

**PREVALENCE OF EXCLUSIVE BREASTFEEDING
AMONG INFANTS UNDER 6 MONTHS OLD
ATTENDING MNAZI MMOJA HOSPITAL
ZANZIBAR**

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H58/80795/12

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF
THE DEGREE OF MASTER OF MEDICINE IN PAEDIATRICS AND
CHILD HEALTH AT THE UNIVERSITY OF NAIROBI**

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DECLARATION

This dissertation is my original work and has not been submitted elsewhere

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DEDICATION

This dissertation is dedicated to my beloved husband Prof. Idris A. Rai who shoulders all the burden of my postgraduate studies, to my children, brothers and sisters for their continuous support and encouragement and my dear parents.

ACKNOWLEDGEMENT

All thanks and praises to my Almighty Allah for helping me through the difficult times, fulfilling my needs and for keeping me alive and healthy to conduct this study. I would like to appreciate and thank my supervisors Prof. Musoke and Prof Wamalwa for their guidance and support for this study and their patience. Also my gratitude to my colleagues who gave me all the good advice in regards to my study.

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Acronyms

EBF	Exclusive Breastfeeding
WHO	World Health Organization
UNICEF	United Nations International Children's Emergency Fund
HIV	Human Immunodeficiency Virus
TDHS	Tanzania Demographic Health Survey
IDDM	Insulin-Dependent Diabetes Mellitus
SIDS	Sudden Infant Death Syndrome
EBM	Expressed Breast Milk
CS	Cesarean Section
SVD	Spontaneous Vaginal Delivery
UON	University Of Nairobi
MOH	Ministry Of Health
MCH	Maternal Child Health

Definitions of terms

Breastfeeding: Is the mode of feeding infants and young children human milk ,it can be directly or indirectly from the breast

Exclusive Breastfeeding: Means that, the infant receive only breast milk. No other liquid or solid are given, not even water - with the exception of oral rehydration solution or drops/ syrup of vitamins ,minerals or medicines.

Mixed feeding: Is giving other liquid and /or food together with breast milk to the infants under 6 months of age.

Abstract

Background:

Breastfeeding is an important tool of preventing childhood illnesses, obesity, and hypertension later on in life. In addition it reduces the cost to the family and the entire country. Exclusive breastfeeding is highly recommended for the first six months of life.

There is a lack of up to date data on the prevalence of exclusive breastfeeding in Zanzibar.

Since Zanzibar is semi -autonomous country, locally relevant research will better inform policy formulation of government's policy on promotion of EBF in a country whose cultural and life style offers little supportive to EBF.(Zanzibar)

Objectives:

To determine the prevalence of exclusive breastfeeding among mothers with the infants under 6 months of age attending MCH clinic at Mnazi mmoja hospital Zanzibar , and to identify the factors associated with EBF.

Method :

This was a cross section hospital based study. The mothers who attended MCH clinic were screened to determine their eligibility(mothers with infants under 6 months of age). The study was explained to the eligible candidates , and informed consent was obtained.. Those mothers who accepted signed the consent, and were enrolled into the study. A questionnaire was administered for collecting the data from 248 mother infant -pair . All the infants whose mothers were interviewed were examined the mothers found to have poor knowledge or practice of breastfeeding was counseled.

Study Design:

Cross sectional descriptive hospital based study.

Study Area:

Mnazi mmoja hospital MCH clinic

Results:

The prevalence of exclusive breastfeeding for the infants aged < 6 months was 48.3%. The prevalence of EBF was 68.1% among < 2 months old infants, 52.5% among 2-3 months old infants and 25% among 4-5months old infants.

The male infants were 58.9%, slightly more than females. The mean age of the mothers who were interviewed was 29 years. 57.3% of mothers were multi gravid, 76.7% were married, 58.5% had secondary education, and 47.2% were housewives. Majority of mothers attended antenatal clinic (ANC) 97.5%. Initiator of breastfeeding within the first hour after birth was 79.9% and 79.8% knew that breastfeeding was nutritious to the baby.

The factors which were found to be associated with more of exclusively breastfeeding were occupation of the mother with p value of 0.05, education of the mother p value of 0.01, attending the ANC of p value of 0.02.

There was no statistically significant association between exclusive breastfeeding and sex of the baby, parity, age of the mother, mode of delivery.

Conclusion:

The prevalence of exclusive breast feeding among the infants aged < 6 month at Mnazi mmoja hospital was 48.3%. There was a gradual decline in rate from at < 2 months 68% to 25% at 4-5 month. Mothers with higher education were more likely to exclusive breastfeed their infants. And least when the mother is in formal employment.

Recommendations:

More training and awareness campaigns should be done to improve the prevalence of EBF in Zanzibar.

The mothers in formal employment should be given more support to enable them exclusively breastfeed their infants longer.

1.0 BACKGROUND

Exclusive Breastfeeding means that, the infant receive only breast milk. No other liquid or solid are given, not even water - with the exception of oral rehydration solution or drops/ syrup of vitamins, minerals or medicines. Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development. Human milk contains all required nutrients that an infant needs for growth and development. It is the only natural food for an infant and is freely available whenever the baby needs it.

The benefits of human milk include protection against common childhood diseases such as diarrhea, vomiting, ear infection, constipation, and pneumonia. Human milk is also known to be protective against atopic eczema, food allergy, and respiratory allergy¹.

According to Black et al², an infant who is not *exclusively* breastfed for six months is 14 times more likely to die from all causes than those who are exclusively breastfed. The common practice of mixed feeding, that is breastfeeding with liquids and /or solids at the age below six months can increase the incidence of diarrhea and other infectious diseases. Mixed feeding, especially giving water or other liquids, can also lead to the decrease of amount of breast milk as the baby sucks less at the breast.

Campaigns have been ongoing since 1970s -1980s to spread the knowledge on the importance of breast milk and breastfeeding to both infant and mother (by WHO). Such campaigns also discuss the practices that support the initiation and maintenance of exclusive breastfeeding such as; initiation of breastfeeding within the first 1 hour of life, no prelacteal feeds and exclusive breastfeeding, skin to skin contact, rooming in, dealing with common breast problems. Proper early breastfeeding practices are very important for the successes of exclusive breastfeeding³.

Most of the available recent findings on prevalence of exclusive breastfeeding offer average data for Tanzania as a whole disregarding the fact that Tanzania is a union of two

countries. To the best of our knowledge, the only existing related work on exclusive breastfeeding and its effect to child health for Zanzibar is dated 1992,1994, and 2013 respectively^{4,5,6}. In his work, Khatib showed that in 1993, the percentage of underweight children in Zanzibar was 40%, and specific study conducted at two regions, namely North A district in Unguja and Micheweni district in Pemba islands of Zanzibar indicated that one-half of infants aged 2 to 3 months were receiving supplementary foods⁵. And the findings by TDHS in 1991/1992 showed that although there is almost universal breastfeeding, infants are rarely exclusively breastfed in Zanzibar, where the average was duration of full breastfeeding is only 0.4 months⁴. According to one study, the rate of exclusive breastfeeding was only 5 percent of children age 0 to 3 months, and another 38 percent of children in this age group were predominately breastfed⁵. In the study done by Rose et al , found that the risk factors that associated of not exclusive breastfeeding for the first 6 month in Tanzania ,was dominate in Zanzibar⁶.

Since exclusive breastfeeding is directly linked to child health, it is important to constantly sensitize the community and educate mothers on the importance of exclusive breastfeeding for up to six months. Appropriate authorities should also periodically monitor the outcomes of the efforts taken to improve the *prevalence* of exclusive breastfeeding. The findings of the assessment provided data for policy makers to take informed decisions towards improving child health in respective countries.

2.0 LITERATURE REVIEW

Benefits of breast milk

Human milk contains bacterial and viral antibodies, including relatively high concentrations of secretory immunoglobulin (IgA) that prevents microorganisms from adhering to the intestinal mucosa. Antibodies in human milk are thought to provide local gastrointestinal immunity against organisms entering the body via this route⁷. Macrophages in human milk may synthesize complement, lysozyme, and lactoferrin. In addition, breast milk contains lactoferrin, an iron-binding whey protein that is normally about one-third saturated with iron and has an inhibitory effect on the growth of *Escherichia coli* in the intestine.

The low pH of the stool of breast-fed infants is thought to contribute to the favorable intestinal flora of infants fed human milk in contrast to the formula by containing more bifidobacteria and lactobacilli; fewer *E. coli*. This helps to protect against infections caused by some species of *E. coli*. Transfer of tuberculin responsiveness by breast milk suggests passive transfer of T-cell immunity⁸. Some studies suggest that human milk has long-term benefits such as lowering mean blood pressure and cholesterol, and reducing the prevalence of obesity and type-2 diabetes⁹.

The availability of all essential nutrients in human milk for infants growth and development, together with the existence of sufficient milk from breastfeeding mothers are essential motivation towards promotion of breastfeeding. In WHO report, Butte et al¹⁰ evaluated the nutrient adequacy of exclusive breastfeeding for infants during the first 6 months of life.

In systemic review¹⁰, Butte et al examined the hypothesis that breastfeeding may have long-term protective effects against chronic disease in children. Lack of breastfeeding also leads to higher family expenses to purchase and prepare artificial foods as well as extra time needed to give these feeds and expense as a result of the child's illnesses.

Children who are not breastfed have increased illness, therefore increased use of health care services, and increased health care costs, both as infants and later. In addition, healthy infants grow to become healthy, intelligent adults in the workforce, contributing to the wellbeing of their community¹¹.

The potential benefits of exclusive breastfeeding include: improve the neurodevelopment, prevention of sudden infant death syndrome (SIDS), asthma and atopy. Also it prevent risk of chronic disease risk later life. A recent meta-analysis concluded that both short-term and long-term breastfeeding is protective against childhood acute lymphoblastic leukemia and acute myeloblastic leukemia¹². Other benefits of EBF include possibly substantial reduction of breastfeeding-associated HIV transmission. Exclusive breastfeeding for up to six months was associated with a three to four fold decreased risk of transmission of HIV compared to mixed feeding in several African studies¹³.

