you find most useful?

_____________________________________________________________________

D7. What about the counselling did you find least useful?

_____________________________________________________________________

D8. Which aspects about the counselling would you suggest improvement/ different approach?

_____________________________________________________________________

D9. Did you experience challenges in practicing any aspects of what you had been counselled about?

*If YES, go to question D10*
*If NO, skip to question D11*

D10. What challenges did you experience?

_____________________________________________________________________
_____________________________________________________________________

D11. Do you think counselling both you and your wife/partner instead of just counselling her alone benefitted her breastfeeding practice?

1=Yes [ ]
0=No [  ]

*If YES, go to question D12*
*If NO, skip to question D13*
D12. If YES, Why? ____________________________________________________
D13. If NO, Why? ____________________________________________________

D14. Do you think that counselling both you and your partner resulted into your increased participation in breast feeding, as compared to counselling her alone?
   1=Yes [ ]
   0=No [ ]

D15. Would you like your involvement in breastfeeding issues increased?
   1=Yes [ ]
   0=No [ ]

D16. Did you like that you were counselled on infant feeding issues?
   1=Yes [ ]
   0=No [ ]
If YES, go to question D17
If NO, skip to question D18

D17. If YES, Why? __________________________________________

D18. If NO, Why? ____________________________________________________

D19. Would you like to be counselled on infant feeding issues in future?
   1=Yes[ ]
   0=No[ ]
If YES, go to question D20
If NO, skip to question D21

D20. If YES, Why? ________________________________________________
D21. If NO, Why? ____________________________________________________

D22. Would you recommend for couple counselling rather than maternal counselling to become standard government practice?
   1=Yes [ ]
   0=No [ ]
If YES, go to question D23
If NO, skip to question D24

D23. If YES, Why? ________________________________________________
D24. If NO, Why? ____________________________________________________

D25. Would you recommend for the breastfeeding counselling your wife received from the research team to become standard practice?
   1=Yes [ ]
   0=No [ ]
If YES, go to question D26
If NO, skip to question D27

D26. If YES, Why? ________________________________________________
D27. If NO, Why? ____________________________________________________
QUESTIONS ONLY FOR FATHERS IN THE CONTROL GROUP

SECTION E : ATTITUDES ABOUT THE COUNSELLING

E1. Do you think counselling your wife/partner alone would benefit her breastfeeding practice?

1=Yes [ ]  
0=No [ ]

E2. Do you think counselling both you and your wife/partner instead of just counselling you wife/partner alone would benefit her breastfeeding practice?

1=Yes [ ]  
0=No [ ]

*If YES, go to question E3
*If NO, skip to question E4

E3. If YES, Why? _________________________________

E4. If NO, Why? _________________________________

E5. Do you think that counselling both you and your wife/partner would result in your increased participation in breast feeding, as compared to counselling her alone?

1=Yes [ ]  
0=No [ ]

E6. Would you like your participation in breastfeeding issues increased?

1=Yes [ ]  
0=No [ ]

E7. Would you like to be counselled on infant feeding issues in future?

1=Yes [ ]  
0=No [ ]

*If YES, go to question E8
*If NO, skip to question E9

E8. If YES, Why? _________________________________

E9. If NO, Why? _________________________________
E10. Would you recommend for couple counselling rather than maternal counselling to become standard government practice?
   1=Yes [ ]
   0=No [ ]

*If YES, go to question E11*
*If NO, skip to question E12*

E11. If YES, Why? ________________________________________________

E12. If NO, Why? ________________________________________________

E13. Would you recommend for breastfeeding counselling for your wife/partner to become standard practice?
   1=Yes [ ]
   0=No [ ]

*If YES, go to question E14*
*If NO, skip to question E15*


E15. If NO, Why? ________________________________________________
APPENDIX O: KEY INFORMANT INTERVIEW GUIDE FOR INTERVIEWS HELD WITH SENIOR HEALTH WORKERS

