FACTORS INFLUENCING EXCLUSIVE BREASTFEEDING FOR SIX MONTHS AMONG MOTHERS WITH INFANTS AGED 6-12 MONTHS IN LUSHOTO DISTRICT, TANGA REGION, TANZANIA

By

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A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Public Health of Muhimbili University of Health and Allied Sciences

Muhimbili University of Health and Allied Sciences

October, 2010

CERTIFICATION

The undersigned certifies that she has read and hereby recommends for acceptance by the Muhimbili University of Health and Allied Sciences. a dissertation entitled: ***Factors influencing Exclusive Breastfeeding for Six Months, Among Mothers with Infants Aged 6-12 Months in Lushoto District, Tanga Region,*** in Partial Fulfillment of the Requirements for the Degree of Masters of Public Health.

.....Leshabari.....

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Date:.....18th November 2010.....

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DEDICATION

To my Husband Y. Katundu

My dear children Nandi and Bea

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ABSTRACT

In Tanzania, infant feeding is faced with several sub-optimal breastfeeding practices with low rate of exclusive breastfeeding for six months. These contribute to various healthy related problems with increase in infant's morbidity and mortality.

The main goal of this study was to assess factors influencing exclusive breastfeeding during the first six months of infant's life, among women with infants aged 6-12 months in Lushoto district.

Descriptive cross-sectional study design was used. Data was collected at single point in a time. The participants were selected using multistage sampling technique. Data was collected through household visit using questionnaire with both closed and open ended questions. Data was analyzed using statistical package for social sciences (SPSS).

The results show that all 284(100%) women have ever breastfed their infants with high rate 214(75%) of breastfeeding initiation. However, the rate of exclusive breastfeeding for six months remained low 57(20.1%). Maternal age 20-29 years (OR=9.16; 95% CI: 1.6 - 51.5), age more than 30 years (OR= 9.80; 95% CI: 1.6 - 58.9), house wife's (OR= 9.80; 95% CI: 1.6 - 58.9), and health workers as source information (OR=10.4; 95% CI: 1.57 - 69.5) and un skilled delivery attendants (OR=0.49; 95% CI 0.25 – 0.98) were the main predictors of exclusive breastfeeding for six months. Place of delivery, mass media as source of information was significantly associated with exclusive breastfeeding, however they didn't predict likely hood of exclusive breastfeeding for first six months. Mother's education level, parity, knowledge level and attitude were not significantly associated with exclusive breastfeeding for six months.

It is therefore recommended that, main focus should be placed on appropriate and adequate health education, support and encouragement to mothers aged 20-29 and above 30 years. Lactating mothers should be given the recommended two hours daily for breastfeeding during the first six months. Also they should be sensitized, encouraged, motivated, and supported to attend RCHs clinics for getting appropriate and adequate exclusive breastfeeding information together with skilled and practical help from skilled health care workers.

LIST OF ABBREVIATIONS

AIDS	Acquired immune Deficiency Syndrome
BF	Breastfeeding
BFHI	Baby Friendly Hospital Initiative
EBF	Exclusive Breastfeeding
CI	Confidence Interval
HIV	Human Immune Deficiency Virus
IYCN	Infant and Young Child Nutrition
MDGs	Millennium Development Goals
MOHSW	Ministry of Health and Social Welfare
RCHs	Reproductive and Child Health services
TDHS	Tanzania Demographic Health Survey
TFCN	Tanzania Food and Nutrition Centre
UNICEF	United Nation Children Fund
WHO	World Health Organization

OPERATIONAL DEFINITIONS OF TERMS

Exclusive breastfeeding: Feeding of an infant's with only breast milk, without additional of any liquid or solid food, except for vitamins, minerals and medicines.

Early initiation: Is the initiation of breastfeeding to an infant's within the first hours after delivery.

Prelacteal feeding: It means administration of any type of food or drinks to an infant before the first breastfeed.

Supplementation: Giving an infant's other type of food/ drinks than breast milk before the infant reaches age of six months.

Weaning: Is the process of introduction of other type of food/fluid to an infant's and reducing supply of breast milk.

CHAPTER ONE

1.0 INTRODUCTION

1.1. Background

For hundreds of thousand years human like other mammals fed their infant with milk. Breastfeeding (BF) is the feeding of an infant or young child with breast milk directly from female human breasts (via lactation) rather than from a baby bottle or other container. Human breast milk is the healthiest form of milk for human babies (Picciano, 2001). Breastfeeding is an acceptable way of providing ideal food for the healthy growth and development of infants. It is also an integral part of the reproductive process with important implications for the health of mothers. Breastfeeding promotes health, helps to prevent diseases and reduces health care and feeding costs (Riordan, 1997). Moreover, it promotes sensory and cognitive development, and protects the infant against infectious and chronic diseases (Kramer et al, 2001). Breast milk is the natural first food for babies, it provides all the energy and nutrients that the infant needs for the first six months of life, and it continues to provide up to half or more of a child's nutritional needs during the second half of the first year, and up to one-third during the second year of life (WHO, 2002).

Artificial feeding is associated with more deaths from diarrhea in infants for both developing and developed countries (Coutsoudis, 2001). According to World Health Organization, it is estimated that 1.5 million babies die each year because they are not breastfed (WHO, 2002).

Exclusive breastfeeding refers to the practice of feeding only breast milk (including expressed breast milk) and allows a baby to receive vitamins, minerals or medicine. Water, breast milk substitutes, other liquids and solid foods are excluded (WHO, 2004). This means the exclusive intake of breast milk by an infant from its mother or wet nurse, or expressed milk with no addition of any liquid or solids that means no water, no juice, no non- human milk, and no foods apart from drops or syrups consisting of vitamins, mineral supplements or medicine, and nothing else (WHO, 2004; Coutsoudis et al., 2001). It is one of the cardinal components of the Baby Friendly Hospital Initiative (BFHI) aimed at protecting, promoting and supporting breastfeeding for optimal maternal and child health, and is part of the 1990s Innocents Declaration which states that all governments should create an environment enabling women to practice exclusive breastfeeding for the first 6 months of life and to continue breastfeeding with adequate complementary foods for up to 2 years or more (Picciano,2001; Riordan, 1997).

The World Health Organization (WHO) and United Nation Children Fund (UNICEF) guidelines recommend that, all infants should be breastfed exclusively for the first six months of their life. Introduction of breast milk substitute to infant below six month can contribute to breast feeding failure and may predispose infant to illness (WHO, 2002). Breastfeeding may continue with the addition of appropriate foods, up to 24 months (two years) or beyond (MOH, 2004). Early initiation of breastfeeding is very important as it allows infant to feed colostrums and increase early production and secretion of breast milk. Although there is high rate of early initiation of breastfeeding worldwide, the practice of exclusive breastfeeding for six months is not widely practiced as many infants are given pre-

lacteal feeds such as water, breast milk substitutes or other drinks early in their life (WHO, 2004). Exclusive breastfeeding for six months has many benefits to both baby and mother. It has dramatically reduced infant mortality due to common childhood illnesses such as diarrhoea or pneumonia, in developing countries and helps for a quicker recovery during illness (Kramer et al, 2001). Some of the study has indicated that exclusive breastfeeding for the first six months could reduce infant mortality rate by 13% and has also shown to reduce HIV transmission from mother to child, compared to mixed feeding (Baker, 2003; Agostoni, 2003; Haschke, 2003, Jones et al., 2003)

Despite the advantages of exclusive breastfeeding, more than three hundred million babies are given artificial feeding within one or two days of their life and some infants die because of not being breastfed. Poor breastfeeding and complementary feeding practices in infancy and childhood is associated with high rate of infection and are the main causes of malnutrition during the first two years of life (Picciano, 2001).