Reduction of risk of childhood obesity^{14,15}, is another benefit of EBF. In general breastfeeding plays a major role in reducing infant mortality due to infectious diseases mainly less developing countries¹⁶

Important health benefits of breastfeeding and lactation are also described for mothers. The benefits include decreased postpartum bleeding and more rapid uterine involution attributable to increased concentrations of oxytocin, decreased menstrual blood loss and increased child spacing attributable to lactation amenorrhea, earlier return to prepregnancy weight, decreased risk of breast cancer, decreased risk of ovarian cancer, and possibly decreased risk of hip fractures and osteoporosis in the postmenopausal period.⁵⁰

Optimal duration of breastfeeding

In 2001 an expert Consultation that was convened by WHO recommended that the optimal duration of exclusive breastfeeding is 6 months. As a result WHO changed its recommendation on exclusive breastfeeding from four-to-six months to a recommendation to promote exclusive breastfeeding for six months^{8,10,17}. EBF for six months has been shown to significantly reduce the rate of diarrhoea and respiratory infection¹⁷.

There is abundant research work that support exclusive breastfeeding up to six months^{17,18}.

In a study done by Fewtrell et al¹⁸, babies exclusively breastfed for six months were three-times less likely to fall sick than artificially fed babies. Exclusive breastfeeding was also associated with significantly lowered rate of serious illness.

Anderson et al, for example, focused on timing of introduction food allergens and the risk of development of allergy in the child¹⁹. The risk of allergy is a key consideration, introducing solids at 6 months may result in the lowest allergy risk. When all aspects of health are taken into account, the recommended duration of exclusive breastfeeding and age of introduction of solids were confirmed to be 6 months, but not later.

Cohen et al, in their study in Honduras, evaluated whether there are any advantage of complementary feeding prior to 6 months²⁰. The results showed that there is no advantage of introducing complementary foods before 6 months in this population, whereas there may be disadvantages if there is increased exposure to contaminated complimentary foods.. Findings from this study suggest that exclusive breastfeeding for the first 6 months of life contributes to the reduction of frequency and severity of common infections during infancy. Partial breastfeeding did not seem to provide this protective effect.

Nielsen et al on the other hand studied the adequacy of exclusive breastfeeding in meeting energy requirements of infants during the first 6 months. Results of their study revealed that when mothers were well supported and followed the WHO recommendation on breastfeeding, and there was adequate energy intake, exclusive breastfeeding was adequate for supporting normal growth of infant²¹.

Prevalence of exclusive breastfeeding

Despite its many health benefits, EBF is not commonly practiced by mothers across the cultures. Predictors of EBF rates vary from one country to another and are often influenced by cultures, perception, and awareness. Various predictors of EBF have been identified and differ from one country or culture to another. For instance, in Nairobi, work status has been shown to affect the prevalence of EBF²². The study showed that the prevalence of exclusive breastfeeding was 13.3% at three months among 444 working mothers²². Early introduction of complementary foods was very common, with 46.4% of the mothers introducing other foods before one month. Breast milk insufficiency and return to work were the main reasons cited for the cessation of exclusive breastfeeding.

Table 1. Prevalence of EBF in some African Countries

Author (Year)	Study Design	Country	Prevalence of EBF for 0- 6 months
Al Ghwass, Ahmed D, 2011	Cross sectional	Kaliubia Govermerato, Egypt	9.7%
Arts Maakie et al, 2011	Qualitative study	Mozambique	37%
A. Motee et al, 2013	Cross sectional	Mauritius	58%
UNICEF, 2011	KDHS	Kenya	32%
Alemayehu et al, 2009	EDHS	East Ethiopia	28.3%
Agunbiade et al, 2012	Complementary mixed method	Southwest Nigeria	19%
T. E Nkasa, S. E. Msuya, 2011	Cross sectional	Kigoma	17.9%
Mgongo M et eal, 2013	Cross sectional	Kilimanjaro, Tanzania	20.7%
UNICEF, 2012	TDHS	Tanzania	50%

Table 1 shows the prevalence of EBF from the study in several countries in Africa. The table shows that in East Ethiopia, the prevalence of exclusive breastfeeding in infants aged under six was 28.3%²³. Exclusive breastfeeding was less common among single mothers in areas with poor access to health facilities, and inadequate knowledge

about infant and young child feeding practices. Family support, education, and behavior change communication on infant feeding, especially on exclusive breastfeeding, at the community level may improve the knowledge, behavior, and practice of mothers on optimal infant and young child feeding practices. In another study conducted in Ethiopia, a range of maternal and child health attributes such as marital status, economical status and child age were found to influence the practice of EBF in Ethiopia²⁴.

Agunbiade et al evaluated breastfeeding practices and experiences of nursing mothers and the roles of grandmothers, as well as the work-related constraints affecting nurses in providing quality support for breastfeeding mothers in Southwest Nigeria²⁵. Breastfeeding was perceived as essential to baby's health. Only a small proportion (19%) of the nursing mothers practiced exclusive breastfeeding. The survey showed that the major constraints to exclusive breastfeeding were: the perception that babies continued to be hungry after breastfeeding (29%); maternal health problems (26%); fear of babies becoming addicted to breast milk (26%); pressure from mother-in-law (25%); pains in the breast (25%); and the need to return to work (24%). In addition, the qualitative findings showed that significant others played significant roles with negative consequences on breastfeeding practices. The desire to practice exclusive breastfeeding was often compromised shortly after child delivery. Poor feeding, inadequate support from husband and conflicting positions from the significant others were dominant constraints.

In their study, Vaahtera et al studied breastfeeding and complementary feeding practices in rural Malawi²⁶. They found that exclusive breastfeeding was uncommon and complementary foods were introduced early to newborns among these rural families. As most babies were given water or other supplemental foods soon after birth, the exclusive breastfeeding rates were only 19%, 8%, 2% and 0% at ages 1, 2, 3 and 4 month, respectively. Complementary foods and family foods were introduced at median ages of 2.5 months, i.e. much earlier than recommended.

Al Ghwass et al found that 95.8% of mothers initiated breastfeeding in their babies, but only 9.7% were exclusive breastfeed their infants up to 6 month of age. This was the cross-section study done at Kaliubia Govemorate, Egypt and 1,059 mothers participated. Al Ghwass et al also found that mothers who attended antenatal care (more than four time), initiated breastfeeding early and experienced no breastfeeding difficulties were likely to exclusively breastfeed their babies up to 6 months²⁷.

The study done in Mozambique by Maaike et al²⁸ was about prevalence, knowledge, beliefs and practices regarding exclusive breastfeeding of infants under 6 months of age . The study included 82 mother in law and grandmothers, 85 fathers, 95 mothers and 80 MCH nurses. The study has showed that:

- all the groups mentioned that breast milk was the best, but did not always initiate with in the first hour after delivery, due to the perceived need for the mother to rest after delivery.
- there appeared to be different view about the health benefit of colostrum for an infant ,with some saying it was good while others said that colostrum was not good for the infants.
- although initiation of breastfeeding practice appeared to be universal in Mozambique, most of the participants mentioned that other food or liquid were introduced before the age of 6 month, and it was found that the prevalence of exclusive breastfeeding in was only 37%.for the first 6 months of age.

On the other hand, a study in Mauritius by Motee et al showed that only 35.7% of participants had adequate knowledge on exclusive breastfeeding, and the exclusive breastfed prevalence was relatively low in comparison with WHO recommendation. Only 17.9% of the women were exclusively breastfeeding their infants up to 6 month²⁹. The study found that most mothers introduced water and infant formula very early . Other major barriers to exclusive breastfeeding were employment (27.3%), and insufficient of milk.

Exclusive Breastfeeding in Tanzania

In Tanzania the prevalence of exclusive breast feeding reported by TDHS 2010 was 50%³⁰. The prevalence were different from one region to another within the country. However Mgongo et al reported a prevalence of 20.7% in Kilimanjaro region (northern part of Tanzania). Married mothers and those who did not take alcohol were more likely to exclusively breastfeed their infants up to 6 months³¹.

Nkasa et al³², investigated prevalence and predictors of EBF in Kigoma region in Tanzania(western part of the country). The authors undertook cross-sectional study that was conducted for 2 months and among 402 consenting women, with infants aged 6 to 12 months, from randomly selected households. Their findings indicated that the prevalence of EBF among women in Kigoma Municipality was 58%. Knowledge of EBF was relatively higher (86%) compared to the practice. Compared to data from global nutrition database³⁰ which indicated that EBF in Tanzania was 50% by (TDHS) 2010, the prevalence in Kigoma in 2011 was significantly higher.

The recent report³³, breastfeeding week 2013 in Tanzania, shows the current situation of breastfeeding in Tanzania. The report states that over 97 percent of mothers in Tanzania do breastfeed, however, the prevalence of exclusive breastfeeding in infants aged 0-6 months was 50 percent. Data available shows that 81 percent of infants aged less than 2 months were on breast milk only, the proportion that declined to 51 percent among infants at 2-3 months and 23 percent among those aged 4-5.

Although there is almost universal initiation of breastfeeding after birth, infants under 6 months are rarely exclusively breastfed in Zanzibar. The average duration of exclusive breastfeeding being only 0.4 months (TDHS 1991/92). According to one study, the rate of exclusive breastfeeding was only 5 percent of children age 0 to 3 months, and another 38 percent of children in this age group were predominately breastfed. Another study conducted in North A and Micheweni districts indicated that one-half of infants aged 2 to 3 months were receiving supplementary foods³. In short, breastfeeding practices in Zanzibar share the same problems as on the mainland. Solid supplements are introduced too early, and supplementary foods are low in energy and inappropriate

3.0 JUSTIFICATION

3.1 Justification.

In order to improve exclusive breastfeeding practice in Zanzibar, we have to know its prevalence and factors that affect the practice exclusive breastfeeding. To the best of our knowledge, there is no study that shows the current prevalence of exclusive breast feeding specific to Zanzibar. Related literature has been showing the prevalence in the United Republic of Tanzania but not that of Zanzibar which is a separate country .Since Zanzibar is a country with its different culture, the available data on exclusive breastfeeding rates in Tanzania cannot be generalized to Zanzibar. The data specifically for Zanzibar will help government in formulating polices, to reduce the mortality rate of under five children by preventing malnutrition.

