

**PROCESS EVALUATION ON THE IMPLEMENTATION OF MWANZO
BORA NUTRITION PROGRAM ON THE REDUCTION OF CHILDHOOD
STUNTING: A CASE OF KILOLO DISTRICT IN TANZANIA**

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BORA NUTRITION PROGRAM ON THE REDUCTION OF CHILDHOOD
STUNTING: A CASE OF KILOLO DISTRICT IN TANZANIA**

By

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**An Evaluation Report Submitted to the School of Public Administration and
Management in Partial Fulfillment of Requirements for the Award of the Master
of Science in Health Monitoring and Evaluation of Mzumbe University.**

July, 2018

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, an evaluation entitled “***Process Evaluation on the Implementation of Mwanzo Bora Nutrition Program on the Reduction of Childhood Stunting: A Case of Kilolo District in Tanzania***”, in partial fulfillment of the requirements for award of the degree of Masters of Health Monitoring and Evaluation of Mzumbe University.

Signature

Major Supervisor

Signature

Internal Examiner

Signature

External Examiner

Accepted for the Board.....

DEAN/DIRECTOR, FACULTY/DIRECTORATE/SCHOOL/BOARD

DECLARATION AND COPYRIGHT

I, Helen Joseph Chisanga, declare that this evaluation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award

Signature_____

Date_____

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This work is a product of many contributions from different individuals. Unfortunately, it is not possible to mention each one by name. But I find it very important to single out the following people for special thanks.

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Also special appreciation goes to my family for their unconditional love, encouragement and support during the entire period of the evaluation.

Finally, I want to thank all the respondents who agreed to participate in the study. May God bless you all.

DEDICATION

This evaluation is dedicated to my lovely Mom Ms Balbina Wilombe who devoted meager resources to lay down the foundation of my education. Otherwise, I could not have reached where I am today. I also dedicate this work to my lovely husband who worked hard to build my confidence towards achieving the goals of my studies.

Signature

Date.....

LIST OF ACRONYMS

ANC	Antenatal care
CHMT	Council Health Management Team
CHW	Community Health Workers
COUNSENUTH	Centre for Counselling, Nutrition and Health Care
CSOs	Civil Society Organizations
DMO	District Medical Officer
DNuO	District Nutrition Officer
DRCHCO	District Reproductive and Child Health Coordinator
EBF	Exclusive Breastfeeding
FAO	Food and Agriculture Organization
FFS	Farmer Field School
FGD	Focus Group Discussion
FtF	Feed the Future
GoT	Government of Tanzania
HCW	Health care workers
HLSCN	High Level Steering Committee on Nutrition
HMIS	Health Management Information System
IFA	Iron Folic Acid
IOP	Iringa Orphanage Program
IPTp	Intermittent Preventive Treatment for Malaria in pregnancy
IYCF	Infant and Young Child Feeding
M&E	Monitoring and Evaluation
MBNP	Mwanzo Bora Nutrition Program
RCH	Reproductive and Child Health
SBCC	Social and Behavior Change Communication
SD	Standard Deviation
SPRING	Strengthening Partnership, Results and Innovations in Nutrition Globally
TAFSIP	Tanzania Agriculture and Food Security Investment
TAHEA	Tanzania Home Economics Association

THDS	Tanzania Health Demographic Survey
UMR	Under Five Mortality Rate
UNICEF	United Nations International Children’s Emergency Fund
URT	United Republic of Tanzania
USAID	United States of Agency for International Development
WHA	World Health Assembly
WHO	World Health Organization

ABSTRACT

Nutritional status of children is an important ending measure of their health status. Thus, child care and feeding practices has been recommended as a major solution to improve under-five survivals and promote healthy growth and development. This evaluation aimed to assess the implementation process of Mwanzo Bora Nutrition Program (MBNP) in reduction of childhood stunting at Kilolo district council in Iringa, Tanzania.

The evaluation employed formative approach guided by a cross-sectional design. The evaluation enrolled a total sample size of 161 respondents. The sample included mothers of children/caregivers between 0-23 months enrolled in MBNP, community health workers and CHMT officials who were purposively and randomly selected. Data were obtained by using questionnaires, interviews and focus group discussions. Quantitative data were entered and analyzed by using SPSS software version 20 whilst simultaneously qualitative data were analyzed manually. Data were collected by using structured questionnaire, focus group discussion and in depth interview. Descriptive statistics were carried out, Chi – test was done to determine relationship between variables by using IBM SPSS version 20.

The results revealed that 98% of mothers had knowledge about infant and young child feeding. There was no significance difference between knowledge of infant and young child feeding and practices especially on complementary food practice and breast feeding. However, significance difference was reported on the initiation of breastfeeding at ($p \leq 0.05$). Likewise, there was significance difference ($p \leq 0.05$) between knowledge of Mwanzo Bora Nutrition Program and its practices. Finally majority of the respondents (80%) had reported to have hand-washing equipments; and among them 51% reported to have started using the equipments after implementation of the program.

The study concludes that use of hand-washing facilities improve hygienic condition and ultimately results on the reduction of childhood illness. Challenges associated with insufficient funds, shortage of human resources and poor community participation to some extent limited the implementation process.

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CHAPTER ONE

INTRODUCTION

1.1 Background Information

Nutritional status of children is an important ending measure of their health status (UNICEF, 2013). Child care and feeding practices is a solution to improve under five survivals and promote healthy growth and development. Childhood stunting is one of the most significant disorders to human development and is a collective process that can begin in utero and continue until about 2 years after birth. The 1000 days(window of opportunity) of child's life are particularly important for the proper growth as optimal nutrition during this period lowers morbidity and mortality; it also reduces the risk of chronic disease and promotes better development of the child(WHO, 2017).Damage during this period is irreversible; therefore good nutrition in this period ensures proper development and plays a significant role in lifelong health outcomes (WHO, 2011).

Globally; stunting is a public health challenge as 155 million children under five years are estimated to be stunted (too short for their age) (Development, 2017). In the year 2012 an estimated of 6.6 million children under the age of five died mainly in resource poor countries. Nearly half of those death 45% were attributed to undernutrition (WHO, 2012).

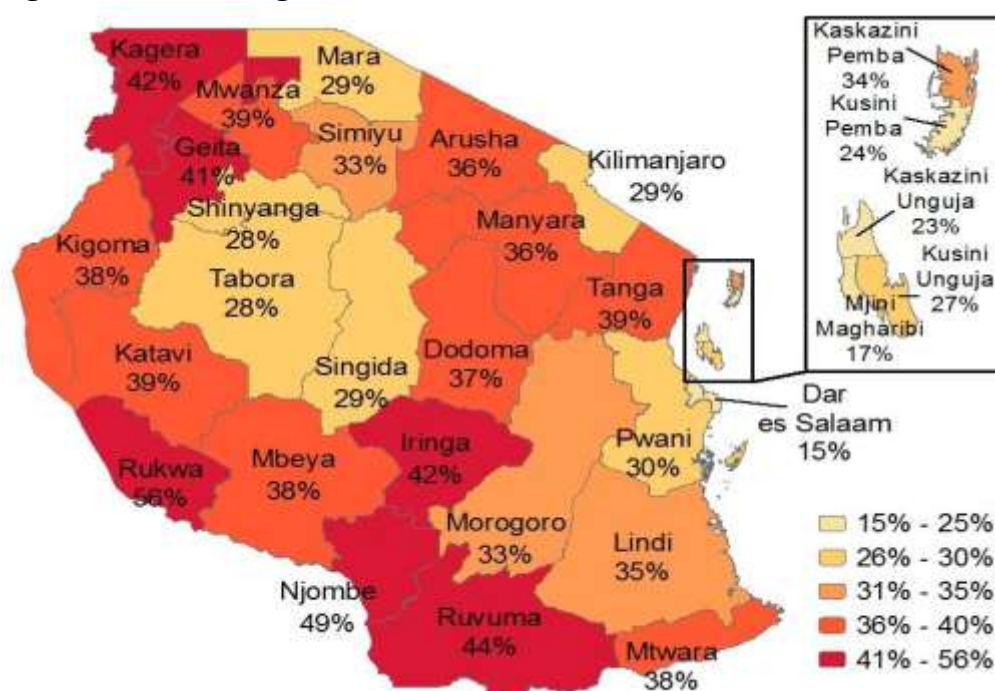
Stunting is highly prevalent in low and middle income countries and crippling global economic growth (Wagaye et al., 2016).

Sub-Saharan Africa has the highest levels of childhood stunting as it accounts for one third of all stunted children globally. The prevalence of childhood stunting was highest within counties in East and West Africa compared to the WHO millennium development goals for 2015. The survey conducted by WHO for ten years from 2006-2016 shows that stunting was high in Burundi by 58% in East Africa, Niger 44%, Mali 38%, Sierra Leone 38% and Nigeria 37% in West Africa and in West Africa Democratic Republic of Congo 43% and Chad 40%. Therefore the WHO recommends that appropriate nutrition interventions need to be prioritized in East

Africa and West Africa to meet the WHO global nutrition target of improving maternal, infant and young child nutrition by 2025 (WHO, 2010).

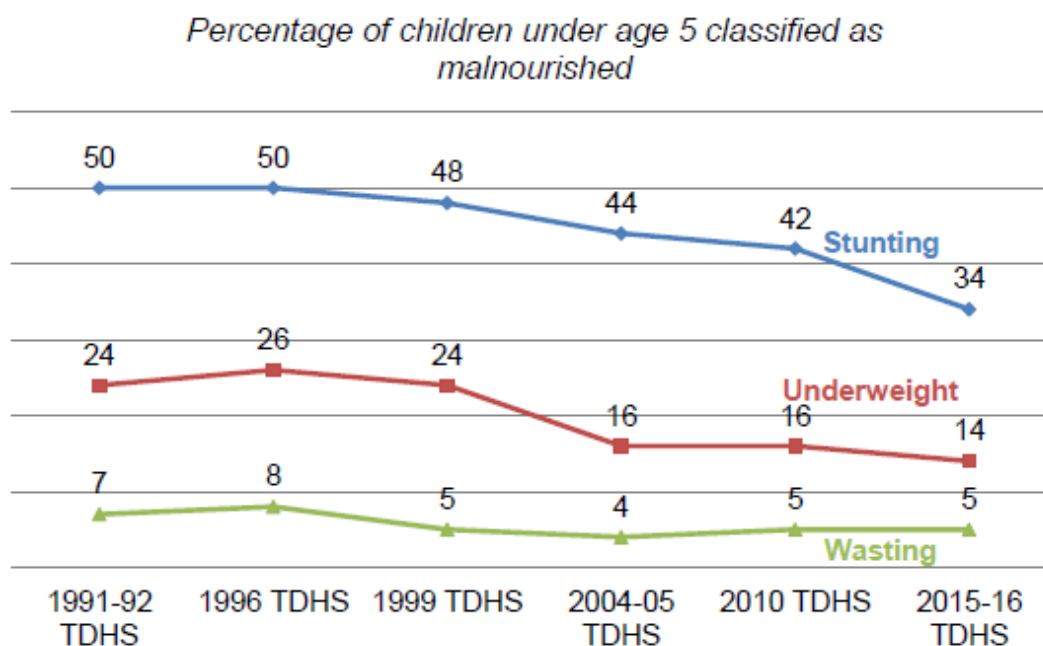
Childhood stunting continues to be a key public health problem in developing countries including Tanzania. Tanzania has established promising progress in reducing levels of stunting over the past decade. However, the baseline levels of childhood stunting remain so high (by 34%) that the country still needs to continue considerable investment in nutrition. According to Tanzania Demographic and Health Survey, there is a substantial variation of stunting in the country. For instance, there is regional variation in the prevalence of stunting in children; the estimated prevalence of chronic malnutrition is above the national average in Rukwa 56%, Njombe 49%, Ruvuma 44% and Iringa 42% compared with a national average of 34%(TDHS, 2016).

Figure 1.1: Percentage of under five children who are stunted



Source; TDHS 2016

Figure 1.2: Percentage of children under five classified as malnourished



Source; TDHS 2016

Childhood stunting is a result of complex relations of various factors mainly related to socioeconomic, feeding pattern, health care, and environmental factors. Previous reports from different countries claimed that poor feeding practices, rural residence, maternal and paternal illiteracy, advanced maternal age, poor household economic status, non-attendance of antenatal care, poor access to safe water, unavailability of toilet facility and closed birth interval are factors associated with it (Wagaye et al., 2016).

A survey conducted by TFNC (2014) showed that 34% of Stunting at national level reflects the existence of chronic malnutrition related problem in the country, and recommend that different nutritional interventions which will be supported by positive behavioral and practice change of the community should be invested in the country (TFNC, 2014). The survey results show that stunting was found high in the first two years of age. Therefore, the recommendation is to consider children in this age group through improving infant and young child feeding practices and maternal education towards behavioral and practice changes.

Kilolo district is among districts in the country with high prevalence of stunting for 42% of under five children (TDHS, 2016), this resulted to the increase number of deaths under five years in the district. In 2016 UMR were 3 per 1000 live birth and out of all these deaths 2/3 is associated by undernutrition (Kilolo, DHIS2 data 2016). The aim of this evaluation is to assess the implementation of Mwanzo Bora Nutrition Program in Kilolo district and come up with the recommendations that will help to improve nutrition status among the Kilolo communities and Tanzania in general.

