INFANT FEEDING PRACTICES, KNOWLEDGE, ATTITUDES,AND BELIEFS OF MOTHERS WITH 0-6 MONTH'S BABIES ATTENDING BABY FRIENDLY ACCREDITED HEALTH FACILITY AND NON-BABY FRIENDLY ACCREDITED HEALTH FACILITIES IN BLANTYRE, MALAWI

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ABSTRACT

The Ministry of Health in Malawi promotes exclusive breastfeeding for the first six months of life and continued breastfeeding with appropriate complementary feeding up to two years or beyond. This policy applies to all children unless there are medical indications. Baby Friendly Hospital Initiative (BFHI) is a strategy that contributes to the attainment of this policy. BFHI is a strategy to increase early and exclusive breast feeding rates among mothers. This study is a pilot to evaluate the success of the BFHI initiative in Malawi.

Study design. A cross- sectional cohort study of women and their infants, 0-5 months, attending BFHI and non-BFHI accredited health facilities in Blantyre district of Malawi] between the period from 28th April to 30th September, 2008 was conducted.

Data Collection: An in-depth face-to-face interview using an open-ended structured questionnaire was conducted among 202 mothers of infants within the first week of birth. A convenient sample of 102 mothers was selected from prima gravida mothers at a semi-urban BFHI accredited facility while the other 100 were from semi-urban non-BFHI accredited facilities. This sample was used for the descriptive component of the study. From the 202 mothers, 30 from the BFHI and 30 from the non-BFHI Accredited health

facility(s) were selected randomly as the sample for the longitudinal cohort of the study at 3 and 5 months respectively.

Analysis of results: Data was analyzed using SPSS for Windows. Frequencies were tallied for categorical variables and mean standard deviations were computed for continuous variables. Chi-square p-values with health facility type as classification were computed to determine the difference between BFHI and non-BFHI accredited health facility groups for all relevant variables.

Results

Exclusive breastfeeding rates differed significantly (p- value, 0.0000) within one week after birth (99% for the BFHI versus 68% for the non-BFHI facilities).Thirty percent of the mothers from the BFHI accredited health facility practiced exclusive breastfeeding up to 5 months as compared to none of the mothers in non-BFHI accredited health facilities. All 202 mothers had ever breast feed in both facilities throughout the 5 months study period. Mothers and mothers-in-law were the significant source of complementing breast milk before 6 months of age,[25% more influence of mothers and mothers in-law in the non-BFHI accredited facility when compared to BFHI accredited facility].

Conclusion

The BFHI strategy has the potential to successfully influence mothers to adhere to global and national recommendations on optimal breastfeeding practices. Special efforts should be made to continue support of and provide information to new mothers during the first week after delivery and unto few months after birth as mothers seem to introduce complementary foods early and prior to the recommended period of 6 months.

DECLARATION

I declare that the mini-thesis is my own original work and that it has never been submitted anywhere else for any purposes. All other peoples' ideas that have been cited have been acknowledged.

…… . ……

Signature Date

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CONTENTS

LIST OF TABLES AND FIGURES **Page No.**

KEYWORDS

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DEFINITION OF ABBREVIATIONS/ACRONYMS

BFHI:	Baby Friendly Hospital Initiative
UNICEF:	United Nations Children Fund
WHO:	World Health Organisation
PMTCT	Prevention of Mother to Child Transmission
CIMCI	Community Integrated Management of Childhood Illnesses
ACSD	Accelerated Child Survival and Development
CHDs	Child Health Days
MDHS	Malawi Demographic Health Survey
MICS	Multiple Indicator Cluster Survey
ENA	Essential Nutrition Actions
WHO AFASS	Acceptable, Feasible, affordable, Sustainable, and Safe

DEFINITION OF TERMS

BFHI facility: A facility that practices the ten UNICEF/WHO recommended steps to successful breast-feeding. The ten steps to successful breastfeeding are:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food and drink other than breast milk, unless medically indicated.
7. Practice rooming-in. Allow mothers and infants to remain together - 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and

refer mothers to them on discharge from the hospital or clinic.

Exclusive breastfeeding	Giving the infant breast milk as the only source of nutrition with no other fluid or solids except vitamin/minerals drops, and medicines (WHO, UNICEF & BASICS, 1999)
Mixed feeding	Giving the baby some other food like porridge or other milk apart from breast milk. This is also referred to as partial feeding (partial feeding) (WHO/UNICEF, 2002)
Marriage system	**Matrilineal**- Mother's side rules and has final say on all matters related to child rearing and bringing up. Practiced mostly in the southern and central region of Malawi by the Chewas, Lomwes, Yaos and some Ngoni tribes. **Patrilineal** -Fathers side rules and have final say on all matters related to child rearing and bringing up. Practiced mostly in the northern region of Malawi and Shire valley in the southern region of Malawi by the Tumbukas, Tongas, Nkhondes , Senas and some Ngoni tribes.
Non-BFHI facility:	A facility where the BFHI program is not being implemented

CHAPTER 1: INTRODUCTION

The Ministry of Health in Malawi promotes exclusive breastfeeding for the first six months of life and continued breastfeeding with appropriate complementary feeding up to two years or beyond. This policy applies to all children unless there are medical indications for avoidance of breastfeeding. The policy is facilitated mainly through the implementation of the Baby Friendly Hospital Initiative (BFHI) and integration of infant and young child feeding interventions in other child survival and development programmes (PMTCT, CIMCI, ACSD, CHDs, ENA and Village shows). This is in line with the United Nation Children Fund (UNICEF) and the World Health Organization (WHO) Global Strategy on Infant and Young Child Feeding (WHO, 2002).

Breastfeeding is a traditional norm in Malawi. According to the Malawi Demographic and Health Survey [MDHS] conducted in 2004 by the National Statistics Office, 98% of women in Malawi breastfeed their children. However, exclusive breast feeding for the first 6 months, which BFHI promotes and supports, is a big challenge. Only 53% of mothers breastfeed exclusively in the first 6 months of baby's life (MDHS, 2004). Most mothers and other caregivers (37%) tend to introduce other fluids and foods before 6 months of age. Possible reasons for early introduction of complementary foods are various and include physiological and cultural factors, inadequate care and a lack of support from the health care system (Cohen et al, 1994).

In Malawi, BFHI was adopted in 1993, after it was launched in 1992 by UNICEF and the WHO. This was in response to the declining breastfeeding rates especially among mothers who delivered in health facilities. Some of the major reasons that were identified, globally and in Malawi, for the low breastfeeding rates were poor community, cultural and health care practices that were not conducive to promotion, support and protection of breastfeeding among mothers and marketing pressure from manufactures and distributors of infant and young child foods, that influenced mothers to use breast milk substitutes without adequate technical information and support for informed decisions.

The purpose of the global BFHI effort is to improve the role of maternity services to enable mothers initiate breastfeeding within one hour after delivery and to exclusively breastfeed their babies in the first 6 months for the best start in life. It aims at improving the care of pregnant women, mothers, and newborn babies at health facilities that provide maternity services and to strengthen practices that protect, promote and support breastfeeding, and to remove practices that hinder the process. The foundation for the BFHI is the “Ten Steps to Successful Breastfeeding” (see definition of WHO,).

There are more than 20,000 baby friendly accredited hospitals in 152 countries through-out the world (WHO, 2009). Malawi has so far accredited 26 health facilities baby friendly between 1993 and 2008 out of the set target of 48 facilities in

1993. Forty eight health facilities with maternity services were targeted for BFHI accreditation because of the high numbers of deliveries that are conducted in the facilities in a year. Five hundred facilities that provide maternity services are not yet baby friendly accredited. Fifty seven percent of all deliveries are done in these health facilities. Global evaluation on the impact of the baby friendly hospital initiative on optimal infant feeding practice have shown positive impact especially on breastfeeding initiation within 1 hour of delivery, duration of exclusive breast feeding and continued breast feeding and breast feeding on demand. (Abolyan, 2006, Andressen, 2001, Ojofeitimi et al, 2000, Caldeira & Goncalves , 2000 and Okolo, 2000)

The MDHS 2004 (National Statistics Office, 2004), reported that exclusive breastfeeding trends have been increasing since the adoption of the BFHI from 3% in 1992 to 53% in 2004. This implies that just under 50% of mothers are not practicing exclusive breast feeding. This deprives the children of the important benefits of breast-milk. BFHI promotes, protects and supports breastfeeding even in the context of HIV/AIDS. It is aimed at making breastfeeding safe and successful among the majority of mothers and safe among HIV positive mothers who choose to breastfeed. The purpose of the pilot study was therefore to evaluate the success of the BFH initiative in Malawi.

1.1 Study aim

The aim of the study was to assess infant feeding practices, knowledge, attitudes, and beliefs among mothers who access a health facility that is certified baby friendly in accordance with international criteria compared to mothers who access a health facility that is not baby friendly accredited.

1.2 Study objectives

The objectives of the study were

- To compare the social demographic characteristics of mothers attending BFHI and non-BFHI accredited health facilities.
- To compare the current practice regarding infant feeding of mothers who gave birth at BFHI and non- BFHI accredited health facilities.
- To compare the current knowledge, attitudes and belief regarding infant feeding of mothers who gave birth at BFHI and non-BFHI accredited health facilities.

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CHAPTER 2: LITERATURE REVIEW

2.1 Infant feeding practices in the context of BFHI

The World Health Organization recognizes the importance of promoting and supporting breastfeeding as the optimal feeding method used exclusively for at least 6 months and continued along with complementary feeding for no less than two years of life (WHO Global Strategy for Infant and Young Child Feeding, 2002). Most of the international community has followed these guidelines (National Health and Medical research Council, 2003; American Academy of Pediatrics, 2005). The current Malawi breastfeeding rates however fall short of these recommendations. According to the Malawi Demographic and Health Survey (MDHS) 2000, prolonged breastfeeding is common; however, the duration of exclusive breastfeeding is not. The survey reported that more than half of all infants were continuing to breastfeed at 24 months, but the median duration of exclusive breastfeeding was just 2 months. Thirty-one percent of 2–3 month-old infants and 80 percent of infants aged 4–5 months were already consuming solid foods. However, overall**,** exclusive breastfeeding rates have increased from 3% in 1992, to 11% in 1998, to 45% in 2000 and 53% in 2004 (MDHS 2004) after the implementation of the BFHI strategy.

Early mixed feeding is of concern as it is one of the factors that is responsible for malnutrition, growth faltering and the high mortality rate in infants in developing countries (Davis & Adetugo, 1997). The MDHS 2004 shows that only 53.3% of mothers exclusively breast-feed their babies for the first 6 months of life. This confirms just under 50% of mothers introduce other foods and fluids earlier than six months. This deprives the children of the important benefits of breast feeding. Benefits of exclusive breastfeeding up to six months duration have been studied all over the world (WHO, 2002). There are enormous amounts of evidence to support this (WHO, 2002). As reported, if a child does not adequately breastfed, it is more likely to become malnourished because the other foods and fluids that the child consumes may not provide it with all the necessary nutrients in the right amount and proportion to meet its body requirements. In addition, before the age of six months, the child may not be mature enough to digest the other foods and fluids adequately. Furthermore, if the child is not getting breast milk, it is not adequately protected from diseases. The child is more likely to fall sick often since the nutritional and immunological benefits that breast milk provides cannot be provided by the other foods and fluids that the child is given. For example about 5% of all acute respiratory infections and 15% of all diarrhoea cases in children under-one year in Malawi are attributed to sub-optimal breastfeeding practices (Profiles report, 2006). In addition, early introduction of other foods and fluids may make the child sick due to poor food hygiene and sanitation. Sub-optimal breastfeeding is an important factor which significantly contributes to infant and young child mortality in Malawi. The infant

mortality rate is 76 deaths per 1000 live births (MDHS, 2004). It is estimated that sub-optimal breast-feeding practices contribute to about 19% of these infant deaths (Profiles report, 2006)

2.2 Problems in practicing exclusive breastfeeding

Breastfeeding problems begin at birth. As reported by Cohen et.al. in 1994, women may encounter difficulties in breastfeeding effectively, generally because they do not know enough about how breastfeeding works and because those around them do not know how to support it. He said that the attitude of mothers, fathers, and other family members, health care providers, and traditional leaders can all affect whether and for how long a woman breastfeeds. He further said that women may not begin or may not continue breastfeeding for a number of reasons, including the belief that they do not have enough milk or that they need to start supplementing breast milk because they need to go back to work.

Lack of conducive environment and physical structure in health facilities and mistaken beliefs among health workers and family members prevent mothers from establishing successful breastfeeding soon after birth (WHO, UNICEF and BASICS, 1999)

2.3 Consequences of sub-optimal feeding practices

Breast milk is a safe, hygienic source of energy, nutrients and fluids and it contains disease-fighting substances (White blood cells [leucocytes] and antibodies [immunoglobulin] from the mother) and vitamins that support the body's natural immune system (UNICEF, WHO and BASIC, 1999). Other infant feeding products significantly increase deaths from diarrhoea and respiratory diseases. Infants who are not breastfed may develop lifelong difficulties such as chronic diseases, allergies and developmental delays (Victora et al, 1987). The health risks from lack of exclusive breastfeeding are greatest in the first months of life in communities with high levels of diarrhoeal disease, poor environmental sanitation and hygiene, and inadequate water supplies. Currently in Malawi, diarrhoea diseases rank second in the cause of death in children under five years (Profiles report, 2006). Almost 3 out of every 4 Malawians have access to improved drinking water sources and 88.2% use improved sanitation facilities (MICS, 2006). Suboptimal feeding practices and poor food hygiene in food preparation are the contributing factors in diarrhoea diseases in Malawi.

Studies have shown that compared to infants who are exclusively breastfed, infants given breast milk plus other liquids or food, including formula or no breast milk at all, are many times more likely to die from diarrhoea and acute respiratory diseases (ARI). For example, Victora et. al. (1987) reported that the risk of dying due to

diarrhoea is 1 for exclusively breastfed babies as compared to 2.5 times risks for breastfeeding with supplement, 3.7 times for breastfeeding with cow's milk and supplement, 5.7 times for breast feeding with cow's supplement, 15.7 times for cow's milk with supplement and 18.7 times risks for cow's milk. Arifeen et. al. (2001), in his study also concurs with Victora et. al. (1987) that non-exclusive breastfeeding can increase the risk of dying due to diarrhoea and pneumonia among 0–5 month old infants by more than two-fold. Breastfeeding was also found to have a strong protective effect in infants 2-11 months against invasive pneumococcal disease in a study conducted by Levine et. al. in 1999.

In another study on the impact of breastfeeding practices on respiratory and diarrhoeal diseases in infancy, infants exclusively breastfed for 4 months or more had significant fewer respiratory infections than infants exclusively breastfed for 3 or fewer months (Perera et. al., 1999). It was reported that infants who were never breastfed were found to have had the highest risk of hospital admission for acute respiratory infection. In another study conducted by Cushing et. al. in 1998, breastfeeding was associated with a reduction in lower respiratory illness risk. In this study, it was reported that the median duration of all respiratory illnesses was 5 days for fully breastfed infants and 6 days for non-breastfed or partially breastfed infants. They concluded that breastfeeding reduces severity, incidence and duration of lower respiratory infections.

Promotion of exclusive breastfeeding is also associated with reduction in infant mortality. Jones et. al. (2003) reported in their study that there is an estimated 13% reduction in mortality by promoting exclusive breastfeeding. Data on exclusive breastfeeding up to sixth months is however scarce. A study conducted in Colombo in 2003 reported that none of the study subjects were practicing exclusive breastfeeding up to sixth months (Bunduseena, 2003). His finding is close to the results reported in a cohort study of infant feeding practices in city, suburban and rural areas in Zhejiang Province, PR China. By six months, exclusive breast feeding was found to have fallen to 0.2%. 0.5% and 7.2% in city, suburb and rural areas respectively (Qiu et. al., 2008)

Investments in breastfeeding save health care costs (Montgomery and Splett, 1997; Hoey and Ward, 1997). Treatment of otitis media, gastroenteritis and respiratory tract infections was found to cost the health care system in the United States between $331 and $475 during the first year of life for each formula fed infant (Ball and Wright, 1999). Additionally, the annual cost of treating US children <5 years of age for otitis media was estimated to be $5 billion per year (Bondy et. al., 2000). Infants who breastfeed exclusively for at least 4 months were shown to have half as many episodes of acute otitis media as compared to formula-fed infants in the first year of life (Duncan et. al., 1993). Longer duration of breastfeeding at 3 months and throughout the first year were associated with lower prevalence of gastrointestinal infections and atopic eczema among infants born at a BFHI site compared with

control sites. Another study even showed the emotional benefit specific to BFHI policies. Mean infant abandonment rate in Russian hospital was decreased from 50.3 to 27.8/10,000 births after implementation of BFHI Strategy.