There is a lack of up-to-date data on the prevalence of exclusive breastfeeding in Zanzibar. Existing data already indicate the need for a study to establish the prevalence of EBF in Zanzibar. For instance, a general report of UNICEF focusing on Tanzania has shown that early weaning and pre-lacteal feeds are common in Zanzibar. Survey by TDHS indicate that mean duration of EBF in Zanzibar was 0.7 months in 1991/1992, in 1996 was 1.1 months ,and 2005 was 1.8 months⁴. In another old study, it was shown that exclusive breastfeeding in Zanzibar was only 5% in 1992⁴. All of these studies did not show exactly prevalence of EBF in Zanzibar but they tell us there is a need to establish the current prevalence as well as factors associated with the status.

In addition to the above available data, cultural and life style in Zanzibar offer little supportive to EBF. For instance, it customary that upon delivery, mothers and infants are nursed and supported by grandmothers who provide guidance to the others. It is believed that male infants require more feeding than their mothers can offer .

This study will help the government of Zanzibar to get most recent data on the status of exclusive breastfeeding in Zanzibar and the factors that leads to that situation, this will help the government to take appropriate measure to improve the situation of exclusive

breastfeeding. The findings will serve as support for advocacy for regular study related to breastfeeding in the country.

3.2 Objectives

Primary objective

To determine the prevalence of exclusive breastfeeding in infants under 6 months of age attending Mnazi mmoja Hospital in Zanzibar.

Secondary objective:

To identify the factors associated with exclusive breastfeeding among mothers with the infants under 6 months of age attending MCH clinic at Mnazi mmoja hospital Zanzibar. Factors of interest included maternal and infant age, parity, sex of the child, education level.

4.0 METHODOLOGY

4.1 Study Design

The study was a cross-sectional descriptive, hospital based study.

4.2 Study Area

The study was conducted at Mnazi mmoja Hospital in Zanzibar. The hospital is located in Unguja island, the largest of inhabitable islands of Zanzibar archipelago.

Mnazi mmoja Hospital is the main referral ,government run hospital in Zanzibar. It serves approximately 1 million people. The hospital itself is located in the Stone Town(Unguja) . The hospital has an outpatient clinic, specialized clinics as well as several wards for the inpatient services. Although termed as the referral hospital, basic outpatient services are also provided to the nearby communities.

The hospital has 400 beds. The specialty departments include pediatrics , obstetrics and gynecology, maternity services, mother and child health (MCH),and other departments .

Mwembeladu Maternity Home, is a branch of Mnazi mmoja referral hospital with bed capacity of 34 beds, and is located at Mwembeladu (about 2 km from the main Hospital).Although it offers maternity and reproductive; the babies delivered at Mwembeladu hospital usually attend immunization and other routine check up at Mnazi mmoja hospital MCH clinic.

The MCH clinic operates only on weekdays from 7:30am up to 1:30pm. Every day in the morning, there is a health talk done by qualified nurse .The average number of infants attending the clinic for vaccination per month is about 343. The clinic offers the infants and children BCG in early days of life. OPV and DTP at six weeks, 10 weeks and 14 weeks, then measles at 9 and 18 months of age.



4.3 Study Population

The population for this study was drawn from mothers with infant infants aged under 6 months who attended MCH clinic during data collection phase of the study which was January -February 2015

Inclusion citerai

- Mother-infant pair -Infants of age < 6 month
- Mothers who gave consent to participate in the study

Exclusion criteria

- Mothers who declined to participate in the study

4.4 Sample Size

The sample size was calculated according to the following formula.

$$n = \frac{t^2 p(1 - p)}{m^2}$$

n = required sample size □

t = confidence level at 95% (standard value of 1.96) □

p = estimated prevalence of early breastfeeding in the project area □

m = margin of error at 5% (standard value of 0.05)

Based on the data from UNICEF (5), the available estimate for the prevalence of EBF for 2010 is 50%. We assumed the same prevalence for Zanzibar since we didn't have records specifically for Zanzibar. Therefore, the proposed sample size for this study was 384. But we calculated the desired sample size for the population <100,000 as :

$$nf = \frac{n}{1 + \frac{n}{N}}$$

nf = desired sample size when the population is less than 10,000,

n = desired sample when the population is more than 10,000,

N = estimate of the population size.

The children attending the clinic per month is about 350, and our study duration was two months, so N is accessible population which was 700 for two month. Using $n = 384$, we obtain the desired sample size (nf) as **248**.

4.5 Study Procedures

The sample was collected into three different groups according to the age, i.e., < 2 months, 2-3 months and 4-5 months, and had 88, 80 and 80 mother-infant pair respectively. To have a representative number per age, the sample size was divided into three group as above. Each pair was used only once.

The sampling continued consecutively until the total sample size of 248 was reached. Two qualified nurses from the hospital were recruited as assistant and trained on protocol, how to screen and recruit, take consent and collect data, and also how to fill the questionnaire forms. The following steps were followed in collecting data from 7:30 am to 1:30pm on work days.

1st: The mothers were screened for the eligibility and identification of the eligible ones,

2nd: For eligible mothers explanation of the study was done and consent was obtained.

3rd: The mothers who accepted and signed the consent were enrolled

4th: The mothers were interviewed using the questionnaire (Appendix 111) to obtain information on socio-demographic status, birth related events, knowledge, perception related to breastfeeding and family support, and 24hrs recall to determine exclusive breastfeeding. All the infants of the mothers who consented were examined.

5th: The mothers found to have poor knowledge or practice of breastfeeding were counseled.

At the end of each day, the forms were collected and reviewed for omissions and errors, and finally the data was entered into the computer. The data was entered daily, and locked by password with the limited access except the principal investigator and her assistants.

4.7 Data Analysis and management

Statistical Package for Social Sciences (SPSS) was used for data entry and analysis. The socio-demographic data of mothers and infants was summarized using univariate statistics. Descriptive analysis was done for continuous variables and presented in terms of mean, median and mode whenever appropriate for the study. The frequency reported in terms of numbers and percentages using tables and graphs.

Bivariate analysis was done to establish the association between dependant and independent variables, using chi square statistics for categorical variables and student's t-test for continuous variables. Multivariate analysis conducted to establish the degree of association between the outcome of dependent variable and the independent variables found to be statistically associated in the bivariate analysis. Here the variables are the identified factors during the study that affect EBF. The prevalence of exclusive breastfeeding calculated and presented as percentages. Statistical significance based on an alpha level of 0.05.

5.0 ETHICAL ISSUE

5.1 Ethical approval

Ethical clearance was obtained from Kenyatta Hospital/ University of Nairobi's Ethical Committee. Approval was gotten from Ministry of Health, Zanzibar to conduct the study in the hospital. A consent form was signed by all mothers who agreed to participate in the study, after explanation of the study and the voluntary nature of participation. Both the questionnaire and the consent form was translated into the local Swahili language.

5.2 Confidentiality

Confidentiality was guaranteed. Names were omitted in the questionnaire forms.

5.3 Study risk

The participants were not exposed to any risk during the study.

5.4 Benefit from the study

The results of this study will be communicated to the health facilities to help improve mothers' knowledge and encourage the practice of exclusive breastfeeding.

Mothers who had the difficulties in practicing exclusive breastfeeding were counseled.

6.0 RESULTS

6.1 Infant characteristics

In our study we had a total of 248 children, of whom 59% (142) were males and so 41% (106) were female. The mean birth weight was 3.23kg with the standard deviation of 0.57.

6.2 Maternal characteristics (Table 2)

The mean age of the mothers in our study was 29.4years with the standard deviation of 7.4. Table 2 shows the parity, marital status, level of education, occupation, religion of mothers, ANC visits, place and mode of delivery of their children. The majority of the mothers were married 76.7%. Regarding level of education, 58.5% had secondary education. The percentage of salaried mother was 38.4 where that of housewives was 47.2%. The table also shows that over 87% of mothers were Muslims. About 97% of the mothers attended ANC. Over 87% of mothers were delivered vaginally SVD, and just over 86% of mothers delivered in hospitals.

Table 2: Characteristics of Respondents

		n	%
Parity	Primi*	82	33.2%
	Multiparous**	143	57.3%
	Grand multipara***	23	9.5%
Marital status	Single	25	10.7%
	Married	192	76.7%
	Divorced	28	11.5%
	Separated	1	0.4%
	Widowed	2	0.8%
Mother's level of education	None	22	9.5%
	Primary	48	19.0%
	Secondary	146	58.5%
	Tertiary	30	12.3%
	Other	2	0.8%
Occupation	Housewife	118	47.2%
	Salaried employee	94	38.4%
	Self-employed	18	7.2%
	Student	16	6.8%
	Other	2	0.4%
Religion	Christian	31	12.6%
	Muslim	217	87.4%
	Other	0	0.0%
ANC Visits	No	6	2.5%
	Yes	237	97.5%
Mode of delivery	SVD	219	87.7%
	CS	29	11.5%
Place of delivery	Hospital	214	86.2%
	Health center	9	3.6%
	Home	25	10.1%

*Primi: a woman who gave birth for the first time.

**Multiparous: a woman who has given birth two or more times.

***Grand multiparous : a woman who has given birth five or more times

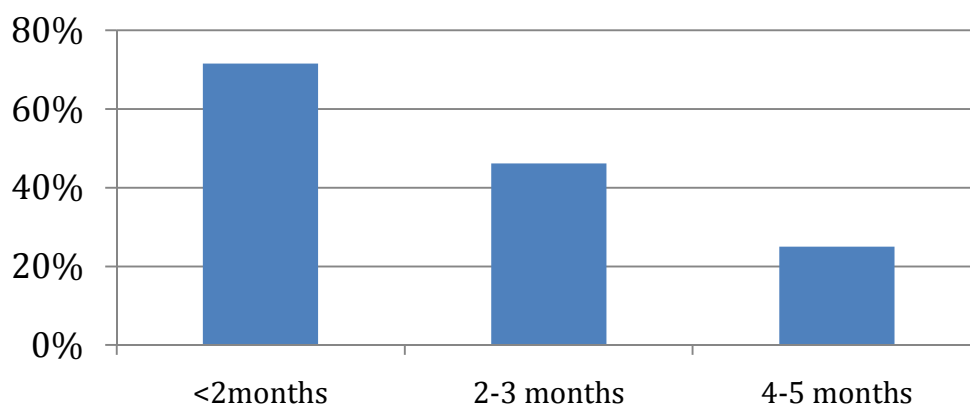
6.3 Determining prevalence of Exclusive Breastfeeding

The prevalence of EBF at MCH clinic at Mnazi mmoja hospital was 120/248(48.3%). Table 3 and Figure 2 show the rates of exclusive breastfeeding for age groups of <2 months, 2-3 months, and 4-5 months. The results show that the prevalence of exclusive breastfeeding decreased with the age of the group, with the age group of 4-6 months accounting for the lowest prevalence of 25% and < 2 month group having the highest rate of 68%.