Each year, more than 10 million children under the age of five years die mainly from poor breastfeed and malnutrition and majority of them live in low-income countries (Picciano, 2001). Millennium Development Goals (MDGs) number four aims to reduce mortality rate of children under five years of age by two thirds by the year 2015 (Riordan, 1997), the focus is mainly in Sub-Saharan Africa, where almost half of all deaths occur and in some countries the mortality rate has even increased. Malnutrition plays significant role where it is estimated to

directly or indirectly contribute to 60% of 10.9 million deaths occurring annually among under-five years of age (WHO/UNICEF, 2003).

Promotion of exclusive breastfeeding is the most cost effective child health intervention currently feasible for implementation in low-income countries (WHO, 2002). Therefore, appropriate infant feeding practices have fundamental importance for the survival, growth, development, health and nutrition status of infants and young children.

In Tanzania, infant feeding is dominated by sub-optimal breastfeeding. Tanzania Demographic and Health Survey of 2004/2005, shows that 97.6% of children in mainland Tanzania were breastfed. Children who were breastfed for the first time within one hour were 59.3%, while the median duration of breastfeeding was 21.1% months. However, exclusive breastfeeding at 4-5 months was only 13.5 % (TDHS 2004, 2005). More results show that rate of exclusive breastfeeding in Sub -Saharan Africa and East African countries are 30% and 41% respectively (UNICEF, 2006). This percentage indicates that exclusive breastfeeding is practiced at a very low level in Tanzania and many other developing countries.

Many efforts have been done in improving infant feeding practices, including implementing a National Program in Infant and Young Child Nutrition (IYCN) since 1990s.Usually coordinated by Tanzania food and nutrition centre (TFNC) under the Ministry of health and social welfare (MOHSW) in collaboration with other development partners. The main objective for implementing this program is to empower breastfeeding mothers to breastfed their infants exclusively for first six months, then proper complementation after six months with continuation of breastfeeding for two years or more.

Despite universal practice of breastfeeding in Tanzania, most women do not practice exclusive breastfeeding for the recommended first six months of an infant's life; hence, increased infant mortality and morbidity in the country. That is why this study aimed at assessing factors that influence exclusive breastfeeding for the first six months of infant's life in Lushoto District.

1.2 Problem statement

The health and nutrition status of infants and children below five years of age is largely influenced by their feeding practices. Inappropriate infant and young children feeding practices are reflected by high level of malnutrition and increased morbidity and mortality. The growing evidence shows that exclusive breastfeeding for six months can significantly reduce child morbidity and mortality rate particularly during the first year of an infant's life (WHO/UNICEF, 2003). WHO/UNICEF recommends that an infant should exclusively breastfeed for the period of first six months then complemented by other type of appropriate food while still breastfeeding up to twenty four months or more. Introduction of any type of breast milk substitutes to infant before six months can contribute to breastfeeding failure and increases contamination hence high chances of morbidity and mortality during early life (Riordan, 1997).

Despite national and international recommendation, infant feeding is faced with a lot of inappropriate or sub-optimal breastfeeding practices with low rate of exclusive breastfeeding for six months. The available data on breastfeeding practices in Tanzania reveals that, rate of breastfeeding is 97.6% and the median duration of breastfeeding is 21 months, however, the rate of exclusive breastfeeding practices for six months is only 41% (TDHS, 2004-2005).

There is limited information documented on the factors that contribute to this low rate of exclusive breastfeeding for six months among breastfeeding women. Therefore, more studies are needed to investigate factors that influencing exclusive breastfeeding practices. Hence, this study aims to contribute to this knowledge-gap by investigating factors influencing exclusive breastfeeding for six months in Lushoto district.

1.3 Significance of the study

The findings from this study will help to inform planners and policy makers on designing effective interventions regarding optimal infant feeding practices. Moreover, results from this study will reduce the knowledge gap on the factors affecting exclusive breastfeeding for six months in Tanzania and more specific to the study area.

1.4 Objectives of the Study

1.4.1 General objective

To assess factors influencing exclusive breastfeeding for the first six months, among women with infant aged 6-12 months in Lushoto, Tanzania.

1.4.2 Specific objectives

1. To determine proportion of women who exclusively breastfed their infants for the first six months of their life.
2. To identify factors that is associated with exclusive breastfeeding during first six months of infants.
3. To explore barriers for exclusive breastfeeding during first six months of infant's life.

1.5 Research questions

Question 1: What is the proportion of women who breastfed exclusively their infants for first six months of their life?

Question 2: What are the factors that are associated with exclusive breastfeeding during first six months of infant's life?

Question 3: What are the barriers to exclusive breastfeeding during first six months of infant's life?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Breastfeeding and Exclusive Breastfeeding Situation

Breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants; it is also an integral part of the reproductive process with important implications for the health of mothers. Exclusive breastfeeding means that an infant receives only breast milk with no additional foods or liquids, not even water. Exclusive breastfeeding is recommended as the best feeding alternative for infants up to six months and has a protective effect against infant's mortality and morbidity (Engebretsen, 2007). Exclusive breastfeeding during first six months of infant's life gives multiple benefits to the infant and mother (Aidam et al, 2005), and has widely became a public health priority. Moreover exclusive breastfeeding for six months lower HIV transmission compared to mixed feeding. Therefore, exclusive breastfeeding for six months is recommended regardless of the mothers HIV status unless replacement feeding with breast milk is affordable, feasible, available, safe and sustainable (AFASS) (WHO, 2008).

Despite the breastfeeding being acknowledged as common practice of feeding an infant worldwide, infant feeding is faced with a lot of malpractice with rate of exclusive breastfeeding remaining low. Data from WHO, (2003) revealed that only 39% of infant are exclusively breasted world widely. Other studies on infant feeding practices revealed that 98% of the infant born in Africa, 96% of those born in Asia, and 90% of those born in South America are breastfed as a traditional norm (WHO, 2001). However even in countries where the infants are traditionally breast-fed over a long period the prevalence of exclusive

breastfeeding is still low. The study in Peru, Kenya and the Philippines, shows that supplementary fluids are given already in few weeks of life (WHO, 1991). In Peru for example, it was shown that although 99% of infant were breast-fed in the first months of life, 83% of them received water or tea in addition to breast milk (WHO, 1991).

Larger disparity in breastfeeding practice was also observed among regions, countries and population groups. In Africa for example, it shows that nearly all of 21 million infant are breastfed for a usual duration of 20 months for rural and urban elite and the supplementary begins between 3-6 months (World Health Statistics Quarterly Report, 1982). Other results from study done in Nigeria commented that, only 20% of mothers practice exclusive breastfeeding to their infant up to six months (Salami, 2006). Similarly, study done in Ghana revealed that, among 99.7% of mothers who practiced breastfeeding, only half (51.6%) of them exclusively breastfeed their infants (Aidam et al, 2005). Another study conducted at Uganda show that breastfeeding was practiced by 99% of the mother (Engebretsen, 2007).

In Tanzania, breastfeeding is socially and culturally accepted as a best way of feeding an infant for the first two years of life. Further review on infant feeding practices in different parts of Tanzania, also discovered low rate of exclusive breastfeeding for the first six months of infant's life. Study conducted in Ilala district, Dar es Salaam commented that only 9% of breastfeeding women were exclusively breastfeeding their infant (Kulwa et, al, 2006). This rate of exclusive breastfeeding is however very low compared to national prevalence (41%) probably due to small sample size used in this study (100 participants). Moreover studies done in Morogoro and Kilimanjaro regions showed that exclusive breastfeeding is un-common

practice among breastfeeding women (Shirima et al, 2001; de Paoli et al, 2001) as many infants were given prelacteal feeds before 6 months of age.

