



**MATERNAL INFANT AND YOUNG CHILD
NUTRITION (MIYCN) KNOWLEDGE, ATTITUDES,
BELIEFS AND PRACTICES (KABP)
SURVEY REPORT**

KILIFI COUNTY

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ACRONYMS AND ABBREVIATIONS

ANC	Ante-natal care
CF	Complementary Feeding
CHMT	County Health Management Team
CHVs	Community Health Volunteers
CNC	County Nutrition Coordinator
EBF	Exclusive breastfeeding
ENA for SMART	Emergency Nutrition Assessment (ENA) for Standardized Monitoring and Assessment of Relief and Transitions
FAO	Food and Agriculture Organization
FGD	Focus Group Discussions
FGDs	Focus Group Discussions
IFAS	Iron, folic acid supplementation
IYCF	Infant and Young Child Feeding
IYCN	Infant and Young Child Nutrition
KABP	Knowledge, Attitudes, Beliefs and Practices
KAP	Knowledge, Attitudes and Practices
KDHS	Kenya Demographic Health Surveys
KIIs	Informed Key Interviews
MAD	Minimum Acceptable Diet
MDD	Minimum Dietary Diversity
MMD-W	Minimum Dietary Diversity for women of reproductive age
MIYCN	Maternal Infant and Young Child Nutrition
MMF	Minimum Meal Frequency
MNPs	Micronutrient Powders
MOH	Ministry of Health
MUAC	Middle Upper Arm Circumference
NGO	Non-governmental Organization
NSO	Nutrition Support Officer
ODK	Open Data Kit
PNC	Post-natal care

SCNC

Sub-County Nutrition Coordinator

WHO

World Health Organization

EXECUTIVE SUMMARY

Introduction

This report summarizes the outcomes of a Knowledge, Attitudes, Beliefs and Practices (KABP) Maternal Infant and Young Child Nutrition (MIYCN) survey conducted in Kilifi County in December 2017. This was a baseline survey conducted to provide benchmarks against which to measure programme performance in the future as well as identify the barriers to appropriate MIYCN practices in the County.

Methodology

The survey adopted a mixed methods design using both quantitative and qualitative data collection methods. The quantitative data was collected at household level whereas qualitative was collected through Key Informant Interviews (KIIs) with programme officers and Focus Group Discussions (FGDs) with mothers, fathers and Community Health Volunteers (CHVs).

The survey used a two-stage cluster sampling methodology based on proportion to population (PPS) size to select 63 clusters of 16 households each. The clusters were selected from a comprehensive list of the smallest geographical unit (villages) for which population statistics were available. The target population was mothers/caregivers and their children aged 0-23 months. Data was collected for 999 children of whom 301 (30.1%) were infants less than 6 months of age and 999 were mothers/caregivers. Data was also collected on Ante-natal care (ANC), Post-Natal Care (PNC) and Iron Folic Acid (IFAS). The data were analyzed in SPSS version 22.0 for Windows. Qualitative data was analysed through content analysis based on the objectives of the survey.

Findings on key MIYCN indicators

Indicator	Prevalence (%)
Infant and Young Child Feeding Practices	
Breastfed in demand	96.5
Exclusively breastfed	68.1
Continued breastfeeding at 1 year	86.4
Given pre-lacteal feeds	19.6
Given colostrum	90.8
Initiation of breastfeeding within 1 hour	45.8
Bottle feeding with nipple/teat	9.8
Complementary feeding practices	
Proportion of infants 6-8 months old who received solid, semi-solid or soft foods the previous day	27.1
Minimum Dietary Diversity (MDD)	
% 6-23 months old who received foods from ≥ 4 food groups	35.5
% 6-23 months who received foods from ≥ 4 food groups by breastfeeding status:	
• Not breastfed	59.8
• Breastfed	29.9
Minimum Meal Frequency (MMF)	
% of both breastfed and non-breastfed 6-23 months of age who received foods the minimum times or more	65.0
<u>Breastfed:</u>	
• 6-8 months old [2 times]	
• 9-23 months old [3 times]	
<u>Non-breastfed:</u>	
6-23 months old [4 times]	
Minimum Acceptable Diet (MAD)	
% of children 6-23 months of age who receive a minimum acceptable diet	25.1
Consumption of iron-rich foods	26.1