Table 3: Exclusive breastfeeding rates per age groups(n=248)

Infant age	No exclusive breast feeding		Exclusive breast feeding	
	N	%	n	%
<2months(88)	28	31.8	60	68.1
2-3months(80)	38	47.5	42	52.5
4-5months(80)	62	78.0	18	23.0

Figure 2: Prevalence of exclusive breastfeeding



6.4 Practices of Breastfeeding

Table 4 shows results for practices of breastfeeding, where 80.5% of mothers initiated breastfeeding within an hour of delivery, 60% had immediate skin contact with their babies after birth, about 85% practiced rooming and 70% did not give anything to babies before starting breastfeeding.

Not having enough milk, was the main reason for not practiced exclusive breastfeeding (58% of respondents). A high percentage of mothers (47.6%) started giving complementary foods to their infants, at the age of 4-5 months. Occurrence of pregnancy and child's refusal to breastfeed were main reasons associated with stopping exclusive breastfeeding in 36 % and 23% of the mothers respectively.

* Among the 195 mothers who initiated breastfeeding in the first hour of life, 65 of them offered prelacteal feeds .

Table 4. Practices of Breastfeeding

		n	%
Initiated breastfeeding in the 1 st hour of delivery (n=248)	Yes	195	78.7%
	No	53	21.3%
Reasons for initiating breast feeding after 1 hr (n=53)	Colostrum is not good	3	5.6%
	No milk	42	79.3%
	Mother was sick	3	5.6%
	Baby was sick	5	9.4%
Had skin contact with baby immediately after birth (n=248)	Yes	150	60.5%
	No	98	39.5%
Practiced rooming in (n=248)	Yes	208	83.9%
	No	40	16.1%
What did you offer the baby before you started breastfeeding * (n=65)	Water	15	23.0%
	Honey	47	72.3%
	Other feeds	3	4.6%
Reasons for not practicing exclusive breastfeeding (n=128)	No enough milk	75	58.1%
	Water should be given as weather is hot	27	20.9%
	Resumed work	18	13.9%
	Other	9	6.9%
If you have started complementary food, at what age did you start (n=105)	0-2 months	18	17.1%
	>2-4 months	37	35.2%
	>4-6 months	50	47.6%
Is the baby breast feeding (n=248)	No	19	4.7%
	Yes	229	95.3%
Reason for stopping breastfeeding (n=19)	Child refused by himself	5	26.3%
	I got pregnant	7	36.8%
	I had breast problems	1	5.3%
	Child fell sick	1	5.3%
	Others	5	26.3%

6.5 Food given within 24 hrs

We found that among 128 mothers who practiced mixed feeding, 26% gave cow's milk as the main food given within 24 hrs. Formula milk were given by 19.5% of the mothers, potatoes and soup was given by 22% of the mothers .19% of the mothers gave porridge .Cerelac and rice was given by a small percentage of the mothers . Some mothers also gave their infants other liquids apart from milk, plain water being given by 67% of the mothers. Only a few of the mothers gave fruit juice to their infants.

6.6 Knowledge of breastfeeding

Majority of respondents had good knowledge about breastfeeding. 79.8% knew that breast milk is nutritious, 49% knew that breastfeeding protect the baby from infections. 32% of the respondents knew that breastfeeding increase mother-baby bond, 27% of the mothers knew that breastfeeding was cheap and available ,14% of respondents understood that breastfeeding is a contraception method . 20% of the mothers knew that breastfeeding helps maintain mothers body weight. 14 % of mothers knew that breastfeeding prevents maternal breast cancer.

6.7 Knowledge of Exclusive Breastfeeding

Table 5 shows the mothers' knowledge on EBF. It shows that mothers have very good knowledge of exclusive breastfeeding. For instance, 89% of the others correctly defined exclusive breastfeeding, 77.8% knew the exact recommended duration of exclusive breastfeeding, and 11.5% of them knew that when they were away their babies were to be fed on expressed breast milk.

Table 5: Knowledge of exclusive breastfeeding

		m	%
Definition of EBF(n=248)	To give only breast milk and medicines if indicated	208	83.8%
	To give breast milk and water	16	6.5%
	I don't know	24	9.6%
Recommended duration of EBF in months (n=248)	2	1	0.4%
	3	2	0.8%
	4	39	15.7%
	5	8	3.2%
	6	193	77.8%
	>6	5	2.0%
If mum not around, what does the child feed on?(n=243)	Formula milk	91	37.4%
	Cow's milk	75	30.8%
	Expressed breast milk	28	11.5%
	Porridge	54	22.2%

6.8 Social Support for breastfeeding

Table 6 shows social support offered to the breastfeeding mothers include support from family members, maternity leave for salaried mothers, and one hour duration for breast feed for salaried mothers, this one hour is the choice of the mother when she prefer to take. The results indicate good social support to breastfeeding mothers in all respects.

Table 6: Social Support on breastfeeding

	Frequency	Percent
Support from family members regarding to breastfeeding(n=248)	203	81.9%
Yes	45	18.1%
No		
If you are employed, did you get the maternity leave (n=94)	83	88.3%
Yes	11	11.7%
No		
Duration for maternity leave given (n=83)		
1 months	5	6.0%
2 months	10	12.0%
3 months	61	73.5%
≥6 months	7	8.4%
Employer supporting breastfeeding by giving time for the mother to go and breastfeed (n=83)		
Yes	71	85.5%
No	12	14.4%

6.9 Factors affecting success of exclusive breastfeeding

Table 7 shows univariate analysis of the factors effecting the success of exclusive breastfeeding . The significant factors that positively affect exclusive breastfeeding are: occupation of the mother, education level of the mother, ANC visit. Other factors are not significant as shown in Table 6.

Table 7 : Univariate analysis of factors affecting success of breastfeeding among mothers

(n=248)		Exclusive breastfeeding				P value
		No exclusive breast feeding		Exclusive breast feeding		
		n	%	n	%	
Infant's sex:	Male	78	54.9	64	45.1	0.256
	Female	50	47.1	56	52.9	
Parity:	Prime	47	57.3	35	42.7	0.069
	Grand	15	65.2	8	34.8	
	Multi	66	46.1	77	53.9	
Marital status	Single	15	60.0	10	40.0	0.275
	Married	95	49.5	97	50.5	
	Divorced	15	53.5	13	46.5	
	Separated	1	100.0	0	.0	
	Widowed	2	100.0	0	.0	
Mother's level of education	None	18	81.8	4	18.2	0.010
	Primary	26	54.1	22	45.9	
	Secondary	73	50.0	73	50.0	
	College/University	10	33.3	20	66.7	
	Other	1	50.0	1	50.0	
Occupation	Housewife	55	46.6	63	53.4	0.050
	Salaried employee	52	55.3	42	44.7	
	Self-employed	8	44.4	10	55.6	
	Student	13	81.2	3	18.8	
	Other	0	.0	2	100.0	
Religion	Christian	18	58.1	13	41.9	0.428
	Muslim	110	50.7	107	49.3	
ANC Visits	No	6	100.0	0	.0	0.018
	Yes	121	51.1	116	48.9	
Mode of delivery	SVD	111	50.7	108	49.3	0.709
	CS	17	58.6	12	41.4	
Place of delivery	Hospital	105	49.1	109	50.9	0.084
	Health center	8	88.9	1	11.1	
	Home	15	60.0	10	40.0	

As shown in table 8, These factors are not affect exclusive breastfeeding.

Table 8: Univariate and multivariate analysis of factors affecting success of breastfeeding among mothers

		N	Mean	Std. Deviation	P value
Birth weight (kg) n=247	No exclusive breast feeding	129	3.2	0.62	0.150
	Exclusive breast feeding	118	3.3	0.51	
Gestation at birth(week) n=248	No exclusive breast feeding	127	37.8	1.36	0.453
	Exclusive breast feeding	121	37.7	1.78	
Mother`s age in years n=237	No exclusive breast feeding	120	29	7.79	0.554
	Exclusive breast feeding	117	29	6.89	
Partner`s age in years n=231	No exclusive breast feeding	114	35	8.78	0.665
	Exclusive breast feeding	117	34	7.52	
Birth order n=238	No exclusive breast feeding	120	3	2.10	0.202
	Exclusive breast feeding	118	3	1.76	

Table 9 shows that the older the infants were less likely to be exclusive breastfeeding. Thus table also shows that the higher the education level of the mother the more likely was she exclusively breastfeed her baby . Occupation of the mother also has significant effect on exclusive breastfeeding.

Table 9: Multivariate analysis of factors affecting success of breastfeeding among mothers

		Exclusive breastfeeding				OR [95% CI of OR]	P value
		Exclusive breast feeding		No exclusive breast feeding			
		n	%	n	%		
Infant age group	0-2 months	63	71.5	25	28.4	Ref	
	>2-4months	37	46.2	43	53.8	2.57 [1.26 - 5.24]	.009
	>4-6months	20	25.0	60	75.0	5.54 [2.81 - 10.94]	.000
Mother's level of education	None	4	16.7	20	83.3	Ref	
	Primary	20	46.5	23	53.5	0.22 [0.06 - 0.8]	.022
	Secondary	75	50.7	73	49.3	0.11 [0.03 - 0.39]	.001
	College/University	20	64.5	11	35.5	0.04 [0.01 - 0.18]	.000
Occupation	Housewife	63	53.8	54	46.2	Ref	
	Salaried employee	44	45.8	52	53.42	2.58 [1.27 - 5.26]	.009
	Self-employed	9	52.9	8	47.1	1.24 [0.41 - 3.76]	.700
	Student	3	17.6	14	82.4	11.8 [2.32 - 60.07]	.003
	Other	1	100.0	0	.0		1.000

7.0 DISCUSSION

The study focused on the prevalence of exclusive breastfeeding and the factors affecting it. In this study, collected the data from the 248 respondents aged between 15 and 46 years of (mean=29.4yrs, and SD=7.35). Most of the respondents (57.3%) had 2 - 4 children, and (58.9%) was male infants.