2.2 Factors affecting exclusive breastfeeding practices

Many studies have been done on infant feeding practices and various factors have been found to be associated with exclusive breastfeeding (Chudasama et al; 2009, SAJCH, 2009). In order mothers to breastfeed exclusively for the recommended period of first six months there is a need to have well understood on factors that has influence on exclusive breastfeeding at particular period (Aidam et al, 2005, Kimberly et al, 2007). Various factors have been found to have influence on breastfeeding initiation, duration and exclusive breastfeeding (Perez et al, 1996; Martin et al, 2002; Shirima et al, 2005; Aidam et al, 2005; Chudasama et al, 2009). The above factors affecting breastfeeding and exclusive breastfeeding rates in different directions and to varying degrees depending on the culture of particular area (Aidam et al, 2005; SAJCH, 2009) and may impact positively or negatively on the ability and willingness of women to practice exclusive breastfeeding. Some of these factors have an influence on breastfeeding pattern and duration (Mujgan et al, 2001; Mahgoub et al, 2002), hence, causing effect on exclusive breastfeeding during the first six months of infants' life. Although many factors have been identified to have influence on exclusive breastfeeding, but it has been shown that these factors differ across the country even in the same country. Furthermore factors may differ from one community to another due to various reasons thus make it difficult to take a broad view for the population with different characteristics.

2.2.1 Social dermographic and Economic factors on exclusive breastfeeding practices

The attainment of optimal duration of exclusive breastfeeding is influenced by maternal factors, thus examination of basic maternal social- demographic and economic factor on exclusive breastfeeding is of vital importance (Aidam et al, 2005). Study done in India showed that socio-demographic variables like maternal education, paternal education & socioeconomic status have influence in mother's decision on exclusive breastfeeding (Aidam at el, 2005, Chudasama, 2009). Similarly, results from a study conducted in Nigeria revealed that maternal education below secondary level has effect on exclusive breast feeding has strongly contributed to pre-lacteal feeding (Ogunlesi, 2009). The same result obtained from a community study conducted in Turkey, showed that mothers with higher level of education were more likely to exclusive breastfed than those with middle level of education (Zekiye, 2006). Other studies indicate that duration of exclusive breastfeeding increases as the age of mother increases (Della et, al, 2006) thus women with older age were more experienced in exclusive breastfeeding compared to younger age. Another study conducted in Latina women U.S.A indicated that maternal age and type/mode of delivery has influence on exclusive breastfeeding (Kimberly et al, 2007) as younger age women, remained considerable determinants of exclusive breastfeeding. Marital status also is essential features to consider as has influence on exclusive breastfeeding (Aidam at el, 2005). Study conducted in Uganda on low adherence to exclusive breastfeeding, showed that high education and formal marriage were protective factors against prelacteal feeding (Aidam at el, 2005). Moreover, a study conducted in Ghana showed that house ownership has influence on exclusive breastfeeding,

as women living in their own houses were more likely to exclusively breastfed their children than those living in rented accommodations and family houses (Aidam et al, 2005)

Furthermore, a study conducted in Sirlanka stated that lower levels of parental education and being an unemployed mother were important determinants of early cessation of exclusive breastfeeding (Agampodi et al, 2007). While results from a study done in Botswana showed that the main reason for stopping breastfeeding was that of the mother being at work or at school (Mahgoub et al, 2002).

2.2.2 Cultural influence and support of mother on exclusive breastfeeding practices

Many studies show different results on cultural effect and support of mother on exclusive breastfeeding practices (Shirima et al, 2005). These indicate that different communities have different cultural practices and norms that influence exclusive breastfeeding. WHO and UNICEF recommend that breastfeeding should be initiated soon after delivery and should be within 1hour after delivery. The use of prelacteal food is very common practices (WHO, 2001) some infants are given water, sugar solution or other types of fluids soon or few days after delivery hence affecting exclusive breastfeeding.

Studies done in Tanzania have revealed that the use of prelacteal feeds was the common norm in both rural and urban communities (Shirima et, al, 2001; de Paoli et al, 2001; Agnarsson, 2001). Reasons behind this practice were excessive crying of a baby, mother belief that she has no enough milk production. According to (WHO, 1996) giving prelacteal feeds or supplements increases the risk of infection and reduce frequency of breastfeeding particularly exclusive breastfeeding. Some societies discard colostrums for their own different grounds.

The same studies explained that mother particularly in rural area discarded some of the colostrums, as they thought it might harm the baby (Shirima et al, 2001; Leshabari et al 2007). Similarly, study conducted in Uganda on infant feeding practices revealed that 57% of the infants were given pre-lacteal feeds within the first three days and commonly they used water based fluid (Engebretsen et, al, 2007). Another study conducted in Cameroon revealed that social - cultural factors had influence on locating mother decision to mix-feed their babies (Kakute et, al, 2005). In contrary, a study conducted in Ghana showed that pre and postnatal support and friends and relatives support had no influence on exclusive breastfeeding (Aidam et al, 2005), although a study conducted in Tanzania concluded to be significant (Leshabari et al, 2007).

2.2.3 Information, knowledge of mother on exclusive breastfeeding practices

Although breastfeeding is a natural act, it is also a learned behavior. For a mother to breastfeed exclusively for the first six months and again continue to breastfeed for two years and above, they need to be provided with relevant knowledge and information on exclusive breastfeeding (MOH, 2004). Inadequate knowledge and information on importance and optimal duration of exclusive breastfeeding may contribute to early cessation of exclusive breastfeeding (Bovell et al, 2001). The promotion of breastfeeding requires health professionals' to provide educational and practical information to the expected mother. Information and health worker's recommendations are highly valued by most of mothers and they often take as a last say (Shirima et, al 2001). Apart from information, mother should also be provided with support, optimal physical and emotional support after delivery (Jelliffer, 1975). However, this is practiced in different ways as most of mothers get a lot of

misinformation from different sources. Other studies have revealed that adequate support and training of health care professionals has shown improvement in exclusive breastfeeding practices (Kramer et al, 2001; Nita et al, 2003). Thus, in order to provide adequate support to mother on exclusive breastfeeding practice health workers should have adequate knowledge and skills in infant feeding practices for them to impart the relevant knowledge and skills to breastfeeding mothers.

2.2.4 Place and mode of delivery and support of mother on exclusive breastfeeding practices

Place of delivery also was found to have influence on exclusive breastfeeding. Study conducted in Ghana on factors associated with exclusive breastfeeding show that delivery in hospital/polyclinic had influence on exclusive breastfeeding, about 98% of participants were informed on exclusive breastfeeding, and 85.6% of them planned to exclusive breastfeeding on delivery after being attending to health facilities (Aidam et al, 2005), thus health facilities had positive influence on exclusive breastfeeding as it ensures adequate accessibility of information and skilled practical help from trained health worker. Similarly, study done in Brazil and Honduras showed that there were positive association, between exclusive breastfeeding and delivery at health facilities hence promoting exclusive breastfeeding (Pérez et, al, 1995). Another results from study conducted in Botswana explained that over three-quarters (79.6%) of the mothers delivered in government hospitals, nearly all were roomed with their babies after delivery (Mahgoub et al, 2002) hence had increased likely hood of exclusive breastfeeding. On other hand families, communities, the health care system and policies has influence on exclusive breastfeeding. Another study conducted in Latina women