Feeding during illness	
Offered less breastmilk to child than usual	70.2
Offered less non-breastmilk to child than usual	66.2
Offered less food to child than usual	67.7
Knowledge on breastfeeding and complementary feeding practices	
Breastfeeding should be initiated within 1 hour of birth	57.3
Baby should be given colostrum	78.0
Pre-lacteals should not be given	84.6
Duration of exclusive breastfeeding is 6 months	85.7
Solid, semi-solid and soft foods should be introduced at 6 months	79.5
Attitudes on breastfeeding and complementary feeding practices	
A baby should be breastfed immediately after they are born	65.0
Would you feed your baby colostrum?	85.9
It is important for a baby to breast fed for 6 months without being introduced to anything else including water	80.1
Perceptions to infant feeding practices	
Do not believe that certain foods are taboo and should not be fed to pregnant women	65.0
Do not believe that a new born baby should be given liquids other than breastmilk	76.7
Do not believe that colostrum is dirty and should not be fed to new born babies	74.5
Do not believe that a baby cannot survive on exclusive breastfeeding for 6 months	75.9
Do not believe that certain foods are taboo and should not be fed to a child	69.3
Do not believe that a young child should not be breastfed up to 2 years	80.4
Ante-Natal Care for mothers with children 0-23 months of age	
Attended ANC at least once	95.7
First ANC visit during the first trimester	18.5
Made at least 4 visits during pregnancy	57.3
IFAS for mothers when pregnant with children 0-23 months old	
Heard of IFAS	82.8
First source of information on IFAS:	
• Health staff from health facility	96.1
• Community Health Volunteers (CHVs)	2.2
Know benefits of IFAS	74.3
Number of days for which iron tablets were given:	
Iron tablets:	
< 60 days	69.8
60-89 days	6.0
≥90 days	24.2
Folic acid tablets:	
< 60 days	75.9
60-89 days	5.8
≥90 days	18.3
Combined iron/folic tablets:	
< 60 days	65.3
60-89 days	8.3
≥90 days	26.4
Number of days for which supplements were consumed:	
Iron tablets:	
< 60 days	71.3
60-89 days	5.0
≥90 days	23.6
Folic acid tablets:	
< 60 days	77.5
60-89 days	5.4
≥90 days	17.0
Consumption of IFAS:	
< 60 days	69.8
60-89 days	8.0
≥90 days	22.2
Dietary Diversity for women of reproductive age (MMD-W):	
Attained Minimum Dietary Diversity (ate foods from at least 5 food groups)	35.1

Conclusions

Breastfeeding practices: Overall the practices were optimal except for: initiation of breastfeeding; provision of pre-lacteal feeds; practical support given to mothers to help start breastfeeding; and bottle feeding with teat/nipple. Efforts should continue to ensure that the gains made are not lost. Despite the fact that EBF has improved significantly, the rate should be improved further to reach 90%, the minimum recommended by WHO to have impact on and reduce mortality by 13% among the underfives. All the same, the majority of children stopped exclusive breastfeeding at 3 months of age and therefore the need for concerted efforts to ensure that mothers continue the practice until 6 months of age so that the children may have the full health benefits of exclusive breastfeeding.

Complementary feeding practices: Overall, the CF practices were sub-optimal implying that a majority of the children were not getting adequate diet. Most of the children received diets that did not provide adequate nutrients in terms of quantity and variety for healthy development. Given that knowledge and cultural practices were not the major hindrances to appropriate complementary feeding practices, there is need for innovative and nutrition-sensitive interventions with a multi-sectoral approach to address food insecurity which is the major hindrance to appropriate feeding practices.

Knowledge on MIYCN practices was high and the attitudes and perceptions positive. Promotion of appropriate MIYCN messages should be up-scaled using various channels for greater coverage. Messages to promote appropriate MIYCN practices should continue to be disseminated with particular emphasis on areas where knowledge was reported to be relatively low and among women of low levels of education or those who are illiterate as it was reported during the FGDs that their knowledge level was low.

In terms of ANC attendance, the majority of the pregnant women make at least one visit to a skilled health provider. The challenge was with the frequency of ANC attendance as only half of the pregnant women received ANC services at least 4 times by a skilled health provider in line the WHO and MOH recommendations. The other challenge was the timing of the first visit to the ANC; only one quarter of the women make first ANC visit during the first trimester. It is therefore important to establish the reasons why mothers do not start attending ANC in a timely manner and at the recommended frequency. This information should be useful in addressing the development of messages on the health benefits of attending ANC and also useful in addressing the barriers to pregnant women attending ANC as recommended.