1.2 Description of the program to be evaluated

1.2.1 An Overview of Mwanzo Bora Nutrition Program

Mwanzo Bora Nutrition Program is a USAID supported program through the Feed the Future (FtF) and Global Health Initiatives. The program is designed to support the Government of Tanzania (GoT) to bring about positive changes in the nutritional status of Tanzanian people, through the Implementation of the National Nutrition Strategy, and the Tanzania Agriculture and Food Security Investment Plan (TAFSIP). Mwanzo Bora Nutrition Program is implemented by a consortium of four organizations, namely Africare, Deloitte, The Manoff Group and COUNSENUTH.

Mwanzo Bora Nutrition Program is supporting the Government of Tanzania and local Tanzanian Civil Society Organizations (CSOs) to improve nutritional outcomes in targeted regions of the country, with a strong focus on scaling up community level interventions. A core component of the Mwanzo Bora Nutrition program is to engage government and civil society in the development of a vibrant national platform for nutrition, placing an emphasis on the first 1000 days of life.

1.2.2 Program Goal

The overall goal of the program is to improve the nutritional status of children and pregnant and lactating women in Tanzania, with specific focus on reducing maternal anemia and childhood stunting.

1.2.3 Program objectives

1. Reduction of childhood stunting from 42% in 2015 to 30% in 2018.

2. Reduction of maternal anemia among pregnant women from 28% in 2015 to 20% in 2018.

1.2.4 Program activities

1. To conduct training to Health care workers, ward extension officers, village health workers and community leaders on Social and Behavior Change Communication in nutrition.
2. Micronutrient supplementation, such as vitamin A, for children under 5 years of age.
3. Maternal micronutrients, mainly IFA supplementation and malaria prevention services (i.e, provision and uptake of long-lasting ITNs and IPTp supplied at ANC visits)
4. Infant and young child feeding practices, particularly early, exclusive breastfeeding for the first six months of age and appropriate complementary feeding and continued breastfeeding from six to twenty four months of age.
5. Appropriate nutrition during pregnancy and lactation.
6. Consumption of a diverse and balanced diet adequate in quality and quantity, using locally available and affordable foods, as well as fortified foods.
7. Use of health and nutrition services (micronutrient supplementation, appropriate home- based care for childhood illness, and deworming)
8. Appropriate hygiene practices at the household level, including hand-washing with soap using Tippy taps and safe food handling.
9. Appropriate nutrition knowledge and practices at the household level.

1.2.5 Expected program effect

1. Reduction of child hood stunting from 42% to 30% and maternal anemia by 20% by 2018.
2. There will be improved health status of mothers and good pregnancy outcome.
3. Nutritional status of children will be improved.

1.2.6 Major strategies

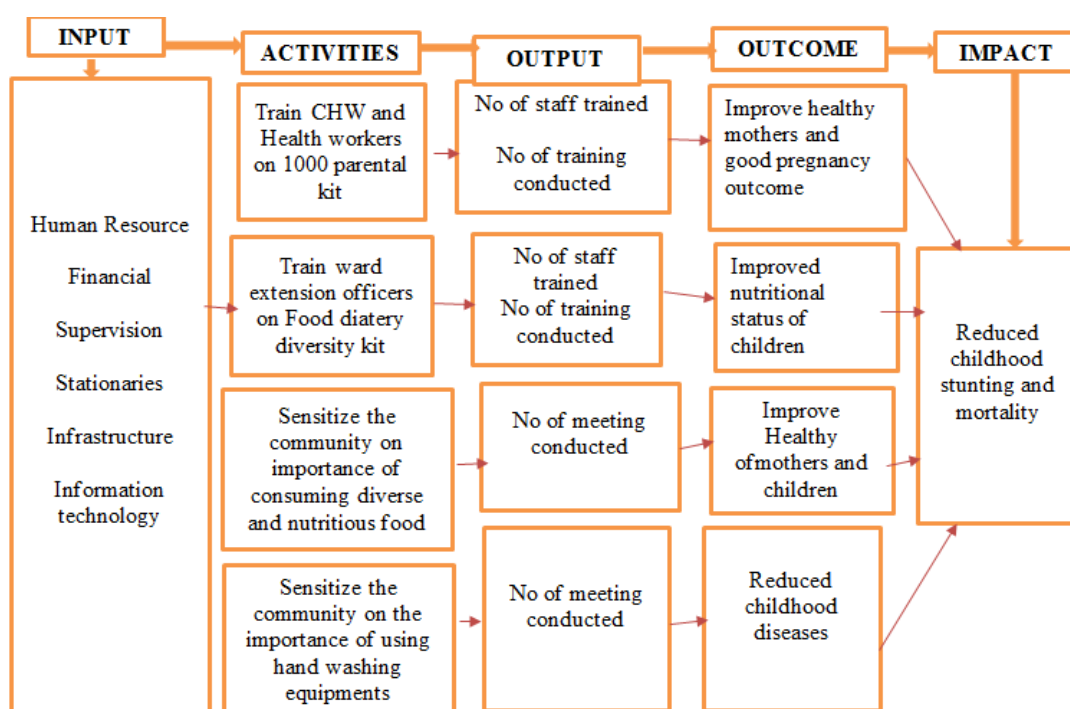
The Mwanzo Bora Nutrition Program works with the government and civil society through a multi-faceted evidence-based approach, which includes Social and Behavior

Change Communication (SBCC), in form of strategic grants to implement high-impact nutrition interventions. The approach promotes the adoption of positive behaviors at household and community level. This involved strategic partnerships to leverage resources, institutional strengthening to improve the quality of facility-based nutrition services and programming at national and district levels.

1.2.7 Program logic model

Logical model is a visual and systematic way to present the relationship between the intervention and effects including needed resources to make the program operational, planned activities and changes or effects that the program intends to achieve. Therefore the logic model is the basis for convincing story of the program's expected performance

Figure 1.3: Program Logic Model



Source: Evaluator, 2018

1.2.8 Stakeholder analysis

Stakeholders are individuals, groups, or organizations having significant interests in how well a program functions (Rossi et al., 2004). For evaluation purposes

stakeholders involvement are very important .They defined two groups of stakeholders: environmental (customers, owners, and the community) and process (employees and suppliers). The program exists to serve the objectives of the stakeholders, which becomes its primary objective according to Rossi (2004) what the program expects from and gives to each stakeholder group to achieve its primary objectives are its secondary objectives.

Stakeholder's analysis was carried out to identify persons or organizations with a vested interest in the program being promoted or implemented (Schmeer, K.). The following stakeholder's matrix shows stakeholders, who will be involved in the evaluation process of Mwanzo Bora Nutrition Program in Kilolo district council, their roles in the program and in the evaluation, their interest on evaluation, means of communication as well as their level of importance.

Table 1.1: Stakeholders analysis

Name of stakeholder	Potential role in Evaluation	Potential role in program	Means of communication	Role grade
Africare, Deloitte, COUNSENUTH, Manoff and MOHCDGEC	Program improvement and planning	-Technical support -Financial support -Planning and coordinating -monitor and evaluate the program	-Monthly and quarterly reports -Stakeholders meeting -Activity reports	High
RHMT, CHMT, MBNP regional coordinator and IOP	Program improvement and planning	Technical support -Planning and coordinating -Supervise the program activities -Allocate resources	-Monthly and quarterly reports -Stakeholders meeting -Activity reports	High
Health workers and Community health workers	Make decision on improvement of the program based on evaluation results	-Health education -Community sensitization	Monthly and quarterly reports -Stakeholders	Medium
Mothers/ care givers of children aged 0-23 month	-Behavioral change -Increase awareness	Adhere feeding practice	Health talks in health facilities	Medium

Source: Evaluator, 2018

1.3 Statement of the Problem

Stunting continues to be a major public health burden in Tanzania with prevalence of 34%, even in region that is known to have high food production and it affects over three million children in the country (TDHS, 2016). Stunting is an outcome of insufficient food intake and recurrent infectious diseases (UNICEF, 2013). Among the effects associated with stunting include; increased risk of mortality, increased disease risk, developmental delays, diminished ability to learn and lower school achievement, and reduced lifelong productivity (WHO, 2013).

Overall, more than 2.7 million children under five years in Tanzania are stunted, which affects their future learning, productivity, and their opportunities to escape poverty. Also it makes the immune system less resistant to common diseases and contributes to about 130 child deaths of children every day in Tanzania (FANTA, 2014). During the period of 1992 to 2015 there was a tangible reduction of stunting in the country. Stunting has decreased from 50% in 1992 to 34% in 2015 while under five mortality rate has dropped from 166 per 1000 live birth in 1990 to 112 in 2005 and 67 per 1000 live birth in 2015 this trend shows that there is improvement (UNICEF, 2015).

Kilolo district is among areas with high prevalence (42%) of stunting compared with the national average of (34%). Various nutrition programs have been implemented by the government and other stakeholders to improve child nutrition through various nutrition intervention programs in the district. Yet, still the prevalence of stunting is at alarming, 42%. In 2010 data shows that the prevalence of stunting in the district was 44% (TFNC, 2014), so up to 2015 it reduced by only 2% despite of the efforts that was being done.

Mwanzo Bora Nutrition Program (MBNP) has been implemented in Kilolo district council since the year 2015. The aim of MBNP is to reduce childhood stunting from 42% to 30% in 2018. Therefore, this study was designed to evaluate the implementation of the program by assessing whether the infant and young children feeding practices are being adhered among Kilolo community, and assess knowledge level of IYCF among mothers/caregiver. The evaluation highlights areas that need

emphasis for better performance and also provide good insight to implementers, community and policy makers on making sound decision.

1.4 Evaluation Questions

1. What is the knowledge of mothers of children of age 0-23 months towards IYCF?
2. To what extent do mothers of children aged 0-23 months adhere to recommended child care and feeding practices in Kilolo district?
3. To what extent mothers/caregivers practicing MBNP practices in Kilolo district?
4. What are the challenges encountered when implementing MBNP in Kilolo district?

1.5 Evaluation Objective

1.5.1 General Objective of the Evaluation

To assess the implementation process of Mwanzo Bora Nutrition Program in reduction of childhood stunting in Kilolo District Council

1.5.2 Specific Objectives of the Evaluation

1. To determine the level of knowledge about infant and young child feeding practices among mothers/caregivers of children aged 0-23 months in Kilolo district.
2. To assess adherence of recommended child care feeding practices among mothers of children aged 0-23 months.
3. To assess the sustainability of MBNP practices among mothers of children aged 0-23 months in Kilolo district.
4. To identify challenges encountered when implementing Mwanzo Bora Nutrition Program in Kilolo district.

1.6 Significance of the evaluation

This evaluation will contribute towards identification of how the program is being implemented and how the implementation processes affect the prevalence of stunting in Kilolo district council. Information gathered from the study can be used by the

Ministry of Health, Community Development, Gender, Elderly and Children, Council Health Management Team MBNP and other stakeholders to help improve upon their nutrition programs and other future nutrition programs.

Also the evaluation was conducted in as a requirement for the partial fulfillment for the award of Master of Science in Health Monitoring and Evaluation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Childhood Stunting

Stunting is the impaired growth and development that children experience because of poor nutrition and repeated infections (WHO, 2012). Stunting usually indicates combined deficiency in energy, protein and essential fatty acids that typically present as anthropometric deficits and, likely, altered body composition. If severe, the individual may have clinical signs of protein energy malnutrition e.g edema, or hair changes, this resulted to stunting. (Merson et al., 2006). Stunting is assessed by measuring height and weight and screening for clinical manifestations and biochemical markers. Indicators based on weight, height and age are compared to international standards and are most commonly used to assess the nutritional status of a population (Unicef, Improving child nutrition, 2013).

According to the United Nations Children Fund (UNICEF), stunting is the outcome of insufficient food intake and repeated infectious diseases (Ahmed et a., 2017). Children who are stunted are more likely to get sick or die. If they survive they enter school late, do not learn well, and are less productive as adults. In later life, they are at an increased risk of chronic diseases. There is strong evidence that stunting is related with faltered growth, delayed mental development, and reduced intellectual capacity (TFNC, 2014).

World Health Organization (WHO) advocated increased commitment to appropriate feeding practices for all infants and young children in order to achieve optimal growth, development and health (WHO, 2010). As global public health recommendations, international guidelines advocates that infants should be exclusively breastfed for six months, then frequent and on demand breastfeeding should continue for 24 months and should be coupled with the gradual introduction of complementary feeding adapted to the child's requirements (WHO, 2017).

A study conducted in Tajikistan by UNICEF and World Bank suggests that undernutrition can be prevented through a combination of behavior and strengthening scaling up of nutrition intervention (UNICEF W. &, 2012).

2.2 Child care and Feeding Practices

Optimal infant and young child feeding practices include early initiation, exclusive breastfeeding for the first six months of life, timely and appropriate complementary feeding and continued breastfeeding up to two years and beyond. These practices ensure young children the best possible way to start life. Infant and young children should be fed a minimum acceptable diet to ensure appropriate growth and development. Without adequate diversity and meal frequency, infants and young children are vulnerable to undernutrition, especially stunting and micronutrient deficiencies, and to increased morbidity and mortality (TDHS, 2016). The following practices are;

2.2.1 Breast feeding

According to UNICEF early initiation of breastfeeding reduces the risk of neonatal mortality and stunting. Colostrum, the rich milk produced by the mother during the first few days after delivery, provide essential nutrients as well as antibodies to boost the baby's immune system (Unicef, Improving child nutrition, 2013). The indicators for breastfeeding include early initiation of breast feeding, exclusive breast feeding and continuation of breastfeeding up to 2 years (UNICEF, 2013).