U.S.A indicated that type or mode of delivery has influence on exclusive breastfeeding (Kimberly et al, 2007) as women with vaginal delivery, remained considerable determinants of exclusive breastfeeding. Similar study conducted in Poland on factors affecting exclusive breastfeeding revealed that the most important factors affecting exclusive breastfeeding in hospital care were cesarean section (Krystyra et al, 2004). Furthermore, results from study carried out in Morogoro, Tanzania showed that maternal mother and health professionals, husband, village health workers and traditional birth attendants had an influence in role of child feeding practices (Shirima et al, 2001). Similarly, results obtained from study done among Latina women in U.S.A revealed that the presence of a lay childbirth assistant (doula) increased the likelihood of exclusive breastfeeding (Kimberly et, al 2007). Contrary, results obtained from a study done in Botswana showed that Although 58.2 % of mothers had little or no support for breastfeeding from the community it had a positive effect on their decision to breast-feed (Mahgoub et al, 2002) hence no effect on exclusive breastfeeding.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Area

Lushoto is situated on the northern part of Tanzania, and is one among the eight districts of Tanga region. The district is characterized by mountains and highlands with temperate weather condition. It is divided into 8 divisions, subdivided into 32 wards and 176 villages with approximately 467,251 inhabitants. Majority (85%) of inhabitants are farmers engaging in various farming activities and small business, while a few (1%) are employees in either government or private sectors. The district has 1 district government hospital, 1 private hospital, 7 rural health facilities and 50 operating dispensaries. These health facilities provide both curative and preventive services. Under five and maternal mortality rate was 79/1000 (121/1000 hospital based) and 578/10000 (53/ 100000 hospital based) respectively (CCHP Lushoto district, 2008/09).

The district was selected because it has the fast growing economy amongst other districts in Tanga Region with a mixture of different cultural and ethnic groups due to different economic activities including the emerging of tourism business. Moreover there is limited information on the issues pertaining to infant feeding practices, particularly on the factors influencing exclusive breastfeeding for the first six months of an infant's life within the district. It was also easy reach by the researcher given the limited time of the MPH programme.

3.2 Study design

Descriptive cross-sectional study design was used and was conducted in June 2010, in Lushoto district, Tanga region. However further analysis were done to determine relationship

between independent variables and dependent variable which is exclusive breastfeeding practices for six months.

3.3 Study Population

The target population was all lactating mothers with infants aged 6 to 12 months whether they were continuing or have stopped breastfeeding during the time of data collection,

3.4 Sample Size estimation

The sample size was estimated using the following formula

$$n = \frac{z^2 p (100 - p)}{e^2}$$

Where: n = the sample size

z= the standard normal deviate (normally set at 1.96 which corresponds to a 95% confidence interval of parameter estimation)

e = marginal error/maximum likely error = 6%

p = proportion of exclusive breastfeeding women (TDHS, 2004/2005) = (41%)

Therefore,

$$n = \frac{(1.96)^2 \times 41 (100 - 41)}{6 \times 6}$$

$$= \frac{3.8416 \times 41 \times 59}{}$$

6 x 6

n = 258

With 10% expected chance of non -response added, the total sample

= 284 subjects

3.5 Sampling procedures

From the list of divisions obtained from district executive's secretary two divisions (Lushoto and Umba) out of 8 was randomly selected. Then multistage sampling techniques were used to obtain the required sample size of 284 mothers. The following techniques were used

Stage One: Selection of wards

The number and list of wards was obtained from the District Executive Secretary, where by sampling frame was prepared. Out of 13 listed wards, two wards (Lushoto and Soni) were randomly selected, using simple random technique.

Stage Two: Selection of villages and hamlets

The list of villages and hamlets was prepared from two selected wards. Three villages (Magamba, Yoghoi and Ngulwi) from Lushoto ward and three villages (Soni kisiwani, Magilla and Shashui) from Soni ward were randomly selected. Then five hamlets were randomly selected from each of the selected villages.

Stage Three: Selection of ten cell leaders/village workers

The list of village health workers was obtained from the Village Executive Officer within respective village. Then two village health workers from each of selected hamlets were purposively selected.

Stage Four: Selection of eligible household

With help from the village health worker, a household which had lactating women with infants aged 6-12 months were identified and included in the survey. For those household with more than one eligible study participant, both were enrolled in the sense that infant feeding practices differ from one individual mother to another due to different age, education background, perception, attitude and beliefs regardless of their living in the same household.

3.6 Data Collection tools and procedure

3.6.1 Tool for data collection

To conduct this study, a questionnaire was prepared to obtain necessary information. The questionnaire was prepared in English and translated in Kiswahili then back translated into English. The questions were mainly closed-type and few open-ended questions which were designed to allow mothers to express their ideas on certain issues related to exclusive breastfeeding for six months.

3.6.2 Recruitment and training of research assistants

Two females and one male research assistants with background in social sciences were recruited for data collection. One day training was done for the research assistants. The aim of

training was to familiarize them with the study particularly the aims, study questions and how to question, research ethics and methodology.

3. 6. 3 Pre-testing of the study tool

The questionnaire for data collection was pre-tested in Kwai ward, in Lushoto district. The ward was selected for pre-testing because the main habitats have almost the same background, traditions and cultures as the study participants. A total of 10 mothers with infants aged 6-12 months were interviewed. The purpose of pre-testing was to determine the validity and reliability of the tools, whether sufficient to explore desired information, ensuring consistency of the questions and the applicability of the research questions in that particular area. There were no difficulties encountered with the questionnaire. Few open questions were modified to closed questions because most answers fitted to different groups which simplified the questionnaire.

3. 6. 4 Data collection procedure

The process of data collection involved three research assistants and the principal investigator. Data were collected from respondents during household visits by interview using questionnaire. After the sample selection, mothers were asked to read and sign a consent form in which the executive's liability to keep the mother and child information confidential was mentioned Data were collected via interview and a questionnaire including child and mothers along with some demographic information. For accuracy of information, the age of infants was obtained by recording the complete months from the child's health monitoring card.

3. 6. 5 Study variables

The independent variable were social-demographic information of mothers, place of delivery, mode of delivery, parity, source of information on exclusive breastfeeding practices, mothers' level of knowledge on exclusive breastfeeding practices and mothers' attitude on exclusive breastfeeding practices.

3.6.6 Data processing and analysis

Manual editing of questionnaire was done every evening after field work, by the research team to minimize unexpected errors and detect of any abnormalities. Data was captured using computer software SPSS version15.0 (statistical package for the social sciences). Data was cleaned for inconsistencies, incorrect values and double entries before analysis. Analysis was done using the SPSS statistical software. Descriptive statistics (frequencies and percentages) were calculated to give characteristics of study variables. Cross tabulation was performed to determine relationship between certain variables in relation to exclusive breastfeeding for six months. Chi Square test was used to compare proportion and p-value was used to interpret the significance of the statistical test. Logistic regression model were run to identify which factors independently associated with exclusive breastfeeding for six months among mothers with children 6-12 months of age. A multiple logistic analysis was performed to examine the extent, to which some factors (covariate) predict the exclusive breastfeeding practices among lactating mothers. Social- demographic characteristics of mothers (age, marital status, occupation) which show to be associated with exclusive breastfeeding practices and education were simultaneously entered in the model as predictor variable and exclusive breastfeeding practice for six months as an outcome variable. Education level was included because

traditionally was assumed that educated women will be more likely to exclusively breastfeed than non-educated women.

Mother's knowledge on exclusive breastfeeding was assessed using a set of nine questions. Cronbachs alpha test for reliability analysis was therefore performed before a sum-score for knowledge on exclusive breastfeeding related to exclusive breastfeeding practices was constructed. Initial result indicated reliability coefficient of 0.64. After deleting one of the items, reliability coefficient increased to 0.68 and then the removal of the second item resulted into Cronbachs reliability coefficient of 0.71 which is said to be standard for doing analysis (Pallant, 2007). The remaining seven items were used to construct knowledge scale. A summative score was developed from the seven questions. The mean score was used as the cut-off point where above the mean was coded as high knowledge level and below the mean was coded as the low knowledge level.