The coverage for the provision and consumption of IFA supplements to pregnant women was low. The majority of the pregnant women received and consumed IFAS for less than 60 days. This may be explained to a certain extent by the sporadic stocks outs of IFAS reported in the County in 2017 and the infrequent visits to ANC clinics. There is need to train the CHVs on IFAS so that they promote the consumption and address the mothers' challenges in the use of the supplements at the household level. It was reported that this training has not been conducted yet. May be frequent follow-up at the household level by the CHVs may encourage pregnant women and remind them to take IFAS. One of the reasons given for not taking IFAS on a regular basis was forgetfulness. There is also need to address the cultural issues that were reported to negatively affect consumption of IFAS and also to provide information on how the side effects could be minimized.

Responsive feeding: Overall, positive as the majority of the mothers talked to children and encouraged them to eat and self-feed. There is need to discourage the practice of ordering and threatening children to eat as was reported by about one-fifth of the mothers.

Feeding during illness: Overall, poor feeding practices and should therefore be appropriately addressed in the behaviour change communication messages.

Maternal dietary intake: Maternal dietary intake needs improvement given that less than half of the mothers attained a minimum dietary diversity. The major hindrance to adequate dietary intake is food insecurity and poverty. So addressing food security issues would improve mothers' dietary intake.

Factors influencing MIYCN practices

Factors influencing MIYCN positively

- **High level of knowledge on breastfeeding and complementary feeding practices among** the mothers and the community as a whole. This together with the positive attitudes and perceptions to IYCF practices may have contributed to the appropriate breastfeeding feeding practices. The knowledge and positive attitudes and perceptions towards complementary feeding did not necessarily translate to improved practices.
- **High level of maternal knowledge** on the health benefits of ANC attendance and consumption of IFAS during pregnancy influenced mothers to seek these services. Despite this, many mothers did not seek these services regularly.
- **The services provided at the ANC such as;** growth monitoring of the foetus, checking of anaemia and provision of supplementary foods encouraged mothers to attend ANC clinics.

Barriers to appropriate MIYCN practices

- **Household food insecurity** resulting into inadequate dietary intake affecting milk production among breastfeeding mothers. Similarly, food insecurity was a major factor contributing to inappropriate complementary feeding practices because of unavailability and inaccessibility of a variety of foods. Poverty and low purchasing power were reported to major constraints to household food security. Poor household food security was also a major factors constraining maternal adequate dietary intake;
- **High maternal workload** affecting time mother is available to provide quality care to the child and also to breastfeed and prepare appropriate complementary foods for the baby;
- **Inadequate knowledge on complementary feeding practices** particularly on how to prepare foods for the children was reported to be a constraint to appropriate feeding practices;
- **The women who did not attend ANC regularly** were discouraged by: the high maternal workload; long distance to health facilities; mandatory HIV testing and some were discouraged by their husbands from attending; and
- **The women who did not take IFAS on a regular basis** were discouraged by the side effects (nausea and vomiting) while some forgot to take them. Cultural issues were also a hindrance to the taking of IFASA by some women.

Recommendations

Recommendations for programming

SR/No	Recommendations	Persons responsible	Timeline
1	Fully operationalize the County Social and Behaviour Change Communication Plan to promote adoption of appropriate MIYCN practices	MOH, UNICEF, Nutrition IPS	December 2018
2	Scale up functionalization of Community Units	CHMT	December 2018
3	Initiate Baby friendly Community Units in already functional Community Units	MOH, UNICEF, Nutrition IPS	September 2018
4	Recruit more nutritionists	County Government	April 2019
5	Establish Multi Sectoral Platform to enhance collaboration with nutrition sensitive sectors in addressing nutrition issues. This will facilitate partnering and building complementarities amongst various partners in the County	Departments of Health, Agriculture, Child Protection Services, Water, and Education	September 2018
6	Train newly recruited health workers on MIYCN/MIYCN – E and BFCI modules.	MOH, UNICEF, Nutrition IPS	September 2018
7	Fully operationalize the County Complementary Feeding Action Plan address the below optimal complimentary feeding practices (MAD, MMF, MMD).	MOH, UNICEF, Nutrition IPS	December 2018
8	Train additional community units on Module 8. CHV's least provided information on complementary feeding	MOH, UNICEF, Nutrition IPS	December 2018
9	Use of local radio stations for messaging – themed messaging exclusively with Infant and Young Child feeding messages targeted towards behavior change and knowledge creation	MOH, UNICEF, Nutrition IPS	December 2018
10	Scale up Mother to Mother Support Groups (MSG's) to cover all Community Units.	CHMT	September 2018
11	Re-orientation of Health Workers on initiation of breastfeeding support once mothers deliver (Breast Crawl and KC)	CHMT	September 2018
12	Develop contextualized interventions targeting key influencers such as the mother in law who are a main source of information on infant and young child feeding	CHMT	December 2018