2.4 Infant and young child feeding and HIV/AIDS

Exclusive breastfeeding is recommended for HIV-infected mothers who breastfeed because it protects against diarrhea and other infections (Ahmed et. al., 1992; Brown et. al., 1989). In addition, when compared with mixed feeding, exclusive breastfeeding was associated with reduced risk of HIV transmission in a study in South Africa (Coutsoudis et. al., 1999) and with increased HIV-free survival in a study in Zimbabwe (Iliff et. al., 2005).In the latter study, early mixed feeding was associated with a 4-fold increased risk of breastfeeding-associated HIV transmission at 6 months (Iliff et. al., 2005) .Several explanations for the increased risk of HIV transmission associated with early mixed feeding have been proposed, including increased gut inflammation and permeability to infection, higher viral load in breast milk, and more frequent breast health problems among mothers who mixed feed, but the causal mechanisms have not yet been identified (Kourtis et. al., 2003).

The WHO (2006) consensus statement recommends that when replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) breastfeeding by HIV infected mothers should be avoided. Otherwise exclusive breastfeeding is recommended for the first 6 months of life. WHO further recommends that

breastfeeding should be discontinued as soon as feasible to minimize the risk of HIV transmission while taking into account the local circumstances, individual woman's situation and the risk of replacement feeding. The statement further says that when HIV infected mothers choose not to breastfeed from birth or stop breastfeeding later, they should be provided with specific guidance and support for at least the first 2 years of the child's life to ensure adequate replacement feeding and that all HIV infected mothers should receive counseling. The counseling includes provision of general information about the risks and benefits of all infant feeding options and specific guidance in selecting the option most likely to be suitable for an individual mother's situation.

2.5 Factors influencing breastfeeding intentions.

In communities where breast feeding is the norm, women may not need to be motivated to choose to breastfeed as they are expected to do so (WHO, 1998). The benefit of imparting information to women antenatally is to help them to breastfeed optimally and to avoid any possible difficulties with lactation management.

In developed countries, one third to one half of women decides how they are going to breastfeed their babies before they are pregnant (Graffy, 1992). Their intention may vary with ethnicity, marital status and age (Lizarraga et. al., 1992) and prior

Socialization including how a woman herself was fed as a baby. Other important influences include friends, sisters and other relatives (Labbok et. al., 1988) and male partners (Giugliani et. al., 1994).

Knowledge is one of the many factors which can influence breastfeeding intentions. Kaplowitz & Olson (1983) provided some evidence that printed materials increases women's knowledge but do not alter their attitudes or duration of breastfeeding. Contact and frequency of contact at home between health care worker and breastfeeding mother is also important. In a study conducted by Adetugbo in 1996, breastfeeding at 4 months was significant more frequent (40%) in mothers that were exposed to breastfeeding posters and handouts, talks at the clinics and at home and one to one counseling by trained community health workers than among the control group (14%).

In a study in Mexico conducted in 1996 by Morrow et. al., it was reported that mothers receiving 6 home visits by trained counselors were significantly more likely to be exclusively breastfeeding at 3 months (72%) than those who received 3 home visits by the same counselors (50%, $P<0.001$). Both groups were significantly more likely to exclusively breastfeed at 3 months than a concurrent control group (,$P<$ 0.001).Infants who attended lactation centers (3 times or more) were more likely to breastfeed exclusively than non-attendees at 4 month (43% versus 18% respectively

and at 6 month (15% versus 6% (Barros et. al., 1995b). Attendees had fewer episodes of illness and better weight gain than non-attendees.

The evidence that has been provided in this literature on the benefits of breastfeeding is in support of efforts to promote exclusive and optimal breastfeeding practices through strategies such as BFHI. The global requirement for a baby friendly hospital is to have at least 80% of the health workers trained in the necessary skill for effective management of infant and young child feeding which will provide conducive environment for optimal feeding practices among mothers through provision of appropriate information and skills.

CHAPTER 3: METHODOLOGY

3.1 Study design

A cross-sectional cohort study of mothers and their infants between birth and six months attending BFHI and non BFHI accredited health facilities in Blantyre district of Malawi was conducted to describe the breast feeding practices, and influence of family, health workers and others in breastfeeding practices. A case-control cohort was selected from the cross-sectional participants and re-assessed at 3 months and 5 months to provide information for analytical purposes.

3.2 Study population

All primapara mothers and their infants who were born between the periods from 28th April-8th May 2008 at health facilities in Blantyre were eligible for inclusion in this study. The only BFHI accredited facility in Blantyre at the commencement of the study and two other non-BFHI accredited facilities (with similar catchments area as the BFHI accredited facility) out of 20 non-BFHI credited facilities were selected purposefully for this study based on the number of deliveries that are conducted in the facilities (case load).

3.3 Sample size and sampling

The baseline study (descriptive component of the study) was conducted among 202 mothers of infants (primaparas) who came for the first postnatal check up within one

week after giving birth and those that were in a postnatal ward before they were discharged from the hospital at both the BFHI and non-BFHI accredited health facilities. The study excluded mothers that were younger than 18 years old or older than 30 years. Those with twins or who had multiple births and mothers who had received any formal training in nutrition were also excluded from the study. At the start of the study, sampled mothers were asked to provide the names and addresses of some close friends and relatives through whom they could be contacted at 3 and 5 months follow up.

Of the 102 mothers who gave birth at the BFHI accredited health facility, 30 cases were selected randomly to create a sample for the analytical component of the study at 3 and 5 months. The randomly selected case control cohort was paired for social characteristics of employment status and ethnicity, which was used to determine the marriage system that the responded belonged to. This was done to limit confounding. In Malawi, there are two types of marriage systems, Matrilineal or Patrilineal, which have an influence on family decisions regarding child rearing practices including feeding practices. The majority of mothers in this study belonged to the Lomwe and Chewa tribes which all follow the matrilineal type of marriage system. In this system, the mothers' side of the infants holds decisions for how the baby would be reared as compared to the patrilineal side which is the opposite. The total sample was 60 mothers (30 from BFHI and 30 from non-BFHI accredited health facilities). The 60 mothers were followed at 3 and 5 months. Follow up was done in mothers' respective homes or agreed places through telephone appointment by the research assistant for mothers from the BFHI accredited health facility and the researcher for mothers from the non-BFHI accredited health facilities. The latter arrangement was done to limit influences and possible bias of the researcher who works as a coordinator for the BFHI program in Malawi.

3.4 Data collection

Data was collected through face-to-face interviews using a structured questionnaire that was completed during the interview. All interviews were conducted by the researcher and a trained research assistant. Training for data collection included a comprehensive discussion of the research objectives, selection of study participants, and administration of the questionnaire. The areas that were covered in the questionnaire included current infant feeding practices, knowledge, attitudes and beliefs regarding infant feeding, knowledge on benefits of breastfeeding, source of antenatal and postnatal information, any influence to feed infant something other than breast milk, mothers main source of infant care support, and availability of resources that could influence infant feeding practices (see annex for questionnaires). Respondents for the baseline (descriptive component of this study) were selected and interviewed as they were waiting to be seen by a health worker at the first postnatal visit within a week of delivery as well as those who had just delivered in the postnatal wards before they were discharged from the facility. Interviews were done in arranged consultation rooms and other secluded areas away from the other mothers or health workers. Probing was done to get clarity and further explanation on the knowledge, attitudes and practices in infant feeding. During the interview, the researcher and the research assistant respectively took notes. On average, the interview took 20-30 minutes.

For the analytical component of the study at 3 and 5 months follow up, interviews were done in the home of the mothers or agreed places through telephone appointments. The researcher followed the mothers from the non-BFHI facilities while the research assistant followed the mothers from the BFHI facility. The latter arrangement was done to limit influences and possible bias of the researcher who works as a coordinator for the BFHI program in BFHI facilities.

3.5 Data analysis

Data analysis was done using Scientific Package for Social Scientists version 12.0 for windows, a computer application for social scientists. Frequencies were tallied for categorical variables and means and standard deviations were computed for continuous variables. To determine the differences between BFHI and non-BFHI accredited health facility groups for all relevant variables, Chi-square p-value with health facility type as classification variable was computed for categorical variables. At 5 months, Fisher's exact test was used to examine the significance of association because of the small sample size of comparison. A statistician double checked analyses and advised no further advanced statistical procedures in view of the limited number of participants.

3.6 Ethical consideration

The research was approved by the senate higher degrees committee of the University of the Western Cape before commencing the study (Reference number **8/3/8**). The

purpose and process of the study was explained to all possible study participants where after their participation confidentiality was assured (See Appendix A: Information sheet). The researcher informed the respondents about the study and provided them with the necessary details and asked them if they were willing to participate in the research process. Written consent was obtained from possible mothers that were willing to participate (See Appendix B: Informed consent). All participants were assured of their right to participate or decline or indeed withdraw from the study at any time should they feel uncomfortable to continue to participate in the study. Participants were also assured of anonymity and confidentiality of their participation in the study at all times. Given the nature of the research, respondents perceived the research as not threatening as it did not cause any harm to the respondents. However, two people from the infant feeding community support group were available (for both the case and control) throughout the research and interview process in-case the need for referral should have risen.

3.7 Reliability and validity

Reliability was ensured by training the research assistant, pilot testing the questionnaire, providing the research assistant with clear instructions, posing the question clearly and unambiguously in the local language (Chichewa), cross-checking some of the reported information in the infants' child health passport and

by asking numerous items in the questionnaire that were measuring the same item/idea. The researcher is an infant feeding trainer and therefore an expert in the field. She therefore ensured data appropriateness and coverage especially in terms of content.

3.8 Limitations

The following limitations are noted:

- The sample was collected from one district and will not necessarily reflect infant feeding practices, knowledge, attitudes and belief of mothers in other districts. The results will therefore not be generalized for Malawi. Ideally the analytical component for the study, mothers and infants were supposed to be followed at 3 and 6 months but due to limitations in time, they were followed at 3 and 5 months. The results however show that none of the mothers in the non-BFHI accredited facilities and 30% in the BFHI accredited facility were practicing exclusive breastfeeding by 5 months.

Results of the study did not account for the differences in the two non-BFHI facilities that were included. Differences might exist between the two facilities for reasons that are not impacting on infant feeding.

CHAPTER 4: RESULTS

4.1 Descriptive Component of the study

4.1.1 Social demographic characteristics of respondents

A total of 202 mothers were recruited and interviewed as part of the descriptive component of the study – 51% were from the BFHI accredited health facility and 49% were from the non-BFHI accredited health facility (Table 1). Interviews were completed within the first week of birth.

Table 1: Social-demographic characteristics of mothers attending the BFHI and non-BFHI facilities.

Variable	Total (n=202)	BFHI facility (n = 102)	Non-BFHI facility (n =100)	p-value
Mean age (years) (±SD)		23± (SD4.273)	21 ± (SD 3.133)	0.0002
Completed level of education				
None	4 (2%)	2 (2%)	2 (2%)	
Some primary	47 (23%)	25 (24%)	22 (22%)	
Primary completed	28 (14%)	12 (12%)	16 (16%)	0.7418
Some secondary	75 (37%)	39 (38%)	36 (36%)	
Secondary completed	44 (22%)	21 (21%)	23 (23%)	
Tertiary	4 (2%)	3 (3%)	1 (1%)	
Employment status				
Unemployed	133(66%)	78 (76%)	55 (55%)	<0.0001
Housewife	46 (23%)	6 (6%)	40 (40%)	
Others	23 (11%)	18 (18%)	5(5%)	
Household income				
None	22 (11%)	3 (3%)	19 (19%)	
<Mk5000/R250/month	53 (26%)	50 (49%)	3 (3%)	
Mk5000-Mk10,000/R500/month	40 (20%)	27 (26%)	13 (13%)	0.0471
>K10,000/R500/month	20 (10%)	13 (13%)	7 (7%)	
Don't know	55 (27%)	6 (6%)	49 (49%)	
Didn't disclose	12 (6%)	3 (3%)	9 (9%)	
Source of drinking water				
Own tap	29 (14%)	18 (18%)	11 (11%)	
Communal tap	123 (61%)	41 (40%)	82 (82%)	<0.0000
Water from borehole	45 (22%)	41 (40%)	4 (4%)	
Water from stream/river/dam	5 (3%)	2 (2%)	3 (3%)	
Ethnic Tribe				<0.000
Chewa	40(20%)	15(15%)	25(25%)	
Tumbuka	10 (5%)	3(3%)	7(7%)	
Lomwe	80 (40%)	49(48%)	31(31%)	
Tonga	8 (4%)	2(2%)	6(6%)	
Yao	27 (13%)	13(13%)	14(14%)	
Sena	4 (2%)	2(2%)	2(2%)	
Ngoni	30 (15%)	16(15%)	14(14%)	
Others	3 (1%)	2(2%)	1 (1%)	

Although the age range of mothers in the BFHI and non-BFHI accredited health facilities were similar (between 18 and 30 years old) those who gave birth in the BFHI accredited health facility were statistically significantly older (mean age 23 ±4.273 years) than those in the two non-BFHI accredited health facilities (mean age 21 ± 3.133 years, p-value 0.0002). The education level attained by mothers in BFHI and non-BFHI accredited health facilities were very similar (Chi-square p-value 0.7418) with most mothers (37%) having attended some secondary education after completion of primary education and also 22% of the mothers completed their secondary education. Two percent of the mothers from both the BFHI and non-BFHI accredited health facilities completed tertiary education (Table 1, Figure 1.)

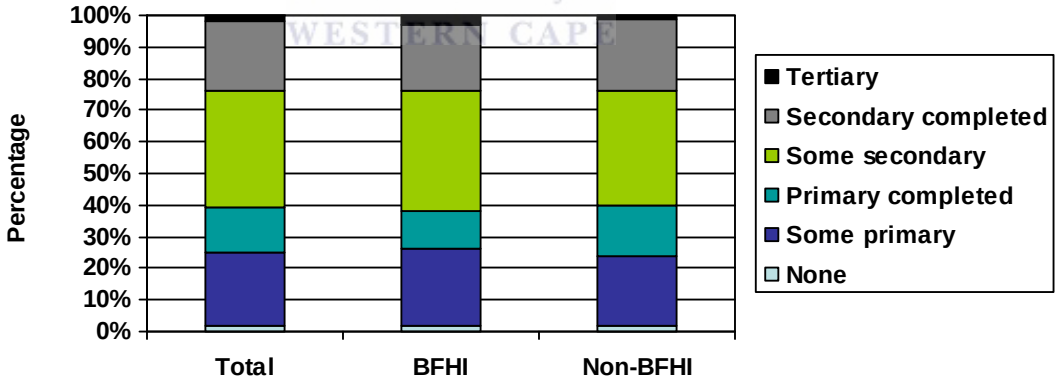

Figure 1: Proportionate distribution of completed level of education of mother

In both the BFHI and non-BFHI accredited health facilities, the majority of the mothers were not working. There is, however, a statistically significant difference in

the employment status (p-value <0.0001) with more mothers in non-BFHI facilities being housewives by choice (Table 1, Figure 2).

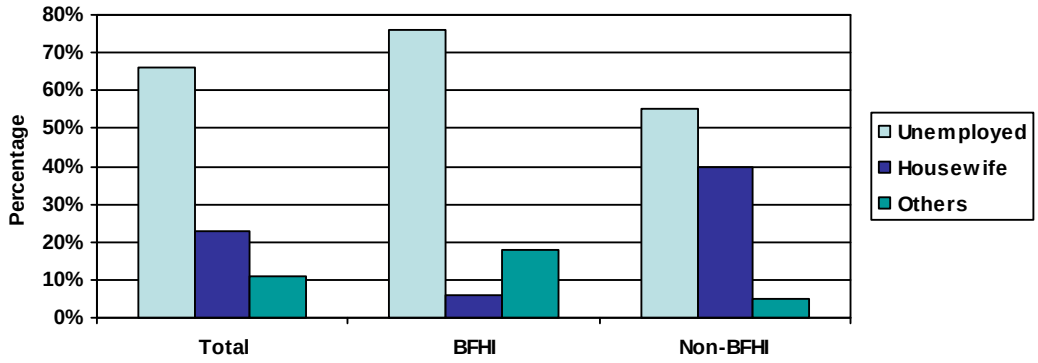

Figure 2: Proportionate distribution of employment status of mothers

Almost 49% of the mothers attending non-BFHI accredited health facilities in this study indicated that they did not know their household income as compared to 6% in the BFHI accredited health facilities. Forty nine percent of the mothers attending BFHI facility reported an income of less than MK 5000/R250 per month as compared to 3% in the non-BFHI accredited health facilities (p-value 0.0471) (Table 1, Figure 3).