1. a) Is exclusive breastfeeding commonly practised in this District?
   b) Why is exclusive breastfeeding commonly/ not commonly practised in this District?
2. Apart from this health facility, what are the other sources of infant feeding information in this District?
3. Does this health facility actively include fathers in breastfeeding counselling?
4. If yes, how does your facility actively include fathers in breast feeding counselling?
5. What father related challenges do you encounter during breastfeeding counselling or education?
6. Would couple counselling would influence father’s participation in exclusive breastfeeding?
7. Do you think couple counselling is feasible in a health facility context?
8. Do you think couple counselling is feasible in at community level?
9. What are the challenges to exclusive breastfeeding for women in this District?
10. Challenges for fathers’ involvement in infant feeding in this District?
11. What are the cultural beliefs about breastfeeding in this District?
12. Do you think couple counselling should become standard practice for parents with infants, or should maternal counselling remain as the standard practise?
APPENDIX P: FOCUS GROUP DISCUSSION GUIDE FOR DISCUSSIONS HELD WITH MOTHERS WHO EXCLUSIVELY BREASTFED FOR 6 MONTHS

1. At what age should a baby be introduced to other foods in addition to breast milk?
2. Do you think that exclusive breastfeeding for 6 months is beneficial?
3. What are the factors that motivated you to exclusively breastfeed?
4. Should fathers be involved in the breast feeding of the baby? Why?
5. What roles would you like fathers to play in exclusive breast feeding?
6. Did fathers provide adequate support for exclusive breastfeeding of the baby?
7. What challenges did you encounter during exclusive breastfeeding your baby for 6 months?
8. What father related challenges did you encounter during breastfeeding?
9. What and who are the major influences on the fathers’ attitude towards breastfeeding?
10. What are the sources of infant feeding information in this area?
11. Do these sources actively include fathers in breastfeeding and/or infant feeding issues?
12. Should these sources actively include fathers in breastfeeding issues?
13. Do you think couple counselling should become standard practice for parents with infants, or should maternal counselling remain as the standard practise?

Additional questions for maternal counselling and control groups only:

14. Do you think counselling both you and your partner would influence your chances of exclusive breastfeeding [PROBE]?
15. Do you think counselling both you and your partner would influence father’s participation in exclusive breastfeeding [PROBE]?
**Additional questions for maternal counselling and couple counselling groups only:**

16. What aspects did you like about the breastfeeding counselling that you received?
17. What aspects did you not like about the breastfeeding counselling that you received?

**Additional questions for couple counselling group only:**

18. Do you think couple counselling influenced your chances of exclusive breastfeeding [PROBE]?
19. Do you think couple counselling influenced the father’s participation in exclusive breastfeeding [PROBE]?
APPENDIX Q: FOCUS GROUP DISCUSSION GUIDE FOR DISCUSSIONS HELD WITH MOTHERS WHO DID NOT EXCLUSIVELY BREASTFEED FOR 6 MONTHS

1. At what age should a baby be introduced to other foods in addition to breast milk?
2. Do you think that exclusive breastfeeding for 6 months is possible?
3. Do you think that exclusive breastfeeding for 6 months is beneficial?
4. What are the factors that hindered you from exclusively breastfeeding for 6 months?
5. What are the factors that would have facilitated you to exclusively breastfeed?
6. Should fathers be involved in the breast feeding of the baby? Why?
7. What roles would you like fathers to play in exclusive breast feeding?
8. Did fathers provide adequate support for exclusive breastfeeding of the baby?
9. What challenges did you encounter during exclusive breastfeeding your baby for 6 months?
10. What father related challenges did you encounter during breastfeeding?
11. What and who are the major influences on the fathers’ attitude towards breastfeeding?
12. What are the sources of infant feeding information in this area?
13. Do these sources actively include fathers in breastfeeding and/or infant feeding issues?
14. Should these sources actively include fathers in breastfeeding issues?
15. Do you think couple counselling should become standard practice for parents with infants, or should maternal counselling remain as the standard practise?

Additional questions for maternal counselling and control groups only:

16. Do you think counselling both you and your partner would have improved your chances of exclusive breastfeeding [PROBE]?
17. Do you think counselling both you and your partner would have led to more father’s participation in exclusive breastfeeding [PROBE]?
Additional questions for maternal counselling and couple counselling groups only:
18. What aspects did you like about the breastfeeding counselling that you received?
19. What aspects did you not like about the breastfeeding counselling that you received?