UNICEF report (2013) suggests that early initiation of breastfeeding reduces the risk of neonatal mortality; it also reduces the risk of hypothermia, improves bonding between mother and child and promotes early milk production (Unicef, Improving child nutrition, 2013).

Also the study conducted in Brazil reviewed that prolonged breastfeeding not only increases intelligence until at least the age of 30 years but also has an impact to both an individual and societal level by improving educational attainment and earning ability. Children who had been breastfed for 12 months had an IQ that was four points higher than those breastfed for less than a month (Boseley, 2015).

2.2.2 Exclusive breast

It is recommended that children must be exclusively breastfed in the first 6 months of their life; that is, they should be given nothing but breast milk. Breast milk contains all of the nutrients needed by children in the first 6 months of life (WHO, 2010).

Despite the WHO recommends exclusive breastfeeding of infants for the first six months of life, still reports shows that only 40% of infants 0-6 months old are exclusively breastfed, the rest have been given other complementary food before reaching the age of 6 month (Unicef, Improving child nutrition, 2013). Exclusive breast feeding is very important to a child as it prevents the child from getting diseases and improves immunity.

A study conducted in Malawi found that infants under 6 months of age who were exclusively breastfed were longer, heavier and less likely to be stunted than non-exclusively breast fed infants (Kuchenbecker et al., 2015). Therefore exclusive breastfeeding is more advantageous to a child and it helps to prevent growth faltering.

2.2.3 Complementary feeding

Complementary feeding is defined as the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants and therefore other foods and liquids are needed along with breast milk. Usually complementary food covers the period from 6 month to 24 month (WHO, Complementary feeding, 2016). In vulnerable populations especially, good complementary feeding practices have been shown to reduce stunting markedly and rapidly (Unicef, Improving child nutrition, 2013).

Optimal nutrition and good dietary pattern are important determinants of a child's health, (Ibeanu et al, 2014). A diet composed of different food groups gives insight about the quality of food consumed in the household (Hoffman et al, 2015). Consumption of animal source foods is one of the main indicators commonly used to assess quality of dietary intake in low and middle income countries, whereby it is assumed that, even is consumed in relatively small amounts, it is believed to

enrich the body with protein and essential micronutrients and hence decrease susceptibility to malnutrition (Warkicho et al, 2016).

Nutritious foods and sufficient diverse diets with quality are essential for children to meet their nutrient needs and support growth (Amungsi et al, 2015). Higher dietary diversity has been shown to be associated with increased nutrient adequacy of diets of children and adults in developed countries and associated with increased micronutrient density of foods consumed or better child nutritional status in developing countries (Saaka et al., 2015).

A study conducted in Bangladesh found that growth faltering and stunting are very common among under 5 children, the use of complementary foods bridging an energy and macro- and micronutrient intake gap reduced linear growth retardation between 6 and 18 months of age and stunting at 18 months of age by 1.4% each year (Parul et al., 2015).

2.2.4 Antenatal care visits

Antenatal care (ANC) is the care that a woman receives during pregnancy, which helps to ensure healthy outcomes of women and newborns (Fesseha *et al.*, 2014). The World Health Organization recommends that first antenatal visit should be initiated soon as a woman recognizes that she is pregnant or at a period of 12 weeks of her pregnancy. This early visit for antenatal care helps diagnose the pregnancy early and receiving necessary health and nutrition interventions (WHO, 2016). Also in Tanzania, the Ministry of Health community development, gender, elderly and children has adopted this recommendation on early booking of ANC clinic to ensure number of at least four ANC visits and eventually good pregnancy outcome (URT, 2015).

Health and nutrition intervention offered at antenatal care clinic such as intermittent preventive treatment for malaria in pregnancy (IPTp), nutritional counseling and Iron Folic Acid (IFA) supplementation has been found to have positive health outcome for both mother and her unborn child (UNICEF, 2012). Antenatal care is also an opportunity to promote the use of skilled birth attendance at birth and other healthy

behaviors such as proper breastfeeding, early postnatal care, and planning for optimal pregnancy spacing (Blaine *et al.*, 2015). Good antenatal care has contributed significantly to the reduction of maternal and fetal mortality (Agu, 2011).

2.3 Knowledge about IYCF among mothers of children

The knowledge on childhood stunting and its prevention is very crucial in minimizing the problem of stunting, since it is difficult to reverse once happen (WHO, 2012). The level of knowledge that mothers of children under two years age have on stunting and its prevention influence their attitude towards prevention strategies. Health seeking behavior among mothers is very important because they get information on nutrition issues through regular ANC visits.

The knowledge of mothers on childhood stunting and its prevention measures depends much on health care workers knowledge and attitude. This is because health care workers are the ones that provide proper information concerning child nutrition during antenatal visits. A study conducted in Cameroon revealed more than 60 percent of mothers of under-five said that child's stunting can be prevented by feeding the child with food that contains all classes of nutrients and proper breastfeeding practices, therefore mothers knowledge has greater role on prevention of stunting (Cumber *et al.*, 2016).

Also another study conducted in India revealed that only 54% of mothers had correct knowledge about the recommended time for starting complementary feeds and only 35% had practiced it properly (Chambagain, 2012).

2.4 Mwanzo Bora Nutrition Program practices

In order to improve access to healthy foods, MBNP in collaboration with CHW establish Farmer Field School (FFS). These FFS provide hands on experience in establishing and maintaining backyard and small livestock to produce diverse foods for household consumption (MBNP, 2015). Also the MBNP sensitize the community on the use of hand washing equipments.

2.4.1 Hand washing equipments (Tippy tap)

Childhood stunting is associated with poor water quality and hygiene practices. Childhood stunting is not just lack of food, but other factors such as poor maternal and child care practices, hygiene practices and unavailability of clean water are crucial factors for childhood stunting (USAID, 2013).

The tippy tap is famous appropriate equipment for effective adoption of hand-washing practices. They are made with local materials and have been encouraged in communities without access to running water for over 20 years (Watt, 1988). A study conducted in Bangladesh in 2010 revealed that hand-washing with soap was much more common after elimination than before food preparation of child feeding. Also poor hand-washing before preparation of food lead to contamination of the food and increased risks of (Luby et al., 2011). The vicious cycle of diarrhea disease and stunting, children suffering from diarrhea eat less and absorb a lower proportion of nutrients from the food they consume, therefore, these children have greater susceptibility to diarrhea when exposed to fecal material in their environment (SPRING, 2014).

Availability of hand-washing equipments in different areas with water and soap has been shown to increase hand-washing behavior and resulted to reduction of risks of getting diarrhea diseases especially to under-five children (SPRING, 2014). A study conducted in Uganda found that participants who use tippy-tap and had knowledge of hand-washing had chance of using these equipments more than 90 percent (Schreyer Honors College, 2014).

However, limited research exists on the effectiveness of the tippy tap and hand-washing stations as a means of removing or reducing barriers to hand-washing. There is limited information on whether the presence of tippy taps encourages hand-washing.

Additionally, researchers to date have focused most studies on tippy tap use in Africa (Biran, 2011); these studies do not address the social and cultural drivers, barriers, and behaviors specific to South Asia and, particularly, Bangladesh (SPRING, 2014).

By understanding the effect of tippy taps and hygiene practices message, as well as some behavioral elements of hand-washing practices such as (before eating, before handling food, after using the latrine, after cleaning a child's bottom) (Hernandez et al., 2012), we can help determine whether or not a tippy tap installed in a household has an effect on hand-washing practices.

Different studies around the world provide evidence that hand-washing with soap prevents infectious and saves lives. Animal and human feces are the main source of pathogens that children are vulnerable to. These pathogens cause cholera, pneumonia and other respiratory diseases. The pathogens spread from an infected host to a new one via various routes such as fecal-oral or direct physical contact. The moment a person finishes washing hands, the next cycle of collecting germs starts over by opening doors, wiping faces, playing with toys, and changing diapers. This process cannot be avoided, but the chances of infection can be greatly reduced by knowing when and how to properly wash hands (Canadian Pediatric Society 2001). Data from demographic health survey (2016) revealed that more than 80% of people who were interviewed had hand washing equipment (TDHS, 2016).

2.4.2 Home gardening (Backyard gardening)

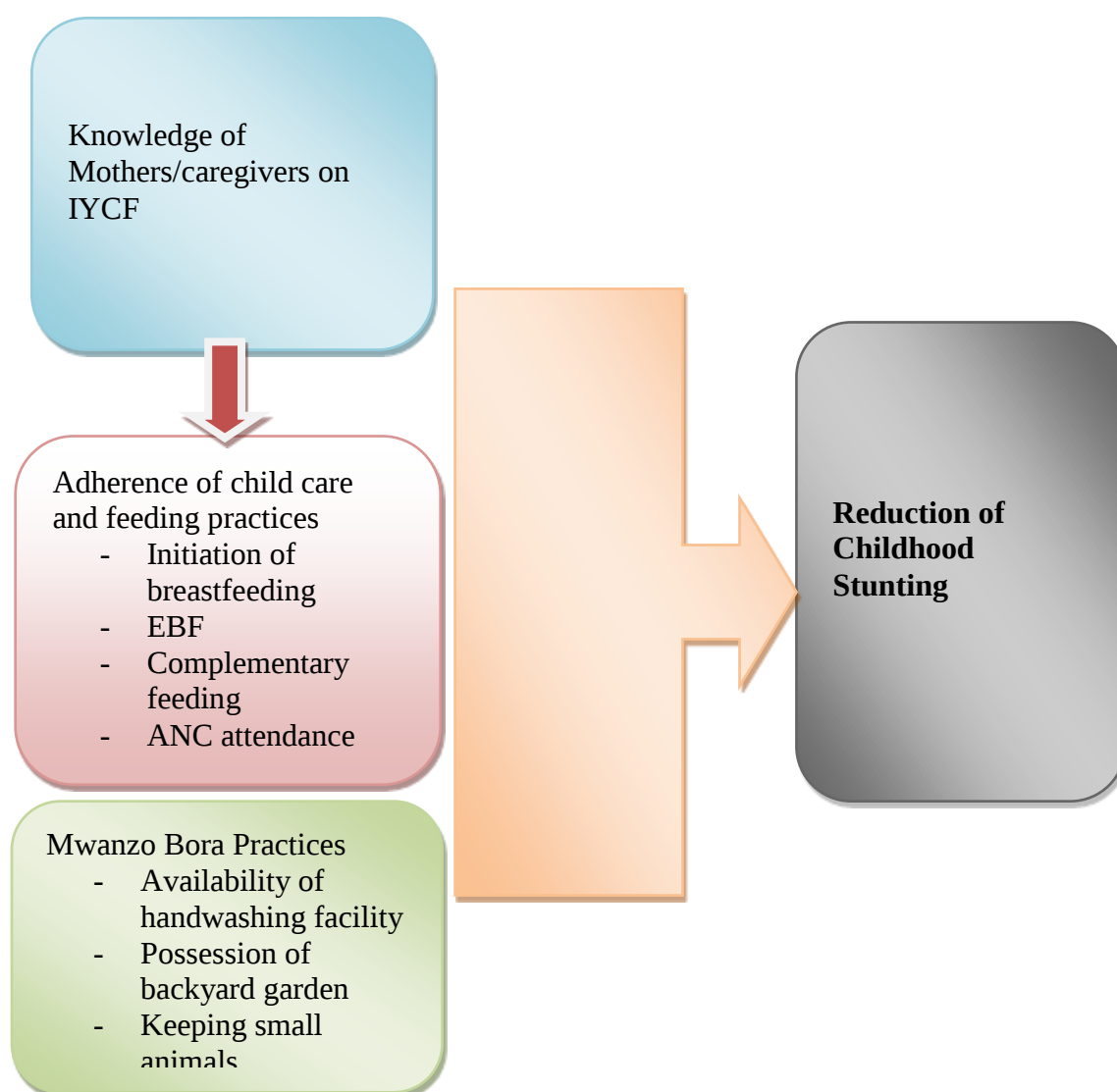
Home gardens refers to the traditional land use system around homestead where varieties of crop and vegetables are grown and maintained by the household members and their products are primarily planned for family consumption (Gautan et al., 2004). Home gardens are most important contributor of food security within most African families. They provide food and income of the family (Gautan et al., 2004).

According to Marsh (2007), home gardens have multiple potential benefits and they are vital such as a direct increased access to nutritious food by food insecure households. Home gardening contributes to food security by providing food that can be utilized by households on a daily basis. Home gardening can be done using only the available local planting material, green manures, fencing and indigenous pest control methods without any virtually economic resources (Marsh, 2007).

Backyard gardens are the best method of supplementary food production system for a household and can be regarded as a source of food, and it is one of the most essential strategy that has the potential of enhancing food security for the poor (Mutotsi et al., 2006; Marsh, 2007).