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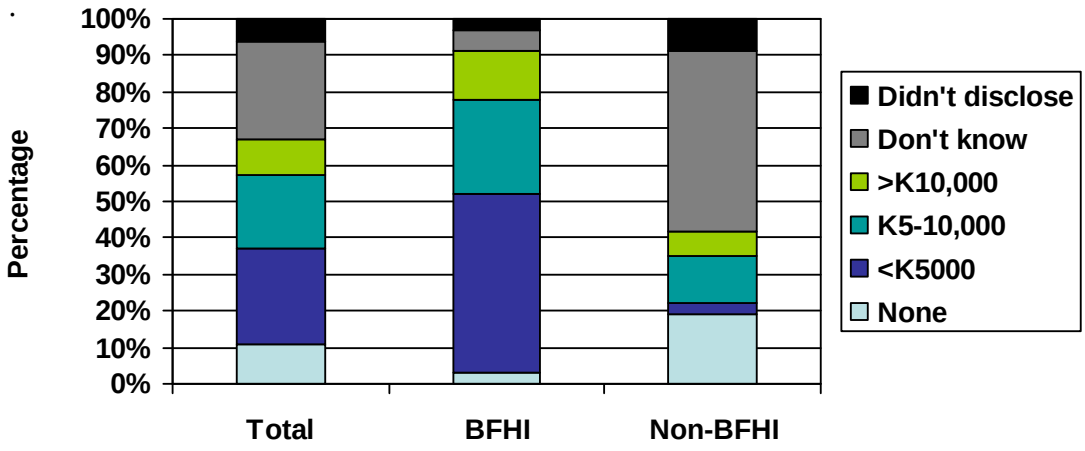

Figure 3: Proportionate distribution of household income of mothers

A significantly greater proportion of mothers in the non-BFHI accredited health facilities reported to have access to safe water (93%) as compared to those from the BFHI accredited health facility (58%). Mothers attending the BFHI accredited health facility reported equal access to water from communal tap and water from a borehole (40% for each) whilst 4% of mothers from non-BFHI accredited health facilities relied on water from a borehole. Three percent of mothers, overall, reported to be using water from stream, river or dam (Table 1, Figure 4).

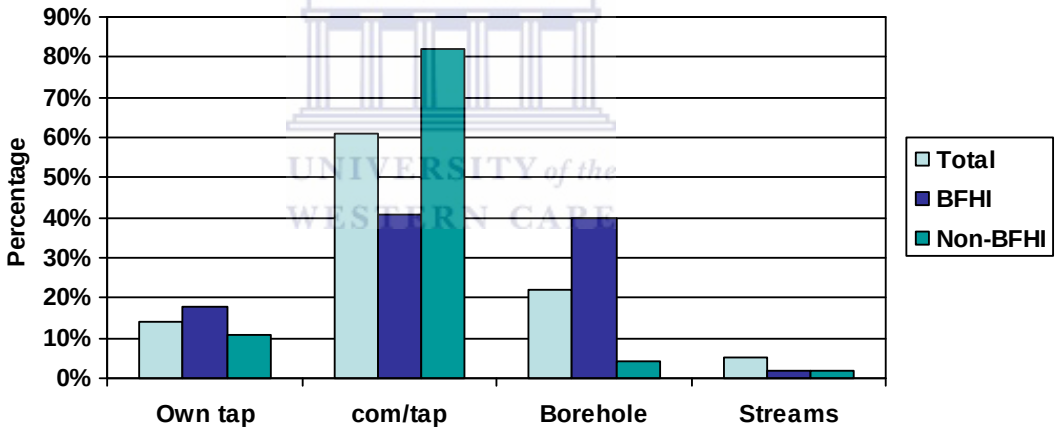

Figure 4: Proportionate source of drinking water of mothers

There is a statistically significant difference in the proportions of the various ethnic groups although the order of the proportionate contribution of the ethnic groups is the same for the two types of facilities. The most prevalent ethnic group was the Lomwe followed by the Chewas and then the Ngonis and the Yaos. Sixty one percent of the Lomwes were from the BFHI accredited health facility while 39%

were from the non-BFHI accredited health facility and 62% of the Chewas were from the non-BFHI accredited health facilities while 38% were from the BFHI accredited health facility. Both Lomwe and Chewa tribes follow the matrilineal system of marriage. In total, 73% of the respondents were from the matrilineal system of marriage (Chewa, Lomwe and Yao tribes) while 26% were from the patrilineal system of marriage (Tumbuka, Sena, Tonga and Ngoni tribes).

Table 2: Infant characteristics in the BFHI and non-BFHI Accredited health facilities

The characteristics of the infants are shown in the table below.

Variable	Total (n=202)	BFHI Facility (n=102)	Non-BFHI facility (n=100)	p-value
Gender of infant				
Male	103 (51%)	52(51%)	50(50%)	0.946
Female	99 (49%)	50(49%)	50(50%)	
Birth weight				
<2500g	42 (21%)	32(31%)	10(10%)	0.013
>2500g	160 (79%)	70(69%)	90(90%)	
Type of birth				0.052
SVD	170(84%)	81 (79%)	89 (89%)	
Caesar	32 (16%)	21(21%)	11 (11%)	

Equal numbers of boys and girls were born in the two facilities. Seventy nine percent of mothers overall had babies who weighed over 2500g at birth (Table 2, Figure 5). The prevalence of low birth weight was significantly lower (p value 0.013) in the non-BFHI accredited health facilities. Thirty two percent of the babies were born

through caesarian section while 84% were born through spontaneous viginal delivery in the BFHI and non-BFHI accredited health facilities.

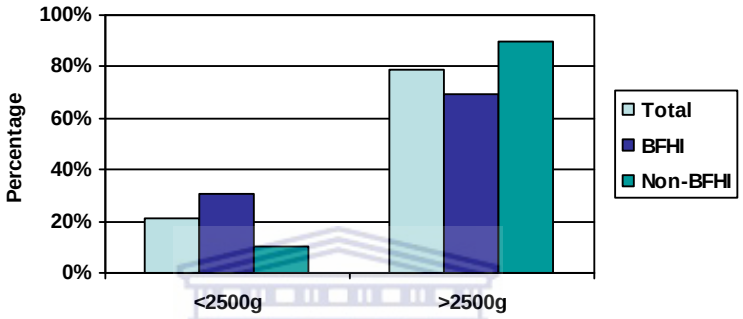

Figure 5: Proportionate distribution of birth weight of infants

The majority of mothers in this study gave birth through a normal spontaneous viginal delivery (84%) (Table 2, Figure 6).

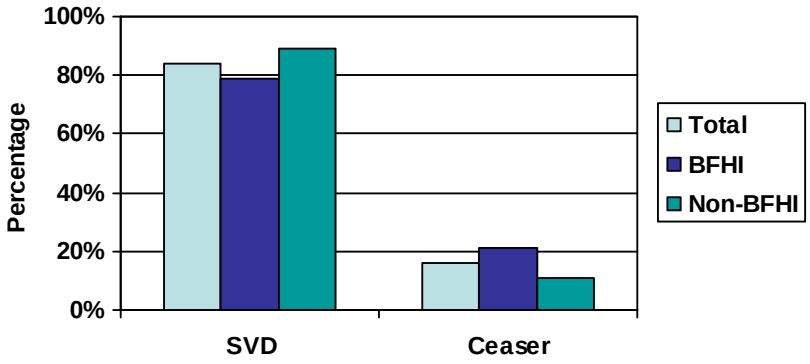

Figure 6: Proportionate distribution of type of birth of infants

4.1.3 Breastfeeding-related practices of mothers attending BFHI and non-BFHI Accredited health facilities

Mothers who had given birth to their firstborns in the BFHI and non-BFHI accredited health facilities in Blantyre, Malawi, reported on their breastfeeding practices within the first week after birth of the infant as summarized in Table 3.

Table 3: Breast-feeding related practices of mothers in BFHI and non-BFHI accredited health facilities.

Descriptor	Category	Total (n=202)	BFHI (n=102)	Non-BFHI (n=100)	Chi square P-values
How soon after birth was breastfeeding initiated?	<1hr 1-2hrs >2hrs	131(65%) 48(24%) 23(11%)	66 (65%) 34(33%) 2 (2%)	65 (65%) 14 (14%) 21(21%)	<0.0001
Mothers that were advised at birth to breastfeed baby	Yes No Do not remember	62(31%) 128(63%) 12(6%)	44(43%) 48(47%) 10(10%)	18 (18%) 80(80%) 2 (2%)	<0.0001
Mothers who gave other foods/fluids before milk production was optimal	Yes No	4(2%) 198(98%)	2 (2%) 100(98%)	2(2%) 98(98%)	1.000
Mothers who gave water in addition to breast milk	Yes No	33(16%) 169(84%)	1(1%) 101(99%)	32 (32%) 68(68%)	<0.0000
Mothers who practiced demand feeding (> 8 times in 24 hours	Yes No	146(72%) 56(28%)	90(88%) 12(12%)	56 (56%) 44(44%)	<0.0001
Mother who take other foods to make more milk	Yes No No answer	156(77%) 42 (21%) 4 (2%)	64 (63%) 36 (35%) 2 (2%)	92 (92%) 6 (6%) 2 (2%)	0.000

Sixty five percent of the mothers, from both the BFHI and non-BFHI accredited health facilities, introduced breastfeeding within the recommended 1 hour after birth. Differences are, however, observed in the number of mothers who reported to have introduced breastfeeding between 1-2 hours after birth (33% for the BFHI and 14% for the non-BFHI accredited health facilities) and after 2 hours (2% for the BFHI and 21% for the non-BFHI accredited health facilities) (Table 3, Figure 7).

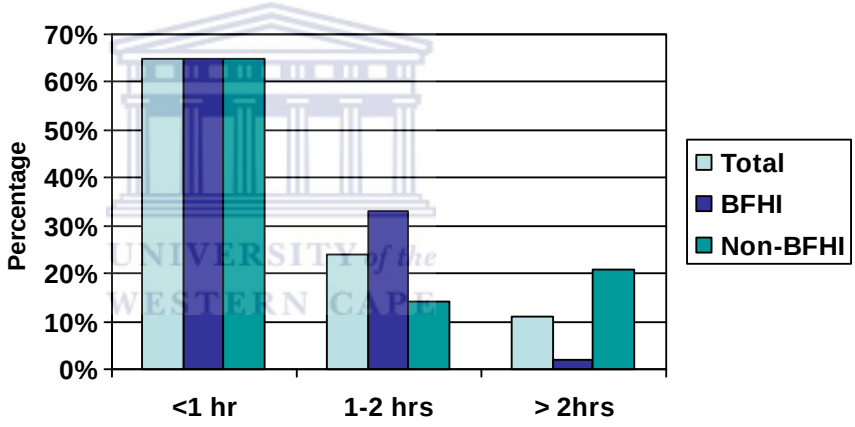

Figure 7: Proportionate distribution of timing of breastfeeding initiation

Significantly more mothers (44%) in the BFHI accredited health facility were advised at birth to breastfeed soon after baby was born compared to only 18% for the non-BFHI accredited health facility (p-value <0.000) (Table 3, Figure 8).

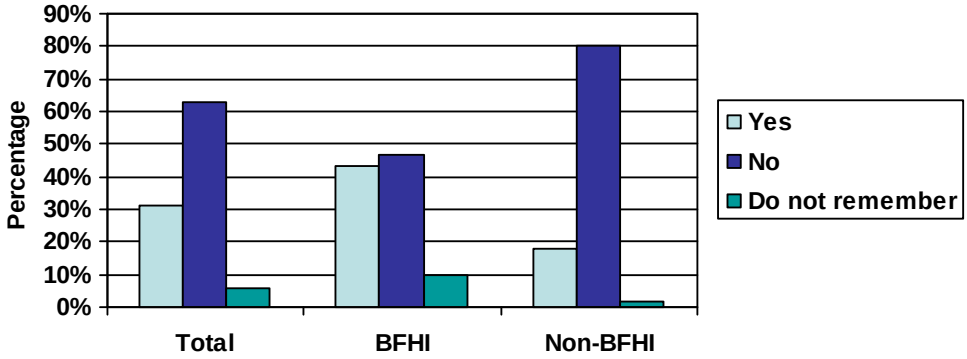

Figure 8: Proportionate distribution of mothers that were advised to breastfeed after birth of baby

The majority of mothers (98%) in both the BFHI accredited health facility and those from non-BFHI accredited health facilities did not give other fluids to their babies before milk flow was optimal. More than 30% of mothers from the non-BFHI accredited facilities (32%) gave water to their babies in addition to breast milk after milk flow was optimal compared to 1% of mothers from the BFHI accredited health facility (p-value <0.000) (Table 3, Figure 9).

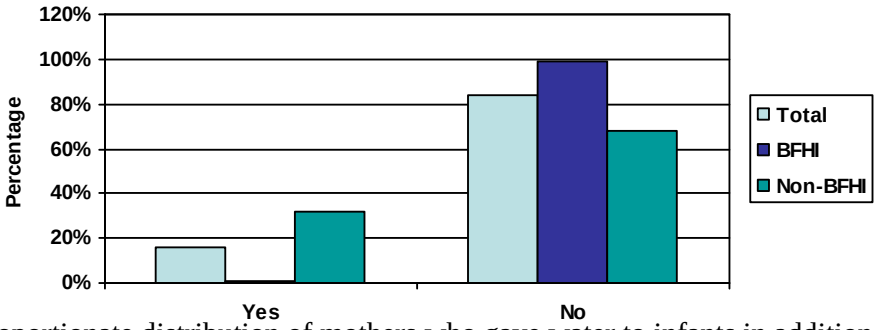

Figure 9: Proportionate distribution of mothers who gave water to infants in addition to breast milk

Breastfeeding on demand (i.e. breastfeeding for more than 8 times in 24 hours) was significantly different for mothers in the BFHI accredited health facility than those from the non-BFHI accredited health facilities. The majority of the mothers in the BFHI accredited health facility (88%) reported to have breastfed their babies on demand more than 8-12 times in 24 hours day and night compared to only 56% from the non-BFHI accredited health facilities (p-value <0.0000) (Table 3, Figure 10).

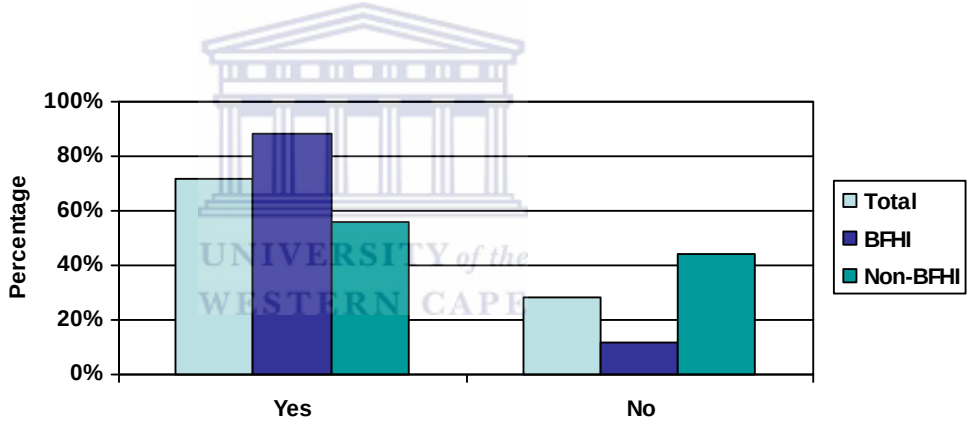

Figure 10: Proportionate distribution of mothers who practiced demand feeding

Ninety two percent of mothers in the non-BFHI accredited health facility reported that they take other foods to make more milk while 63% reported the same from the BFHI accredited health facility (Table 3, figure 11).