It was found that 95.3% of the mothers in study initiated breastfeeding of their infants ,but only forty eight percent (48.6%) of infants were exclusively breastfeed. This finding is slightly lower than the reported national rate of exclusive breastfeeding which is 50%³⁰, but higher than the prevalence from studies in several countries in Africa^{23, 25, 27}.

The prevalence of exclusive breastfeeding decreased gradually from 66.3%among mothers with < 2 month old infants, through 49.2% among mothers with 2-3 month old infants to 28.9% among mother with 4-5 month old infants .

This declining trend in EBF prevalence is similar to what was reported in the TDHS (2010) where 81%, 51% and 23% of the infants at <2 months, 2–3 months and 4–5 months respectively were exclusively breastfed³⁰. In Zanzibar Town, there is a traditional practice where mothers are relieved from their daily chores in the first three months after delivery. During this period, mothers in laws or grandmothers have to feed lactating mothers with special diet believed to enhance milk production. This could explain the higher rates of EBF in the first three months after delivery. Another reason for high rates of EBF in the first three months is the society believes that breast milk is enough for infants aged up to three months. Also the mothers in formal employment get their maternity leave for the first three months after delivery.

Majority of the respondents (82.2%) knew that the correct definition of exclusive breastfeeding involved giving only breast milk and medicines and that the recommended duration for exclusive breastfeeding was six months (77.8%). This was higher than the 27% reported by Ajibuah in Nigeria³⁴, but lower than the 82.3% reported by Ogbonnac also in a different state in Nigeria³⁵. This higher rate of knowledge of

definition and recommended duration of EBF in Zanzibar town can be due to high rate of ANC attendance, although it can be variable in different areas in Zanzibar, according to ANC coverage. Not all those who gave correct definition of EBF practiced it.

The findings that most of the mothers stay in the same room (roomed in) with their babies is almost the same as (84.9%) reported by Hadia (87.2%) in her study done in Emirates³⁶. Perhaps this is due to the cultural similarity. About seventy percent (69.7%) of the mothers did not offer prelacteal feed, the babies who were offered prelacteal feeds were commonly given honey (18.6%).

It was found that early practices that support the success of exclusive breastfeeding were done by most of the mothers. That eighty percent (80.5%) of the mothers actually initiated breastfeeding in the first hour of delivery, this is comparable to the 82% reported by Shirima et al among urban mothers in Tanzania³⁷. Ganu found in his study that 64% of mothers in Kenya initiated breast feeding in the first two hours of delivery³⁸, while in Nigeria it was found that only 21.1% of mothers initiated breastfeeding in the first hour of delivery respectively³⁵. In our study, of those who did not start breastfeeding in the first hour, 72.7% assumed that there was no milk immediately after delivery, and therefore gave formula or glucose water until full establishment of the breast milk. This finding is similar to the 70% reported in a study done in Somalia that the proportion of mothers who gave lack of milk was the common reason for not initiating breastfeeding³⁹. Among those who did not initiate breastfeeding immediately after birth 6.8% thought that colostrum was not good for the baby. This finding is lower than the 66% one found by Ganu in Kenya among mothers who did not initiate breastfeeding immediately³⁸.

We also found that 60.6% of mothers had skin to skin contact immediately after birth. This finding is greater than the 39.7% reported by Leslie in California⁴⁰. This great difference can be due to different settings in Zanzibar. It has been a custom to place the baby immediately after birth on mother's abdomen. Even mothers who delivered at home

used to have their babies put on their bare abdomen even without any medical knowledge on the advantage of this.

Only one mother (5.3%) stopped breastfeeding due to a breast abscess and which was treated surgically. Another mother stopped because of infant's illness, (5.3%), the concept that mother's breast milk can change and cause diarrhea aggravating child's illness especially when the mother stays for a long duration without breastfeeding is not very common in the area. This finding is lower than the 67.1% reported by Salih⁴¹. In a study done in Sudan. Only 19 mothers (4.7%) were found to have stopped breastfeeding at the time of the study; getting pregnant and child's refusal to breastfeed, were the frequent reasons given for stopping breastfeeding before six months. This practice was also found commonly in Sudan and other parts of Tanzania^{41,37}.

The majority of the mothers 47.6% started complementary feeding at 4-6 months of age while 17.1% started between 0-2 months. Shirima in his study done in Tanzania found that 75.2% of mothers started complementary food around 4-6 months³⁷. This difference is probably as a result of the improvement of knowledge on the advantages of breast milk to the baby and WHO recommendation which makes them not to start complementary food early compared to the old study done by Khatibu⁴.

Only 24.9% of respondents knew that complimentary feeding babies should be given using cup and spoon, while 71.9% knew that baby should be fed by bottle, even though most of the mothers knew the disadvantage of bottle feeding as it could cause diarrhea (82.2%).

The study revealed that 82.1% of mothers had support for breastfeeding, most commonly from their mothers. Eighty-two percent (87.2%) of the employed mothers got support for breastfeeding from their employers by being given time (mainly is one hour) for breastfeeding. Casual laborers tended to carry their babies to their work place, although

there were no designated places for breastfeeding at work place. Babies will be just around their mothers, as breastfeeding in public was not a major problem (as far as you cover yourself). These findings are higher than the 38% reported by Chidozie et al in Nigeria who noted mothers agreed that work place provided designated areas for breastfeeding⁴². Again this difference is due the different cultures in the two populations.

The official maternity leave in Zanzibar is twelve weeks, so mothers tend to take their annual leave on top of the maternity leave, making total of four months, for majority of working mothers which was reported to be sufficient by more than half of the respondents. Most of the mothers said that the duration of maternity leave is enough, however Chidozei et al reported that 3 months maternity leave duration was insufficient to the mothers⁴². It is possible that mothers in Zanzibar don't take exclusive breastfeeding as a must for six months, and unfortunately they consider going back to work as a break from their baby, mothers who took more than three months were self-employed, so the length of their leave depended on their own decision.

Majority of the interviewed mothers had low knowledge on advantage of breastfeeding to the mother, only 13.8% knew that breastfeeding prevents breast cancer, 20.6% knew that breastfeeding maintains body weight.

Only 14.2% knew that breastfeeding protects against another pregnancy. This is difference to the findings of Chidozei et al that 46% of mothers knew that breastfeeding is a contraceptive method, and 70% knew that breast feeding maintains mothers weight⁴². Low educational background and the facts that at ANC visits commonly taught the advantages of breastfeeding to the child and not to the mother, should be a reason.

Transmission of HIV through breast milk was known by 68.8% of mothers. This finding is higher than reported by Maputle et al⁴⁴. The difference could be explained by the fact that mothers were being taught in ANC about transmission of HIV through breast milk.

On the socio-demographic factors affecting success of breastfeeding, the univariate analysis showed that ANC visit, mother's level of education and occupation were the significant socio demographic factors associated with exclusive breastfeeding.

Education level was found to be significantly associated with exclusive breastfeeding. The higher the level of education the more likely is the mother to exclusively breastfeed. Mothers with no education are either housewives and likely to stay in extended family and to be under pressure of elderly, so even if they are willing to exclusive breastfeeding they end up to be forced to give the baby other feeds. This is similar to the study done by Grummer that shows that lower maternal education was associated with not breastfeeding⁴⁵. But contradicts with the Agu study which found that maternal education is not associated with high prevalence of exclusive breastfeeding⁴³.

The study did not look for number of housewives who had university level of education but generally the employment rate for higher education is high.

Mothers' occupation was also found to be significantly associated with EBF (p value < 0.05). 55.6% of self employed mothers and 54.2% of house wives being more likely to exclusively breastfeed their babies. This finding is different from that reported from Ethiopia by Tesfeye, that working mothers were more likely not to exclusively breastfeed their babies⁴⁸. This difference appears to be due to the fact that most of the working mothers in our study used to take their babies to their work place and so were able to continue breastfeeding while at work.

In this study age of the mother was not significantly associated with EBF. This findings is similar to the one reported from Nigeria by Agu et al⁴³. This can be because the success of breastfeeding depends on mothers willingness to breastfeed, whether young or old.

Some previous studies have shown that the type of delivery affects the exclusivity of breastfeeding⁴⁶. Women who had vaginal delivery were more likely to breastfeed exclusively⁴⁶. In this study no association was found between mode of delivery and exclusive breastfeeding. The findings is similar to Naanyu's reported in Kenya⁴⁷. Widespread use of spinal anaesthesia in caesarean deliveries could play a role in allowing

mothers to be able to initiate breastfeeding within one hour of birth, also the myth that CS delivery will affect mothers' shape makes them work hard on EBF so as to ensure quick uterine involution and later on a small belly.

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8.0 STUDY LIMITATIONS

Our study was constrained by a number of factors as follows:

1. Recall bias, some of the mothers were not able to recall all the details of their practices in the past months.
2. The hospital sample of women represented a group which might be more compliant and better informed about infant feeding than a random population sample of women
3. Being more informed, mothers who come to the hospital might give the desired answers even if they don't practice.

9.0 CONCLUSION

The prevalence of exclusive breastfeeding among fewer than 6 month old infants was 48.3% at MCH in Mnazi mmoja hospital in Zanzibar.

Age of infant, ANC visit, occupation, and education level of the mother were the main factors affecting exclusive breastfeeding in Zanzibar town. Early practices that support exclusive breastfeeding were done by the majority of the respondents and the knowledge on exclusive breastfeeding was generally good, among most of the mothers.