Recommendations for future surveys

- Conduct in-depth MIYCN KAPB qualitative surveys to provide detailed sub-county level information to allow for appropriate programming taking into account any differences in the sub-counties.
- The questionnaire should be shortened and made to focus on the key MIYCN indicators. Questions with a high possibility of recall bias e.g. IFAS for mothers with children 0-23 months old- the target population should be changed to mothers with younger children to minimize recall bias.
- Data analysis: It is recommended that qualitative data be analysed using data analysis software for improved efficiency. It is also recommended that basic inferential statistics be included in the analysis to provide information for more targeted MICYN messages.
- The ToR should include maternal nutrition and other-related indicators e.g. IFAS and ANC based on the WHO and MOH guidelines.

1. INTRODUCTION

1.1 Background Information

Kilifi County borders Kilifi County to the South-West, Taita Taveta to the West, Tana River to the North, Mombasa to the South and the Indian Ocean to the East. The county covers an area of approximately 12,609.7 square kilometres (kms) and has a population of 1,399,975 (KNBS, 2016). It has seven sub-counties namely; Malindi, Magarini, Ganze, Rabai, Kaloleni, Kilifi South and Kilifi North. The county has four main livelihoods zones including marginal mixed farming comprising 44 percent of the population, cash cropping/dairy (22%), mixed farming (11 percent) and ranching (two percent). Other livelihoods include fishing and mangrove (three percent), formal employment (14 %) and forest/tourism and casual labour (2%) (Kilifi County, 2017).

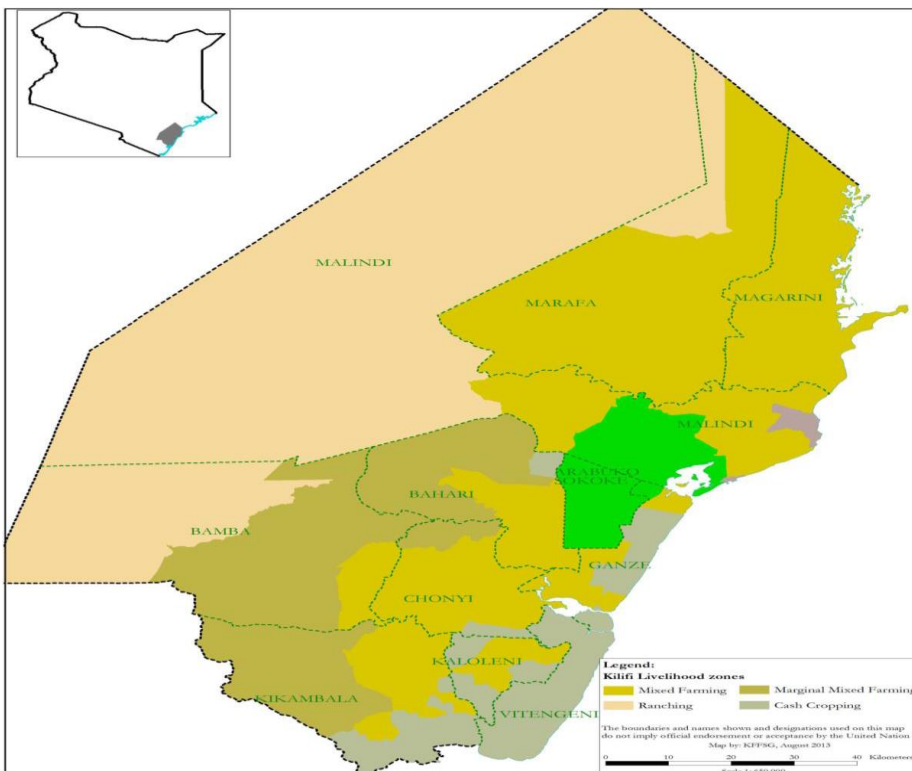


Figure 1: Kilifi County Livelihood Zones

Kilifi County is one of the counties in Kenya that has had persistent high levels of chronic malnutrition over the years. The Kenya Demographic Health Survey (2014) indicated that 39.1% of children under five years in Kilifi were stunted. This means that 4 out of every 10 children in Kilifi are stunted due to chronic malnutrition and are likely to experience delayed cognitive and physical development. In addition, a SMART nutrition survey conducted in 2016 also indicated a serious nutrition situation in Kilifi with 36% of children under five years stunted, 4.7% wasted while 18.2% are underweight.