Additional questions for couple counselling group only:
20. Do you think couple counselling improved your chances of exclusive breastfeeding [PROBE]? 
21. Do you think couple counselling increased the father’s participation in exclusive breastfeeding [PROBE]?
APPENDIX R: FOCUS GROUP DISCUSSION GUIDE FOR DISCUSSIONS HELD WITH FATHERS WHO WERE COUNSELED (COUPLE COUNSELLING GROUP)

1. What are your opinions on exclusive breastfeeding?
2. Should fathers be involved in breast feeding of the baby?
3. What role did you fathers usually play in breast feeding of the baby?
4. What roles would you like to play in breast feeding?
5. What and who are the major influences on your attitude towards breastfeeding?
6. Where do you get information on infant feeding?
7. Did the health facilities/ sources your partner got infant feeding information from actively include you fathers in breastfeeding issues?
8. Should these health facilities/ sources actively include you fathers in breastfeeding issues?
9. Why should/ shouldn’t the health facilities/ sources actively include you fathers in breastfeeding issues?
10. Did couple counselling influence your participation in exclusive breastfeeding [PROBE]?
11. Do you think couple counselling influenced your partner’s chances of exclusive breastfeeding [PROBE]?
13. What aspects did you like about the breastfeeding counselling that you received?
14. What aspects did you not like about the breastfeeding counselling that you received?
15. What male related issues do you think should be included in couple counselling?
16. Do you think couple counselling should become standard practice for parents with infants, or should maternal counselling remain as the standard practise?
APPENDIX S: FOCUS GROUP DISCUSSION GUIDE FOR DISCUSSIONS HELD WITH FATHERS WHO WERE NOT COUNSELLED (CONTROL AND MATERNAL COUNSELLING GROUPS)

1. Are you familiar with the concept of exclusive breastfeeding?
2. What are your opinions on exclusive breastfeeding?
3. Should fathers be involved in breast feeding of the baby?
4. What role did you fathers usually play in breast feeding of the baby?
5. What roles would you like to play in breast feeding?
6. What and who are the major influences on your attitude towards breastfeeding?
7. Where do you get information on infant feeding?
8. Did the health facilities/ sources your partner got infant feeding information from actively include you fathers in breastfeeding issues?
9. Should these health facilities/ sources actively include you fathers in breastfeeding issues?
10. Why should/ shouldn’t the health facilities/ sources actively include you fathers in breastfeeding issues?
11. Would couple counselling influence your participation in exclusive breastfeeding [PROBE]? 
12. Do you think couple counselling would influence your partner’s chances of exclusive breastfeeding [PROBE]?
13. Do you think couple counselling should become standard practice for parents with infants, or should maternal counselling remain as the standard practise?

Additional questions for maternal counselling only:

16. What aspects did you like about the breastfeeding counselling that your partner received?
17. What aspects did you not like about the breastfeeding counselling that your partner received?
APPENDIX T: FOCUS GROUP DISCUSSION GUIDE FOR DISCUSSIONS HELD WITH THE BREASTFEEDING COUNSELLORS AND COMMUNITY HEALTH WORKERS (CHWs)

1. What are the challenges to exclusive breastfeeding in this area?
2. Are fathers usually involved in feeding the baby in this area?
3. What role do fathers usually play in breast feeding of the baby in this area?
4. What and who are the major influences on fathers’ attitudes towards EBF?
5. What challenges do you encounter during counselling on EBF?
6. What father related challenges do you encounter during exclusive breastfeeding counselling?
7. What are the cultural factors promoting EBF in this area?
8. What are the cultural factors hindering EBF in this area?
9. Do you think couple counselling is feasible in a health facility context?
10. Do you think couple counselling is feasible in at community level?
11. Would you recommend couple counselling or maternal counselling to become standard practice for parents with infants?
12. What challenges would couple counselling present compared to maternal counselling?
13. What benefits would couple counselling present compared to maternal counselling?