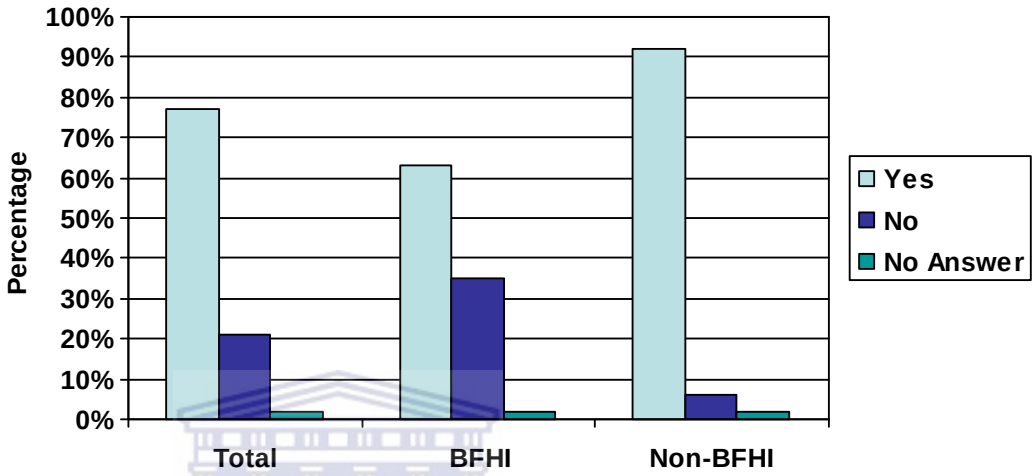

Figure 11: Proportionate distribution of mothers who take other foods to make more milk

4.1.4 Knowledge, beliefs and attitudes regarding infant feeding practices

Mothers who had given birth in the BFHI and non-BFHI accredited health facilities in Blantyre, Malawi, reported on knowledge, beliefs and attitude regarding infant feeding – within the first week after birth. Mothers were also asked to report on their most important reason for breastfeeding and if they take any other herbs, drinks or food to make more milk as summarized in Table 4.

Table 4 Knowledge, attitudes and beliefs of mothers in BFHI and non-BFHI accredited health facilities regarding infant feeding

Descriptor	Category	Total (n=202)	BFHI facility (n=102)	Non BFHI facility (n=100)	Chi-square P-values
Mothers who agree that breastfeeding should continue when baby is sick	Yes No Baby has not been sick	52 (26%) 2 (1%) 148(73%)	45 (44%) 2 (2%) 55 (54%)	7 (7%) 0 (%) 93 (93%)	0.000
Age at which breastfeeding should be stopped	<10 months 10-23 months 24 months >24 months	1(1%) 5 (2%) 148(73%) 48 (24%)	0(0%) 0 (0%) 97 (95%) 5 (5%)	1(1%) 5 (5%) 51 (51%) 43 (43%)	<0.0001 (Kruskal-Wallis test
Mothers' opinion of appropriate feeding for an infant from birth – 6 months to ensure optimal growth	On breast milk alone Breast milk & formula Formula alone	170(84%) 30 (15%) 2 (1%)	91 (89%) 11 (11%) 0 (0%)	79 (79%) 19 (19%) 2 (2%)	0.0500
Most important reason for breastfeeding	Breast is nutritious Promotes love Health Others	22 (11%) 7 (3%) 97 (48%) 76 (38%)	15 (15%) 4 (4%) 70 (68%) 13 (13%)	7 (7%) 3 (3%) 27 (27%) 63 (63%)	0.0000
Mothers who think they made a lot of milk after taking other foods	Did not take any other food Cassava Ground nuts Rice No answer	42(21%) 131(65%) 10 (5%) 15 (7%) 4(2%)	36(35%) 54 (53%) 4 (4%) 6 (6%) 2(2%)	6(6%) 77 (77%) 6 (6%) 9 (9%) 2(2%)	0.010
Who advised to take other foods to increase milk production	Did not take any other food Mother/mother in-law Nurse Friends No answer	42(21%) 121(60%) 18 (9%) 17 (8%) 4(2%)	36(35%) 42 (41%) 15 (15%) 7 (9%) 2(2%)	6(6%) 79 (79%) 3 (3%) 10 (10%) 2(2%)	0.000
When should mothers not breastfeed	HIV+ Other reasons	192(95%) 10 (5%)	100(98%) 2 (2%)	92 (92%) 8 (8%)	0.217

Twenty six percent of mothers interviewed in this study reported that they would continue to breastfeed when baby is sick. A significantly greater proportion of those from BFHI accredited health facility (44%) were of this opinion compared to those in non-BFHI accredited health facilities (7%). Two mothers reported that they would not breastfeed when baby is sick. The rest of the mothers (148 out of 202) reported that the baby had never been sick and as such they would not know whether to breastfeed or not. Proportionately more mothers who were of this opinion were from the non-BFHI accredited health facilities (93% versus 54% respectively) (Table 4, Figure 12).

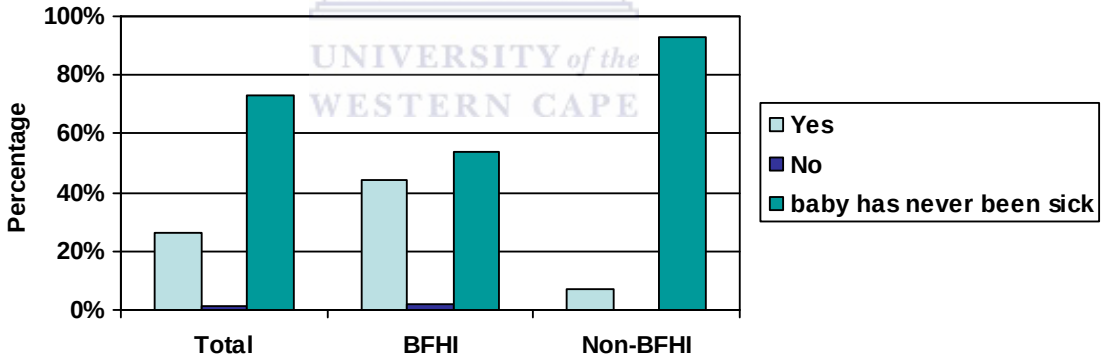

Figure 12: Proportionate perception of mothers on whether they should breastfeed when baby is sick or not.

The age at which breastfeeding should be stopped was 24 months as reported by 73% of the mothers in the whole study sample. Significant differences were, however, observed among mothers from BFHI and non-BFHI accredited health

facilities (p-value <0.0001, Kruskal-Wallis test). Ninety seven percent of mothers from the BFHI accredited health facility indicated that breastfeeding should stop at 24 months as compared to 52% from the non-BFHI accredited health facility. Additionally, 43% of mothers from the non-BFHI accredited health facilities indicated that breastfeeding should be stopped beyond 24 months while 5% from the BFHI accredited health facility reported the same (Table 4, Figure 13).

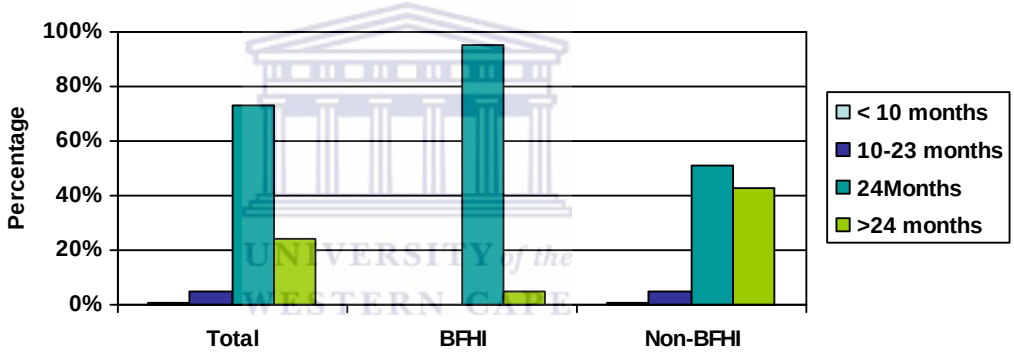

Figure 13: Proportionate distribution of the age of stopping breastfeeding as reported by mother

Mothers interviewed in this study appreciate the value of breastfeeding in child growth and health. Eighty-four percent of the total mothers interviewed felt that a child can grow on breast milk alone during the first six months of life. This belief is common among mothers from both facilities. Ninety one of the 102 mothers from the BFHI accredited health facility (89%) and 79 out of 100 mothers from the non-BFHI accredited health facilities (79%) felt that a baby can grow on breast milk

alone during the first 6 months of life with a small variation in those who indicated that a baby can grow on breast milk and formula together and on formula alone from birth up to six months. A small proportion of mothers from the non-BFHI accredited health facilities only (2%) were of the opinion that formula alone would be adequate for infants' growth from 0-6 months of age. Sixty eight percent of mothers from the BFHI accredited health facility breastfeed for health reasons compared to those from the non-BFHI accredited health facilities (27%) where 63% of the mothers reported that they breastfeed for reasons other than health promotion. The "other" reasons for breastfeeding listed by mothers from non-BFHI accredited health facilities include unavailability of other foods to feed the baby and that it is an expected norm in their community to breastfeed when baby is born. In this study, similar proportions of mother from both the BFHI and non-BFHI accredited health facilities mentioned the importance of breastfeeding in promoting bonding or love (3%) and eleven percent (11%) mentioned nutrition as the reason for breastfeeding.(Table 4, Figure 14).

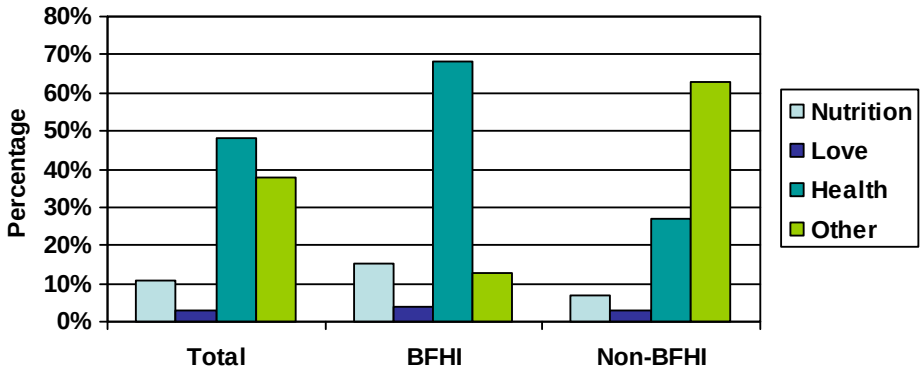

Figure 14: Proportionate distribution of the most important reasons of mothers for breastfeeding

Seventy nine percent of mothers said that they take other foods to increase their milk production. Ninety four percent of the mothers of this opinion were from the non-BFHI accredited health facilities. The "other" foods that were mentioned include cassava, groundnuts and rice. Sixty Five percent of the mothers believe that they made more milk after taking cassava. This belief was common in both facilities although the figures were higher in the non-BFHI accredited health facilities (77%) as compared to 53% in the BFHI accredited health facility. The advice to take the mentioned foods to make more milk was mostly from mothers (30%) and mother in-law (30%). A significant difference is observed in the source of information for this advice between the BFHI and non-BFHI accredited health facilities. Fifteen percent of the mothers in the BFHI accredited health facility reported to have been advised to eat other foods by a nurse as compared to 3% in the non-BFHI accredited health facilities (Table 3, Figures 15).

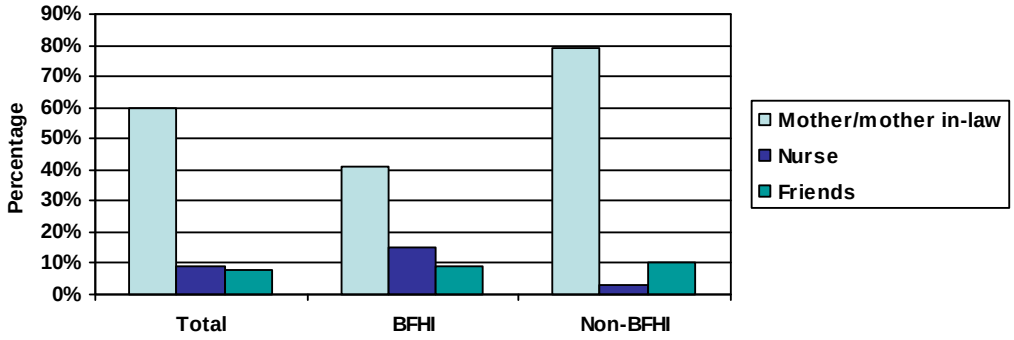

Figure 15: Proportional distribution of source of information to take other foods to make more milk

Ninety five percent of mothers in the study stated that being HIV+ is the reason why mothers should not breastfeed their babies (p-value 0.217).

4.2 Case-control cohort results

Information on current infant feeding practices (exclusive breastfeeding, demand feeding and some breastfeeding), influence on decision to give babies something other than breast milk and source of help to breast feed baby, at 3 and 5 months was collected from this sample.

4.2 .1 Infant feeding practices over the 5 months period

Mothers who had given birth in the BFHI and non-BFHI accredited health facilities reported on infant feeding practices at 3 and 5 months as summarized in table 5.

Table 5:Current infant feeding categories by baby's age group.

	Baseline		**3 months**		**5 months**	
Feeding category	**BFHI Accredited N=30**	**Non-BFHI Accredited N=30**	**BFHI cohort N=30**	**Non-BFHI cohort N=30**	**BFHI cohort N=30**	**Non-BFHI cohort N=30**
Exclusive breastfeeding Yes No	30(100%) 0(0%)	29(97%) 1(3%)	19 (63%) 11 (37%)	17(57%) 13(34%)	9(30%) 21(70%)	0(0%) 0(0%)
p-value		0.4915		0.13		0.008 (Fisher's Exact
Demand breastfeeding Yes No	30(100%) 0(0%)	30(100%) 0(0%)	30(100%) 0(0%)	29(97%) 1 (3%)	28(93%) 2 (7%)	28(93%) 2 (7%)
p-value				0.4915		1.0000

All infants in both groups (BFHI and non-BFHI accredited health facilities) were still being breastfed at the age of 5 months. Three months after birth, exclusive breastfeeding was practiced by 63% and 57% of mothers in the two groups' respectively. By 5 months there is a statistically significant lower exclusive breastfeeding among the non-BFHI accredited health facility infants with none of them being exclusively breastfed as compared to 30% of BFHI accredited health facility infants (Table 5, Figure 16).

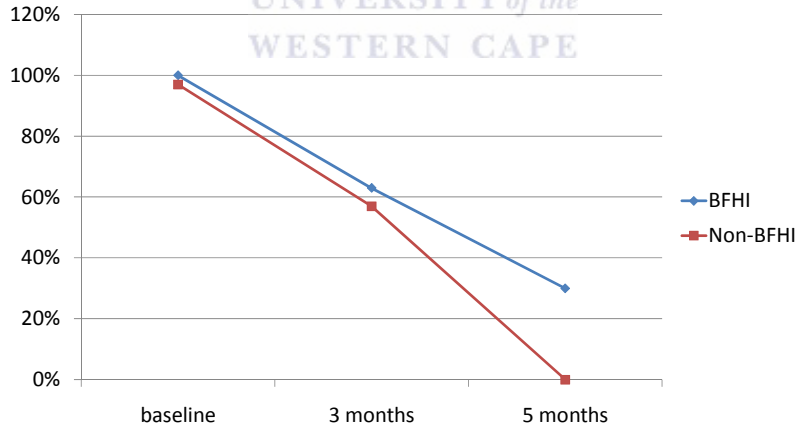

Figure 16: Exclusive breastfeeding trend at baseline, 3 and 5 months.

Breastfeeding on demand rates were slightly different at 3 months for the BFHI and non-BFHI accredited health facilities (100% and 97% respectively). At 5 months the rates were similar for both the BFHI and non-BFHI accredited health facilities (p-value1.000). The results also indicate a decrease in demand feeding by the age of 5 months for the BFHI accredited health facility from 100% at 3 months to 93% at 5 months and similarly for the non-BFHI accredited health facility from 97% at 3 months to 93% at 5 months (Table 5, Figure 17).