Mother's attitude towards exclusive breastfeeding was assessed using a set of four questions, with four responses options strongly agreed, agreed, disagreed and strong disagreed. Reliability analysis was performed for all four (4) attitudinal items before a sum-score for attitude on breast feeding practices was constructed. The result indicated a Cronbachs reliability coefficient of 0.81 which is preferable for analysis. Therefore, a scale for attitude was constructed with scores ranging from 4 to 16. Then new variable attitude was generated where responding negatively on all 4 questions was considered as having positive attitude or else negative attitude

All regression models were controlled for potential confounder (age, marital status, occupation, education, place of delivery, delivery attendants, source of information, level of knowledge and attitude. The significant levels were set at 95% confidence interval.

3.8 Ethical Considerations

The approval of the study was granted by the Directorate of Research and Publications Committee of Muhimbili University of Health and Allied Sciences. Permission to conduct the study was obtained from District Administrative Secretary and District Executive Commissioner and District Medical Officer for Lushoto district, wards executive officer, local authorities of villages, village/ hamlet leaders. The mothers consent was sought and obtained after the aims and objective of the study had been explained to them.

3.9 Limitations of the Study

The limitations of this study include:

1. The disability or recall bias due to colleting reported breastfeeding information, resulted into misclassification of individual mother i.e. placing individual mother into different group. Though was minimized by the use of well structured and probing questions during interview.

2. Inherent bias due to the used cross-sectional study design affected the study results, as difficult to establish causal or temporal relationship between independent variables and exclusive breastfeeding practices for six months. However cross tabulation and binary

logistic regression were done to determine association and to find which independent factor predict the likelihood of exclusive breastfeeding for six months (dependent factor)

3. The use of invalidated tool for data collection affected the reliability and validity of study results. However the used tool (questioner) was pretested before the actual process of data collection. Moreover Cronbachs alpha test for reliability and validity was done during data analysis process.

3.10 Strength of the study

Due to random sampling method employed in this study, results can be generalized within population of Lushoto district. Study was able to determine some factors that promote exclusive breastfeeding and come out with recommendations for intervention to improve underlying situation. Also was able to correct knowledge-gap on the factors influencing exclusive breastfeeding for the first six months in Lushoto District.

CHAPTER FOUR

4.0: RESULTS

4.1 Socio-demographic characteristics of the study participants

A total of 284(100%) breastfeeding mothers with infants aged 6 to 12 months were interviewed. The mean age was 27.3 (SD±4.7) ranging between 17 to 47 years. Most of participants were between the age group 20-29 years. Majority was married and more than a half (70.7%) were farmers. The social demographic characteristics are presented in Table 1. Majority of infants were 12 months in age. The mean age of infants was 9 (±2.39 SD). There were slightly more female infants (50.4%) compared to males (48.6%) as shown in Table 1

Table 1: Distribution of socio-demographic characteristics of study participants

Variable	n	%
Age group (in years)		
15-19	10	3.5
20-29	177	62.3
>30	97	34.2
Marital status		
Married	221	77.8
Single	30	10.6
widowed	33	11.6
Level of education		
No formal education	29	10.2
Primary school	225	79.2
Secondary school	30	7.7
Occupation		
Employed	10	3.5
Business	71	25.0
House wife	46	16.2
Farmers	157	55.3
Parity		
1	70	24.6
2-3	177	62.3
4	37	13.0
Age of infants (Months)		
6 - 8	102	35.9
9_12	176	62.0
Sex of infants		
Males	138	48.6
Females	146	50.4

4.1.1 Distribution of exclusive breastfeeding practices among lactating women

All (100%) mothers reported to have breastfed their infants. Most of them (75.5%) started to breastfeed their infants within the first hour of delivery. However, (20.1%) of mothers had exclusively breastfeed their infants for six months. More findings revealed that prelacteal feeds (37.7%) and early weaning of infant (79.9%) were the commonest infant feeding practices within the district as shown in table 1.

Of those mothers who gave prelacteal feeds, the main reported reasons were excessive crying of a baby (13%), tradition and belief (17.6). Family members (24.1) were the major influence on mother's decision on giving prelacteal feeds (appendix 1) and the most common form of prelacteal feed was water (34.0%) Main reported reason for early weaning was insufficient of milk production (46.1) and tradition and belief (31.3%) (See appendix 1).

Of 227 (79.9%) mothers who failed to breastfeed exclusively reported that, insufficient of milk production (48.6%) and the excessive crying of a baby (31.3%) were the main reasons for not breastfeed exclusively during first six months as shown in appendix 2.

Women who exclusively breastfeed (20.1%) reported breastfeeding counselling (15.1%) and awareness on exclusive breastfeeding (4.9%) as reasons that facilitated their practice (See appendix3).

Table 2: Distribution of exclusive breastfeeding practices during the first six months of infant's life, among women with infant aged 6 to 12 months in Lushoto District

Variable	N	Yes	No
		n (%)	n (%)
Breastfeed exclusively for six months	284	57 (20.1)	227 (79.9)
Prelacteal feeds	284	107 (37.7)	117 (62.3)
Breastfeeding within first hour	284	214 (75.5)	70 (24.5)
Weaning before first six months	284	227 (79.9)	57 (20.1)

4.1.2 Association between socio-demographic characteristics and exclusive breastfeeding practice during first six months of infant's life

The age group of 15 -19 (50.0%) years were more likely to practice exclusive breastfeeding compared to the other age groups as shown on table 3. However, there was border line **(P=0.05)** association between mother's age and exclusive breastfeeding practices. There was a significance association between marital status and exclusive breastfeeding practices. Single mothers (36.7%) were more likely to breastfeed exclusively than married (19.5%) and widower (9%) **(P=0.02).** Similar result also found with formal employed mothers (50.0%) **(P=0.02).** Mothers who completed secondary school education were more likely to practice exclusive breastfeeding than other groups; however, there was no statistical significant association between the groups

Table 3: Relationship between exclusive breastfeeding by socio-demographic characteristics, among women with children 6-12 months

Variable	n	Exclusive breastfeeding		P- Value
		Yes (%)	No (%)	
Age group (in years)				
15-19	10	5(50.0)	5(50.0)	
20-29	177	34(19.2)	143(80.8)	$\chi2$=5.804
>30	97	18(18.6)	79(81.4)	P=0.055
Marital status				
Married	221	43(19.5)	178(80.5)	
Single	30	11(36.7)	19(63.3)	$\chi2$=7.682
Widowed	33	3(9.1)	30(90.9)	**P=0.021**
Level of education				
No formal education	29	6(20.7)	23(79.3)	
Primary school	225	43(19.1)	182(80.9)	$\chi2$=0.950
≥Secondary school	30	8(26.7)	122(73.3)	P=0.622
Occupation				
Salaried employment	10	5(50.0)	5(50.0)	
Petty Business	71	14(19.7)	57(80.3)	$\chi2$=9.562
House wife	46	4(21.8)	42(78.2)	**p=0.023**
Farming	156	34(8.7)	122 (91.3)	
Parity				
1	70	13(18.6)	57(81.4)	$\chi2$= 2.4
2-3	177	33(26.9)	144(81.4)	P=0.290
≥4	37	11(9.5)	26(70.3)	

4.1.3 Regression model of exclusive breastfeeding by social-demographic characteristics among women with children 6-12 months

Age and occupation were significant predictors of exclusive breastfeeding in the study sample as shown table in 4. Women aged 20-29 were nine times more likely to exclusively breastfeed their infants for six months compared to women lees than 20 years of age. A similar trend was observed for women 30 years and above, whereby they had a 10 fold increase in odds of exclusively breastfeeding infants than younger women (less than 20 years). Women who reported their occupation as housewives were 10 times more likely to exclusively breastfeed their infants than women who were employed. Other socio-demographic characteristics, such as education and marital status did not show any significant association with exclusive breastfeeding for six months.