2.5 Conceptual framework

Figure 2.1: Conceptual framework



Source: Evaluator, 2018

Conceptual framework

This evaluation was guided by the above conceptual framework, the dependent variable is reduction of childhood stunting and the independent variables are

knowledge of mothers/caregivers towards IYCF, adherence of childcare and feeding practices and MBNP practices.

Knowledge of mothers/caregivers on IYCF has an influence to the reduction of childhood stunting and adherence of childcare and feeding practices. Important aspect to IYCF knowledge among mothers relies on maternal nutrition, childcare including ANC early visit, initiation of breastfeeding, exclusive breastfeeding and appropriate time for complementary feeding. WHO recommends that childhood stunting will be reduced if mothers start initiating breastfeeding within one hour after delivery, practice EBF, appropriate time for complementary feeding and late cessation of breastfeeding, (WHO, 2018).

Mwanzo Bora practices: Infant and young children should be fed a minimum acceptable diet to ensure appropriate growth and development. Inadequate diversity and meal frequency to infants and young children may result to stunting and micronutrient deficiencies (TDHS, 2016). Therefore adequate diversity is required for the better nutrition status of the population, MBNP come up with a strategy to keep small animals and possession of backyard garden as a means to increase food diversity in Kilolo.

Also Mwanzo bora program promotes knowledge of using hand-washing facilities (Tippy-Tap) as a means of improving hygiene and reduce childhood illness.

CHAPTER THREE

EVALUATION METHODS

This chapter describes the evaluation methods that was used. It includes description of the evaluation area, evaluation period and design, which covers sampling procedures, sample size and sampling frame, techniques used in data collection and data management and analysis and ethical consideration.

3.1 Evaluation Area

The evaluation was conducted in Kilolo district in Iringa region. Kilolo district shares borders with Mpwapwa district (Dodoma Region) in the North, Kilosa district (Morogoro Region) in the North East, Kilombero district (Morogoro region) on the East, while Mufindi district is on the south with Iringa rural district on the west where, the focus was on Mwanzo Bora Nutrition Program.

The program works in collaboration with local government authorities at health facilities and implements the interventions in partnership with Civil Society Organizations (CSOs) who are Mwanzo Bora Nutrition Program sub-grantees. The Mwanzo Bora Nutrition Program works at community level in all 24 wards and 118 villages in the district in collaboration with Ilula Orphanage Program (IOP). According to the 2012 Population Census, Kilolo district had a population of 218,130 individuals whereby 109,715 were males and 108,415 were females. Women at child bearing age are 53,483 and children under five are 39,010 (NBS, 2012). The major economic activity in the district is agriculture.

Kilolo district was purposively selected because it is among the Mwanzo Bora Nutrition Program (MBNP) zones of influence in Iringa region. Also, there is high prevalence (42%) of stunting in the district compared to that of national level of 34% (TDHS, 2016).

3.2 Evaluation Period

Data collection process, analysis and development of report were conducted between the periods of March 2018 to June 2018. The evaluation started in February 2017 with the review of documents, development of objectives and problem statement.

3.3 Evaluation approach

A formative evaluation was conducted to assess the implementation process of MBNP activities in order to provide information that could be useful in improving nutritional status of under five children whilst simultaneously contributing to the reduction of childhood stunting in Kilolo district. This evaluation offers an opportunity to gain insight about how Mwanzo Bora Nutrition program is being implemented and what are the key challenges that hinder its achievements. The results of the evaluation intended to provide information that would be useful in informing the program improvement through the use of evidence based data.

3.4 Evaluation design

A cross sectional design was used in this evaluation. The selection of this design was based on the fact the evaluation intended to collect information from respondent at one point in time. In addition the evaluator chooses this design because it was useful for descriptive purposes as well as for determination of relationship between and among variables (Babbie, 1990).

3.5 Focus of evaluation and dimensions

The main focus of this evaluation was to evaluate the process of implementing MBNP in reducing childhood stunting. Specifically, the attention aimed at evaluating to what extent the program has been or has not been implemented as per planned program objectives and activities. The evaluation focused on the following aspects of the program as presented in table 2.1 below:

3.6 Variables and measurement

Table 3.1: Specific objectives, data to be collected and their sources

No	Specific objective	Data to be collected	Source of data
1	To determine the level of knowledge on the importance of infant and young child feeding practices among mothers/caregivers of children aged 0-23 months in Kilolo district.	--Knowledge of mothers on IYCF	Mother/caregivers of children aged 0-23 months
2	To assess adherence of recommended child care and feeding practices among mothers of children aged 0-23 months.	-Child care and feeding practices. (ANC attendance, Initiation of breast feeding, practice of EBF and Complementary feeding)	Mothers/caregivers of children aged 0-23 months
3	To assess the sustainability practices of Mwanzo Bora Nutrition Program at Kilolo district	- Availability and use of Tippy tap to wash hands - Possession of backyard garden - Keeping of small animals	Mothers/caregivers of children aged 0-23 months
4	To identify challenges encountered when implementing MBNP in Kilolo district council	-Challenges encountered when implementing the program	DNuO, M&E, DRCHCO and community health workers

Source: Evaluator, 2018

3.7 Sampling process

3.7.1 Evaluation population

The evaluation population comprised of mothers of children/caregivers between 0-23 months enrolled in MBNP, community health workers and CHMT officials of Kilolo district council.

3.7.2 Evaluation frame and unit

The sample frame consisted mothers/caregivers with children between 0 – 23 months living in Nyanzwa, Nyalumbu, Mtitu, Ng'uruhe, Udekwa, Ukumbi and Ilula wards. The evaluation units were health facilities providing reproductive and child health services.

3.7.3 Sample size

The sample size was calculated based on the peer support group's database available in Kilolo district council. Total number of peer support groups were 479 (MBNP, 2018). Five percent was considered to provide a sufficient sample for meaningful analysis. Each peer support group had members from 6 to 10 participants. Thus, in order to obtain the actual number of respondents in this evaluation, the number of representative peer support groups was multiplied by number of members per each group. The evaluator assumes each group has 7 participants as it was in between.

Therefore $n = 5\% \times 479 = 23$ groups

Since one group had 6-10 members; then 7 participants $\times 23$ groups = 161

Therefore 161 represents mothers/caregivers of children aged 0-23 months. Also, the evaluator interviewed three program implementers, two from council and one from CSO, and six community health care workers.

3.7.4 Sampling Technique

The evaluation used both probability and non-probability sampling techniques to get respondents and evaluation area.

3.7.4.1 Purposive sampling

Purposive sampling was used to select the evaluation site. The area was purposively selected because the district is among the zones of influence in Iringa. Moreover, the

district is reported to have the high prevalence of stunting in the region. Also, purposive sampling was used to select mothers of children aged 0-23 months attending ANC due to the fact that not all mothers attending ANC are MBNP beneficiaries.

3.7.4.2 Simple random sampling

The simple random technique was used by the evaluator to get representative wards, the selected wards were Nyanzwa, Udekwa, Kising'a, Ukumbi, Mtitu, Ilula and Nguruhe. From these wards, 10 health facilities namely:- Mtandika Health centre, Nyanzwa dispensary, Ifuwa, Kising'a, Utengule, Kilolo, Mwatasi, Ukumbi, Udekwa and Pomerini were selected.

The evaluation included 160 mothers of children aged 0-23 months, Six CHW and Three Program implementers.

Table 3.2: Distribution of sample size, techniques used and tools (Participants of the evaluation)

Type of respondent	Total Number of respondent	Selected sample	Sampling Technique	Data collection method
Mothers of children aged 0-23 months	3072	160	Purposive	Structured Questionnaire/FGDs
Program implementers	30	3	Purposive	Interview
Community health workers	118	6	Purposive	Interview
Total	3220	169		

Source, evaluator 2018

3.7.5 Inclusion and exclusion criteria

Inclusion criteria

The inclusion criteria took into account mothers/caregivers of children between 0-23 months old who participate on MBNP activities and attending ANC, community health workers and District health officials who agreed to participate to this evaluation.

Exclusion criteria

All mothers/caregivers with no children of age between 0 – 23 months and are not MBNP beneficiaries were excluded.

3.7 Data Collection

The principal evaluator enrolled five data collectors who assisted the whole process of data collection. Prior to data collection, evaluator assistants were trained for one day for the purpose of ensuring that they understand the intention of the evaluation and the type and quality of data that were needed. Information concerning child care and feeding practices and sustainability of MBNP practices were collected from mothers of children at Antenatal Clinics.

3.7.1 Instruments for data collection**3.7.1.1 Questionnaires**

Data were collected by using structured questionnaires with both open and closed ended questions. Information on knowledge about infant and young child feeding, adherence of child care and feeding practices and sustainability of MBNP practices were collected from mothers/caregivers. Information from mothers/caregivers were collected by five field data collectors that were enrolled by evaluator to assist her on collecting those information during ANC visits.

Questionnaires for mothers/caregivers of children aged 0-23 month were translated in Swahili language to suit the participants. On average it took approximately 30 minutes to fill in one questionnaire.

3.7.1.2 Interview

Data from key informants were collected from implementers and CHWs on how the program was being implemented and the challenges facing the program. The evaluator conducted the interview and used two interview guides to gather information on how MBNP implemented in the area from CHMTs and from CHWs. At council level the CHMT were interviewed in a scheduled place to ensure confidentiality and at facility level CHW were interviewed in a scheduled place within the health facility. On average it took approximately 15 to 30 minutes to both CHW and CHMTs. Data were

tape recorded to ensure that all data are captured. The interview was translated to Kiswahili to suit the participants.

3.7.1.3 Focus group discussion

The evaluator used FGD to supplement information gathered from questionnaires. The evaluator lead three group discussions and each group comprised of 6 mothers/caregivers. The FGDs were conducted by the evaluator with an assistance from the District nutritionist. FGDs were translated in Swahili to suit the participants, the mothers/caregivers shared ideas and experience in a warm atmosphere that promoted social interaction. Data were tape recorded to ensure that all data are captured. After the end of discussion the evaluator made sure that all the information from the audio tapes are translated to English language. On average each group discussion took approximately 2 to 3 hours.

3.8 Data Management and Analysis

Data entry was applied through designed an excel sheet. The evaluator considered this as a necessary step for organizing data using quantitative method with assistance of IBM SPSS software version 20. After the completion of questionnaires, the data was cleaned, verified and entered into IBM SPSS software version 20. Data were analyzed in descriptive statistical methods like tables, percentages, frequencies and statistical test such as chi square (χ^2) tests were used in categorical data to show association between variables for presenting and interpreting data. The statistical levels of all significance were set at $p \leq 0.05$ for all analyses. Qualitative data was categorized transcribed and presented. Main quotes from interviewee and from FGD were included to give more insight.

3.9 Ethical consideration

The permission to conduct this evaluation was obtained after the approval letter from Mzumbe University. Each participant who agrees to participate in the evaluation was given adequate information to allow him or her understand the purpose of the evaluation.

The evaluation participants were assured of their rights to withdraw from the evaluation at any time. Verbal consent was also obtained from the participants after informing them the objectives of the evaluation. Confidentiality and privacy was assured at all time during the data collection and during the handling of the data from the participants. Audio taped and paper based data were carefully stored in a manner that wouldn't allow any unauthorized persons to access it. All ethical clearance within the host organization was adhered.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the analyzed data that were collected during the evaluation period. The findings are grouped into six categories. (1) Social demographic characteristics of respondents/caregivers (Age, marital status, education level and occupation of mothers). (2) Social demographic characteristics of children (Age in months), (3) Knowledge on Infant and Young Child Feeding practices, (4) Adherence of child care and feeding practices variables are (exclusive breast feeding, breast feeding and complementary feeding), (5) Sustainability of Mwanzo Bora Nutrition Program practices (availability and use of tippy tap, possession of backyard gardening and keeping of small animals), and (6) Challenge facing the implementation of MBNP.

Descriptive analysis

The evaluation focused on implementation of Mwanzo Bora Nutrition Program in the reduction of childhood under nutrition. A total of 169 respondents were included in which 160 were mothers/caregivers who are Mwanzo Bora Nutrition Program beneficiaries, 3 were program implementers and 6 were Community Health workers from 6 wards.

Age of respondents

The age of respondent ranged from 15 up to 45 years. The results of the evaluation revealed that 47% of respondents were mothers with age between 25-34 years, 33% were aged 15-24 years, 20% were mothers aged 35-44 and only 0.6% was aged above 45 years, (Table 3).

Education levels

The evaluation results showed that 51% of the respondents had attained primary education, 41% had already attained secondary education, 5% did not attain any formal education and only 3% had gone to college, (Table 3).

Marital Status of the Mothers

Majority of the mothers/caregivers that is 72% were married and living with their spouses only 28% were either single/divorced/widowed, (Table 4.1).

Occupation

It was observed that majority of mother/caregivers 67% were farmers, 28% have small business or petty business, 1% are livestock keepers and only 4% were employed.

Table 4.1: Demographic characteristics of the respondents

Characteristics		Frequency n=160	%
Age of respondent	15-24	52	32.5
	25-34	75	46.9
	35-44	32	20.0
	>45	1	.6
Education of respondent	No formal education	8	5.0
	Primary education	82	51.3
	Secondary education	66	41.3
	Tertiary education	4	2.5
Marital status	Single	43	26.9
	Married	115	71.9
	Divorced	1	.6
	Widow	1	.6
Occupation	Farming	107	66.9
	Livestock keeping	2	1.3
	Employed	6	3.8
	Petty Business	45	28.1
	Others	0	.0

Source: Evaluator, 2018

Demographic characteristics of children

The age of the children were grouped in two, the first group was from 0-6 month and the other group range from 7-23 months. Results from the evaluation shows that children aged 0-6 months were 45% and those in between 7-23 months were 55%, (Table 4.2).