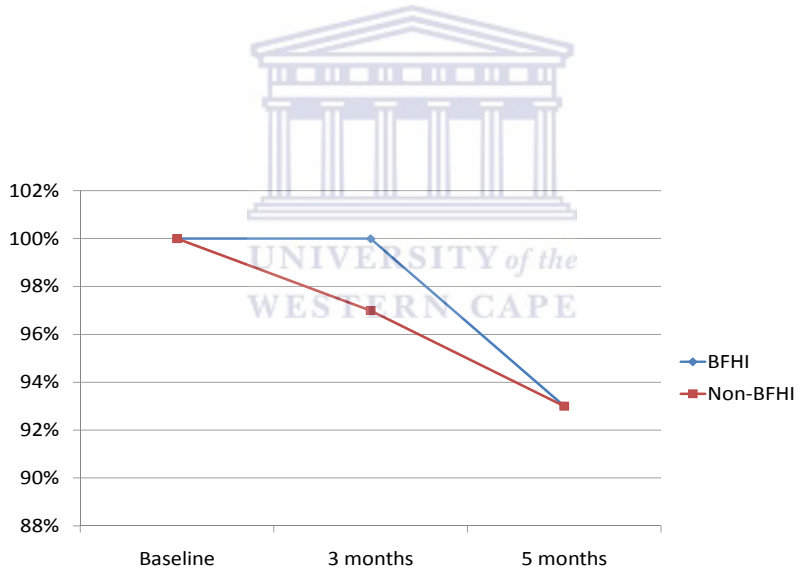

Figure 17: Demand feeding trend at baseline, 3 and 5 months

4.2.1 Influence of family and health workers on current infant feeding practices

Mothers who had given birth in the BFHI and non-BFHI accredited health facilities in Blantyre, Malawi, reported on influencers on infant feeding practices at 3 and 5 months period as summarized in Table 6.

Table 6: Influencers on current infant feeding practices

Descriptor	Category	Total (n=60)	BFHI facility (n=30)	Non BFHI facility (n=30)
Influencer to give something other than breast milk	Own decision	8 (13%)	5(17%)	3 (10%)
	Mother/mother in-law	29 (48%)	13(43%)	16 (53%)
	Health worker	7 (12%)	2 (7%)	5 (17%)
	Others	16 (27%)	10(33%)	6 (20%)
Source of help to breastfeed baby	Health worker	19 (32%)	10(33%)	9 (30%)
	Mother/mother-in law	31 (52%)	18(60%)	13 (43%)
	Others	10 (16%)	2 (7%)	8 (27%)

Forty three percent of mothers from the BFHI accredited health facility and 53% of mothers from the non-BFHI accredited health facilities reported that the decision to feed their babies something other than breast milk was mainly by advice from their mothers / mothers-in-law followed by advice from others (friends and sisters) (Table, 6 Figure, 18).

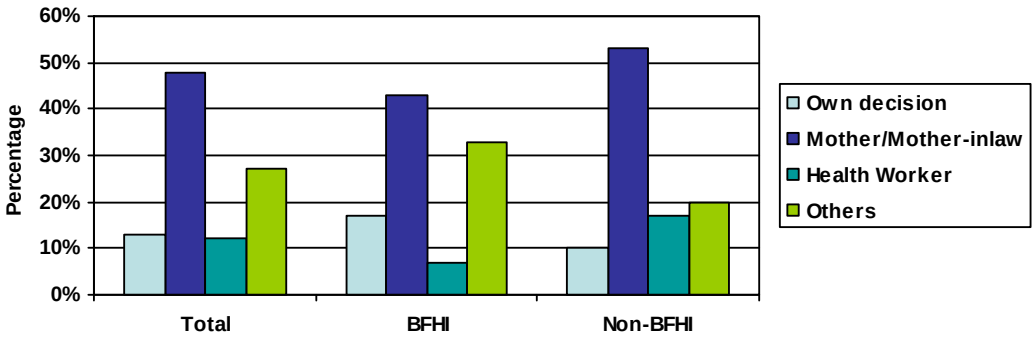

Figure 18: Proportionate distribution of source of advice to give baby other food

Most mothers also reported that they got help to breastfeed their babies from their mothers/mother in-laws (60% for the BFHI accredited health facility and 43% for the non-BFHI accredited health facility). The reason that most mothers cited for needing help was that they were not certain on how they were going to breastfeed, as this was the first child.

CHAPTER 5: DISCUSSION

The objective of the BFHI strategy is to increase breast feeding rates, improve the quality of health care and support for mothers to successfully breastfeed or replacement feed (if mother is HIV positive and meets the WHO AFASS (WHO,2006) criteria for replacement feeding) their babies exclusively for the first six months of life. This is done by promoting, supporting and protecting breastfeeding even in the context of HIV/AIDS through the implementation of the BFHI ten steps to successful breastfeeding. BFHI tools were revised in 2006 to accommodate HIV+ mothers. This chapter will discuss the findings of this study in comparison with other similar studies that are published in the literature.

5.1: Initiation of breast feeding

Global and national recommendations are that infants should be put to breast within one hour of a baby's birth unless medically indicated (WHO, 1998; Malawi Infant and Young Child Feeding Policy (IYCF), 2008). In this study the early initiation of breastfeeding (within 1 hour of birth) was similar (65%) in both the BFHI and non-BFHI accredited health facilities. The rates are also similar, albeit slightly lower, than 70% rates reported by the MDHS 2004.The early initiation rates in this study are probably reflective of the cultural norm in Malawi.. However, mobility of health workers between BFHI and non-BFHI accredited heath facilities may result in BFHI trained health workers contributing to the practices in non-BFHI accredited health facilities.

It is a limitation that this study did not review the training of health workers nor did it explore the reasons for the delay in initiation of breastfeeding, at the time of the study. More mothers in the non-BFHI accredited health facility (21%) delayed initiation of breastfeeding up to 2 or more hours of birth as compared to 2% in the BFHI accredited health facility. Results of other studies have found that early initiation of breastfeeding increased after the implementation of the BFHI strategy (Phillip et. al., 2001, Bartington et. al., 2006, Mclachlan, 2006).

There is a statistical significant difference in this study, in the time of initiation of breastfeeding in the BFHI and non-BFHI accredited health facilities. It is however not clear as to whether the BFHI infrastructure and training contributed to early initiation of earlier than two hours after birth in the BFHI accredited health facility and or whether it was mothers' choice or other factors that contributed to the delay of more than two hours in the non-BFHI accredited health facilities.

5.2: Prevalence of exclusive breastfeeding

Exclusive breastfeeding for the first 6 months of life is recommended for all infants unless medically indicated (WHO and UNICEF, 1998, Malawi IYCF policy, 2008) to ensure adequate nutrients for optimal growth. In the context of HIV/AIDS exclusivity of feeding (either breastfeeding or replacement feeding) is also

recommended as mixed feeding is associated with increased risks of mother to child transmission of the HIV (Malawi IYCF policy,2005).

Exclusive breastfeeding rates differed significantly within one week after birth (99% vs 68%) for the total sample although all but one of the mothers in the case-control component breastfed exclusively at baseline. At 3 months of age, exclusive breastfeeding rates had dropped to 63% vs 57% respectively and by 5 months dropped again to a significant difference of 30% vs 0% for the BFHI and non-BFHI accredited health facilities respectively. The significant exclusive breastfeeding rates within one week of birth and adherence till five months in the BFHI facility shows the positive impact of the implementation of the BFHI strategy .The figure at 5 months is, however, lower than those reported in the 2004 MDHS (53%) and Multiple Indicator Cluster Survey [MICS] 2006 (56%).

The exclusive breastfeeding rate was high in the BFHI accredited health facility within one week after delivery and dropped off at a rate of 31% by 3 months. The result shows that interventions that are done at one point such as the hospital maternity ward lack sustainability in maintaining high rates of exclusive breastfeeding. This is because mothers tend to believe that breast milk cannot provide sufficient nutrition to infants beyond the first couple of months (Obermeyer & Castle, 1996) and that infants need to be fed cereal or infant food by 3 months (Li, Fridinger, & Grummer-Strawn,2002). Strengthening of step 10 on

establishment of community support groups could possibly help obtain sustainable results. Continued community or home encouragement and support after discharge from the maternity ward would help maintain and sustain exclusive breastfeeding. In Malawi, exclusive breastfeeding rates have been increasing after the implementation of the BFHI strategy. Rates have increased from 3% in 1992 to 53% in 2004(MDHS, 2004) as shown in figure 19.

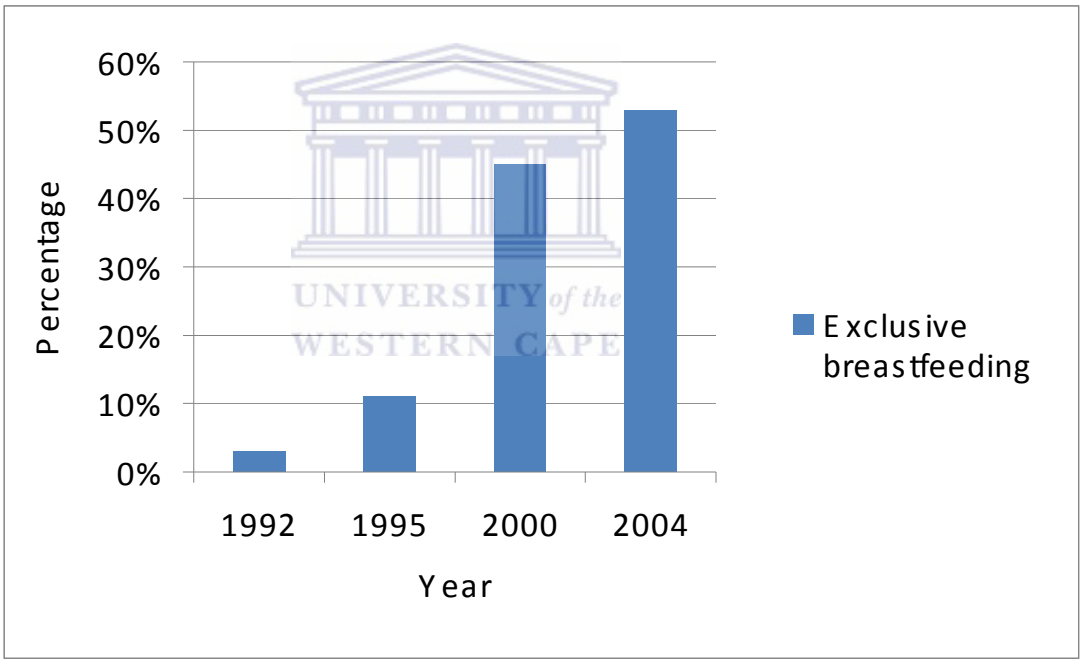

Figure 19: Trends in exclusive breastfeeding in Malawi (1992-2004)

During the first 3 months of this study, there were no major actions or national awareness campaigns on breastfeeding. The rates of exclusive breastfeeding in the

BFHI accredited health facility within one week, at 3 and 5 months respectively are therefore probably indicative of the BFHI related activities.

5.3: Prelacteal feeding.

Studies that were done in similar site countries reported that many mothers give prelacteal feeds (Okolo et. al., 1999, Shirima et. al., 2001, Bland et al, 2002) and discard colostrum (Victora et. al., 1987). In this study, prelacteal feeding was not common among mothers in either of the groups (2% for both the BFHI and non-BFHI accredited health facilities). The figure of 2% is lower than the figure which was reported in MDHS 2004 (5%). The prelacteal feeds reported were plain water and glucose water. It is, however, not clear as to whether BFHI led to the drop in the prelacteal feeding rates or other reasons contributed to this drop given that the rate for the practice was similar for both the BFHI and the non-BFHI accredited health facilities.

However, thirty two percent of mothers in the non-BFHI accredited health facilities gave water to their babies after milk production was optimal as compared to 1% in the BFHI accredited health facility. The result shows a strong attribute of the BFHI implementation, in the BFHI accredited health facility, of Step 6 of the Ten Steps to successful breastfeeding, namely; Give newborn infants no food or drink other than breast milk, unless medically indicated.

5.4: Timing of introduction of complementary foods.

Although most of the mothers thought that other foods and fluids should be introduced at 6 months, the practice among the mothers did not reflect this. The mothers seemed not to translate their knowledge into practice. The results from the case-control cohorts show that by 3 months, mothers had already introduced other foods and fluids in both facilities (37% for BFHI and 43% for the non-BFHI accredited health facilities). All mothers were however giving breast milk to their babies at 5 months. It should be noted that breastfeeding is a norm in Malawi. However most mothers practice mixed feeding in the context of HIV/AIDS.

Malawi falls within countries with high HIV prevalence of 12% among the reproductive age group of 15-49 year age as of 2005 (Ministry of Health report,2005). Most of the HIV positive mothers (90%) fail to meet the WHO AFASS criteria for feeding HIV exposed infants (Ministry of Health report, 2005). This means that optimal breastfeeding practices are crucial because mixed feeding has been shown to increase mother to child transmission of the HIV virus. It was estimated in 2007 that 89,055 children under the age of 15 living with HIV and AIDS were infected through mother to child transmission (National AIDS commission Report, 2007). Mixed feeding also deprives the baby of the nutritious breast milk which could eventually lead to malnutrition and diseases in infants.

Findings in other studies have demonstrated that successful implementation of the BFHI strategy is associated with an increase in optimal breastfeeding practices across all ethnic and socioeconomic groups (Philip et. al., 2001, Braun et. al., 2003 and Murray et. al., 2007). There is a need therefore to scale up the BFHI program in order to promote, support and protect optimal breast feeding practices.

5.5: Resources facilitation of breastfeeding baby and breastfeeding related knowledge.

Eighty two percent of mothers in the non-BFHI accredited health facilities and more than half of the mothers (57%) in the BFHI accredited health facility were advised to breastfeed by either their mothers or mother in-law when baby was born. Health workers were an insignificant source of information and help in breastfeeding. The remaining minority got advice from a health worker. It is not clear as to why mothers were not advised by health workers to breastfeed their babies. Possible reasons could be lack of knowledge and skills on counseling and how to support mothers to successfully breastfeed their babies and high work load of health workers which might have kept them away from the mothers.

Inaccurate and inconsistent assistance from health care staff are major obstacles to breastfeeding (Winikoff et. al., 1986; Garforth & Garcia 1989; and Rajan, 1993). Health workers, therefore, need to consistently and accurately assist mothers in order

for the mothers to optimally breastfeed their infants. The health workers need knowledge and skills in order for them to accurately and consistently assist mothers to successfully and optimally breastfeed their infants. This can be achieved through step number two of the ten steps to successful breastfeeding. The step requires training of at least 80% of health workers in skills and knowledge that are necessary in order for them to implement the BFHI strategy. Scaling up of the BFHI program is therefore a need in Malawi as it will help achieve this.

Other researchers have found that mothers find it difficult to avoid feeding their infants solid foods until 6 months of age if they are told by their family and friends to do so (Ruowei, 2005). Mothers also have a perception that a crying baby indicates hunger and therefore need to be introduced to complementary foods. Our study found that mothers and mothers in-law were the significant source of advice to feed babies additional foods to breast milk. This result confirms the need for a mechanism to be put in place to deliberately target mothers and mothers' in-law in the implementation of the BFHI strategy if exclusive breastfeeding is to be maintained beyond the hospital maternity ward in the first six months of life. Step number 10 of BFHI requires community support system. It is a basic requirement therefore that each health facility should have several mother support groups to provide cultural, social, emotional and technical support to mothers once they return home. Malawi has a good example in one of the BFHI accredited facility. It has "agogo" (grandmothers) support group.

Other studies have reported on the contribution of support to breastfeeding rates provided after hospital discharge. Burkhalter & Marin, 1991, Long et. al., 1995, and Alvarado et al, 1996 in their studies reported an increase in exclusive or partial breastfeeding up to six months after birth with breastfeeding support at home by health promoters and health professionals.

In a study in the United Kingdom, it was reported that high exclusive rates achieved by the implementation of the BFHI strategy are short lived and not sustained at home unless implemented in combination with post-natal home visits (Coutinho et. al., 2005). Similar results were also reported in Mexico by Morrow in 1996. He reported that mothers who received 6 home visits by trained lay counselors were significantly more likely to be exclusively breastfeeding at 3 months than those who received 3 home visits by the same lay counselors. Step 10 on community support should therefore be strengthened in the BFHI implementation if optimal breastfeeding rates are to be achieved and maintained.