10. RECOMMENDATIONS

Based on the findings of this study, we would to provide the following recommendations:

1. The mothers in formal employment should be given more support to enable them exclusively breastfeed their infants longer, eg by increase time given for breastfeeding , increase maternity leave, providing place for expressing breast milk.
2. More training and awareness campaigns should be done to improve the rate of exclusive breastfeeding in Zanzibar.

11. REFERENCES

1. Saarinen UM, Kajosaari M. Breastfeeding as prophylaxis against atopic disease: prospective follow-up study until 17 years old. *The Lancet* 1995; **346**(8982):1065-1069.
2. Black RE, Allen LH, Bhutta ZA, Caulfield LE, M de Onis, Ezzati M, Mathers C, Rivera J. Maternal and child undernutrition: global and regional exposures and health consequences. (Maternal and Child Undernutrition Series 1). *The Lancet* 2008;**371**:243-260.
3. Baker JE, Sanei LC, Franklin N. Early Initiation of Exclusive Breastfeeding in Large-scale Community-based Programmes in Bolivia and Madagascar. *J Health Popul Nutr.* 2006; **24**(4):530-539.
4. [http:// dhsprogram.com/Where-We-Work/country-Tanzania](http://dhsprogram.com/Where-We-Work/country-Tanzania). Where We Work - Sub Sahara Africa The Demographic and Health Survey by USAID.
5. Jansen H. Household Survey on Diarrheal Diseases, Acute Respiratory Infections and Breast- Feeding: WHO, Geneva; 1992.
6. Victor R, Baines SK, Agho KE, Dibley MJ. Determinants of breastfeeding indicators among children less than 24 months of age in Tanzania: a secondary analysis of the 2010 Tanzania Demographic and Health Survey, *BMJ Open* 2013; **3** (1):001529.
7. Heird, WC. Feeding Healthy Infants, Children, and Adolescent. In: Nelson`s textbook of paediatrics 19th edition, Robert M Kliegman, Bonita F Stanton, Joseph W. St Geme, Nina F Schor, Richard E Behrman, Philadelphia; 160:2011.
8. The Optimal Duration of Exclusive Breastfeeding Report of an Expert Consultation Geneva: WHO; Switzerland 28–30 March 2001.
9. Taylor JS, Kacmar JE, Nothnagle M, Lawrence RA. A Systematic Review of the Literature Associating Breastfeeding with Type 2 Diabetes and Gestational Diabetes. *Journal of American College of Nutrition* 2005; **24**(5):320-326.
10. Butte NF, Lopez-Alarcon MG, Garza C. Nutrient adequacy of exclusive breastfeeding for the term infant during the first six months of life. WHO report; 2002.

11. Kramer M, Kakuma R. Optimal duration of exclusive breastfeeding. *Cochrane Database of Systematic Reviews*, 2012;**15**:CD003517; DOI: 10.1002/14651858.CD003517; 2002.
12. Allen A, Hector D. Benefits of breastfeeding. *New South Wales Public Health Bulletin* 2005;**16**(4): 42 – 46.
13. Iliff PJ, Piwoz EG, Tavengwa NV, Zunguza CD, Marinda ET, Nathoo KJ, Moulton LH, Ward BJ, the ZVITAMBO study group, Humphrey JH. Early exclusive breastfeeding reduces the risk of postnatal HIV-1 transmission and increases HIV-free survival. *AIDS* 2005; **19**(7):699-708.
14. Mayer-Davis EJ, Rifas-Shiman SL, Zhou L, Hu FB, Colditz GA, and Gillman MW. Breast-Feeding and Risk for Childhood Obesity Does maternal diabetes or obesity status matter?. *Diabetes Care* 2006; **29**(10):2231-2237.
15. Harder T, Bergmann R, Kallischnigg G, Plagemann A. Duration of Breastfeeding and Risk of Overweight: A Meta-Analysis. *Am. J. Epidemiol* 2005;**162** (5):397-403.
16. Collaborative WHO: Study team on the Role of Breastfeeding on the Prevention of Infant Mortality. Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. *Lancet* 2000;**355**:451-455.
17. Optimal duration of exclusive breastfeeding. WHO; [Online] http://apps.who.int/rhl/pregnancy_childbirth/care_after_childbirth/yscom/en/ [accessed 17 April 2014].
18. Fewtrell MS , Morgan JB, Duggan C, Gunnlaugsson G, Hibberd PL, Lucas A, and Kleinman RE. Optimal duration of exclusive breastfeeding: what is the evidence to support current recommendations?. *American Journal of Clinical Nutrition* 2007; **85**(2)
19. Anderson J, Malley K, Snell R. Is 6 months still the best for exclusive breastfeeding and introduction of solids? A literature review with consideration to the risk of the development of allergies. *Breastfeeding Review*. 2009;**17**(2): 23-31.
20. Cohen RJ, Brown KH, Dewey KG, Canahuati J, Rivera LL. Effects of age of introduction of complementary foods on infant breast milk intake, total energy

- intake, and growth: a randomised intervention study in Honduras, *Lancet*. 1994; **344**(8918): 288-293.
21. Nielsen SB, Reilly JJ, Fewtrell MS, Eaton S, Grinham J, Wells JCK. Adequacy of Milk Intake During Exclusive Breastfeeding: A Longitudinal Study. *Journal of American Academy of Pediatrics* 2011, **96**(1):73-79.
 22. Lakati A, Binns C, Stevenson M. The Effect of Work Status on Exclusive Breastfeeding in Nairobi. *Asia Pac J Public Health*. 2002;**14**(2):85-90.
 23. Egata G, Berhane Y, Worku A. Predictors of non-exclusive breastfeeding at 6 months among rural mothers in east Ethiopia: a community-based analytical cross-sectional study, *Int Breastfeed J*. 2013; 8: 8.
 24. Alemayehu T, Haidar J, Habte D. Determinants of exclusive breastfeeding practices in Ethiopia. *Ethiopian Journal of Health Development*. 2009; **23**(1):12-18
 25. Agunbiade OM, Ogunleye OV. Constraints to exclusive breastfeeding practice among breastfeeding mothers in Southwest Nigeria: implications for scaling up. *International Breastfeeding Journal*. 2012;**7**:5
 26. Vaahtera M, Kulmala T, Hietanen A, Ndekha M, Cullinan T, Salin M-L, Ashorn P. Breastfeeding and complementary feeding practices in rural Malawi. *Acta Paediatrica*. 2001; **90**(3): 328–332.
 27. Al-Ghwass MM, Ahmed D. Prevalence and predictors of 6-month exclusive breastfeeding in a rural area in Egypt. *Breastfeed Med*. 2011;**6**(4):191-6.
 28. Arts M, Geelhoed D, De Schacht C, Prosser W, Alons C, Pedro A., Knowledge, beliefs, and practices regarding exclusive breastfeeding of infants younger than 6 months in Mozambique: a qualitative study. *J Hum Lact* 2011;**27**(1):25-32.
 29. Motee A, Ramasawmy D, Pugo-Gunsam P, Jeewon R, An Assessment of the Breastfeeding Practices and Infant Feeding Pattern among Mothers in Mauritius, *Journal of Nutrition and Metabolism* 2013 ;**2013**:8 Article ID 243852.
 30. UNICEF Global Nutrition Database, 2012, based on MICS, DHS and other national surveys, 2007–2011.
 31. Mgongo M, Mosha MV, Uriyo JG, Msuya SE, Stray-Pedersen B. Prevalence and predictors of exclusive breastfeeding among women in Kilimanjaro region,

- Northern Tanzania: a population based cross-sectional study, *Int Breastfeed J* 2013;**8**(1):12.
32. Nkala TE, Msuya SE. Prevalence and predictors of exclusive breastfeeding among women in Kigoma region, Western Tanzania: a community based cross-sectional study, *International Breastfeeding Journal* 2011; **6**:17.
 33. Concept Note, Breastfeeding week 2013, Tanzania. Available from: <http://scalingupnutrition.org/wp-content/uploads/2013/09/04-WBW-Tanzania-Full-Summary-Concept-Note1.pdf> (Accessed April 2014).
 34. Ajibuah J. Appraisal of nursing mothers' knowledge and practice of exclusive breastfeeding in Yobe state, Nigeria, *Journal of Biology, Agriculture and Healthcare*. 2013;**3**:20.
 35. Ogbonnac D. Current knowledge and practice of exclusive breastfeeding among mothers in Jos, Nigeria, *Niger J Med* 2007, **16**(3) :250-60.
 36. Hadia R. Pattern and determinants of breastfeeding and complementary feeding practices of Emirati mothers in the United Arab Emirates, Radwan. *BMC Public Health*. 2013,13 :171.
 37. Shirima R, Gebre M, Greiner T. Information and socioeconomic factors associated with early breastfeeding practices in rural and urban Morogoro, Tanzania *Acta Paediatr* 2001;**90**:936-942.
 38. Daniel G. Assessing exclusive breastfeeding knowledge and practices among mothers of Kajiado District of Kenya, Kenya 2013, 284120. *Journal of Applied Medical Sciences*, 2013;**4** : 9-16.
 39. Somali KAPS infant and young child feeding and health seeking practices, [Online]Available from: https://ethnomed.org/clinical/pediatrics/somali_knowledge_attitude_practices_study_dec07.pdf [Accessed 24th April 2015].
 40. Leslie Bramson et al, Effect of early skin to skin mother contact during the first three hours following birth on exclusive breastfeeding during maternity hospital stay, California, *Journal of Human Lactation* , 2010;**28** (2):130-137.