Table 4: show crude and adjusted odds ratio of exclusive breastfeeding by social demographics characteristics among women with children aged 6-12 months

Variable	category	n	Crude OR*	Adjusted OR§	
			OR (95% CI)	OR(95% CI)	P-value
Age (in years)	15-19	10	reference	reference	
	20-29	177	4.057 (1.11 - 14.7)	9.16 (1.6 -51.5)	**0.012**
	>30	97	4.7 (1.22 - 18.07)	9.80 (1.6 - 58.9)	**0.013**
Marital status	Married	221	reference	reference	
	Single‡	63	4.14 (0.428 - 1.671)	1.08 (0.5 - 2.3)	0.823
Occupation	Employed	10	reference	reference	
	Business	71	4.07 (1.03 - 16.03)	3.47 (0.72 - 16.7)	0.12
	House wife	46	10.5 (2.10 - 52.47)	10.4 (1.57 - 69.5)	**0.015**
	Farmers	156	3.6 (0.9 - 13.2)	3.2 (0.62 - 16.4)	0.165
Education level	No l education	29	reference	reference	
	Primary school	225	0.9(0.34-2.3)	2.1(0.5-8.2)	0.24
	Secondary school and above	30	1.39(0.4-4.6)	1.8(0.3-11.1)	0.48

*Odds Ratio (95% confidence interval); § Adjusted for age, marital status, education and occupation; ‡ Single include: separated, divorced and widower.

4.2 Delivery factors

Most mother (64.8%) gave birth in a health care facilities and (92.6%) reported to have normal delivery. Of those deliveries, (66.2%) were assisted by skilled health care workers.

4.2.1 The Relationship between exclusive breastfeeding practices and delivery factors among women with infants aged 6-12 months

There was a statistically significant association between place of delivery and exclusive breastfeeding practices as the results show in table 5 Lactating mother who gave birth at health care facilities (24%) were more likely to practice exclusive breastfeeding compared to those who gave birth at home place (13.0%); (P=0.028) .Mothers who had normal delivery (20.2%) were more likely to practice exclusive breastfeeding than those who delivered by caesarian section but there was no statistical significant association between the two groups. Mothers (23.4%) who were assisted by skilled health care attendants were more likely to practice exclusive breastfeeding compared to those assisted by unskilled attendants(14%) however there was border line statistical significant association between these groups (P=0.05).

Table 5: Relationship between exclusive breastfeeding practices and delivery factors among women with infants aged 6-12 months

Delivery information	N	Exclusive breastfeeding		
		Yes (%)	No (%)	P=value
Place of delivery				
Health facility	184	44(23.9)	140(76.1)	$\chi 2=4.81$
Home	100	13 (13.0)	87(87.0)	**P=0.028**
Type of delivery				
Normal delivery	263	53(20.2)	210(79.8)	$\chi 2=0.005$
Cesarean sessions	21	4(19.0)	17(81.0)	P=0.903
Delivery attendants				
Skilled attendants	188	44(23.4)	144(76.6)	$\chi 2=3.85$
Un-attendants	96	13(13.5)	83(86.5)	**P=0.05**

4.2.2 Regression model of exclusive breastfeeding by delivery factors among women with children aged 6-12 months

A multiple logistic analysis was performed to examine the extent, to which delivery factors (covariate) predict the exclusive breastfeeding practices among lactating mothers. Place of delivery and delivery attendants which show to be associated with exclusive breastfeeding were simultaneously entered in the model as predictor variables and exclusive breastfeeding practices for six months as an outcome variable.

Results in table 6 show that women who delivered by unskilled attendants were less likely to exclusively breastfeed for six months compared to women delivered by skilled attendants

(OR=0.49, 95%; CI: 0.25 – 0.98). Place of delivery did not show any significant association with exclusive breastfeeding in this study area.

Table 6 show crude and adjusted odds ratio of exclusive breastfeeding by delivery factors on exclusive breastfeeding practices for six months, among women with children 6-12 months

Variable	Category	N	Crude OR*	Adjusted OR§	
			OR (95% CI)	OR(95% CI)	p-value
Place of delivery	Hospital	184	reference.	reference.	
	Home	100	0.9 (0.3 – 2.8)	0.74 (0.23 – 2.23)	0.6
Delivery attendants	Skilled	188	reference	reference.	
	Unskilled	96	0.51 (0.26-1.007)	0.49 (0.25 – 0.98)	**0.04**

*Odds Ratio (95% confidence interval); § Adjusted for place of delivery and delivery attendants

4.3 Source of information on exclusive breastfeeding practices

About 41 % of the participants had never received information about exclusive breastfeeding from any source. Most people responded that they got information about exclusive breastfeeding from health workers (25.7%) during antenatal visits. News paper was mentioned as the least source of information (1.1%).

4.3.1 Association between source of information and exclusive breastfeeding for six months, among women with infants aged 6-12 months

Table 7 shows that there was statistical significance association between the source of information on exclusive breastfeeding and exclusive breastfeeding practices. Of 126 participants, those (32.5%) who got information from health care facilities were more likely to practice exclusive breastfeeding compared to other groups.

Table 7: Frequency distribution of exclusive breastfeeding by source of information, among women with children aged 6-12 months

Source of information	N	Exclusive breastfeeding		P-value
		Yes (%)	No (%)	
Health Workers	126	41 (32.5)	85 (67.5)	
Social network	14	3 (21.4)	11(78.6)	
Audiovisual	11	1 (9.1)	10 (90.9)	
Print media	17	1 (5.9)	16 (94.1)	$\chi 2=30.53$
Never heard	116	11 (90.0)	105 (90.5)	**P<0.01**

4.4 Relationship between knowledge level of respondents and exclusive breastfeeding for six months

Results show mothers (23.1%) with high knowledge level on exclusive breastfeeding were more likely to practice exclusive breastfeeding as compared to other groups. However, there

was no statistical significant association between mother's knowledge level and exclusive breastfeeding for six months (see table 8).

4.5 Relationship between mothers' level of attitude and exclusive breastfeeding for six months

Majority (90.5%) of respondents had negative attitude towards exclusive breastfeeding. Mothers with positive attitude 6 (22.2%) were more likely to practice exclusive breastfeeding, however there was no statistical significant association between mothers attitude and exclusive breastfeeding practices (see table 8)).

Table 8: Association between mother's level of knowledge and attitude on exclusive breastfeeding for six months

Variable	n	Exclusive breastfeeding		P=value
		Yes	No	
Knowledge level				
High	169	39(23.1%)	97(84.3%)	$\chi2$=2.352
Low	115	18(15.7%)	130(76.9%)	P=0.125
Attitude				
Negative	257	51(19.8%)	206(80.2%)	$\chi2$=0.086
Positive	27	6(22.2%)	21(77.8%)	P=0.769

4.6 Regression model of exclusive breastfeeding by source of information, level of knowledge and attitude among women with children aged 6-12 months

Regression model results as shown in table 9 indicate that mothers reported that source of information on breastfeeding was from health workers were about six times more likely to exclusively breastfeeding their infants than mothers who had no source of information (OR=5.9; 95% CI: 2.6 - 13.2). Other factors (Social networking, mass media, level of knowledge and attitude) did not show any association with exclusive breastfeeding in this study.