Table 4.2: Demographic characteristics of children (n=160)

Characteristics	Frequency	%
Age of child	0-6	72
	7-23	88
	Total	160

Source: Evaluator, 2018

4.2 Knowledge of mother about Infant and Young Child Feeding

Table 3.5 shows the knowledge of mothers about the infant and young child feeding. Most of the mothers/caregivers (98%) had knowledge about IYCF and only 2% seems to have no knowledge about IYCF. Also, the results showed that most of the respondents (94%) received information on IYCF from health care providers, only 6% of the respondents reported to have heard about Infant and Young child feeding from Mwanzo Bora Peer Supports Groups, (Table 3.5). There was significant relationship between knowledge of IYCF and source of information about IYCF (health care workers) at ($p \leq 0.01$).

Likewise, when respondents asked if Stunting is caused by not practicing IYCF, 97% seems to know and only 3% disagreed. As per evaluation observation it was found that there were significant relationship between knowledge of IYCF and knowledge of stunting at ($p \leq 0.01$), Also when respondents asked if Mwanzo Bora Nutrition Program has been responsible for creation of awareness on Infant and Young Child Feeding, 98% of respondents agreed and only 2% disagreed (Table 4.3).

More than 94% of the respondents reported to have knowledge on when complementary feeding is recommended and only 6% of the respondents had no knowledge of time to start complementary feeding, (Table 4.3). Also 90% of the

respondents reported to have knowledge on exclusive breastfeeding and only 10 of the respondents had no knowledge about exclusive breastfeeding.

Also in table 3.6 the evaluator wants to see if there is relationship between demographic information of mothers/caregivers and knowledge of IYCF. The results revealed that there was significance relationship between Age of mother and knowledge of IYCF at ($p \leq 0.01$). mothers between 25 – 44 years had knowledge on IYCF compared to mothers aged below 24 and above 45 years.

Also in testing the relationship between education level and knowledge of mothers on IYCF, the results revealed that for those mothers who attend reached secondary level and tertiary level had enough knowledge on IYCF compared to those who had no formal education or had primary education.

The results revealed that mothers who are married had a chance to get information on IYCF and they had knowledge concerning IYCF compared to those who are single, (Table 4.3).

Table 4.3: Assessment of Knowledge about Infant and Young Child Feeding
(n=160)

Characteristics		Knowledge about IYCF				Test statistics
		Yes		NO		
		Frequencies	%	Frequencies	%	
Sources of information on IYCF	Radio	0	.0	0	.0	(160,000, 3)
	Television	0	.0	1	50.0	
	Health provider	148	93.7	0	.0	
	Mwanzo Bora groups	10	6.3	0	.0	
	Others	0	.0	1	50.0	
Stunting is caused by not practicing IYCF	Yes	153	96.8	0	.0	0.000*** (44.268, 1)
	NO	5	3.2	2	100.0	
Mwanzo bora nutrition program increase awareness on IYCF	Yes	155	98.1	2	100.0	(0.39,1) 0.844
	NO	3	1.9	0	.0	
Recommended time for starting complementary feeding	0-1 month	0	.0	0	.0	(25,523,2)
	2-3 month	2	1.3	1	50.0	
	4-5 month	8	5.1	0	.0	
	6 month and above	148	93.7	1	50.0	
Knowledge of EBF	Yes	141	89.8	2	66.7	(1.660, 2)
	No	16	10.2	1	33.3	

Source: Evaluator , 2018

(Figures in brackets denote Chi square value and degree of freedom (df) respectively)

*** Significant at p-value ≤ 0.001

Table 4.4: Association of mother knowledge about Infant and Young Child Feeding Practices with demographic factors (n=160)

Characteristics		Knowledge about IYCF				
		Yes		NO		
		Frequency	%	Frequency	%	
Age of respondent	15-24	51	32.3	1	50.0	(80.545,3)
	25-34	75	47.5	0	.0	
	35-44	32	20.3	0	.0	
	>45	0	.0	1	50.0	0.000***
Education of respondent	No formal education	8	5.1	1	50.0	(7.964,3)
	Primary education	81	51.3	1	50.0	
	Secondary education	65	41.1	0	.0	
	Tertiary education	4	2.5	0	.0	0.047*
Marital status	Single	41	25.9	2	100.0	(5.511,3)
	Married	115	72.8	0	.0	
	Divorced	1	.6	0	.0	
	Widow	1	.6	0	.0	0.138
Occupation	Farming	105	66.5	2	100.0	(1.003,3)
	Livestock keeping	2	1.3	0	.0	
	Employed	6	3.8	0	.0	
	Petty Business	45	28.5	0	.0	
	Others	0	.0	0	.0	0.8

Source: Evaluator, 2018

(Figures in brackets denote Chi square value and degree of freedom (df) respectively)

*** Significant at p-value ≤ 0.001

* Significant at p-value ≤ 0.005

4.3 Child Care and Feeding Practices

This evaluation assessed child care and feeding practice especially on early visits to ANC clinics, breast feeding practices and complementary feeding.

4.3.1 ANC visits

WHO recommends pregnant women should start attending ANC clinics soon after conception, the recommended time is below 12 weeks. In this evaluation only 30% of mothers who were interviewed said they start ANC visits before 12 weeks, 69% of the respondents started ANC visits above 12 weeks of the pregnancy and only 1% start ANC attendance after 6 months, (Table 4.5).

Also the results revealed that more than 66% of the respondents pay visits to ANC clinics four times and above as recommended by WHO guidelines, 34% respondents visits ANC less than four visits and no respondent who fail to visit ANC, (Table 4.5).

Table 4.5: Distribution of ANC attendances and visits among mothers of children 0-23 months (n=160)

Characteristics		Frequencies	%
Time when you started ANC	Less than 12 weeks	48	30.0
	3-5 months	110	68.8
	6 - 9 months	2	1.3
	Less than 4 visits	54	33.8
Number of ANC visits	Four visits and above	106	66.3
	Never attended	0	.0

Source: Evaluator, 2018

4.3.2 Breast feeding practices

About 60% of the respondents who said they knew about Infant and young child feeding initiated breast feeding within one hour after giving birth, 26% initiated breast feeding within two hours, 12% initiated breast feeding after 24 hours and only 2% initiated breast feeding after 24 hours, there was no significance difference between knowledge of IYCF and practice of initiating breast milk, (Table 4.6).

During Focus group discussion respondents were asked on why they started late breast feed and their responses were “*I was operated that’s why it took me more than 24 hours to start breast feed my child due to some complications*”

Another respondent said that *“after delivery I failed to breastfeed my child due to lack of milk”*

There was significant difference ($p \leq 0.01$) between Infant and young child feeding and the food that introduced first to the new born baby, the results from the evaluation revealed that mothers were giving their new born breast milk soon after birth, around 94% said that they first introduce breast milk to their child and only 6% said they were introduced either cow milk, water, juice or glucose, (Table 4.6).

Also there were significance difference ($p \leq 0.05$) of notification of breast feeding and knowledge about IYCF. Respondents were asked if there are advantages of Exclusive breast feeding and the results showed that more than 91% said that there were advantages of exclusive breast feeding and only 9% said there were no advantage of exclusive breast feed.

Around 91% of the respondents reported to observe positive changes through practicing exclusive breast feeding, changes such as normal growth, reduced frequency of illness and increased body weight. Only 9% said they never see any changes, there were no significance difference between knowledge of IYCF and changes seen, (Table 4.6).

More than 85% of the respondents were breastfeed their child, 34% had not introduced any food during the time of the evaluation while 51% of respondents exclusively they breast feed their baby and only 15% of respondents were not practicing EBF, they introduce food to their baby less than six months.

**Table 4.6: Breast feeding practices among mothers of children aged 0-23 months
(n=160)**

Characteristics		Knowledge about IYCF				Level of
		Yes		NO		significance
		Frequency	%	Frequency	%	p-value
Breast feeding initiation	Within one Hour	94	59.5	0	.0	(3.954,3)
	Within two hour	41	25.9	1	50.0	
	Within 24 hours	19	12.0	1	50.0	
	Others	4	2.5	0	.0	0.266
First food introduce to a your baby	Breast milk	149	94.3	1	50.0	(14.717,2)
	Porridge/cow milk	4	2.5	1	50.0	
	Water/juice/glucose	5	3.2	0	.0	
	Others	0	.0	0	.0	0.000***
Notification of EBF advantages	Yes	145	91.8	1	50.0	(4.316,1)
	No	13	8.2	1	50.0	0.038*
Changes noticed	Normal growth	30	19.0	0	.0	(3.633,3)
	Reduced frequency of illness	42	26.6	0	.0	
	increased weight	69	43.7	1	50.0	
	Nothing	17	10.8	1	50.0	0.304
Time when start giving food	Less than 6 months	23	15	0	.0	(479,1)
	6 months and above	80	50.5	1	50.0	
	Not yet	55	34	1	50.0	0.489

Source: Evaluator , 2018

(Figures in brackets denote Chi square value and degree of freedom (df) respectively)

*** Significant at $p\text{-value} \leq 0.001$, * Significant at $p\text{-value} \leq 0.005$

4.3.4 Complementary feeding practice

More than half (51%) of respondents with knowledge about infant and young child feeding started complementing their children at the age of six months as recommended by WHO, 15% of respondents start introducing food to their child

before reaching six month and 34% of the mothers of children less than six months were not introduced food to their child during evaluation time. There was no significance association between knowledge about IYCF and practice of complementary feeding, (Table 4.7).

The results revealed that though mothers had knowledge about IYCF. More than 93% knows when to start complementary feeding to their child, only 7% failed to understand the right time to start complementary feeding, (Table 4.7).

In the Focus Group discussion mothers were asked when they introduce food to their children and their responses are:

“after six months complementary feeding is allowed, although some time due to hard life style it happens you start introducing food to the child before 6 months, also some children are not satisfied with breast milk so they become furious and cry every time, but if you introduce some porridge to them it becomes easy for us (mothers) to continue with other schedule”

Around 43% complements their children five times per day, 13% compliments four times per day and 10% complement three times per day, only one percent complement two times per day.

In FGDs mothers told the evaluator that *“I knew that I’m supposed to complement my children at least five times per day, but due to hardships in life I manage only three times, my son is 20 months now”*

Table 4.7: Complementary feeding practices among mothers of children aged 0-23 months (n=160)

Characteristics		Knowledge about IYCF				Level of
		Yes		NO		significance
		Frequency	%	Frequency	%	p-value
At what age did you start giving complementary feeding	Less than 6 months	23	15	0	.0	(479,1)
	6 months and above	80	50.5	1	50.0	0.489
	Not yet	55	34	1	50.0	
when do complementary feeding recommended	0-1 month	0	.0	0	.0	(25.523,2)
	2-3 month	2	1.3	1	50.0	0.000***
	4-5 month	8	5.1	0	.0	
	6 month and above	148	93.7	1	50.0	
Practice of complementary feeding frequency	2 times	2	1.3	0	.0	(4.567,4)
	3 times	15	9.5	1	50.0	0.335
	4 times	21	13.3	0	.0	
	5 times	68	43.0	0	.0	
	Not yet	52	32.9	1	50.0	

Source: Evaluator, 2018

(Figures in brackets denote Chi square value and degree of freedom (df) respectively)

*** Significant at p-value ≤ 0.001

4.4 Sustainability of Mwanzo Bora Nutrition Program practices

In assessing sustainability of Mwanzo Bora Nutrition Program practices among the mothers of children under two years the following were observed, availability and the use of tippy tap for hand washing, possession of backyard gardening in their home and keeping of small animals such as rabbit and poultry, (Table 4.8).

There were significance difference ($p \leq 0.05$) between Knowledge of IYCF and practice of MBNP in hand washing equipments (tippy tap) at the evaluation area. The findings revealed that more than 80% of respondents have tippy tap and when asked if they use before and after using toilets 80% said yes and only 20% denied, (Table 4.8). Also significance difference ($p \leq 0.05$) was seen on when respondents started to use hand washing facilities, more than 55% of the respondents reveal that they just started using tippy tap after Mwanzo Bora Nutrition Program launched and only 25% said they were started using tippy tap before MBNP and only 20% said they are not using tippy tap, (Table 4.8).

There were no statistical difference between knowledge on IYCF and possession of backyard garden, the results revealed that about 52% of the respondents said that they have backyard garden in their house while 48 they have no back yard garden, among 52% that possess back yard garden only 16% started gardening before Mwanzo Bora Nutrition Program and the rest 36% started gardening after attending Mwanzo Bora groups, (Table 4.8).

The results revealed that 64% of the respondents said they keep small animals poultry/rabbit and only 36% said they did not keep small animals in their home. Among these 64% that said they keep small animals whereby only 25% start keeping small animals before MBNP and the rest 39% start keeping after MBNP, (Table 4.8).