41. Salih MA, el Bushra HM, Satti SA, Ahmed M el-F, Kamil IA. Attitude and practices of breastfeeding in Sudanese urban and rural communities, Sudan,1993. US National Library of Medicine National Institutes of Health.
42. Chidozie EM, Adekemi EO, Joel OF, Folasade CO-A, Funmilola AF, Abiola OO, Taofeek OA, Adepeju AO, Oluwakemi AA. Knowledge, Attitude and Techniques of Breastfeeding Among Nigerian Mothers From a Semi Urban Community, *BMC Research Notes*. 2013;6:552.
43. Agu, et al . Knowledge and practice of exclusive breastfeeding among mothers in rural population in South Eastern Nigeria. *Tropical Journal of Medical Research*. 2011; **15**(2):1-8.
44. Maputle MC, et al, Pregnant women`s knowledge about mother to child transmission of HIV infection through breastfeeding, *Curationis*. 2008;**31**(1):45-51.
45. Grummer-Strawn LM, Shewly K. Progress in protecting, promoting and supporting breastfeeding :1984-2009. *Breastfeeding Med*. 2009 4:31-9.
46. Edye Kuyper, Bineti Vitta, Kathryn Dewey. Implication of cesarean section delivery on breastfeeding outcomes and strategy to support breastfeeding, and Technical Brief, Issues 8, Feb 2014.
47. Violet Naanyu, Young mothers, first time parenthood and exclusive breastfeeding in Kenya. *African Journal of Reproductive Health*. 2008; **12**(3):11 18-4844.
48. Setegn et. al. Factors associated with exclusive breastfeeding practices among mothers in Goba district, South east Ethiopia..*International breastfeeding journal*,2012;**7**:17
49. Solomon SIKI-BRIGHT . Cultural factors influencing infant feeding practices of mothers attending welfare clinic Coast in Cape coast, Accra French Embassy. Small Grants Programme, January 2010.
50. Gartner LM, Morton J, Lawrence RA, Naylor AJ, Schanler RJ, Edelman AL. Breastfeeding and the use of human milk. *Europe Pub Med Central* 2005; **115**(2):496-506.

APPENDICES

APPENDIX I: INFORMED CONSENT

I am Dr. Nasra S. Ali a postgraduate student at the University of Nairobi, I am conducting a study as part of the requirement for the degree of Master of Medicine in Pediatrics. The study aims to evaluate the prevalence of exclusive breastfeeding in infants aged 0-6 months ,and to identify the factors affecting exclusive breastfeeding. The study is conducting at Mnazi mmoja Hospital , MCH clinic . I would like to invite you to participate by providing with some information regarding yourself or your child as regarding to your/your child's experiences with exclusive breast feeding.

Approval for this Study has been given by the Kenyatta National Hospital/University of Nairobi ethics committee {KNH/UON-ERC}/ and MOH Zanzibar. As I seek your participation, I would like to bring to your attention the following ethical considerations which will guide your participation.

1. Participation in this study is purely voluntary.
2. You may withdraw from the study at any time and there are no consequences for your decision to withdraw.
3. After you read through the explanations, please feel free to ask any questions that will allow you to understand the nature of the study.
4. Any information you provide including details on your demographic characteristics will be treated as confidential.
5. The study protocol has been reviewed by the ethics committee. The protocol can be accessible to you should you choose to know the details.

I will be available to answer any questions that will help you understand the nature of the study. If you wish to seek any clarification, kindly contact me on **+255 772 195 966**.

Study title

The rate of exclusive breastfeeding for infants 0-6 months old at Mnazi mmoja hospital Zanzibar.

Procedure

If you agree to participate in the study, you will be requested to fill in a questionnaire with the assistance of a trained interviewer, which will take approximately 15-20 minutes. The questionnaires in which this information will be filled will have no personal identifiers to protect your confidentiality.

Risks/Discomfort

There is no risk associated in participating in this study.

Benefits

There will be no direct benefit in participating in the study but in case you have any questions the interviewer will readily assist you.

Confidentiality

All information you supply during the research will be held in confidence and your name will not appear in any report or publication of the research. You will be identified only by a code and your personal information will be handled with a high level of confidentiality. Your data will be safely stored in a locked facility and only the researcher and her supervisors will have access to this information.

Dr Nasra Sleyyum Ali
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Nairobi-Kenya
Tel: +255195966
E-mail: sleyyum@yahoo.com

Or

Chairperson,
KNH/UON Ethical review Secretariat,
P.O. BOX, 20723- 000202
Nairobi-Kenya

Or

Dr Msafiri Marijani
P.O.BOX 236.
ZAMREC,(Zanzibar Medical research and Ethics Committee)
Zanzibar
Tel no:+255776663303

I agree to participate in this study, conducted by Dr. Nasra Sleyyum Ali. I have understood the nature of this study and wish to participate. I am participating as a volunteer. I have understood that I could withdraw from the study, without giving reasons, at any time, whether before it starts or while I am participating. I have received answers to all questions that I asked the researcher.

My signature below indicates my consent.

Signature.....Date.....

Participant

Signature..... Date.....

Researcher

Compensation

There will be no compensation for participation in the study.

Voluntary Participation

Participation in the study is voluntary. If you choose not to participate, you will not be denied any service. You will be free to withdraw from the study at any time.

Persons to contact

If you have any questions regarding the study, you may contact Dr. Nasra Sleyyum Ali on mobile number +255 772 195 966

Your participation in the study will be highly appreciated.

Translation to Kiswahili

Mimi Dr. Nasra S. Ali ni mwanafunzi wa uzamili katika Chuo Kikuu cha Nairobi. Nafanya utafiti kama sehemu ya masomo yangu ya uzamili ya Udaktari Bingwa wa Watoto. Utafiti huu unakusudia kuonesha hali ya kunyonyesha maziwa ya mama watoto katika ya umri wa miezi 0 hadi 6 bila ya kulishwa kitu chochote, na pia unalongo la kujua sababu zinazoathiri watoto kutokunyonyeshwa maziwa ya mama matupu. Utafiti huu unafanywa katika Hospitali ya Mnazi Mmoja, kilinic ya watoto (MCH.)

Ningependa kukualika kushiriki katika utafiti huu kwa kuo taarifa zako au za mtoto wako na uzoefu wenu juu ya kunyonyesha maziwa ya mama pekee.

Utafiti huu umeidhinishwa na Kamati ya Maadili ya Chuo Kikuu cha Nairobi iliopo Hospitali ya Taifa ya Kenyatta (KNH/UON-ERC) na Wizara ya Afya ya Zanzibar. Kwa lengo la kutaka kushiriki kwako katika utafiti huu, napenda ufahamu mambo muhimu yafuatayo kama ni muongozo wa kushiriki wako:

1. Kushiriki kwako kwenye utafiti huu ni hiari
2. Unaweza kusita kuendelea na utafiti huu wakati wowote wakati wa utafiti, na hakuna athari yeyote kwako juu ya maamuzi yako hayo
3. Baada ya kusoma maelezo haya, tafadhali jisikie huru kuniuliza masuala yeyote ambayo yataruhusu kujua zaidi hali halisi ya utafiti huu
4. Taarifa zote utazotoa zitatunzwa kama siri
5. Utaratibu wa utafiti huu umepitiwa na kamati ya maadili. Utaratibu wenyewe unaweza kupatikanwa ukiamua kutaka kuuona.

Nitapatikanwa kujibu masuala yeyote yatayosaidia kujua zaidi juu ya utafiti huu kwa kupitia nambari ya simu: +255 772 195 966.

Taratibu

Ukikubali kushiriki katika utafiti huu, utaombwa kujaza dodoso (fomu) na msaidizi aliefunzwa. Kujaza dodoso hilo kutachukuwa kwa makisio baina ya dakika 15 na 20. Dodoso utalopewa kujaza halina vielelezo vyako binafsi ili kutunza siri za taarifa zako.

Athari

Hakuna athari zozote zitazotokana na kushiriki kwako katiak utafiti huu

Faida

Hakutakuwa na faida za moja kwa moja kwa kushiriki kwako katika utafiti huu, lakini ukiwa na masuala yeyote, mtafiti mhusika atakuwa tayari kusaidia

Siri

Siri ya kutunza taarifa binafsi itazingatiwa wakati wote. Hakutakuwa na kutajwa jina au vielelezo binafsi kwenye ripoti au machapisha yatayotokana na utafiti huu.

Malipo

Hakutokuwa na malipo yeyote kwa washiriki wa utafiti huu

Kushiriki kwa Hiari

Kushiriki kwenye utafiti huu ni hiari. Ukiamua kutokushiriki, hutonyimwa huduma yeyote. Utaweza kusita kushiriki kwenye itafiti huu wakati wowote.

Taarifa Binafsi

Ukiwa na masuala yoyote kuhusu utafiti huu, unaweza kuwasiliana na Dr. Nasra Sleyyum Ali kwa kupitia nambari ya simu ya mkononi : +255 772 195 966. Ushiriki wako katika utafiti huu unathaminiwa sana

Usiri

Taarifa zote unazotoa kwa ajili ya utfiti huu zitawekwa siri na jina lako na jina la mtoto wako halitoandokwa kwenye ripoti yeyote ya utafiti huu. Kwa ajili ya utafiti huu, ikihitajika utainishwa kwa mabari tu na taarifa zako binafsi zitahifadhiwa kwa usiri mkubwa. Taarifa zako utazotoa zitawekwa pahala salama ambapo mfanyaji wa utafiti huu na msimamizi wake wataweza kuzifikia.

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AU

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Au

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APPENDIX II: CONSENT FORM

CONSENT FORM

I..... the undersigned, do hereby consent to participate in this study whose nature, purpose and objectives have been fully explained to me. I am aware that participation is voluntary and that there are no consequences to withdrawal from the study. I have been informed that all data provided will be used for the purposes of study only.

Signed.....

Date.....

I.....declare that I have adequately explained to participant the purpose of the of the study and the procedures. I have given the participant time to ask questions and seek clarification regarding the study.

Signed.....

Date.....

Translation to Kiswahili:

FOMU YA KUKUBALI

Mimi niloweka saina, nakubali kushiriki katika utafiti huu wenye ambao malengo yake nimeelezwa kwa mapana. Najua kwamba kushiriki katika utafiti huu ni kwa hiari na kwamba hakuna madhara yeyote kutoshiriki wangu, Nimeelezwa kwamba taarifa zote nitazotoa zitatumika kwa utafiti huu tu.

Sahihi Tarehe
.....

Mimi, naainisha kwamba nimemueleza vya kutosha mshiriki juu ya malengo na taratibu za utafiti huu. Nimempa fursa mshiriki kuuliza masuala na kutaka ufafanuzi ya utafiti huu.

Sahihi Tarehe
.....

APPENDIX III: A PROPOSED QUESTIONNAIRE

THE RATE OF EXCLUSIVE BREASTFEEDING FOR INFANTS 0-6 MONTHS OLD
AT MNAZIMMOJA HOSPITAL ZANZIBAR.