Table 9: Crude and adjusted odds ratio of exclusive breastfeeding by source of information, level of knowledge and maternal attitude

			Crude OR*	Adjusted OR[¥]	
Variable	**Category**	n	OR (95% CI)	OR(95% CI)	**P-value**
Source of information	Health workers	126	0.5 (0.1 - 2.0)	5.9 (2.6 - 13.2)	**<0.001**
	Social network	14	0.15(0.03 - 0.6)	3.3 (0.7 - 14.7)	0.1
	Mass media	28	0.18 (0.08 - 0.3)	0.8 (0.17 - 4.4)	0.8
	Never heard	116	ref	ref	ref
Knowledge levels	High	169	ref	ref	ref
	Low	115	1.6 (0.4-3.0)	0.7(0.4-1.5)	0.46
Attitude	Positive	27	ref	ref	ref
	Negative	227	1.1 (0.4 - 3.0)	0.4 (0.14 - 1.29)	0.134

*Odds Ratio (95% confidence interval); [¥] Adjusted for source of information, knowledge level and attitude. Mass media include: audiovisual and print media

*ref; reference

CHAPTER FIVE

5.0 DISCUSSION

The objectives of this study were to determine proportion of women who exclusively breastfed their infants for the first six months of their life; to identify factors that are associated with exclusive breastfeeding during first six months of infants' life and to explore barriers for exclusive breastfeeding during first six months of infant's life.

Proportion of women who practiced exclusive breastfeeding for the first six months

In this study, breastfeeding was found to be common practice as all interviewed mothers reported to have breastfed or still breastfeeding their infants. Even though breastfeeding was established as the common infant feeding practice, the proportion of mothers who exclusively breastfed their infants was low (20.1%), which is lower compared to the rate of exclusive breastfeeding at national level (41%) as well as WHO/UNICEF recommendation. This finding is also similar to the studies conducted previously on the same topic (Shirima et al, 2001; de Paoli et al, 2001; Salami, 2006).

For breastfeeding to be successful it is recommended by the World Health Organization that it should be initiated immediately and within first hour after delivery (WHO, 2001). This early initiation is very important as it allows infant to feed on colostrum and increase early production and secretion of breast milk. In this study, the rate of early breastfeeding initiation was high, because most mothers reported to have started breastfeeding their infants within the

first hour of delivery. The high rate of early breastfeeding initiation probably was contributed to the fact that in Lushoto district, breastfeeding is a custom to breastfeed immediately after delivery. This also has been identified in previous studies conducted in Tanzania (de Paoli et al, 2001; TDHS 2004/05, Leshabari et al., 2007) and others elsewhere (Engebretsen, 2007). Similarly, the study done by McLachlan and colleagues also observed high rate of early breastfeeding initiation (McLachlan et al, 2006). However, different findings were found in other studies like a study done in Morogoro, where more mothers delayed initiation (Shirima et al, 2001). The differences in these results may be attributed by the difference in cultural context of the study participants and the different study design used in which the former was descriptive cross sectional study used to compare rural and urban population while the later was descriptive cross sectional study design involving lactating women with infant aged 6 to 12 months.

WHO/UNICEF, (1996) commented on the use of pre-lacteal feeds or supplements as it increases the risk of infection and reduce frequency of exclusive breastfeeding. Findings from this study show that lactating mother were familiar with the use of warm water as pre-lacteal feed. This may possibly rose from their belief of having insufficient milk production, baby crying excessively and again a perception that an infant feels thirst, and the baby need to be given water. These beliefs have been seen to hinder exclusive breastfeeding. This finding is not unique because other studies also have revealed similar findings (Shirima, 2001; de Pauli et al, 2001; Agnarsson, 2001, Engebretsen et al; 2007), of mothers using water and other fluids as the pre-lacteal feeds to their infants just after birth.

Global guidelines and local relevance

This study recognizes that breastfeeding norms and practices are produced and reproduced or transformed in the encounter between the traditions of the certain community on the one hand and forces come from the larger national and international community on the other. The International infant feeding guidelines are based in a construction of reality which emphasizes biomedical evidence of the risk of baby's health. Other concerns related to breast feeding are not fully integrated. This study clearly shows that the guidelines on infant feeding conflict with local knowledge and reality constructions. Mothers in this study believe that baby's should be given water plus other fluids for them to grow healthy, contrary to the global recommendations. This tells us that, any information or educational interventions to the mothers need to be designed in such a way that they will see and experience them as relevant for the targeted populations and the reality in which they live their daily lives.

Factors that associated with exclusive breastfeeding practices for six months

Social-demographic factors and exclusive breastfeeding practices for six months

This study shows that some social demographic factor like mother's age was the main predictor of exclusive breastfeeding for six months. Results from logistic regression revealed that women aged between (20-29) and those above 30 years were more likely to exclusively breastfeed compared to women with less than 20 years, showing that exclusive breastfeeding for six months increases with increase in mother's age. The main reason for this finding might

be related with parity and experience in exclusive breastfeeding practices, which possibly resulted from frequency attendance to reproductive and child health services. Similarly , study done by (Della et, al, 2006) revealed that the duration of exclusive breastfeeding increases with increase in mothers age, thus women with older age were more experienced in exclusive breastfeeding compared to younger age. This finding differs from study done in U.S.A by (Kimberly et al, 2007) which shows younger age, remained considerable determinants of exclusive breastfeeding. Contrary to this is another study which revealed that there was not much significant relationship between mother's age and duration of breast feeding (Sigh, 2010). Thus, the influence of mother's age on exclusive breastfeeding may probably differ depending on characteristics of study participants, contextual and access to supportive skilled expert on exclusive breastfeeding.

Mother's occupation was also found to predict likely-hood of exclusive breastfeeding for six months. Women who reported their occupation as housewives were more likely to exclusively breastfeed their infants than women who were employed. In this study area majority of participants were farmers. They had to travel long distance to their field to fetch for water and firewood. They had limited time to breastfeed exclusively possibly due to long working hours. If they were well informed, they would have expressed their breast milk for feeding their babies when they are away from home. This results differs from the study conducted in Sir-lanka confirmed that being unemployed mother was important determinant of early cessation of exclusive breastfeeding (Agampodi et al, 2007).

More findings show that single mothers were more likely to practice exclusive breastfeeding for six months compared to married or widowed mothers. This probably rose from reason that single mother were free to make their own infant feeding decision, also were free to seek advice of proper way of feeding their infants probably from skilled health workers. This differs from results obtained from other study conducted in Uganda (Aidam at el, 2005) and Tanzania (de Pauli, et al, 2001) that married women were more likely to breastfed exclusively than other groups. However, marital status was not found to be predictor of exclusive breastfeeding for six months in this study area.

The available results from other study reported that mothers with high education level were more likely to exclusively breastfed their infants than middle or lower level of education (Zekiye, 2006). Likewise, results from this study show that mothers who completed secondary school education were more likely to practice exclusive breastfeeding than with no formal and primary school education. However, this study shows that, there was no statistical significant association between mother's education level and exclusive breastfeeding for six months. The final logistic model shows that education level was not a predictor of exclusive breastfeeding in this study. This might be due to fact that majority of study participants were lactating mother who completed primary school education. Thus, mother with higher education level might be aware on exclusive breastfeeding practices or had access to information and supportive skills on exclusive breastfeeding compared to lower education level. Also results from study conducted in Nigeria reveal that maternal education below secondary level has effect on exclusive breast feeding (Ogunlesi, 2009).