Ninety eight percent of mothers from the BFHI and 92% from the non-BFHI accredited health facilities believe that mothers with HIV infection should not breastfeed their children. This is an indicator that they know that breastfeeding is a risk factor (though the risk may be exaggerated) of mother to child transmission of

HIV. The belief is, however, not translated into practice as most of the HIV positive mothers (90%) fail to meet the WHO AFASS criteria for replacement feeding for HIV exposed infants (Ministry of Health report, 2005). Emphasis in breastfeeding promotion should be put on the risk factors associated with mixed feeding and early introduction of other foods and fluids and especially for HIV+ mothers. Mixed feeding was common in this study though among women assumed to be HIV-..

5.6: Reasons for breastfeeding

In Malawi, women do not need to be motivated to choose to breastfeed their infants because breastfeeding is a norm. The reasons for breastfeeding vary among mothers. Mothers in this study did not know all the benefits of breastfeeding their infants as indicated in the results on the most important reason for breastfeeding. Most mothers (38%) indicated other reasons for breastfeeding other than nutrition, health and promotion of love.

Step 3 of the BFHI strategy says that "Mothers should be informed of the benefits and management of breastfeeding." Mothers in the BFHI accredited health facility significantly (p-value 0.0000) seem to have had the knowledge in lactation management as compared to those from the non-BFHI accredited health facility. More than half of the mothers (68%) in the BFHI facility reported that they breastfeed for health reasons as compared to 27% in the non-BFHI facilities. Health reasons for breastfeeding to a baby and mother are shown in table 7 below.

Table 7: Health benefits of breastfeeding to the baby and the mother.

THE BABY	THE MOTHER
Is a whole food for the baby, containing all the nutrients and water in the right amount and proportion for proper growth and development of the baby during the first six months of life.	.Exclusive breastfeeding helps the mother to reduce excessive bleeding after delivery hence helps to prevent anemia.
Protects the baby from various illnesses such as diarrhoea and acute respiratory infections (ARIs). Exclusively breastfed infants have less frequent and less severe episodes of infections than those given infant formulae	Putting the baby to the breast immediately after birth facilitates the expulsion of placenta because the baby's suckling stimulates uterine contractions.
Has colostrum which acts as a laxative that cleans the baby's stomach	Breastfeeding is more than 98% effective as a contraceptive method during the first six months provided that breastfeeding is exclusive and amenorrhea persists.
Is perfectly adapted to the infant's small stomach size because it is quickly and easily digested	It reduces risks of pre-menopausal breast and ovarian cancer.
Protects against allergies.	Early initiation of breastfeeding and feeding on demand prevents breast engorgement.
Contains antibodies that protect the baby's gut, preventing harmful substances to pass into the blood.	

Source: ENA (2008) BREASTFEEDING MODULE FOR MALAWI.

The majority of mothers also did not know the other benefits of breastfeeding such as nutritional value and bonding, hence they did not feel obliged to exclusively breastfeed. This could possibly be explained by finding out the content of the training that the health workers received and the focus of the talks on nutrition education and means of communication to mothers during antenatal clinics and

other contact points in the health facility after which the gaps identified should be addressed.

5.7: Beliefs of mothers on milk production

An interesting finding in this study is that most mothers believe that they had an increase in milk out-put after taking cassava (65%). (Cassava may confuse people due to its milky colour). As a starchy food, it may provide additional energy that is required for lactation process as breastfeeding uses an average of 500 calories a day (Dewy et, al., 1993). The recommendation in Malawi is that lactating mothers should eat two additional meals from the Malawi six food groups. It is also noted that breast milk production remains a function of frequent breastfeeding and adequate removal of breast milk to facilitate more milk production (King ,1992).

Programmatic ally, there is a need for either refresher or initial in-service trainings on BFHI strategy for health workers to increase the number of health workers to carry out infant and young child feeding counseling and support. The training should put emphasis on the quality and frequency of nutrition education and information that is given to mothers at any point of contact when they visit the health facilities to help deal with this problem. Other interventions that can be done in addition to the trainings are:

- Community mass education to increase knowledge among communities (through print & electronic media, intensive mass education using

- Community drama shows, billboards, television documentaries, traditional dances, posters, leaflets, village health shows and agriculture shows) to build wide community support for mothers to exclusively breastfeed their babies in the first 6 months of life and continued breastfeeding with appropriate complementary foods up to two years or beyond.
- Regular technical visits to health facilities, coordination and review meeting to share best practices and lessons leant and feedback to maintain health workers morale, commitment and compliance to the recommended optimal feeding practices
- Monitoring of the Code of Marketing Breast milk Substitutes. Malawi adopted the international and has the Malawi Code of marketing Infants and Young child foods under Public Health Act. It was gazetted in 2004.
- Putting up monitoring structures and tools at all level (National, district , facility and community levels)
- Forming and maintaining strong partnerships to facilitate reaching of clients other infant feeding interventions which are necessary for facilitating BFHI scale up.

Summary comparative results of some of the results with other studies are summarized in Table 8 in annex 1.

CHAPTER 6: CONCLUSION & RECOMMENDATIONS

Breastfeeding remains the cultural norm in Malawi. Optimal breastfeeding practices like initiation of breastfeeding within an hour of delivery and absence of prelacteal feeding were found to be common amongst both groups. The study also found that mothers in the BFHI accredited health facility maintained exclusively breastfeed in the first 5 months of life. These are positive findings .There was a significant difference between a BFHI and non-BFHI accredited health facilities (30% and 0% respectively). The significant difference in rates of exclusive breastfeeding at 5 months indicate the potential that the BFHI strategy has to successfully influence mothers to adhere to optimal breastfeeding practices.

However, in order for all other optimal breastfeeding practices to become universal, the BFHI strategy needs to be strengthened and scaled up to all facilities that provide maternity services. Other interventions that protect promote and support optimal breastfeeding practices such as Community Integrated management for Childhood illnesses (CIMCI), monitoring of the Code of Marketing Breast milk Substitutes and training of health workers in skills that are necessary in order for them to counsel and support mothers in adhering to optimal feeding practices should also be developed along side the BFHI strategy.

Breastfeeding should be contexturized as a child survival and development intervention that also prevents infants from contacting illnesses. The long term benefits of protecting, promoting and supporting breastfeeding cannot be overlooked The annual cost of treating American children under five years of age for otitis media was estimated at $5 billion per year. Investments in breastfeeding are therefore important for health care costs savings. Malawi profiles report estimated economic loss of US $207 million from 2006 to 2015 as a direct result of poor nutrition among children. Cost benefit analysis estimated economic gain of US $83 million over the same period if investments are made in improving child nutrition including interventions such as BFHI.

The evidence that is provided in literature on the benefits of breastfeeding for infants, mothers, families and the community motivates us to ensure optimal breastfeeding practices. One way of doing that is to promote and support scaling up to 100% of the BFHI in all health facilities that offer maternity services in the country. Where health workers (technical staff) are overburdened, involvement of support staff to provide education, counseling and follow up services could be done.

BFHI trainings are said to be expensive. Joint planning with partners that work with Ministry of Health such as WHO, UNICEF, other government Ministries such as Ministry of Women and Child Welfare and Community Services and other partners would help share the cost of the BFHI set up. Targeted approach to BFHI

implementation could also facilitate focused provision of financial and technical support for rapid transformation of health facilities to BFHI accredited status.

Special attention should also be made in ensuring adherence to exclusive breastfeeding from 3 to 5 months, as many mothers seem to introduce other foods and fluids during this time. Mothers believe that breast milk alone is not enough to provide all the necessary nutrition for the baby by this time. Information on physiology of breasting if provided to mothers would help remove the fear of breast milk being not enough in the first 6 months of a baby's life.

The infant feeding practices in this study were not interpreted against other factors that could influence infant feeding decisions such as social demographic characteristics of the mothers. This was done on advice from a statistician in view of few numbers of participants.

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APPENDIX A

Participant information sheet

March, 2008

Dear Participant

Thank you for your willingness to hear about this research. What follow is an explanation of the research project and an outline of your potential involvement. The research is being conducted for a mini-thesis. This is a requirement for the Masters in Nutrition Management which I'm completing at the University of the Western Cape. If there is anything you do not understand or are unclear about, please ask me. My contact details and those of my supervisor are recoded at the end of this memo.

TITLE OF RESEARCH

Study on infant feeding practices, knowledge and attitudes of mothers with 0-6 months babies attending BFHI and non-BFHI health facilities in Blantyre, Malawi.

PURPOSE OF THE STUDY

The purpose of the study is to assess the impact of the BFHI program in promoting appropriate infant feeding practices in children under six months. It is hoped that with your participation, the impact of BFHI intervention in shaping infant feeding practices among mothers will be identified and recommendations for effective health service practice will be developed for the promotion of appropriate infant feeding practices.

DECSRIPTION OF THE STUDY AND YOUR INVOLVEMENT

The study will include and in-depth face to face interview within one week of birth and follow-up interviews at 3 and 6 months within a smaller randomly selected group. Questions about current infant feeding practices, knowledge and attitudes on breastfeeding, benefits of breastfeeding and the introduction of other foods and fluids, source of antenatal and postnatal information, influence to give infant something other than breast milk, mothers main source of infant care support on the questionnaire will guide the interview that I have with you.

CONFIDENTIALITY

Your name will be kept confidential at all times. I shall keep all records of your participation, including a signed consent form which I will need from you should

you agree to participate in this research study, locked away at all times and will destroy them after the research report is completed.

VOLUNTARY PARTICIPATION AND WITHDRAW

Your participation in this research is entirely voluntary ie you do not have to participate. If you choose to participate, you may withdraw from the study at any time and there is no harm in doing that. You may also choose not to answer particular questions that are asked in the study. If there is something that you would not like to say, please feel free to say so.

BENEFITS AND COST

There is no direct benefit from this study. The information collected from your participation will however help come up with recommendations for effective health service practices in promotion of infant feeding practices.

INFORMED CONSENT

I will need your signed consent to participate in this research study. Please find the consent form for your signature before I proceed to interview you.
I will be happy to answer any questions that you may have on anything that you need to know.

JANET GUTA (Masters Student)
Cell phone number: 265 (0) 8 850 923
Telephone at work: 265 (0) 1 871 401
E-mail : janetnyachulu2000@yahoo.co.uk

I am accountable to Professor Rina Swart, my study leader at University of Western Cape. Her contact details are Cell: 27 (0) 834 82 4 113 or Tel: 27 (0) 21 959 2237 or by
E-mail: rswart@uwc.ac.za.

Or c/o The school of public health
Fax 27 (0) 21 959 2872

APPENDIX B

CONSENT FORM

Study on infant feeding practices, knowledge and attitudes of mothers with 0-6 months babies attending BFHI and non-BFHI health facilities in Blantyre, Malawi.

I understand the aim of the study is to explore the knowledge, attitude and infant feeding practices. I understand that the information gained in the study will assist the district health office to plan and develop effective health service practices in promoting optimal infant feeding practices.

Whatever information I provide will be strictly confidential.

My participation in this study is voluntary and I'm under no obligation to participate. I may ask questions during the discussion if I wish. If there is anything that I prefer not to discuss, I can say so. I am free to withdraw from the study any time during the research period if I do not want to continue participating in the study. This will not affect me in any way.

My signature says that I am willing to participate in this study.

Signature of the Interviewer

…… ……

Date…… **Date** ……

For the illiterate*: The content has been explained to me by the investigator/dedicated research assistant and additional explanation given to me in Chichewa which is my language.*

My signature/thumbprint says that I am willing to participate in the study.

Signature/thumbprint.…… *Date.……..*

Signature of person who explained the content in Chichewa ……

Date.……..
(This consent will be translated in Chichewa which is the most frequently used language by mothers in Blantyre district, Malawi)

APPENDIX C

Participant information sheet (Chichewa Version)

March, 2008

Zikomo Amayi

Zikomo kwambiri pokola kumva za kafukufukuyu. Pano ndifuna ndikulongosoleleni za kafukufukuyu ndi momwe mungatengerepo mbali. Kafukufukuyu ndi ndi gawo limodzi la maphunziro limene ndikuyenera kuchita pa maphunziro anga a ukachenjede wa kuona zakudya ndi kusamalila odwala matenda okhuzana nd zakudya ndi kadyedwe koyenera amene ndili pafupi kumaliza ku univesite yaku Western Cape. Mukhale omasuka kufunsa pamene simunamvetse. Mutha kundifunsa kapena kundipeza pa manambala amene ndawalemba pamapeto pa kalatayi. Mungathenso kuwafunsa aphunzitsi anga pa nambala zomwe ndalemba pamapeto pa kalatayi.

MUTU WA KAFUKUFUKU

Kufufuza za kadyetsedwe ka ana, mfundo ndi zikhululupiriro za amayi a ana ongobadwa kumene kufikira miyezi sikisi (6) omwe amapita kuchipatala chomwe chimalimbikitsa kuyamwitsa mwana mwakathithi ndi kusatira mfundo zolimbikitsa kuyamwitsa mwa kathithi komanso amene amapita kuchipatala chomwe sichimatsatila mfundo zoyamwitsa mwa kathithi mu zipatala za m'Blantyre, Malawi.

CHOLINGA CHA KAFUKUFUKU

Cholinga cha kafukufukuyu ndi kuona ngati ntchito yolimbikitsa kuyamwitsa mwakathithi zikuthandiza kulimbikitsa amayi kutsatira kadyetsedwe kamwana koyenera ka ana osapyola miyezi sikisi (6) yakubadwa. Ndili ndi chikhulupiliro kuti kutengapo mbali pa kafukufukuyu kuthandiza kupeza zoyenera zimene aumoyo angachite pofuna kutukula ndi kulimbikitsa kayamwitsidwe ndi kadyetsedwe koyenera ka ana ongobadwa kumene komanso osapyola miyezi sikisi(6).

NDONDOMEKO YA KAFUKUFUKUYU NDI KUKHUZIDWA KWANU

Kafukufukuyu adzayamba ndi mafunso amene adzafunsidwa kwa mayi pamene mwana wangobadwa ndi mayi wa mwana amene sanathe mulungu umodzi. Mafunso ena adzafunsidwa kwa mayi ochepa omwe adzasankhidwa mwana akakwanitsa miyezi itatu (3) komanso akkwanitsa miyezi sikisi(6). Mafunso omwe adzafunsidwe adzakhudzana ndi mfundo za kadyetsedwe ka mwana mfundo ndi zikhulupiriro za kuyamwitsa, ubwino wa kuyamwitsa, kuyipa komudyetsa zakudya zina popatula mkaka wa m'mawere mwana asanathe miyezi sikisi yakubadwa, komwe amamvera za kusikelo ya amayi komanso ya ana, amene ali ndi ulamuliro pa kadwetsedwe ka mwana ndinso amene amatengapo gawo lalikulu kuthandiza posamalira mwana. Izi zizalodzera mafunso amene nditakufunseni.

CHINSISI

Dzina lanu lidzasungidwa mwachinsisi nthawi zonse. Ndidzatsekera zomwe tidzakambirane zonse limodzi ndi kalata ya chilolezo yovomera kuchita nawo kafukufukuyu yomwe ndidzkufunsani kusaina posonyeza kuvomera kupanga nawo kafukufukuyu nthawi yonse ya kafukufukuyu. Pomaliza pa kafukufukuyu zonse zomwe takambiranazi ndi kulembedwa zizaotchedwa.

UFULU WOLOLA KUPANGA KAFUKUFUKUYU KAPENA KUSIYA

Muli ndi ufulu wolola kukhala m'modzi mwa anthu opanga nawo kafukufukuyu kapena ayi.Mukasankha kutenga nawo mbali pa kafukufukuyu muli ndi ufulu wosiya mutafuna kutero nthawi ina iliyonse ndipo palibe mlandu kapena chovuta china chili chonse mutatelo. Ngati simukufuna kuyankha funso lina lililonse lofunsidwa muthanso kutelo ndipo palibe chuvuta china chilichonse kapena choletsa.

CHOLOWA

Palibe cholowa china chili chonse chimene mudzapeze potengapo mbali pa kafukufukuyu. Zotsatira zomwe tidzapeze pa kafukufukuyu dzidzathandidza a zaumoyo kupeza njira zabwino za mowe angalimbikitsile kupititsira patsogolo nthcito yolimbikitsa kuyamwitsa mwa kathithi.