Stunting is as a result of extended periods of inadequate food intake, poor dietary quality, increased morbidity, poverty, low maternal education or a combination of these factors. Stunting and poor nutritional status eventually result to mortality among children. Nutrition interventions have been demonstrated to be the most effective preventive actions for reducing mortality among children under the age of five years. Of these actions, exclusive breastfeeding ranks first; being estimated as having the potential to prevent 13 percent of all deaths in this age group while appropriate complementary

feeding, water, sanitation and hygiene would reduce 6 percent and 3 percent respectively (Lancet, 2003).

1.2 Justification to conduct the survey

According to Kenya Demographic Health Survey (KDHS 2014), data on exclusive breast feeding and complementary feeding practices is available at national level but not county level. At the national level, Kenya has made progress on exclusive breast feeding from 32% in 2008/09 to 61% in 2014. In Kenya, about two in ten (21 percent) children age 6-23 months consume an Minimum Acceptable Diet (MAD). The Nutrition Program Review (2016) has shown that current data on exclusive breastfeeding and complementary feeding practices is lacking in target Counties such as Kilifi. The 2016 Communication For Development Secondary Data Analysis and Literature identified information gaps such as lack of sub-national level evidence on knowledge, attitudes, beliefs and practices in relation to appropriate feeding practices and lack of analysis on reasons for low exclusive breastfeeding in selected counties such as Kilifi. It was therefore important to gather evidence (quantitative and qualitative) that will guide nutrition program in terms of measuring progress and guiding programmatic strategies and activities based on WHO 2010 and Kenya MOH guidelines (June 2015) and data collection tools (2016).

1.3 Survey objectives

Overall, the main objective of this survey was to collect baseline information on knowledge, attitudes, beliefs and practices among mothers/caregivers in Kilifi County (Annex 3 for TOR).

1.4 Significance of the survey

In particular, the findings of this survey will be used to support MOH, partners and UNICEF's work in nutrition, specifically by:

- Improving the understanding of the core IYCN indicators in Kilifi County;
- Measuring progress and informing programme design and implementation through application of these findings.

2. METHODOLOGY

2.1 Survey Design

The survey adopted a mixed methods using both quantitative and qualitative data collection methods. The quantitative data was collected through household surveys to obtain information on maternal knowledge, attitudes, practices, beliefs and practices on MIYCN. Qualitative data collection involved Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). KIIs were conducted with various stakeholders (Programme Officers from partner organizations, Country Nutrition Coordinators (CNCs), Sub-County Nutrition Coordinators (SCNCs). The KIIs solicited information on MIYCN practices in the County, the factors enhancing appropriate practices and the barriers to appropriate practices in the County. Focus Group Discussions (FGDs) were conducted with mothers, fathers and Community Health Volunteers (CHVs) to solicit their perceptions on the MIYCN practices in the County as well as the barriers to such practices, if, any, and how they think these can be minimized. The qualitative information collected from the KIIs and FGDs was used to complement the quantitative data from the household survey and also to provide an in-depth understanding of the community's MIYCN practices and perceptions.

The survey was conducted in a participatory manner that involved consultations with Ministry of Health (MOH) Officials, NGO partners, UN agencies and beneficiaries.

2.2. The Target Population

The target population was mothers/caregivers and their children 0-23 months of age in Kilifi County. Children 0-23 months old were targeted because this is the window period for implementing appropriate infant and young child feeding otherwise the adverse consequences of inappropriate feeding may be irreversible after this period. The survey was conducted in all the seven sub-counties in Kilifi County (Kilifi North, Kilifi South, Magharini, Ganze, Kaloleni, Malindi and Rabai) sub-counties.

2.3 Sample Size Determination

2.3.1 Sample Size Determination for IYCN indicators

The sample size for the IYCN indicators was calculated based on the Care International Step by Step Guide (2010). Based on this guide, the sample size for each of the **eight** IYCN core indicators was calculated and computed based on various parameters: the most recent estimate (prevalence/rate); level of precision; and design effect as shown in Table 1. Since this was the first MIYCN KABP survey to be conducted in Kilifi and therefore there were no previous estimates. An estimate of 50% was used for all the indicators since it gives the most optimum (largest) sample size.