Table 4.8: Assessment on Sustainability of Mwanzo Bora Nutrition Program Practices (n=160)

Characteristics		Knowledge of IYCF				Level of
		Yes		NO		significance
		Frequency	%	Frequency	%	p-value
Do you have tippy tap	Yes	128	81.0	0	.0	(8.101,1)
	No	30	19.0	2	100.0	0.004*
Hand washing practice before and after using toilets	Yes	128	81.5	0	.0	(8.363,1)
	No	29	18.5	2	100.0	0.004*
When did you start use	Before MBNP	40	25.3	0	.0	(8.101,2)
	After MBNP	88	55.7	0	.0	
	Not using	30	19.0	2	100.0	0.001*
Do you have a backyard garden	Yes	81	51.3	2	100.0	(1.879,1)
	No	77	48.7	0	.0	0.17
	Before MBNP	23	14.6	2	100.0	(10.937,2)
When did you start gardening	After MBNP	59	37.3	0	.0	
	Not gardening	76	48.1	0	.0	0.004*
Do you keep small animals	Yes	100	63.3	2	100.0	(1.1521,1)
	No	58	36.7	0	.0	0.2
	Before MBNP	40	25.3	0	.0	(3.287,2)
When did you start keep small animals	After MBNP	59	37.3	2	100.0	
	Not keeping	59	37.3	0	.0	0.19

Source: Evaluator, 2018.

(Figures in brackets denote Chi square value and degree of freedom (df) respectively)

* Significant at p-value ≤ 0.005

4.5 Challenges facing the implementation of MBNP

Program implementers were asked on what challenges facing the implementation of the program, the following were addressed:

4.5.1 Lack of Support from extension officers

The MBNP work in collaboration with district officials in providing services to the community, the program intends to improve nutrition status by empowering communities to keep small animals and possess backyard garden. CSO's who are partner in implementing MBNP practices are just supervisors of the program, they have no knowledge on animal keeping and agriculture, so they depend much on council officials. During the in depth interview the implementers complains on poor support from extension officers located in villages. One respondent said that:-

“Extension officers made this work tough because they are not cooperating with us, you need to use extra force to push them to go and support peer groups when they need them, and bad enough they are not our employees so they never own it”

4.5.2 Shortage of human and financial resources

The MBNP is being implemented in all 118 villages within the district, the target was to reach 20,000 beneficiaries. On shortage of staff the district nutritionist said that;

“MBNP is implementing their activities in all 118, but the challenge here is staff, these CHWs that are being used by MBNP are working with different programs in the district, they are working with CUAM, BORESHA afya, and other agriculture and community development departments. It is difficult for them to be committed 100% in MBNP, some time when you need them they are not there and hence it affects the implementation process of the program. For the program to succeed, it needs committed and competent people in the field, but these CHWs even though they are helping us but many of them fail to use electronic devices”

Also the MBNP target to support more than 567 households with rabbit/poultry for animal keeping activities, but due to shortage of funds only 45 were given rabbit and the rest did not get it. This had negative impact to the program because some MBNP beneficiaries had already prepared the area for keeping, failure to get, it makes them to feel guilty and weak.

One respondent said that;

“ We failed to supply rabbit due to shortage of funds, but some MBNP beneficiaries failed to prepare rabbit camp as recommended and that’s why we failed to give them ”

But Community health workers said that;

“MBNP officers fail to implement their promise, they come and tell us to prepare camps for keeping rabbit, but after finishing the camps they fail to supply those rabbits. This made some of MBNP benefits weak even in attending Peer groups, they complain about spending more time to some things that are less important to them.

Also the district nutritionists said that;

“Earlier MBNP distributed rabbit without consulting professionals that results to supply of same sex animal and impact the reproduction, they are not cooperative at first until we sat in Nutrition steering committee and tell them to stop doing things without consulting the district officials”

In implementing their activities MBNP had their way of paying community health workers 25,000/= monthly after they submit electronic reports, the challenge was that many CHWs in villages fail to submit these electronic report and once they submit manually the problem rises on payment. This discourages CHWs and the result was to find other programs and work with them. They said that;

“MBNP agreed with us to pay 25,000/= per month after sending to them the report of peer groups, but the modality of sending these reports was electronically set, due to low knowledge of these electronic devices especially phones, we request to start sending reports manually to the district, at first they were paying us, but later the payment system was very difficult.

The other community health worker said that;

“Last quarter they paid me only 25,000 instead of 75,000 without telling me why, and after asking them they said that they miss my reports for two months”

4.5.3 Poor community participation

MBNP in implementing its objectives the major stakeholders are community members. But very unfortunately some village leaders prohibit their villages not to possess gardens, with the excuse that there was little water in their area. So if they will allow community members to own garden even kitchen garden will result to disaster. This made the implementation process of backyard garden to fall in challenges. Another challenge mentioned was poor male partner participation in MBNP.

CHAPTER FIVE

DISCUSSION OF THE EVALUATION FINDINGS

5.1 Demographic characteristics of Respondents

Age of the Mother

Out of 160 total numbers of respondents who were interviewed 47% were aged between 25-34 years of age. This means at this age group activeness is at large extent, also there might be easy understanding of things, adoption of new mechanism and behavior change, while 33% of respondents were below 24 years of age this reflects young population within the reproductive age in the evaluation area. The results of this evaluation found that there was association between age of the mother and knowledge of Infant and Young Child Feeding at significance level ($P \leq 0.01$). This was similar to the study conducted in Nepal on knowledge of mothers about infant and young child feeding, in this study the results found that there were significant differences between age of the mother and knowledge of infant and young child feeding. In their results it was revealed that young mothers fail to manage their children due to lack of experience while to the older mothers they have more and better experience in child care practices than young ones, (Chapagain, 2012).

Education Level

In these evaluation findings the results showed that more than 51% of the respondents attain primary education, 41% attained secondary education, 5% did not attain any formal education and 3% had gone to college. Also the results showed that there is association between mother's education level and knowledge of Infant and Young Child Feeding practices, for those who had gone to college, they had enough knowledge about infant and young child feeding practice and they had been practicing it, while for those who did not have formal education had no enough knowledge about the Infant and Young Child Feeding practices.

The results reflect the reality that, there is a little chance of child stunting to the children whose parents had attain tertiary level due to the fact that their parents especially mother knows about child care and feeding practice and they are practicing it. There might be problem of stunting to children whose mothers had not attain any

formal education because mothers education might affect proper child feeding practices through enhancing their knowledge from different information sources. The results of this evaluation was similar to the study conducted in Uganda and Nigeria where by positive association was seen between levels of maternal education and nutrition status of the family (Stoecker et al. 2009 and Bukusuba et al. 2009).

Marital Status

Majority of the mothers/caregivers 72% were married and living with partners. This means that majority of children in this evaluation are living with both parents. The result was similar with the findings of the study conducted in Nairobi and Ethiopia (Murage et al, 2011, Fekadu et al. 2015) which indicated high proportion of married respondents and another study done in Uganda (Efata, 2000) had the similar results.

Also there were no significance association between knowledge and marital status in this evaluation. This may be due to poor male involvement in peer groups that are responsible for men and other for women, so it becomes difficult as at the family level to adopt key messages of the program. The result was contrary to the study conducted in Morogoro (Luzangi, 2017) in which male involvement on MBNP has positive impact on health and nutritional status of the children.

Occupation of the Mother

It was observed that majority of mother/caregivers 67% were farmers, 28% have small business or petty business, 1% are livestock keepers and only 4% were employed. Farming is the main source of income in this group of respondents that were interviewed. This implies that food for many of them, it is not a problem as they produce it, but health child needs balanced meal that can be obtained not only in the farm but also through buying and having knowledge on feeding practices. In this evaluation findings only 4% are employed and 28% possess petty business whereby the majority 67% are farmers so they are not employed. This means in order for them to earn income they depend solely on their husbands, relatives and other friends for their daily living, making the household food security non reliable unlike mothers who own their income, they can control nutritional security of the household.

5.2 Knowledge of Mothers about Infant and Young Child Feeding Practices

The results of this evaluation show that more than 98% of mothers had knowledge on Infant and Young Child feeding meaning that they had enough knowledge concerning IYCF. This means they knew about IYCF which is the first step towards reducing stunting. The results of this evaluation was contrary to the study conducted in Pakistan found that mothers who had no knowledge about IYCF that resulted to high number of stunting (Anaam et al., 2015).

More than 93% get information concerning IYCF from health care workers and only 6% get information from Mwanzo Bora groups. The meaning of these findings is that Health care workers are still the reliable source of information on child care and are still believed in the society. Also the nature of the work made them able to deliver information in the manner that mothers are attending ANC for more than 4 times during pregnancy and after delivery they tend to attend ANC for their child immunization which is contrary to the study conducted in South Africa (Lamstein, 2017). The study focuses on how do CHWs contribute to better nutrition and the results found that CHWs can communicate easily with mothers than health care providers.

The results show that only 6% of respondents said they get information concerning IYCF from Mwanzo Bora Peer groups. This means that there is need of strengthened communication by MBNP to CHW who works on those peer groups. These groups are so important because if a mother fails to get information from health care workers she may get information from Mwanzo Bora groups, but no one who said she gets information from Television, radio and postures even though the MBNP used different communication networks to make sure the society is aware of what is going on. The reason for this might be the behavior of the society of not reading books or postures, financial crisis that some families has no money to buy television and even the little they have still the problem is electricity and because mothers are the ones that take care of families it is difficult for them to listen radio on day time. The results of this evaluation was contrary to the study done on Morogoro (Luzangi, 2017) where by information concerning IYCF was at large distributed through recorded audio tape, Mwanzo Bora Peer groups and leaflets.

On the side of stunting and IYCF the results showed that there was significant difference on knowledge about IYCF and stunting at ($p \leq 0.01$) more than 97% of respondents said that stunting is caused by not practicing IYCF and only 3% said no stunting is not caused by not practicing IYCF. This means mothers know about stunting and they have knowledge to IYCF, these results were contrary to the study conducted in India 2016. (Samundeeswary et al., 2016) in which low knowledge of stunting among mothers was the reason for micronutrients deficiencies and later on resulted to stunting.

This evaluation carried out to assess the knowledge of mothers regarding Infant and Young Child Feeding Practices, the evaluation revealed that most of the mothers knew and have knowledge when complementary feeding need to be initiated by 93% but ideal practices being carried out by them found to be low compared to knowledge. The findings of this evaluation was similar to the study conducted in Nepal where by mothers/caregivers had enough knowledge on time for initiation of breast feeding but they fail to practice it (Chapagain, 2012).

5.3 Child care and feeding practice

5.3.1 Antenatal Visits

Antenatal visits is a crucial factor to improve maternal and child health, the results of this evaluation revealed that there was a problem in starting ANC visits before 12 weeks to mothers in Kilolo district council. Only 30% of mothers start ANC attendance before 12 weeks while the rest start ANC attendance after 12 weeks which is contrary to WHO recommendations (WHO, 2016), that insists mothers to attend ANC clinics soon after conception. This means that mothers had no clear understanding of early ANC visits despite of the approaches that has been used by MBNP to train community health workers who pay households visits to promote early attendance to ANC. The Tanzania Demographic Health Survey of 2015-16 shows that only 24% of mothers attend ANC in the country before 12 weeks as recommended by WHO (TDHS, 2016). The results of the evaluation was similar to the evaluation conducted in Morogoro 2017 and a survey done in Southern zone (Njombe, Iringa and Mbeya) 2014 that showed that still ANC visits before 12 weeks is still a challenge among families (Concern worldwide, 2014, and Luzangi, 2017). Also another study

conducted in Zambia revealed that ANC attendance was still a challenge despite its free provision by the government only 19% of mothers attended ANC, (Banda et al. 2015).

The evaluation results revealed that more than 66% of respondents visit ANC clinics at least four times and above as recommended by WHO (WHO, 2016). This was higher than national base line data of 51% as per Demographic health survey 2015-16 (TDHS, 2016). This implies there might be a chance of positive results from MBNP implementation that made this high percentage.

During FGDs mothers were asked on why they attend ANC, and they responded that it was difficult for some of them to start ANC attendance during first trimester due to the fact that they had different symptoms such as being unwell, feeling lazy and others said that they were not sure on whether they were pregnant or not, Knowledge about importance of early ANC visit will help these mothers to start early attending ANC and avoid these beliefs they have. The result was similar to that of assessment conducted by ICF on MBNP and SBCC intervention in Dodoma, Arusha and Tanga in which mothers said they fail to start early ANC attendance because they were not sure if they are pregnant, (ICF, 2017).

5.3.2 Breast feeding Practices

This evaluation assessed the adherence of breast feeding practice among mothers of children within 0-23 months. Breastfeeding practices includes early initiation of breastfeeding specifically within one hour of birth as a best practice recommended by WHO (WHO, 2018). Early initiation of breastfeeding helps to improve childhood nutrition and reduced stunting but initiation of breastfeeding after one hour double the risks of neonatal mortality (Khan et al., 2015).

The evaluation findings show that around 59% of the respondents initiated breast feeding within one hour after giving birth which correlate with WHO recommendations, the positive observation could be due to influence of CHW who are being working with MBNP to influence mothers to timely initiation of breastfeeding and health care workers. Initiation of breastfeeding within one hour had

positive impact to the health status of the infant and helps to prevent stunting. These results were similar to the study conducted in rural Tanzania (2015) where by 51% of the respondents initiated breastfeeding during one hour as recommended by WHO (Exavery et al., 2015).