Delivery factors and exclusive breastfeeding practices for six months

More results revealed that, delivery attendants were the predictor of exclusive breastfeeding for six months in this study area. Mothers who were assisted by unskilled attendants during delivery were less likely to practice exclusive breastfeeding compared to those assisted by skilled attendants. In this study skilled assistance by health workers was probably important factor, as it provides mothers with adequate knowledge, skills and support and thus, increase likely-hood of exclusive breastfeeding for six months. Similarly results from other study (Aidam et, al, 2005) revealed that, accessibility of information and skilled supportive techniques had positive influence on exclusive breastfeeding for six months. According to (Bandura, 1986), knowledge of health risks and benefits provides the pre-conditions for change, but knowledge in itself is not sufficient to overcome the impediments to adapting and maintaining new behavior/practices. If people do not believe that they have the power to change the outcome of a particular issue, their motivation to persevere when they encounter problems will be negatively affected (Bandura, 1986). This entails that, even with proper information, and supportive skills, still mothers themselves need to believe in themselves that they can breastfeed their baby without any other additional fluids or foods and the baby will grow well.

Place of delivery was also associated with exclusive breastfeeding for six. Mothers who gave birth at health care facilities were more likely to practice exclusive breastfeeding compared to home deliveries. This possibly was contributed due to fact that all study participants were going to the health facilities for reproductive and child health services and more mothers

delivered at health care facilities, where they might have accessibility of information on exclusive breastfeeding practices and skilled practice such as positioning and attachment of infant to the breast from the trained health workers. The findings is consistence with study done in other places (Pérez et, al, 1995; Aidam, et al, 2005) which show that there were positive association, between exclusive breastfeeding and delivery at health facilities. However, place of delivery were not found to predict the likely-hood of exclusive breastfeeding for six months.

In this study, mother with normal delivery were more likely to practice exclusive breastfeeding than those who had cesarean section although, there was no association between mode of delivery and exclusive breastfeeding practices. This might be related to the reason that, the practice of exclusive breastfeeding was probably determined by combination of many factors such as mother's knowledge and information on exclusive breastfeeding, attitude toward exclusive breastfeeding, social support, skilled and practical assistance rather than mode of delivery. In contrary findings from other studies show that mode of delivery remained considerable determinants of exclusive breastfeeding (Kimberly et al, 2007) as women with vaginal delivery were more likely to practice exclusive breastfeeding than other type of delivery. Also it differs from a study conducted in Poland which revealed that, the most important factors affecting exclusive breastfeeding in hospital care were cesarean-section (Krystyra et al, 2004). Despite the fact that, mode of delivery was not promoter of exclusive breastfeeding for six months in Lushoto.

Source of information and exclusive breastfeeding practices for six months

Source of information on exclusive breastfeeding is very important as it has influence on mother's decision and ability to breastfeed her infants. Results from this study show that there was association between source of information about exclusive breastfeeding and exclusive breastfeeding practices. Most of study participants who got information from health care workers were more likely to practice exclusive breastfeeding compared to other sources of information like audiovisual media or through social network. Findings from logistic regression revealed similar results that, mothers who didn't have exclusive breastfeeding information were less likely to practice exclusive breastfeeding as compared to those who had information from health care workers. The result is similar to previous studies (Shirima et, al 2001; Kramer et al, 2001; Nita et al, 2003) which reveal that adequate support and training through health workers or health care professionals has shown improvement in exclusive breastfeeding practices.

This might be due to the fact that skilled health care workers are likely to provide relevant and adequate knowledge and skills to lactating mother. Relevant and adequate knowledge and skills on exclusive breastfeeding together with skilled practical help possibly had influence on mother's attitude as well as behavior toward exclusive breastfeeding practices for six months.

Mother's knowledge and attitude on exclusive breastfeeding practices for six months

Knowledge on exclusive breastfeeding practices is very important factor to consider, as it influences lactating mothers to make informed choice on the appropriate way to feed their infants. Breastfeeding is normal action and can be learned. Mothers should have adequate knowledge and information on importance and optimal duration of exclusive breastfeeding for them to practices exclusive breastfeeding for six months (Bovell et al, 2001). In this study most women were in high knowledge level, however there was no significant association between level of knowledge and exclusive breastfeeding practices. In contrary other studies documented that mothers with high knowledge level were more likely to breastfed exclusively than with lower knowledge level on exclusive breastfeeding (de Paoli et, al, 2001). These differences might be contributed by reason that, the acquired knowledge and skills on exclusive breastfeeding was probably not adequately to influence mothers to change their attitude as well as behavior towards the practices.

Mother's attitude also is important determinant of exclusive breastfeeding practices for six months. In this study area mothers with positive attitude were more likely to practice exclusive breastfeeding; though there was no statistical significant association between mother's attitude and exclusive breastfeeding practices. This was possibly caused by reason that, mothers were not well promoted or motivated about exclusive breastfeeding practices to influence them change their attitude toward this practice. This can be related to the discussion according to Bandura above.

Barriers to exclusive breastfeeding during the first six months of infant's life

More findings revealed that mother perceived that insufficient of milk production, excessive crying of a baby and tradition and beliefs were the major constraints to exclusive breastfeeding practices during first six months of infant's life. Thus encouragement motivation, sensitization and skilled support to lactating mothers on the exclusive breastfeeding practices for six months are very crucial.

In this study, Most of identified factors were either associated or predict likelihood of exclusive breastfeeding for six months, no factor appear to decrease likely-hood of the exclusive breastfeeding practices for six months, This probably might be contributed by the study design or type questions used in data collection, thus further research is recommended particularly on the social cultural influence on exclusive breastfeeding for six months.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

This study has assessed major factors influencing exclusive breastfeeding during first six months of infant's life, among women with infants aged 6-12 months in Lushoto district.

This study found a relatively high rate of breastfeeding and early initiation of this practice among 284 women in Lushoto District. However the prevalence of exclusive breastfeeding for the first six months of the infant's life was low (20.1%), because the babies are given pre-lacteal feeds at early age of first months. This study provides insight into the ways in which mothers conceptualize exclusive breastfeeding practice and their infant feeding practices. The methodology used in the study provided an opportunity to meet and discuss with women who had already practiced breastfeeding under their daily life circumstances. Several gaps and misconceptions concerning exclusive breastfeeding were identified and need to be targeted by programme planners.

6.2 Recommendations

The key challenge is how to improve these suboptimal breastfeeding practices and attaining high rate of exclusive breastfeeding practices during the first six months of the infant's life. The following are the key recommendations for policy and programme implications:

i. Local government and Non Government Organization (NGOs) in Lushoto District should unite and develop community-based, culturally grounded, experiential skill-building

interventions for improvement of exclusive breastfeeding practices for six months that should depend on the context of Lushoto community, such as;

ii. Improvement of RCH services, support, encouragement and sensitization of mothers aged 20-29 and above 30 years to attend RCH services for getting appropriate and adequate information and other skilled and practical help related to optimal exclusive breastfeeding practices. They also need to use the findings of this study to tailor the appropriate community interventions as well as identifying those mothers who are confident in implementing exclusive breastfeeding to act as peer educators to other lactating women.

iii. Adequate and appropriate training to health workers particularly RCHs workers so that they will continue to provide appropriate and adequate information with skilled and practical help on optimal exclusively breastfeed practices to the pregnant and lactating mother in this district.

iv. Working mothers in Lushoto district should be given free two hours daily for breastfeeding during the first six months of their infant's life in order to breastfeed exclusively for six months.

v. Further research on social- cultural issues influencing exclusive breastfeeding for six months of an infant's life, using longitudinal- cohort study design should be carried out to explore social cultural barriers to exclusive breastfeeding in this particular study area.

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