Table 1: Calculation of sample size

Indicator	Estimate (%)	Precision	Design Effect	Sample Size
Timely Initiation of breastfeeding	50	8.0	1.5	245
Exclusive Breastfeeding Rate	50	8.0	1.5	245
Continued breastfeeding at 1 year	50	8.0	1.5	245
Minimum Dietary Diversity	50	8.0	1.5	245
Minimum Meal Frequency	50	8.0	1.5	245
Minimum Acceptable Diet	50	8.0	1.5	245
Consumption of iron-rich or iron-fortified foods	50	8.0	1.5	245
Bottle feeding	50	8.0	1.5	245

The Care International Step-By-Step Guide (2010) recommends a precision of between 5% and 10%; in this survey, a precision of 8% was used for prevalence rates above 25% (Table 1). A design effect of 1.5 was used for the eight indicators. This was based on the assumption that there is some level of heterogeneity in the IYCN practices within the County. A 95% Confidence Interval was used in the calculation of the sample size. Since there was no previous estimate for any of the indicators because no KABP study had been conducted in Kilifi County, a sample size of 245 was used. This sample size (245) was multiplied by 4 to yield a total sample size of 980 children 0 to 23 months of age. As recommended by the Care International Step-by-step Guide (2010); the sample size is multiplied by 4 to allow for large enough samples for disaggregation into 4 age categories for children 0-23 months (0 – 5, 6 – 11, 12 – 17 and 18 – 23) during data analysis. This sample size (980) was then adjusted upward by a non-response rate of 2% to give **1000** as the final sample size of children aged between 0 and 23 months.

2.3.2 Calculation of number of clusters

The total number of clusters/villages for the survey was **63**. This was obtained by dividing the calculated final sample size (**1000**) by **16** (total number of households to be visited per cluster per day). The number of households to be visited per cluster per day was based on experience from previous KABP surveys that used the same MIYCN KABP tool as used in this survey and conducted in Homa-Bay, West Pokot, and Turkana.

2.3.3 Sample size for focus group discussions (FGDs)

In total 20 FGDs were conducted in all the three sub-counties in Kilifi County. The FGDs were conducted in 20 villages across the villages/clusters sampled for the household survey. Half (10) FGDs were allocated to the mothers since they are the main stakeholders of IYCF issues, 6 to FGDs for CHVs and 4 FGDs for men.

2.4 Sampling Procedure

A two-stage sampling methodology was used to select the target population (mothers/care givers) of children 0-23 months old.

Sampling Stage 1

The first stage of sampling involved selection of villages (clusters) which was the sampling unit. The village is the smallest geographical unit for which population statistics were available. All the villages in each of the three sub-locations in Kilifi County constituted the sampling frame with the exception of villages where there was insecurity. The population statistics used for sampling of the villages were from the National Census (2009) projections. Emergency Nutrition Assessment (ENA) for Standardized Monitoring and Assessment of Relief and Transitions (SMART) version November 2012 was used to randomly select the villages/clusters.

Each of the villages was listed together with its total population. The cumulative population was then calculated and used in the computation of a population proportional to size (PPS) sampling design to identify the specific villages to be covered by the survey. After computing the cumulative population, the sampling interval was determined by dividing the total cumulative population by the number of clusters required, i.e. 63. A random number (equal to or less than the sampling interval) was then selected from a Table of Random Numbers and the village where the random number fell was the first cluster to be selected for the survey. Subsequent villages were selected by adding the sampling interval to the number first selected. Through this process, the locations of the sampled villages/clusters were identified. This process was conducted using the ENA for SMART software.

Sampling Stage 2

The second stage involved selection of 16 households per cluster/village. A list of all households with children 0-23 months per village was obtained from the Community Health Volunteers (CHVs) and 16 households selected through simple random sampling using Table of Random Numbers. Once a house was selected, the survey team visited the household and inquired if the target respondent (mother/caregiver) of children 0-23 months of age lived that household. If the target population lived there and was willing to participate in the survey, then the relevant data was collected from the respondent. The same procedure was used in each of the selected 16 sampled households. Sampled households were revisited later during the day if, on first visit, the mother/caregiver was not present. If the target population did not live the sampled households then the same sampling procedure was followed to select another household.

If there was more than one child 0-23 months old in a household then the youngest one was included in the sample.

2.5 Data collection tools

The Kenya Ministry of Health (MoH) KAP questionnaire on Maternal, Infant and Young Child Nutrition (June 2015) shown in Annex 1 was used to collect the quantitative data at the household

level. The questionnaire was in English language. During the training, the key terms were translated into and described in Kiswahili (Kenyan national language) or/and the local languages spoken in Kilifi County and back translated into English to ensure accurate translation. The translation (from English to local language and back translation to English) was agreed upon through general consensus during the training.

FGD and KII guides were used to collect quantitative data from various groups of community members and Key Informants (MoH officials and programme officers) respectively (Annex 3). These guides were developed by the consultant to solicit information related to the objectives of the KABP survey. The guides were developed in English language and key terms and ideas were translated into Kiswahili and local languages in Kilifi County and back translated into English to ensure accurate translation during the training of the FGD team.