Around 26% initiated breast feeding within two hours and 15% initiated breast feeding after 24 hours. Mothers who were interviewed on why they fail to initiate breast milk within one hour of giving birth, they had different views on this, majority said it was not intentionally but because they have no enough milk. Others have complications during birth that made them fail to breast feed their babies. On FGDs they agreed to know the importance of early initiation of breast feeding from their health care workers, MBNP groups and CHW but some were operated that made them difficult to breast feed soon after birth. Also this was similar to the study conducted in rural Tanzania where by mothers who undergo caesarian cession were not able to start breastfeed to their child within one hour (Exavery et al., 2015).

The results of this evaluation was similar to the study conducted in Morogoro on effect of behavior change intervention where by mothers who receive advice from CHWs and health care workers were more likely to initiate breast feeding within one hour than those who did not get any advice (Luzangi, 2017). Also these findings are similar to the study conducted in Zambia on impact of CHWs on early initiation of breast feeding (Katepa -Bwalya et al, 2015, Engebretsen et al., 2014).

The results also revealed that exclusive breastfeeding is being practiced among mothers in the evaluation area, more than 34% of respondents with children less than six months were not introduced anything during the evaluation period while 51% of the respondents said that they exclusively breastfeed their babies for six months. This means more than 80% of the respondents' practices exclusive breastfeeding as recommended by WHO (WHO, 2010). These results was contrary to the survey conducted by Concern (Concern worldwide, 2014) in Njombe, Iringa and Mbeya and revealed that exclusive breastfeeding was barely practiced by only 38%. The high difference between Concern survey and these evaluation results might be due to knowledge imparted by MBNP among mothers in the evaluation area.

The evaluation findings reveal some challenges facing mothers to start complementing their child before 6 months such as hungry, too much cry of their babies and insufficient mothers milk that lead to hungry and lack of available support. The findings are similar to those on the study conducted in South Asia which elaborate the same barriers of breastfeeding as those mentioned in Kilolo (Sharma et, 2016).

5.3.3 Complementary feeding practice

On assessing the adherence of complementary feeding practices among mothers of children aged 6-23 months the results shows that 93% of respondents know the right time to start introducing food to their children as recommended by WHO.

The WHO recommends that complementary feeding should be timely initiated soon after the children reach 6 months. Also on giving different varieties of food the evaluation revealed that mostly mothers in the evaluation gave food made from grains, followed by vegetables and fruits. Few of them said they gave eggs, cow milk, meat and fish. This is similar to WHO guidelines that recommends varieties of food should be introduced to children at the age of six months in order to meet the requirements needed, food like fruits, vegetables rich in Vitamin A should be consumed daily, also in addition to that meat, poultry, fish or eggs should be part of the daily diet (WHO, 1998). Also mothers should continue breastfeeding until the child reach two years and beyond.

WHO recommends 2-3 meals per day for infants of 6-8 months and 3-5 meals to infant at the age 9-23 months (WHO, 2010). More than 43% of mothers complement their babies five times per day, 12% complement four times, 33% did not complement their child, 10% compliment their child three times and only 1% complement only two times per day. For those who fail to complement at least five times as a recommendation when asked why they said they knew it was supposed to be five times but due to financial constraints it made forced them to complement less than five times per day. These results differ from the survey conducted in four regions Dodoma, Iringa, Singida and Njombe by TAHEA 2014 and found that in those four regions majority of children were fed three meals per day (TAHEA, 2013).

The results of the evaluation showed that 51% of the respondents had introduced food to their children at the age of six months and above as recommended by WHO, 34% of the respondents were not introduced food because their children are below six months, and only 15% of the respondents introduced food to their children before reaching six months. This means that above half of the respondents in this evaluation are following the WHO recommendations of starting food at the age of six months. This is contrary to the study conducted in Ethiopia found that inappropriate age of complementary feeding initiation is a significant predictor of childhood stunting (Fekadu et, 2015).

The results revealed that 15% of respondents introduced complementary foods to their children before six months, when asked by evaluator on FGDs they respond that it was due to breastmilk insufficient, crying of babies, overwork especially during rain period (cultivation season). These results was similar to the study conducted in Kenya and found 46.4% of women introduced complementary foods before six months due to returning to work and breast insufficiency (Kibua, 2014).

5.4 Sustainability of Mwanzo Bora Nutrition Program

In assessing sustainability of Mwanzo Bora Nutrition Program practices among the mothers of children under two years, the evaluation revealed that more than 80% of respondents have tippy tap and when asked if they use before and after using toilets 80% said yes and only 20% denied.

Around 55% of the respondents revealed that they just started using tippy tap after Mwanzo Bora Nutrition Program and only 25% said they were started using tippy tap before MBNP. This implies that there was positive impact of the program among mothers/caregivers within the Kilolo district council. The result of the findings is different to the study conducted by Concern 2014 that revealed low knowledge in the use of handwashing practices and also most families in the study area lack a dedicated hand washing station (Concern, 2014).

In making sure that every household possesses backyard garden for vegetables, 52% of the respondents said that they have backyard garden in their house while 48 they

have no back yard garden. Among 52% that possess back yard garden only 16% started gardening before Mwanzo Bora Nutrition Program and the rest 36% started gardening after attending Mwanzo Bora groups.

Around 48% respondents had no backyard garden at their homes, the reason for not having it was clearly elaborated in FGD where mothers said during rainy season they use vegetables from their farm because during this period vegetables are everywhere, but during dry season for some families they fail to prepare gardens due to water problem.

The findings of this evaluation was similar to the study conducted in Morogoro whereby home gardening was a challenge for many households because the gardens get destroyed by animals as the study area comprises of pastoralists (Luzangi, 2014).

The results revealed that 64% of the respondents said they keep small animals poultry/rabbit and only 36% said they did not keep small animals in their home. Among these 64% that said they keep small animals only 25 start keeping small animals before MBNP and the rest 39% start keeping after MBNP.

5.5 Challenges facing the implementation of the program

The results from in-depth interview to implementers of the program (DNuO, DRCHCO, Representative from CSO's and community health workers on the challenges facing the implementation of the program are the following;

5.5.1 Shortage of human and financial resources

The results of the evaluation revealed that among challenges facing the implementation of MBNP are shortage of man power at village level. Community health workers works in collaboration with MBNP at village level, but the challenge was those CHW works with different programs at village level results to poor supervision of MBNP activities. The result of this evaluation was contrary to the evaluation conducted in Morogoro (Luzangi, 2017).

5.5.2 Poor community participation.

Community health workers complains on poor participation of male in the program. They said it influences also to their wives, male participation have a very big impact because it also help their wife to attend early to ANC clinics, practice feeding practice, keeping small animals and possessing garden. The DRCHCo said that they are working with MBNP in order to make sure the community is aware on IYCF and child care practices, poor participation of male partners in peer groups had negative impact on improving nutrition status of the family. This is contrary to the study conducted in Pwani and Morogoro regions that revealed more mothers were accompanied by their male partners to ANC clinics (Luzangi, 2017, August et al. 2016).

In keeping of small animals especially rabbit were difficult to some areas, the reason were shortage of funds to buy rabbits and distribute to all beneficiaries as promised.

Implementing MBNP practices such as possession of backyard gardening in some villages it was a challenge due to shortage of water, and this was because of the nature of the area, and in some villages MBNP supplies rabbit without consulting field livestock officers, that resulted to supply rabbit of the same sex and hence hinder reproduction. So keeping of small animals and possession of backyard garden to the MBNP beneficiaries was low compared to what has been planned, this was contrary to other places where MBNP implemented the BCC strategy like Morogoro municipality where the evaluation conducted in 2017 revealed that more than 87% possess backyard gardens and in Mvomero district more than 64% keep small animals poultry/rabbit (Luzangi, 2017).

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

In conclusion the findings of this evaluation observed significant contribution of Mwanzo Bora Nutrition Program in improving child nutrition. This was proved by observed knowledge of mothers about infant and young child feeding practices in the evaluation area through health care workers and MBNP groups (1000 parent kit). Mothers had enough knowledge on IYCF, therefore emphasis should be done on adherence of childcare and feeding practices in order to improve nutrition status of children.

MBNP succeeded to increase behavior of mothers to adhere with WHO recommendations on seeking early ANC services, initiation of breastfeeding and exclusive breastfeeding in the first six months and giving the infant varieties of food as recommended by WHO.

The MBNP contributed to knowledge and practices of complementary feeding especially on food varieties, the results revealed that infants in between 7-23 months were given complementary food five times in large number compared to the situation before MBNP, in 2014 the survey conducted by Concern worldwide revealed that more families were giving their children food two times compared to 66% of respondent in this evaluation who give food to their children three to five times per day, so this implies positive impact of MBNP in the district.

Also MBNP contribute to increase awareness to the community on the use of hand washing equipments before and after using the toilets, more than half of the respondents revealed that they start using hand washing equipments after the implementation of MBNP. This means the program had positive impact on hygiene and sanitation and in long run the use of hand washing equipments will help to reduce diarrhea among under two children hence childhood illness will be reduced.

Although the implementation of backyard gardening and animal keeping was low compared to MBNP target, but still the results shows positive contribution of MBNP in imparting knowledge on how to keep small animals and possess backyard garden, more than one third of respondents start keeping small animals and gardening after the implementation of the program, that also increase the uptake of vegetables and meat. All these are more important factor on improving childhood nutrition and reduced childhood stunting.

The evaluation revealed some challenges that made MBNP fail to reach the target, these are, insufficient funds, poor community involvement and shortage of human resource at the community level which resulted to overload to community health workers that are used by MBNP. These CHW who were supposed to work with MBNP has been working for other programs in the area that's hinder total commitment to the program. Also in some areas due to shortage of water the implementation of backyard garden was a challenge, village leaders restrict the community to have garden because of water problem.

6.2 Recommendations

- The MBNP approaches are very important in improving child nutrition though there should be strong collaboration between actors (Community, Program implementers and Council) for successful implementation of aforementioned objectives.
- There is a need of recruiting Community health workers with skills, knowledge and station them in villages, rather than using the current volunteers who have a little knowledge and competencies. This will reduce overload among CHWs and will help the program to achieve its desired objectives.
- Lack of significance difference on knowledge of Infant and young child feeding and MBNP (Keeping small animals, gardening) practices for mothers calls for public sector and other stakeholders to work effectively on challenges that hinder these practices despite of the existing interventions.

- Emphasis should be done on compliance to recommended child care and feeding practices such as ANC attendance, ANC visits and exclusive breast feeding among mothers of children aged 0-23 months, call for joint efforts from the community, government, development partners and other stakeholders to fight against childhood undernutrition.
- There must be efforts to sensitize the community on the importance of attending ANC at least 4 visits and this can be achieved if the first visit was done before 12 weeks and participation of male partners in reproductive health as a means of improving nutrition and health status of the family.
- Other Agriculture and nutrition interventions should focus on promoting backyard garden that are manageable even in areas with low water to avoid challenges from village leaders.
- To families that engage in agriculture, it is necessary to assess implications for the workload of women and the time they are away from their children. Whether they carry the child or leave it at home, there has to be food prepared in advance. The fact that many children are left with other family members who did not understand feeding practices can results to the program reach the desired goal.
- In order to reach the desired objectives of the program, in near future Mwanzo Bora Nutrition Program should focus in small area that will be manageable and spread in long run to other areas. This will reduce challenges like supervision and insufficient of funds.

6.3 Areas for further evaluation

This evaluation was not exhaustive since it covered only implementation process of the program with only MBNP beneficiaries without comparison group that is Non Mwanzo Bora group. In this regard, further evaluation could be considered in order

to get clear picture if MBNP strategies helps to reduce childhood stunting as targeted, the evaluation could focus on:

- Assessment on Impact of Mwanzo Bora Nutrition Program Strategies on the reduction of childhood stunting.

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APPENDICES

Appendix 1: Questionnaire for Mothers of children aged 0-23 months

Questionnaire No _____, Date _____,
Ward _____ Village/street

Introduction

Dear respondent,

My name isa postgraduate student pursuing Master of Science in Health Monitoring and Evaluation student from Mzumbe University, Morogoro. You have been selected to participate in this academic research entitled '**Process evaluation on the Implementation of Mwanzo Bora Nutrition Program in reduction of childhood stunting in Kilolo district council**'. Please be assured that all information collected will be treated with highest level of confidentiality and will only be use for this evaluation.

Section 1: Demographic information

Circle the letter that corresponds to the correct answer where applicable.