CHILOLEZO

Ndifuna chilolezo chanu chosonyeza kuvomera kwanu kutengapo mbali pa kafukufukuyu pondisainira pa kalata ya chilolezo chomwe chili kumbuyo kwa kalatayi. Ndikhala wokondwa kuyankha mafunso ena alionse omwe mungakhale nawo pazimene mungafune kudziwa.

JANET GUTA (Wophunzira)
Nambala ya tetefoni ya m'manja : 265 (0) 8 850 923
Telefoni yaku ntchito: 265 (0) 1 871 401
E-mail: janetnyachulu2000@yahoo.co.uk

Aphunzitsi anga ndi mai Rina Swart a ku Univesite ya Western Cape. Nambala yawo ya telefoni ya m'manja ndi 27 (0) 834 824 113 , yaku ntchito ndi 27 (0) 21 959 2237 kapena E- Mail: rswart@uwc.ac.za.

Or c/o The school of public Health
Fax 27 (0) 21 959 2872.

APPENDIX D

CONSENT FORM (Chichewa Version)

Kufufuza za kadyetsedwe ka ana, mfundo ndi zikhululupiriro za amayi a ana ongobadwa kumene kufikira miyezi sikisi (6) omwe amapita kuchipatala chomwe chimalimbikitsa kuyamwitsa mwana mwakathithi ndi kusatira mfundo zolimbikitsa kuyamwitsa mwa kathithi komanso amene amapita kuchipatala chomwe sichimatsatila mfundo zoyamwitsa mwa kathithi mu zipatala za m'Blantyre, Malawi.

Ndamvetsetsa kuti cholinga cha kafukufukuyu ndi kufufuza za kadyetsedwe ka ana, mfundo komanso zikhulupiliro za kadyetsedwe ka ana. Ndamvetsedwa kuti zotsatira zakafukufukuyu zidzathandiza a zaumoyo m'boma lino kukhazikitsa mfundo ndi ndondomeko zothandiza kutukula ndi kulumbikitsa kuyamwitsa mwakathithi.

Mfundo zonse zomwe nditanene zidzakhal za chinsisi.

Kutengapo gawo pa kafukufukuyu ndikufuna kwanga ndipo sindinakakamizidwe kutero..Nditha kufunsa mafunso ngati ndikofunika kutero. Ngati pali chomwe sindikufuna kuti tikambirane ndili ndi ufulu wonena. Ndili ndi ufulu wosiya kafukufukuyu nthawi ina iliyonse ndipo sipadzakhala mlandu wina uli wonse nditatero.

Siginecha yanga yikuimira chilolezo changa kutengapo mbali pakafukufukuyu.

Siginecha/chidindo cha chala changa **Siginecha ya ofunsa**

…….. ……

Tsiku…….
Tsiku…….

Kwa osawerenga :Ndafotokozeredwa za mkatimu ndi eni kafukufukuyu ndipo ndauzidwa mwachimvekere mu Chichewa chomwe ndi chilankhulo changa.

Siginecha /chidindo cha chala chang chikuimira chilolezo changa kutengapo mbali pakafukufuku

Siginecha/Chidindo cha chala changa…….. **Tsiku…….**

Siginecha ya ofotokoza mu Chichewa……Tsiku……

APPENDIX E

QUESTIONNAIRE FOR DATA COLLECTION(BASELINE)

Date of Interview

DD	MM	YY

Name of Health facility

Facility Code BFHI(1) Non BFHI (2)

Name of mother

Date of birth of mother

DD	MM	YY

1. What is your age?

What is your tribe or ethinic group?

1. Chewa	2. Tumbuka	3. Lomwe	4. Tonga	5. Yao	6. Sena	7. Nkhonde	8. Ngoni	9. Other (Specify)

2. What is the name of the baby?

Gender of the infant

Male	1
Female	2

Date of birth of infant

DD	MM	YY

Birth weight of infant

Grams from card		Grams from recall	

Type of birth

Caesar	1
SDV	2

Village where family lives: .....

Contact details : .....

.....

Contact details of two friends/relatives

One	Two

3. What level of formal education did you complete?

1. No formal education	2. Some Primary	3. Primary completed	4. Some secondary	5. Secondary completed	6. Tertiary

4. What is your employment status?

1. Unemployed	2. Housewife by choice	3. Self employed	4. Self employed professional	5. Other (specify)

5. What is the total household income per month (including wages, rent, grants, sales of vegetables etc ? (Circle one number only)

1. None	2. Less than K5000 (R250) per month	3. K5000 - K10000 (R500) per month	4. Above K10,000 (R500) per month	5. Don't know

6. What is your main source of drinking water?

1. Own tap	2. Communal tap	3. Open well in yard/plot or public	4. Water from Borehole	5. Water from River/Stream/Dam	6. Other (Specify)

7. Is the child being breastfed/receiving breast milk

Yes	1
No	2

8. How long after birth did you first put (name) to the breast?

Within 1 hour	1
Between 1 - 2 hours	2
After 2 hours	3

9. Before your milk begun flowing regularly, was (name) given anything to drink than Breastmilk

Yes	1
No	2

If answer is no, go to question 11

10. What was (name) given to drink before your milk begun flowing regularly

Milk other than breast milk	01	Fruit juice	06
Plain water	02	Infant formula	07
Sugar or glucose water	03	Tea/Infusions	08
Gripe Water	04	Other (Specify	09
Sugar - salt - water solution	05		

Anything else : .....

11. How many times did you breastfeed last night between sunset and sunrise?

Number of night feed

If the answer is not numeric, probe for approximate number.

12. How many times did you breastfeed yesterday during the day light hours

Number of daylight feed

If the answer is not numeric, probe for approximate number.

13. Did (name) drink anything from a bottle with a nipple

Yes = 1 No = 2 Don't know = 3

14. How many times did (name) eat solid, semi solid or soft foods other than breast milk

15. Did (name) drink water since yesterday

Yes	1
No	2

16. Has the child ever been breastfeed

Yes	1
No	2

17. When did you decide that you were going to breastfeed your baby?

Before you became			1

pregnant			
When you were pregnant			2
After the baby was born			3

18. What most influenced your decision?

Advice from family members	1
Advice from Health Workers	2
If it is the acceptable practice in the community	3
Read or heard the information from radio, newspapers, pamphlets	4
Other, please specify	5

19. If your decision was influenced by a family member, which family member influenced your decision the most?

Your mother	1
Your mother-In-Law	2
The baby's father	3
Other, please specify	4

20. When the baby was born, were you advised to breastfeed your baby right away

Yes	1
No	2
Do not remember	3

21. Did you feel like you needed help breastfeeding your baby for the first time
If answer is no go to question 23.

Yes	1
No	2

21 a. If Yes, what was the reason?

22. Was the help given to you? By who?

23. What do you like about breastfeeding

24. What do you dislike or find difficult about breastfeeding

25. Do you continue to breastfeed when your baby is sick?

Yes	1
No	2
Baby has not been sick	3

26. Do you offer anything else to your baby beside breastmilk when (name) is sick?

Yes	1
No	2
Baby has not been sick	3

27. What do you offer and why?

28. Until what age are you planning to breastfeed your baby?

…….. Weeks or …… months

29. Why will you stop at that point?

30. Has this age of stopping breastfeeding changed from when you had originally planned to stop breastfeeding

Yes = 1 No = 2

If Yes, why have you changed your mind?

31. Does anyone think you should stop breastfeeding?

Yes	1
No	2

If Yes, who is it and why do they think you should stop?

32. Do you think a child from birth to 6 months can grow and be health on?

	Yes	No
Breastmilk alone	1	2
Breastmilk and formular together	1	2
Formular alone	1	2

33. Are there mothers you know of who have given their babies only breastmilk for the first 6 months?

Yes	1
No	2

34. Are there any mothers who you think should NOT breastfeed their babies

Yes	1
No	2

If Yes, who are they, and why not?

35. Until what age do you think it is best for a baby to receive breastmilk

…… weeks or …….. Months

Not at all: ……

36. Do you give your baby anything else (including water and medicine bottles) to drink as well as breastmilk?

Yes	1

No	2

If Yes, what do you give the baby to drink?

37. Do you give your baby any other FOOD as well as breastmilk

Yes	1
No	2

38. Breastmilk mothers may take traditional herbs/drinks to help them make more milk. Do you take anything (herbs, food, drink) to help you make more breastmilk?

Yes	1
No	2

If Yes, what is it called, or how did you ask for it.

39. Who told you about it or advised you to take it?

40. Did you feel you made more breastmilk after taking it?

41. Is there anything else you want to tell us about breastfeeding in general, or about feeding your baby?

42. Have you experienced any of the following breastfeeding problems

Cracked/sore nipples	1	2
Engorgement/Mastitis	1	2

THANK YOU FOR HELPING US UNDERSTAND HOW MOTHERS ARE FEEDING THEIR BABIES

APPENDIX F

QUESTIONNAIRE FOR DATA COLLECTION(3 & 5 Months)

Date of Interview	
MM	YY

Name of Health facility

Facility Code BFHI(1) Non BFHI (2)

Name of mother

Date of birth of mother		DD	MM	YY

1. What is your age?

What is your tribe or ethinic group?

2. Tumbuka	3. Lomwe	4. Tonga	5. Yao	6. Sena

2. What is the name of the baby?

Gender of the infant		Male	1
	Female	2	

Date of birth of infant		DD	MM	YY

Birth weight of infant		Grams from card

Type of birth		Caesar	1
	SDV	2	

Village where family lives: …….

Contact details : ……

……

Contact details of two friends/relatives

One	Two

1. Is the child being breastfed/receiving breast milk

Yes	1
No	2

2. How many times did you breastfeed last night between sunset and sunrise?

Number of night feed	

If the answer is not numeric, probe for approximate number.

3. How many times did you breastfeed yesterday during the day light hours

Number of daylight feed	

If the answer is not numeric, probe for approximate number.

4. Did (name) drink anything from a bottle with a nipple

Yes = 1 No = 2 Don't know = 3

5. How many times did (name) eat solid, semi solid or soft foods other than breast milk

6. Did (name) drink water since yesterday

Yes	1
No	2

7. What most influenced your decision to give food or water?

Advice from family members	1
Advice from Health Workers	2
Advice from friends	3
Other, please specify	4

8. If your decision was influenced by a family member, which family member influenced your decision

the most?

Your mother	1
Your mother-In-Law	2
The baby's father	3
Other, please specify	4

9. Did you feel like you need/support help to breastfeed your baby
If answer is no go to question 12.

10. If Yes, why?

11. Is the help/support given to you? By who?

12. What do you like about breastfeeding

13. What do you dislike or find difficult about breastfeeding

14. Until what age are you planning to breastfeed your baby?

…….. Weeks or …… months

15. Why will you stop at that point?

16. Has this age of stopping breastfeeding changed from when you had originally planned to stop breastfeeding

Yes = 1 No = 2

If Yes, why have you changed your mind?

17. Do you give your baby anything else (including water and medicine bottles) to drink as well as Breast milk?

Yes	1
No	2

If Yes, what do you give the baby to drink?

18. Do you give your baby any other FOOD as well as breast milk

Yes
No

19. Is there anything else you want to tell us about breastfeeding in general, or about feeding your baby?

20. Have you experienced any of the following breastfeeding problems

Cracked/sore nipples	1	2
Engorgement/Mastitis	1	2

THANK YOU FOR HELPING US UNDERSTAND HOW MOTHERS ARE FEEDING THEIR BABIES

APPENDIX G

SR1

UNIVERSITY *of the* WESTERN CAPE

DEPARTMENT OF RESEARCH DEVELOPMENT

UWC RESEARCH PROJECT REGISTRATION AND ETHICS CLEARANCE APPLICATION FORM

This application will be considered by UWC Faculty Board Research and Ethics Committees, then by the UWC Senate Research Committee, which may also consult outsiders on ethics questions, or consult the UWC ethics subcommittees, before registration of the project and clearance of the ethics. No project should proceed before project registration and ethical clearance has been granted.

A. PARTICULARS OF INDIVIDUAL APPLICANT		
NAME: GUTA, Janet Naomi		TITLE: Mrs
DEPARTMENT: Dietetics		FACULTY: Community & Health Sciences
FIELD OF STUDY: Nutrition		
ARE YOU:		
A member of UWC academic staff?	Yes ☐	No ☐
A member of UWC support staff?	Yes ☐	No ☐
A registered UWC student?	Yes X	No ☐
From outside UWC, wishing to research at or with UWC?	Yes ☐	No ☐

B. PARTICULARS OF PROJECT

PROJECT NUMBER: TO BE ALLOCATED BY SENATE RESEARCH COMMITTEE:

EXPECTED COMPLETION DATE: November 2008

PROJECT TITLE:
Infant feeding practices, knowledge, attitudes and beliefs of mothers with 0-6 months babies attending BFHI and non-BFHI health facilities in Blantyre, Malawi.

THREE KEY WORDS DESCRIBING PROJECT:
Baby Friendly Hospital Initiative; Breast feeding; Exclusive breastfeeding

PURPOSE OF THE PROJECT: MSc Nutrition Management mini-thesis.

C. PARTICULARS REGARDING PARTICULAR RESEARCHERS

	FAMILY NAME:	INITIALS:	TITLE:
PRINCIPAL RESEARCHER:	Guta	JN	Mrs
OTHER RESEARCH PROJECT LEADERS:			
OTHER CO-RESEARCHERS:			
SUPERVISOR:	Swart	EC	Prof

C. GENERAL INFORMATION

STUDY LEAVE TO BE TAKEN DURING PROJECT (days): None

IS IT INTENDED THAT THE OUTCOME WILL BE SUBMITTED FOR PEER REVIEWED PUBLICATION?
YES X (International Journal) NO ☐

COMMENTS: DEPARTMENTAL CHAIRPERSON:

SIGNATURE OF THESIS STUDENT RESEARCHER – WHERE APPROPRIATE:

DATE

SIGNATURE OF THESIS SUPERVISOR – WHERE APPROPRIATE:

DATE

SIGNATURE OF PRINCIPAL RESEARCHER – WHERE APROPRIATE:

DATE:

SIGNATURE OF DEPARTMENTAL CHAIRPERSON:

DATE:

NOTE: THESE SIGNATURES IMPLY AN UNDERTAKING *BY THE RESEARCHERS*, TO CONDUCT THE RESEARCH ETHICALLY, AND AN UNDERTAKING BY THE THESIS SUPERVISOR (WHERE APPROPRIATE), AND THE DEPARTMENTAL CHAIRPERSON, TO MAINTAIN A RESPONSIBLE OVERSIGHT OVER THE ETHICAL CONDUCT OF THE RESEARCH.

E. DESCRIPTION OF PROJECT AND RESEARCH ETHICS STATEMENT

Please type below, or attach a typed document, usually between 500 and 5000 words, setting out the purpose and process of the research. Please include a clear research ethics statement. The onus is on the applicant to persuade UWC that the research will be conducted ethically. This will normally require evidence of an up to date research ethics literature search in the particular discipline; evidence of what the world standard ethical practice is, in the particular discipline; an explanation of how the proposed research is to be conducted ethically; a detailed justification of any proposed departure from world standard ethical practice; and a clear undertaking to conduct the research ethically. It may be useful also to agree to conduct the research in line with the published ethical rules of a national or international disciplinary association. UWC reserves the right to stop or suspend any research undertaken by its staff or students, or by outsiders on its property or in association with it, if the research appears to be unethical.

THE RESEARCH PROPOSAL IS ATTACHED

Form issued by: Professor Renfrew Christie, UWC Dean of Research, February 2002.
(959 2949; 959 2948 secretary, 959 3170 fax, email: rchristie@uwc.ac.za)

APPENDIX H

UNIVERSITY OF THE WESTERN CAPE

Faculty of Community and Health Sciences

RESEARCH PROPOSAL

Title: Infant feeding practices, knowledge, attitudes and beliefs of mothers with 0-6 months babies attending BFHI and non-BFHI health facilities in Blantyre, Malawi.

Student Name: Janet Naomi Guta

Student Number: 2655657

Type of Thesis: Mini-thesis

Degree: Masters in Nutrition Management

Department/School: School of Public Health, University of the Western

Cape/ Division Dietetics

Supervisor: Professor Rina Swart

Co Supervisor: Ms. Ernie Kunneke

Date: 9th March 2008

10 Keywords:
Baby Friendly Hospital Initiative
Breast feeding
Exclusive breastfeeding
Infant and young child
Feeding practices
Knowledge
Attitudes
Beliefs
Blantyre
Malawi.