The questionnaires were pre-tested during the training for accuracy and validity. Minor corrections were incorporated after pre-testing. The questionnaires had provision for respondents to indicate their verbal informed consent before participating in the survey.

2.6. Implementation of the Survey

2.6.1 Survey Team

The survey team was composed of various groups of people:

- The coordination and supervisory teams composed of the consultant and two technical assistants; CNC, NSO, and officers from MOH.
- An ODK expert in charge of uploading questionnaire on to the ODK platform and ensuring their accuracy, managing data quality at the server and sharing the data with the relevant persons on a daily basis.
- The household survey team: Composed of 12 teams each comprising of 3 members making a total of 36 data collectors. Each team had 2 enumerators, and a team leader from the MoH and/or the partners.
- The FGD teams: Three FGD teams each composed of a facilitator/moderator, a recorder, an observer and a transcriber, making a total of 12 people.

The household survey team members had at least Kenya Certificate of Secondary Education (KCSE) with the majority having prior experience in surveys.

Note: The survey team members were mainly staff from the MoH (nurses, nutritionists, public health officers, a Medical Officer) and partners.

2.6.2 Training of survey team members

Four-day training for the household survey was conducted by the consultant and two technical assistants in collaboration with the Nutrition Support Officer (NSO) Kilifi, Country Nutrition Coordinator (CNC) Kilifi and other officers from MOH. The training took place from 5th to 8th December 2017. The training focused on the objectives of the survey, uses of KABP surveys, cluster and household selection, interviewing techniques, accurate recording of responses and the use of mobile technology in data collection. Lectures, Question and Answer and demonstrations were used

to train the participants. Role-plays on how to administer the questionnaire and record responses were also conducted. Participants were exposed to practical hands on experience on the use of mobile technology in data collection.

The FGD team was trained separately from the household survey team over a 3-day period from 6th to 8th December 2017 although they participated in the training for the household survey during the first day of the training (5th December). This was to enable them understand the survey purpose and objectives as this would assist them to better understand the kind of information they were required to collect through the FGDs. The training focused on the objectives of the FGDs, understanding the kind of information to be solicited through the FGDs, how to conduct FGDs, translation of the questions into the local language etc. Very important was how to record the discussions and deliberations. The transcribers were also trained on the transcription process.

2.6.3 Pre-testing

A one-day pre-testing of the questionnaires was conducted on the last day of training. This was to test for accuracy, clarity and validity and modified accordingly. Each team conducted 3 interviews and recorded responses on the tablets/mobile phones. The survey teams also tested the survey procedures; sampling, interviewing techniques, and the duration taken to sample and interview one household. The consultant and the supervision team members accompanied and observed the teams during the pre-testing in order to identify the weaknesses and strengths of the teams. All the filled in questionnaires were checked by the consultant, her assistants and the rest of the supervisory team (MOH and partners). Pre-test data was uploaded by the enumerators to the server and checked for data quality and accuracy by the consultant.

The FGD teams each conducted an FGD during the pre-testing; one team conducted an FGD for mothers, another for men and the third one for CHVs.

2.7 Data collection and quality control

The data was collected over a 6-day period, from 9th to 14th December. Data was collected using face to face interviews at respondents' home. Data was collected by trained enumerators under the supervision of the consultant and the technical assistants, CNC Kilifi, MOH officials and NSO Kilifi. Data was collected using android phones/tablets and the Open Data Kit (ODK software). Data entry process was conducted simultaneously with data collection. Validation and verification through comparisons of the data sets was done using Open Data Kit aggregate to obtain the final data. The enumerators were comprehensively trained in order to standardise the data collection method. The enumerators uploaded the data on the ODK server daily once the data had been checked by the team leaders. Data was also validated on a model installed into the phones through skip patterns to ensure that what was submitted was correct and accurate.

2.8 Data management and analysis

Quantitative data

The external ODK expert sent data uploaded to the server by the enumerators to the consultant on a daily basis and if there was need for corrections, the consultant passed this information to the expert who would then make the necessary changes to the data set. At the end of the survey, the expert sent the data set to the consultant in excel format. The consultant exported the data to SPSS version 22 and analysed the data based mainly on the WHO (2010) and MoH MIYCN indicators.