1. Age of mother/caregiver
 - a) 15-24 yrs
 - b) 25-34 yrs
 - c) 35-44 yrs
 - d) 45 and above
2. Age of the child
 - a) 0-6 months
 - b) 7-23 months
3. What is your highest level of education?
 - a) No formal education
 - b) Primary level
 - c) Secondary level
 - d) High learning
 - e) Other (specify)

4. What is your marital status?
 - a) Single
 - b) Married
 - c) Separate/divorced
 - d) Widow
5. What is your main source of income?
 - a) Farming
 - b) Livestock keeping
 - c) Employment
 - d) Self employment
 - e) Not working at all

Section 2; Knowledge of Infant and young child feeding practices among mothers of children aged 0-23 months

6. Have you ever heard about Infant and young child feeding practices?
 - a) Yes
 - b) No
7. If yes, from which source did you first hear about Infant and young child feeding practices? (please tick all relevant answers)
 - a) Radio
 - b) Television
 - c) Health service provider
 - d) Mwanzo bora groups
 - e) Others (specify)
8. In your own views and experience, why is it important to breastfeed a child?
 - a)
 - b)
 - c)
 - d)
9. Stunting among infant is associated with lack of proper feeding practices?
 - a) Strongly agree
 - b) Agree
 - c) Undecided

- d) Disagree
- e) Strongly disagree

10. Does Mwanzo bora nutrition program contributed on increasing knowledge on the importance of infant and young child feeding practices?

- a) Strongly agree
- b) Agree
- c) Undecided
- d) Disagree
- e) Strongly disagree

11. At what age did you decide to start using complementary feeding to your child?

- a) Less than 6 months
- b) 6 months and above

Section 3: Recommended child care practice

12. When did you start attending ANC clinic?

- a) Less than 12 weeks.
- b) 3 – 5 months
- c) 6 – 9 months

13. How many visits did you pay at antenatal care clinic?

- a) Less than four visits
- b) More than four visits
- c) Never attended

14. When did you start breast feed your child?

- a) Soon after birth
- b) Within one hour
- c) Within two hours
- d) More than 3 hrs _____

15. What kind of feed did you fed your child?

- a) Milk products
- b) Fruit juices / glucose water
- c) Cereal based gruel (porridge)

16. How long did you exclusively breastfeed your child?
- a) 0-2 months
 - b) 3-4 months
 - c) 5-6 months
 - d) Others (specify)
17. . Did you notice any advantages of exclusive breastfeeding for your child?
- a) Yes
 - b) No
18. If yes, what did you notice?
- a) Normal growth
 - b) Reduced frequency of illness
 - c) Increased weight
19. How long did you breastfeed your child?
- a) Less than 12 month
 - b) 12 - 23 months
 - c) 24 months or beyond
20. How many children do you have?
21. How many times did you feed your child in 24 hrs?
- a) 2 times
 - b) 3 times
 - c) 4 times
 - d) More than four
22. What types of food did you use to complement your child?
- a)
 - b)
 - c)
 - d)
23. Have you received the child care practice during Antenatal visit?
- a) Yes
 - b) No
24. If yes what was all about

25. Who takes care of the child when you are sick or away from home?

- a) Family members
- b) Friend/house helps
- c) Leave at local day care centre
- d) Other (specify).....

Section 4: Sustainability of Mwanzo Nutrition Program practices

26. Do you have a tippy tap?

- 1) Yes
- 2) No

27. If yes do you use it?

28. When did you start using it?

- 1) Before MBNP
- 2) After MBNP

29. Do you have a backyard garden in your house?

- a) Yes
- b) No

30. Do you keep small animals such as poultry/rabbit?

- a) Yes
- b) No

31. When did you start keeping them?

- a) Before MBNP
- b) After MBNP

32. What are your opinions on the implementation of Mwanzo bora nutrition program in your area?

- a)
- b)
- c)

Thanks for your cooperation.

Interview Guide for MBNP implementers

Introduction

Dear respondent,

My name is a postgraduate student pursuing Master of Science in Health Monitoring and Evaluation student from Mzumbe University, Morogoro. You have been selected to participate in this academic research entitled ‘Process evaluation on **the Implementation of Mwanzo Bora Nutrition Program in reduction of childhood stunting in Kilolo district council**. Please be assured that all information collected will be treated with highest level of confidentiality and will only be use for this evaluation.

1. MBNP is implemented in your area since 2015, how do you know about it?
Probe. How does the program implemented?
2. For your views does the program brings any positive impact to the society?
Elaborate those changes
3. What challenges you’re facing when implementing the MBNP?
 1.
 2.
 3.
4. What are your opinions on good way to implement the program?
 1.
 2.
 3.

DODOSO 1 – AKINA MAMA WENYE WATOTO CHINI YA MIAKA MIWILI

Namba ya mhojiwa _____,

Wilaya _____

Kata _____ Kijiji/Mtaa

Habari za asubuhi/mchana

Ndugu, naitwa mwanafunzi wa shahada ya Uzamili katika Sayansi ya afya, ufuatiliaji na tathmini Chuo kikuu cha Mzumbe Morogoro. Kwa sasa nafanya tathmini ya utekelezaji wa Mradi wa Lishe wa Mwanzo Bora katika kupunguza udumavu kwa watoto wadogo wilayani Kilolo. Taarifa zote utakazotoa zitakuwa siri na zitatumika kwa madhumuni ya utafiti huu.

A. TAARIFA ZA KIDEMOGRAFIA

Tafadhali jaza nafasi zilizo wazi au zungishia jibu sahihi

1. Umri wa mhojiwa
 - 1) Miaka 15-24
 - 2) Miaka 25-34
 - 3) Miaka 35-44
 - 4) Zaidi ya miaka 45
2. Umri wa mtoto
 - 1) Miezi 0-6
 - 2) Miezi 7-23
3. Elimu ya mhojiwa
 - 1) Hujasoma
 - 2) Shule ya msingi
 - 3) Sekondari
 - 4) Zaidi ya sekondari (taja) _____
4. Hali ya ndoa
 - 1) Sijaolewa
 - 2) Nimeolewa
 - 3) Nimetengana/ nimetalikiwa
 - 4) Mjane
5. Chanzo kikuu cha mapato katika kaya
 - 1) Ukulima

- 2) Ufugaji
- 3) Ajira
- 4) Ujasiliamali
- 5) Mengine (taja)_____

B. UELEWA NA UZINGATIAJI BORA WA MATUNZO NA MILO YA MTOTO

6. Je una elimu juu ya ulishaji wa mtoto?
 - a) Ndio
 - b) Hapana
7. Ulisikia wapi kwa mara ya kwanza juu ya ulishaji wa mtoto?
 - a) Kliniki ya mama na mtoto
 - b) Redioni
 - c) Kwa mtoa huduma za afya
 - d) Kwenye vikundi vya Mwanzo Bora
 - e) Kwingineko (taja)
8. Ni chakula gani ulimlisha mtoto mwanzoni?
 - a) Maziwa ya mama
 - b) Uji
 - c) Maji/juice
 - d) Mengineyo (taja)
9. Ni umri gani mtoto anatakiwa apewe mlo mchanganyiko?
 - 1) Miezi 0-2
 - 2) Miezi 3-4
 - 3) Miezi 5-6
 - 4) Mengineyo (taja)
10. Baada ya kujifungua, ulianza kumnyonyesha mtoto wako wakati gani?
 - 1) Mara tu baada ya kujifungua
 - 2) Ndani ya saa moja baada ya kujifungua
 - 3) Ndani ya masaa mawili baada ya kujifungua
 - 4) Mengineyo (Fafanua)_____
11. Ulimnyonyesha mtoto wako maziwa yako pekee bila kumpa kitu chochote hata maji kwa muda gani?
 - a) Miezi 0-2

- b) Miezi 3-4
 - c) Miezi 5-6
 - d) Mengineyo (taja)
12. Je, uliendelea kumnyonyesha mtoto wako kwa muda gani?
- a. chini ya miezi 12
 - b. miezi 12 - 23
 - c. miezi 24 au zaidi
13. Ulianza kumpa mtoto wako chakula cha nyongeza akiwa na umri gani?
- a) kabla ya miezi 6
 - b) miezi 6
 - c) baada ya miezi 6
 - d) sijui
14. Ni aina gani ya vyakula vya nyongeza ulikuwa ukimlisha mtoto wako?
- a)
 - b)
 - c)
15. Je, huwa unamlisha mtoto wako milo mingapi kwa siku na kiasi gani kama chakula cha nyongeza?
- a)
16. Je huwa unahudhuria kliniki ya mama na mtoto?
- a) Ndio
 - b) Hapana
17. Je umewahi shauriwa juu ya ulishaji wa mtoto unapohudhuria kliniki?
- 1) Ndio
 - 2) Hapana
18. Kama jibu ni ndio, ulielezwa nini?
19. Je nani huwa unamuachia mtoto inapotokea umeumwa au umesafiri?
- a) Ndugu wa familia
 - b) Marafiki
 - c) Mlezi wa watoto
 - d) Mengineyo (taja)
20. Je una kibuyu chirizi?
- a) Ndiyo

- b) Hapana
21. Kama jibu ni ndiyo kwenye swali no 20 ni lini ulianza kukitumia?
- a) Kabla ya utekelezaji wa mradi wa lishe wa Mwanzo bora
- b) Baada ya utekelezaji wa mradi wa lishe wa Mwanzo bora
22. Je una bustani ya mboga?
- a) Ndiyo
- b) Hapana
23. Kama jibu ni ndiyo kwenye swali no 22 ni lini ulianza kukitumia?
- c) Kabla ya utekelezaji wa mradi wa lishe wa Mwanzo bora
- d) Baada ya utekelezaji wa mradi wa lishe wa Mwanzo bora
24. Je una fuga wanyama wadogo wadogo?
- c) Ndiyo
- d) Hapana
25. Kama jibu ni ndiyo kwenye swali no 24 ni lini ulianza kukitumia?
- e) Kabla ya utekelezaji wa mradi wa lishe wa Mwanzo bora
- f) Baada ya utekelezaji wa mradi wa lishe wa Mwanzo bora
26. Unaushauri gani juu ya utekelezaji wa mradi wa Mwanzo Bora?
- a)
- b)
- c)
- d)

Asante kwa kushiriki

Focus Group Discussion Checklist for mothers/caregivers

1. How do you know about Infant and young children feeding practices? Where do you hear first?
2. Do you attend ANC? At what period did pregnant mothers supposed to start ANC? Why other women start ANC late?
3. How exclusive breast feeding is practiced? In its real sense, is it really attained? (i.e not giving the baby anything else apart from breast milk) What makes it difficult to attain?
4. For the majority of mothers, when do they start giving complementary foods?
5. What kinds of foods are normally used for this? How easily available are they?
6. What factors influence mothers to not breastfeed their child?

DODOSO II

MAHOJIANO YA ANA KWA ANA NA WATEKELEZAJI WA MRADI

Habari za asubuhi/mchana

Ndugu, naitwa mwanafunzi wa shahada ya Uzamili katika Sayansi ya afya,ufuatiliaji na tathmini Chuo kikuu cha Mzumbe Morogoro. Kwa sasa nafanya tathmini ya utekelezaji wa Mradi wa Lishe wa Mwanzo Bora katika kupunguza udumavu kwa watoto wadogo wilayani Kilolo. Taarifa zote utakazotoa zitakuwa siri na zitatumika kwa madhumuni ya utafiti huu.

Swali

1. Mradi wa lishe wa Mwanzo Bora ulianza kutekelezwa toka mwaka 2015 katika wilaya hii, Je unaelewa nini juu ya mradi huu?
2. Je kwa mtazamo wako toka mradi huu umeanza kuna mabadiliko yoyote chanya kwenye jamii hasa yahasuyo afya za watoto chini ya miaka mitano?
3. Je unadhani utekelezwaji wa Mradi huu unafuata shughuli zilizopangwa?
Kama jibu ni ndiyo, elezea mahusiano kati ya kazi zinazofanywa na malengo ya mradi.
4. Je ni changamoto zipi unakutana nazo wakati wa utekelezaji wa Mradi huu (MBNP)?
 - a)
 - b)
 - c)
5. Nini maoni yako juu ya namna bora ya kutekeleza shughuli hizi katika eneo lako?
 - a)

ASANTE KWA USHIRIKI

DODOSO 1II- MAJADILIANO NA AKINA MAMA WENYE WATOTO

CHINI YA MIAKA MIWILI

Habari za asubuhi/mchana

Ndugu, naitwa mwanafunzi wa shahada ya Uzamili katika Sayansi ya afya,ufuatiliaji na tathmini Chuo kikuu cha Mzumbe Morogoro. Kwa sasa nafanya tathmini ya utekelezaji wa Mradi wa Lishe wa Mwanzo Bora katika kupunguza udumavu kwa watoto wadogo wilayani Kilolo. Taarifa zote utakazotoa zitakuwa siri na zitatumika kwa madhumuni ya utafiti huu

1. Je unaelewa nini juu ya ulishaji wa mtoto mdogo? Ni wapi ulisikia kwa mara ya kwanza
2. Je unyonyeshaji wa maziwa ya mama pekee unafanyika vipi? Je katika hali ya kawaida hii inawezekana? (yaani kumpa mtoto maziwa ya mama pekee bila hata maji?) ni changamoto zipi zinasababisha hili jambo kuwa gumu?
3. Ni kitu gani akina mama hufanya kwenye suala zima la ulishaji wa mtoto mchanga?
4. Ni katika umri gani mama anatakiwa kumuachisha mtoto kunyonya?
5. Ni kitu gani kinamfanya mama aache kumnyonyesha mtoto?
6. Ni wakati gani mama anatakiwa kumuanzishia mtoto mlo mchanganyiko?
7. Ni wapi mama anaweza pata taarifa sahihi juu ya malezi ya mtoto?
8. Je akina mama hufanya yale wanayoelekezwa toka kwa wahudumu wa afya?

ASANTE KWA USHIRIKI