ABSTRACT

The Malawi Ministry of Health promotes exclusive breastfeeding for the first six months of life and continued breastfeeding with appropriate complementary feeding up to two years or beyond. This policy applies to all children unless there are medical indications and is enacted mainly through the implementation of the Baby Friendly Hospital Initiative (BFHI). The Malawi Demographic and Health Survey of 2004 however reported that only 53% of babies are exclusively breastfed. This study aims to assess infant feeding knowledge, attitudes, practices and beliefs among mothers who access a Health Facility that is Baby friendly certified compared to women who access a health facility that is not Baby friendly certified.

Study design. A cohort study of women and their infants 0-6 months attending BFHI and non BFHI health facilities in Blantyre district of Malawi will be conducted.

Data Collection: An in-depth face to face interview using an open ended structured questionnaire will be conducted among 200 mothers of infants within the first week of birth. A convenient sample of hundred mothers will be selected from prima gravida mothers at a BFHI facility while the other 100 will be from one of the five non-BFHI facilities. This sample will be used for the descriptive component of the study. From the 200 mothers, 30 from the BFHI and 30 from the non-BFHI facility(s) will be selected randomly as the sample for follow-up on infant feeding practices at 3 and 6 months respectively.

Analysis of results: Data will be analyzed using an Epi Info public computer application for epidemiological analysis. Frequencies will be tallied for categorical variables and mean ± standard deviations will be computed for continuous variables.

1. INTRODUCTION

The Malawi Ministry of Health promotes exclusive breastfeeding for the first six months of life and continued breastfeeding with appropriate complementary feeding up to two years or beyond. This policy applies to all children unless there are medical indications and is enacted mainly through the implementation of the Baby Friendly Hospital Initiative (BFHI) and integration of infant and young child feeding interventions in other child survival and development programs. This is in line with the UNICEF and WHO global Strategy on infant and young child feeding (WHO, 2002).

BFHI was adopted in Malawi in 1991, after it was launched in 1989 by UNICEF and WHO in response to the declining breastfeeding rates especially among mothers who delivered in health facilities. The purpose of the global BFHI effort is to improve the role of maternity services to enable mothers to breastfeed babies for the best start in life. It aims at improving the care of pregnant women, mothers, and newborns at health facilities that provide maternity services and to strengthen practices that protect, promote, and support breastfeeding, and to remove practices that hinder the process. The foundation for the BFHI is the Ten Steps to Successful Breastfeeding (see definitions).

2. Problem statement

Breastfeeding is a traditional norm in Malawi (98% of women in Malawi breastfeed their children, (Malawi Demographic and Health Survey [MDHS], 2004), however,

exclusive breast feeding for the first 6 months which BFHI promotes and support is a big challenge as most mothers and other caregivers tend to introduce other fluids and foods before 6 months due to various physiological and cultural factors, inadequate care and a lack of support from the health care system (Cohen et al, 1994).

The MDHS, 2004, shows that only 53.3% of mothers exclusively breast-feed their babies for the first 6 months of life. This confirms that many mothers introduce other foods and fluids earlier than six months. This deprives the children of the important benefits of breast feeding.

3. Purpose of the study

The purpose of this study is to assess the impact of the BFHI program in promoting appropriate infant feeding practices in children under six months.

4. Literature review

Infant feeding practices in the context of BFHI

The World Health Organization recognizes the importance of promoting and supporting breastfeeding as the optimal feeding method used exclusively for at least 6 months and continued along with complementary feeding for no less than two years of life (WHO Global strategy for infant feeding, 2002). Most of the international community has followed these guidelines (National Health and Medical research Council, 2003; American Academy of Pediatrics, 2005). The current Malawi breastfeeding rates however fall short of these recommendations. According to the Malawi Demographic and Health Survey (MDHS) 2000, prolonged

breastfeeding is common but a long duration of exclusive breastfeeding is not. The Survey reported that more than half of all infants were continuing to breastfeed at 24 months, but the median duration of exclusive breastfeeding was just 2 months. Thirty-one percent of 2–3 month-old infants and 80 percent of infants aged 4–5 months were already consuming solid foods.

Early mixed feeding is of concern as it is one of the factors that is responsible for malnutrition, growth faltering and the high mortality rate in infants in developing countries (Davis & Adetugo, 1997). The MDHS, 2004 shows that only 53.3% of mothers exclusively breast-feed their babies for the first 6 months of life. This confirms that many mothers introduce other foods and fluids earlier than six months. This deprives the children of the important benefits of breast feeding. Benefits of exclusive breastfeeding up to six months duration have been studied all over the world and there are enormous amount of evidence to support this (WHO report, 2002). As reported, if a child does not adequately breastfed, it is more likely to become malnourished because the other foods and fluids that the child consumes may not provide it with all the necessary nutrients in the right amount and proportion to meet its body requirements. In addition, before the age of six months, the child may not be mature enough to digest the other foods and fluids adequately. Furthermore, if the child is not getting enough breast milk, it is not adequately protected from diseases. The child is more likely to fall sick often since the natural protection can not be provided by the other foods and fluids that the child is given. For example about 5% of all acute respiratory infections and 15% of all diarrhoea cases in children under-one year in Malawi are said to be due to sub-optimal

breastfeeding practices. In addition, early introduction of other foods and fluids may make the child sick due to poor food hygiene and sanitation. Sub-optimal breastfeeding is an important factor which significantly contributes to infant and young child mortality in Malawi. The infant mortality rate is 76 deaths per 1000 live births (MDHS, 2004). It is estimated that sub-optimal breast-feeding practices contribute to about 19% of these infant death (Malawi's 2006 profiles report)

Problems in practicing exclusive breastfeeding

Breastfeeding problems are said to begin at birth .As reported by Cohen et al. ,1994, Women may encounter difficulties in breastfeeding effectively, generally because they do not know enough about how breastfeeding work and because those around them do not know how to support it. He further say that the attitude of mothers, fathers, and other family members, health care providers, and traditional leaders all can affect whether and for how long a woman breastfeeds. He further say that women may not begin or may not continue breastfeeding for a number of reasons, including the belief that they do not have enough milk or that they need to start on supplementing because they need to go back to work.

Lack of arrangement in health facilities and mistaken beliefs among health workers and family members prevent mothers from establishing successful breastfeeding soon after birth (WHO, UNICEF and BASICS, 1999)

Consequences of poor feeding practices

Breast milk is safe, hygienic source of energy nutrients and fluids as it contains disease-fighting substances and vitamins that support the body's natural immune system. (UNICEF, WHO and BASIC, 1999) They say that other infant feeding products significantly increase deaths from diarrhoea and respiratory diseases. Infants who are not breastfed may develop lifelong difficulties such as chronic diseases, allergies and developmental delays (Victoria et al, 1987). The health risks from lack of exclusive breastfeeding are greatest in the first months of life in communities with high levels of diarrhoeal disease, poor environmental sanitation and hygiene, and inadequate water supplies. Currently in Malawi, diarrhoea diseases are said to be the number two cause of death in under five children. 74.2% of Malawian have access to improved drinking water sources and 88.2% use improved sanitation facilities.(Multiple Indicators and Cluster Survey[MICS],2006)

Studies have shown that compared to infants who are exclusively breastfed, infants given breast milk plus other liquids or food, including formula or no breast milk at all, are many times more likely to die from diarrhoea and acute respiratory diseases (ARI).

Victoria et al (1987) reported that the risk of dying due to diarrhoea is 1 for exclusively breastfed babies as compared to 2.5 risk for breastfeeding with supplement, 3.7 for breastfeeding with cow's milk and supplement, 5.7 for breast feeding with cow's supplement, 15.7 for cow's milk with supplement and 18.7 risk

for cow's milk. Arifeen et al (2001), in his study also concurs with Victoria et al. (1987) that non-exclusive breastfeeding can increase the risk of dying due to diarrhea and pneumonia among 0–5 month old infants by more than two-fold.

The estimated reduction of infant mortality by promoting exclusive breastfeeding has also been reported. Jones et al. (2003) reported in their study that there is an estimated 13% reduction in mortality by promoting exclusive breastfeeding. Data on exclusive breastfeeding up to sixth months is however scarce. A study conducted in Colombo in 2003 reported that none of the study subjects were practicing exclusive breastfeeding up to sixth months (Bunduseena, 2003).

Infant and young child feeding and HIV/AIDS

Exclusive breastfeeding is recommended for HIV-infected mothers who breastfeed because it protects against diarrhea and other infections (Ahmed et al, 1992; Brown et al, 1989). In addition, when compared with mixed feeding, exclusive breastfeeding was associated with reduced risk of HIV transmission in a study in South Africa (Coutsoudis et al, 1999) and with increased HIV-free survival in a study in Zimbabwe (Lliff et al, 2005). In the latter study, early mixed feeding was associated with a 4-fold increased risk of breastfeeding-associated HIV transmission at 6 months (Lliff et al, 2005) Several explanations for the increased risk of HIV transmission associated with early mixed feeding have been proposed, including increased gut inflammation and permeability to infection, higher viral load in breast

milk, and more frequent breast health problems among mothers who mixed feed, but the causal mechanisms have not yet been identified (Kourtis et al, 2003).

5. OPERATIONAL DEFINITIONS / DEFINITION OF KEY TERMS

5.1 Exclusive breastfeeding

Giving the infant breast milk as the only source of nutrition with no other fluid or solids except vitamin/minerals drops, and medicines (WHO, UNICEF & BASICS, 1999)

5.2 Mixed feeding: Giving the baby some other food like porridge or other milk apart from breast milk. This is also referred to as partial feeding (WHO/UNICEF, 2002)

5.3 BFHI: Baby Friendly Hospital Initiative

5.4 BFHI facility: A facility that practices the ten UNICEF/WHO recommended steps to successful breast feeding. The ten steps to successful breastfeeding are:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.

2. Train all health care staff in skills necessary to implement this policy.

3. Inform all pregnant women about the benefits and management of breastfeeding.

4. Help mothers initiate breastfeeding within a half-hour of birth.

5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.

6. Give newborn infants no food and drink other than breast milk, unless medically indicated.

7. Practise rooming-in. Allow mothers and infants to remain together - 24 hours a day.

8. Encourage breastfeeding on demand.

9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.

10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

5.5 Non BFHI facility: A facility where the BFHI program is not being implemented.

6. AIM

To assess infant feeding knowledge, attitudes, practices and beliefs among mothers who access a Health Facility that is Baby friendly certified compared to women who access a health facility that is not Baby friendly certified.

7. SPECIFIC OBJECTIVES

- To determine the current knowledge about infant feeding of mothers who gave birth at BFHI and non-BFHI health facilities.
- To determine the current attitudes about infant feeding of mothers who gave birth at BFHI and non-BFHI health facilities.
- To determine the current practices about infant feeding of mothers who gave birth at BFHI and non-BFHI health facilities.
- To determine the current beliefs about infant feeding of mothers who gave birth at BFHI and non-BFHI health facilities.

- To compare the knowledge, attitudes, practices and beliefs regarding infant feeding of mothers who gave birth at BFHI and non-BFHI health facilities.

8. METHODOLOGY

8.1 Study design

A cohort or follow up study of women and their infants 0-6 months attending BFHI and non BFHI health facilities in Blantyre district of Malawi will be conducted. The study method will provide the researcher with the best information as to whether the infant feeding knowledge, attitudes, practices and beliefs are shaped by the BFHI program or not in the two groups of study at the end of 6 months follow-up period.

8.2 Sampling

In this research, the study population is mothers and their infants from one semi-urban BFHI health facility and mothers and their infants from five (5) other semi-urban non-BFHI facilities. The BFHI facility has an average attendance rate of 120 mothers with 0-6 month old babies per month while the non-BFHI facilities have an average attendance of about 70 mothers with 0-6 months babies each. It is expected therefore that the potential number of respondents per facility will be sufficient to provide the intended sample for this study.

8.3 Sample

The baseline study will be conducted among 200 mothers of infants within the first week of birth. A hundred mothers will be selected (convenient sample) from prima gravida mothers attending the under five clinic at a BFHI facility and a 100 prima gravida mothers attending the five non-BFHI under five clinics - within a week after giving birth . This sample will be used for the descriptive component of the study. From the 200 mothers, 30 from the BFHI and 30 from the non-BFHI facility(s) will be selected randomly as the sample for follow-up on infant feeding practices at 3 and 6 months respectively. At the start of the study, as recommended by Katzenellenbogen, Joubert and Karim (1999) the sampled mothers will be asked to provide the names and addresses of some close friends and relatives through whom they could be traced to minimize loss to follow up.

Exclusion criteria for the sample will be:

- Mother younger than 18 years old or older than 30 years
- Twins or multiple births
- Mothers who have received any formal training in nutrition

To limit confounding characteristics like employment status and marriage system (Matrilineal or Patrilineal which are the two systems of marriage in Malawi and have an influence on feeding practices), the randomly selected sample will be paired for these characteristics.

8.4 Data collection

Data will be collected using a structured questionnaire that will be completed during an interview. All interviews will be conducted by the researcher and a trained research assistant. The areas that will be covered in the questionnaire will include knowledge, attitudes and beliefs regarding current infant feeding practices, knowledge on benefits of breastfeeding and source of antenatal and postnatal information, influence to give infant something other than breast milk, mothers' main source of infant care support, and availability of resources that could influence infant feeding practices.

The researcher will collect data from the non- BFHI facilities while the research assistant will collect data from the BFHI facility. This arrangement will be done to minimize bias as the researcher coordinates the BFHI program and provide training-of-trainers and supportive supervision at the BFHI facility. Mothers might therefore recognize her and provide answers which they might expect she wants to hear. The research assistant will be someone who has never received any formal training in BFHI. Training for data collection will include a comprehensive discussion of the research objectives, selection of study participants, and administration of the questionnaire with an emphasis on probing and research implementation plan.

Respondents for the baseline (descriptive component of this study) will be selected and interviewed as they wait to be seen by a health worker at the under five clinic as well as those that have just delivered in the post natal wards before they are discharged from the facility. Interviews will be done in arranged consultation rooms

or any other secluded area away from the other mothers or health workers. On average, the interview will take 20-30 minutes. Open ended questions informed by literature on the topic will be used to collect data during which probing will be done to get clarity and further explanation on the knowledge, attitudes and practices in infant feeding. Notes will be taken by the researcher and the research assistant respectively.

8.5 Reliability and data validity

Reliability will be ensured by training the research assistant, pilot testing the questionnaire, providing the research assistant with clear instructions, posing the question clearly and unambiguously in the local language (Chichewa), cross-checking some of the reported information in the infants' child health passport and by ensuring that numerous items in the questionnaire are measuring the same item/idea. The researcher is an infant feeding/BFHI trainer and therefore an expert in the field. She will therefore ensure data appropriateness and coverage especially in terms of content.

8.6 Data analysis

Data analysis has been defined by Marshall & Rossman (1995) as a procedure of categorizing, structuring and putting meaning to the mass of collected data. For this study all data generated by this study will be analyzed using an Epi Info public computer application for epidemiological analysis. Frequencies will be tallied for categorical variables and mean standard deviations will be computed for continuous variables.

To determine the differences between BFHI and non-BFHI facility groups for all relevant variables, Chi-square with health facility type as classification variable will be computed for categorical variables and the independent samples t-test for continuous variables.

9. Limitations

The following limitations are noted:

The sample will be collected from one district and will not necessarily reflect the knowledge, attitudes and infant feeding practices of mothers in other districts. The results will therefore not be generalized for Malawi.

10. Ethical consideration

Approval will be sought from the Higher Degrees Committee of the University of the Western Cape before commencing the study. The purpose and process of the study will be explained to all possible study participants where after their participation will be requested assuring them of confidentiality (See Appendix A: Information sheet). The researcher will inform the respondents about the study and provide them with necessary details and ask them if they are willing to participate in the research process. Written consent will be obtained from possible participants/candidates/mothers that are willing to participate. (See Appendix B: Informed consent).All participants will be assured of their right to participate or decline or indeed withdraw from the study at any time should they feel uncomfortable. Participants will be assured of anonymity and confidentiality of their

participation in the study at all times. Given the nature of the research, it is most unlikely that the respondents will perceive the research as threatening. It is anticipated that the research will cause no harm to the respondents. However, a member from the infant feeding community support group will be on hand at any stage incase any respondent becomes upset during the research process.

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