Additional questions for study’s breastfeeding counsellors:
14. Do you think couple counselling influenced EBF [PROBE]?
15. Do you think couple counselling influenced father’s participation in EBF [PROBE]?
16. What challenges did you face during couple counselling compared to maternal counselling?
17. What benefits did you see in couple counselling compared to maternal counselling?

Additional questions for CHWs:
18. How would couple counselling influence exclusive breastfeeding?
19. How would couple counselling influence father’s participation in EBF?
# APPENDIX U: FINDINGS OF THE PILOT STUDY

## i. QUALITATIVE FINDINGS OF THE PILOT STUDY

<table>
<thead>
<tr>
<th>Theme</th>
<th>Focus group</th>
<th>Control group</th>
<th>Maternal counselling group</th>
<th>Couple counselling group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors enhancing exclusive breastfeeding</td>
<td>Mothers</td>
<td>● Moral support</td>
<td>● Moral support</td>
<td>● Moral support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Availability of time</td>
<td>● Availability of time</td>
<td>● Paternal support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Well-nourished mother</td>
<td>● Well-nourished mother</td>
<td>● Availability of time</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>● Availability of time</td>
<td>● Availability of time</td>
<td>● Moral support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Well-nourished mother</td>
<td>● Well-nourished mother</td>
<td>● Paternal support</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>● Availability of time</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>● Well-nourished mother</td>
</tr>
<tr>
<td>Challenges to exclusive breastfeeding</td>
<td>Mothers</td>
<td>● Income generating activities</td>
<td>● Income generating activities</td>
<td>● Income generating activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Needs commitment</td>
<td>● Needs commitment</td>
<td>● Needs commitment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Cultural beliefs</td>
<td>● Cultural beliefs</td>
<td>● Cultural beliefs</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>● Income generating activities</td>
<td>● Income generating activities</td>
<td>● Income generating activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Needs commitment</td>
<td>● Needs commitment</td>
<td>● Needs commitment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Is not feasible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenges to fathers’ involvement in the promotion of exclusive breastfeeding</td>
<td>Mothers</td>
<td>● Time constraints</td>
<td>● Time constraints</td>
<td>● Time constraints</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Gender roles</td>
<td>● Gender roles</td>
<td>● Gender roles</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>● Time constraints</td>
<td>● Time constraints</td>
<td>● Time constraints</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Gender roles</td>
<td>● Gender roles</td>
<td>● Gender roles</td>
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<td>Sources of information on exclusive breastfeeding</td>
<td>Mothers</td>
<td>● CHWs</td>
<td>● CHWs</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>● Health facility</td>
<td>● Health facility</td>
<td>● Health facility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Relatives and friends</td>
<td>● Relatives and friends</td>
<td>● Relatives and friends</td>
</tr>
<tr>
<td></td>
<td>Fathers</td>
<td>● Health facility</td>
<td>● Health facility</td>
<td>● Health facility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Radio</td>
<td>● Radio</td>
<td>● Radio</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Relatives and friends</td>
<td>● Relatives and friends</td>
<td>● Relatives and friends</td>
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</table>
## QUANTITATIVE FINDINGS OF THE PILOT STUDY