Questionnaire No: _____ Facility Code _____ Date: ____/____/____

Information about the child:

1. Date of birth :
2. Birth weight :
3. Gestation at birth:
4. Current weight:
5. Infant's sex:
 Male
 Female
6. Birth order :

Information about the mother :

7. Mother`s age in years :
8. Partner`s age in years :
9. Parity:
 Prime Multipara Grandmultipara
10. Marital status:
 Single
 Married
 Divorced
 Separated
 Widow

11. Mother's Level of education

- None
- Primary__ How many years
- Secondary__ How many years
- University/Collage
- Other (*Specify*) _____

12. Occupation:

- Housewife
- Salaried Employee
- Self-employed
- Student
- Other (*Specify*) _____

13. Religion:

- Christian
- Muslim
- Other (*Specify*) _____

14. ANC visits : Yes No

 If yes , please *specify* Number of visits _____

15. Mode of delivery: SVD CS Forceps Vacuum

16. Place of delivery:

- Hospital
- Health centre
- Home
- Others(specify)

Knowledge about breastfeeding:

17. What advantages of breastfeeding do you know? (*tick all that apply*)

- It is nutritious to the baby
- Protects the baby from infections
- Mother baby bonding
- Cheap and available
- Contraception method
- Maintains mothers body weight
- Prevents maternal breast cancer

18. What are the disadvantages of breastfeeding?

- Transmission of diseases like HIV
- Other (*Specify*) _____

Knowledge of Exclusive breastfeeding:

19. What is the definition of EBF? (Tick the correct answer)

- To give only breast milk and medicines if indicated
- To give breast milk and water
- I don't know
- Other

20. What is the recommended duration of EBF? (Tick appropriately)

- One month
- Two months
- Three months
- Four months
- Five months
- Six months
- One year
- Others(specify)

21. If mum goes to work, what does the child feed on ?

- Formula milk
- Cow's milk
- Expressed breast milk
- Porridge
- Others (specify)

22. How would babies be fed if the mother not is around?. By:

- Cup and spoon
- Bottle
- Others(specify)

23. What dangers of bottle feeding do you know?

- Can cause diarrhea
- Nipple confusion
- Others(specify)

24. How long did you take before putting baby on breast after delivery?

- <1hr
- after 1 hr
- The second day
- Others (specify)

25. If you initiate after 1 hr give reasons (*tick all that apply*)

- Colostrums is not good
- No milk
- Mother was sick
- Baby was sick
- Baby was taken away from me
- Others (specify)

26. What did you offer the baby before you started breastfeeding?

- Water
- Honey
- Nothing
- Others(Specify)

27. After delivery where was the baby kept?

- Same room with the mother . Separate room

-If separate please give the reason.....

Social support:

28. Which support are you getting from family members in regards to breastfeeding?

Specify.....

.....

Who gives you support?.....

29. If you are employed, did you get the maternity leave ?

Yes

No

30. How long was it ?.....

31. How long do you think is enough for maternity leave ?

- One month Three months Six months

32. What kind of support about breastfeeding does your employer give you ?

.....

Determining Exclusive Breastfeeding:

33. Is [NAME] breast feeding ? 1 = NO. 2 = YES. Continue no.32 below

If no, what is the reason?

.....

At what age did you stop to breastfeed [NAME] ?

.....

34. Since this time yesterday, how many times have you breastfed [NAME] ?

How many times day..... How many times night.....

a. What was this (name)'s main source of food?

.....

b. If you have started complementary food, at what age did you start ?

0-6 weeks 6 - 14 weeks 14 weeks - 6 months .

c. Why did you stop breastfeeding ?

Child refused by himself

I got pregnant

I had breast problems

Child fell sick

I went back to work

Others: _____

35. What else have you given the baby since this time yesterday ?

d. Vitamins, mineral supplements, medicine

e. Plain water

f. Sweetened or flavored water

g. Fruit juice

h. Tea or infusions

i. Infant formula

- j. Tinned, powdered or fresh milk
- k. Other liquids
- l. Mushy or solid foods
- m. Oral Rehydration Salts (ORS) solution
- n. Other (specify): _____

APPENDIX IV: PROPOSED DUMMY TABLE FOR DATA ANALYSIS

Univariable Analysis

		Number	(Percent)
Maternal age (in years)	18-24	_____	(____)
	25-34	_____	(____)
	35-44	_____	(____)
	45 and above	_____	(____)
Level of education	Primary	_____	(____)
	Secondary	_____	(____)
	Tertiary	_____	(____)
Parity	Prime	_____	(____)
	Multipara	_____	(____)
Marital Status	Married	_____	(____)
	Divorced/Single/	_____	(____)
	Widow	_____	(____)
Infant's age (in months)	0-2	_____	(____)
	2-4	_____	(____)
	4-6	_____	(____)
Infant's gender	Male	_____	(____)
	Female	_____	(____)

Cross tabulations for associations between EBF and Mother/Guardian factors

Factors		EBF		Non-EBF		P value
		Number	(Percent)	Number	(Percent)	
Age	18-24	_____	(____)	_____	(____)	_____
	25-34	_____	(____)	_____	(____)	_____
	35-44	_____	(____)	_____	(____)	_____
	45 an above	_____	(____)	_____	(____)	_____
Maternity Leave	Yes	_____	(____)	_____	(____)	_____
	No	_____	(____)	_____	(____)	_____
Marital Status	Married	_____	(____)	_____	(____)	_____
	Divorced/Single/	_____	(____)	_____	(____)	_____
	Widow	_____	(____)	_____	(____)	_____
Level of education	Primary	_____	(____)	_____	(____)	_____
	Secondary	_____	(____)	_____	(____)	_____
	Tertiary	_____	(____)	_____	(____)	_____
	(in years)	_____	(____)	_____	(____)	_____
Occupation	Housewife	_____	(____)	_____	(____)	_____
	Working	_____	(____)	_____	(____)	_____
Knowledge of Breastfeeding	Knowledgeable	_____	(____)	_____	(____)	_____

Knowledge of EBF	Non-Knowledgeable	_____	(____)	_____	(____)	_____
	Knowledgeable	_____	(____)	_____	(____)	_____
Parity	Non-Knowledgeable	_____	(____)	_____	(____)	_____
	Prime	_____	(____)	_____	(____)	_____
	Multipara	_____	(____)	_____	(____)	_____
Early Initiation	Grand Multipara	_____	(____)	_____	(____)	_____
	Yes	_____	(____)	_____	(____)	_____
Age of a Child	No	_____	(____)	_____	(____)	_____
	0-2	_____	(____)	_____	(____)	_____
	2-4	_____	(____)	_____	(____)	_____
Gender	4-6	_____	(____)	_____	(____)	_____
	Male	_____	(____)	_____	(____)	_____
	Female	_____	(____)	_____	(____)	_____

Logistic regression analysis of EBF and parents/guardians factors

		Odds Ratio	(95% CI)	P value
Age	(in years)	_____	(__ - __)	_____
Maternity Leave	Yes	_____	(__ - __)	_____
	No	_____	(__ - __)	_____
Level of education	Primary	_____	(__ - __)	_____
	Secondary	_____	(__ - __)	_____
	Tertiary	_____	(__ - __)	_____
Occupation	Housewife	_____	(__ - __)	_____
	Working	_____	(__ - __)	_____
Knowledge of Breastfeeding	Knowledgeable	_____	(__ - __)	_____
Knowledge of EBF	Non-Knowledgeable	_____	(__ - __)	_____
	Knowledgeable	_____	(__ - __)	_____
	Non-Knowledgeable	_____	(__ - __)	_____
Parity	Married	_____	(__ - __)	_____
	Prime	_____	(__ - __)	_____
	Multipara	_____	(__ - __)	_____
	Grand multipara	_____	(__ - __)	_____

APPENDIX V: BUDGET

Activity	Details	Estimated cost (TZS)
Computer	1 laptop @ 1500USD	2,475,000
Printer	1 person printer & 200 USD	330,000
Proposal development	papers, printing, photocopying and binding several proposal drafts	165,000
Data collection	Stationeries	165,000
	1 day training of research assistants	825,000
	Payment for 2 Research assistant @ 20USD per day for 2 month	2,640,000
Data analysis	Payment for statistician	1,650,000
Thesis	Typing, binding, photocopying, and publication	1,980,000
Poster	Preparation and presentation	330,000
Transportation	Two way air tickets to Zanzibar	2,310,000
Subtotal		12,870,000
Contingency	15%	1,930,500
Total		14,800,500

Exchange rate: 1USD @ 1650 TZS

APPENDIX VI: LETTER OF APPROVAL TO CONDUCT RESEARCH FROM KNH/UON-ERC



UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
(254-020) 2726300 Ext 44355

Ref: KNH-ERC/A/17

Dr. Nasra Sleyyum Ali
Dept. of Paediatrics and Child Health
School of Medicine
University of Nairobi

Dear Dr. Nasra

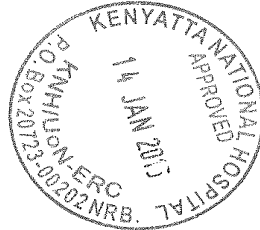
**Research Proposal: The rate of exclusive Breastfeeding for infants 0-6 months old at
Mnanzimmoja Hospital Zanzibar (P621/10/2014)**

This is to inform you that the KNH/UoN-Ethics & Research Committee (KNH/UoN-ERC) has reviewed and **approved** your above proposal. The approval periods are 14th January 2015 to 13th January 2016.

This approval is subject to compliance with the following requirements:

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

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



KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

14th January 2015

Protect to discover

Yours sincerely



PROF. M. L. CHINDIA
SECRETARY, KNH/UON-ERC

- c.c. The Principal, College of Health Sciences, UoN
- The Deputy Director CS, KNH
- The Assistant Director, Health Information, KNH
- The Chairperson, KNH/UON-ERC
- The Dean, School of Medicine, UoN
- The Chairman, Dept. of Paediatrics and Child Health, UoN
- Supervisors: Prof. Dalton Wamalwa, Prof. Musoke Rachael

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