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total</th>
<th>Control</th>
<th>Maternal</th>
<th>Couple</th>
<th>Chi-square/ANOVA</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=33</td>
<td>N=11</td>
<td>N=11</td>
<td>N=11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean maternal age (sd)</td>
<td>24.2(0.6)</td>
<td>24.4(0.4)</td>
<td>24.1(0.6)</td>
<td>25.0(0.5)</td>
<td>3.668</td>
<td>0.159</td>
</tr>
<tr>
<td>Mean paternal age (sd)</td>
<td>38.6 (0.7)</td>
<td>38.6(0.6)</td>
<td>38.7(0.4)</td>
<td>38.7(0.7)</td>
<td>0.152</td>
<td>0.928</td>
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<tr>
<td>Couples’ marital status:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Married</td>
<td>30(90.9%)</td>
<td>10(90.9%)</td>
<td>10(90.9%)</td>
<td>10(90.9%)</td>
<td>0.119</td>
<td>0.942</td>
</tr>
<tr>
<td>Not married</td>
<td>3(9.1%)</td>
<td>1(9.1%)</td>
<td>1(9.1%)</td>
<td>1(9.1%)</td>
<td></td>
<td></td>
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<tr>
<td>Maternal education level:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>27(81.8%)</td>
<td>9(81.8%)</td>
<td>8(72.7%)</td>
<td>9(81.8%)</td>
<td>4.257</td>
<td>0.119</td>
</tr>
<tr>
<td>Tertiary</td>
<td>4(12.1%)</td>
<td>2(18.2%)</td>
<td>1(9.1%)</td>
<td>1(9.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>2(6.1%)</td>
<td>0(0.0%)</td>
<td>1(9.1%)</td>
<td>1(9.1%)</td>
<td></td>
<td></td>
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<tr>
<td>Mean intended duration of exclusive breastfeeding (sd)</td>
<td>5.2(1.6)</td>
<td>5.2(1.7)</td>
<td>5.3(1.6)</td>
<td>5.3(1.9)</td>
<td>0.091</td>
<td>0.956</td>
</tr>
<tr>
<td>Baseline mean maternal knowledge score (sd)</td>
<td>4.8(1.9)</td>
<td>5.1(2.1)</td>
<td>4.9(2.0)</td>
<td>4.5(1.9)</td>
<td>5.365</td>
<td>0.068</td>
</tr>
<tr>
<td>Baseline mean paternal knowledge score (sd)</td>
<td>3.1(1.2)</td>
<td>3.4(1.1)</td>
<td>2.8(0.9)</td>
<td>3.1(1.0)</td>
<td>0.116</td>
<td>0.943</td>
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<tr>
<td>Baseline mean maternal attitude score (sd)</td>
<td>18.1(1.1)</td>
<td>18.0(0.9)</td>
<td>18.1(1.1)</td>
<td>18.2(1.0)</td>
<td>3.791</td>
<td>0.144</td>
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<tr>
<td>Baseline mean paternal attitude score (sd)</td>
<td>18.2(0.9)</td>
<td>18.1(1.0)</td>
<td>17.9(1.0)</td>
<td>18.3(1.1)</td>
<td>3.152</td>
<td>0.168</td>
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<tr>
<td>End line mean maternal knowledge score (sd)</td>
<td>7.3(1.3)</td>
<td>6.2(1.2)</td>
<td>7.8(1.1)</td>
<td>7.9(1.0)</td>
<td>10.028</td>
<td>0.007*</td>
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<tr>
<td>End line mean paternal knowledge score (sd)</td>
<td>6.0(1.1)</td>
<td>4.9(1.0)</td>
<td>6.2(0.9)</td>
<td>6.8(2.3)</td>
<td>32.288</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>End line mean maternal attitude score (sd)</td>
<td>21.0(2.1)</td>
<td>19.0(2.9)</td>
<td>21.7(2.0)</td>
<td>21.9(2.0)</td>
<td>10.705</td>
<td>0.005*</td>
</tr>
<tr>
<td>End line mean paternal attitude score (sd)</td>
<td>20.9(2.1)</td>
<td>19.2(0.9)</td>
<td>21.4(2.0)</td>
<td>21.8(2.1)</td>
<td>7.808</td>
<td>0.020*</td>
</tr>
<tr>
<td>Continuous exclusive breastfeeding for study period</td>
<td>26(78.8%)</td>
<td>7(63.6%)</td>
<td>9(81.8%)</td>
<td>10(90.9%)</td>
<td>14.092</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Mothers who found couple counselling acceptable</td>
<td>26(78.8%)</td>
<td>9(81.8%)</td>
<td>8(72.7%)</td>
<td>9(81.8%)</td>
<td>0.584</td>
<td>0.747</td>
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<tr>
<td>Fathers who found couple counselling acceptable</td>
<td>21(63.6%)</td>
<td>6(54.5%)</td>
<td>7(63.6%)</td>
<td>8(72.7%)</td>
<td>7.731</td>
<td>0.021*</td>
</tr>
</tbody>
</table>

*Significant at p<0.05