Qualitative data

The data from both focus group discussions and key informant in-depth interviews were transcribed and content analysis conducted. Content analysis involves the detailed exploration for common themes and assigning of labels to variable categories. The categories or themes were identified in advance, in line with the objectives and scope of the survey. The coding consisted of searching for the common themes which could be established as categories into which later information could be inserted. The themes were clustered into a patterned order so as to identify variables that predict general concepts and isolate repetitions. Inferences were made from particular data under each theme and conclusions drawn from the findings. The qualitative data was been used for triangulation of the findings; and to complement the quantitative data obtained from reported household interview information. The qualitative data has also been used to report findings on community's knowledge, attitudes, beliefs and practices of MIYCN as well as to identify the factors enhancing and barriers to appropriate MICYN practices.

2.9 Definition of key MIYCN indicators

A. **Household:** A group of persons who eat from the **same cooking pot**.

B. **Minimum Dietary Diversity for women of reproductive age [15 to 49 years of age] (MDD-W)** is a dichotomous indicator defined as: The proportion of women 15-49 years of age who consumed food items from at least five out of 10 food groups (FAO, 2016)¹. The ten food groups are as follows:

1. Grains, white roots and tubers, and plantains
2. Pulses (beans, peas and lentils)
3. Nuts and seeds
4. Dairy
5. Meat, poultry and fish
6. Eggs
7. Dark green leafy vegetables
8. Other vitamin A-rich fruits and vegetables
9. Other vegetables
10. Other fruits

C. Definitions of IYCF indicators:

1. **Early imitation of breastfeeding:** Proportion of children born in the last 24 months who were put to the breast within one hour of birth (WHO, 2010).
2. **Exclusive breastfeeding under 6 months:** Proportion of infants 0-5 months of age who are fed exclusively with breastmilk (WHO, 2010).
3. **Continued breastfeeding at 1 year:** Proportion of children 12-15 months of age who are fed milk (WHO, 2010).
4. **Introduction of solid, semi-solid or soft foods:** Proportion of infants 6-8 months of age who receive solid, semi-solid or soft foods (WHO, 2010).

¹ FAO (2016), Minimum Dietary Diversity for Women. A Guide to Measurement. Published by the FAO of the United Nations and USAID'S Food and Nutrition Technical Assistance Project III (FANTA), managed by FHI 360 Rome.

5. Minimum Dietary Diversity: Proportion of children 6-23 months of age who receive foods from 4 or more food groups (WHO, 2010). The seven food groups are also as follows:

1. Grains, roots and tubers
2. Legumes and nuts
3. Dairy products (milk, yoghurt, cheese)
4. Flesh foods (meat, fish, poultry and liver/organ meats)
5. Eggs
6. Vitamin A-rich fruits and vegetables
7. Other fruits and vegetables

6. Minimum Meal Frequency: Proportion of children 6-23 months of age who receive solid, semi-solid, or soft foods (including milk feeds for non-breastfed) the minimum number of times or more calculated as follows (WHO, 2010):

- **Breastfed children 6-23 months old who receive** solid, semi-solid, or soft foods the minimum number of times or more during the previous day **and non-breastfed children 6-23 months old who receive** solid, semi-solid, or soft foods the minimum number of times or more during the previous day.

Note: **For breastfed children**, the minimum number of times varies with age (2 times for children 6-8 months old and 3 times is 9-23 months old).

For non-breastfed children, the minimum number of times does not vary with age (4 times for all children).

7. Minimum acceptable diet: Proportion of children 6-23 months of age who receive a minimum acceptable diet (apart from breastmilk) calculated as follows (WHO, 2010).

- **Proportion of breastfed children 6-23 months of age** who had at least the minimum dietary diversity and the minimum meal frequency during the previous day **and non-breastfed children 6-23 months of age** who had at least the minimum dietary diversity and the minimum meal frequency during the previous day.

8. Consumption of iron-rich or iron-fortified foods: Proportion of children 6-23 months of age who receive an iron-rich food or iron-fortified food that is specially designed for infants young and children during the previous day (WHO, 2010).

3. RESULTS

3.1 Household characteristics

The majority (88.6%) of the households were male-headed with only 11.4% being female-headed. The mean household size was 5.5 ± 2.1 .

3.2 Child characteristics

The total sample size for children 0-23 months was 999 out of which infants 0-5 months of age were 301 (30.1%) of the total number of children. This sample size was higher than the calculated sample size of 245. Children 6-23 months of age comprised of 69.8% of the total population. The mean age of the children was 10.0 ± 6.6 . Disaggregated further by age, children 6-11 months old formed 29.2%, and those 12-17 months formed 22.3% whereas those 18-23 months old formed 18.3% of the total sample. The mean age of the children was 9.8 ± 6.8 (Table 2). For the majority of the children the age was verified by health card (84.8%) whereas the rest were verified with other means. The sex distribution of the children was almost equal 51.7% males and 48.3% females. The majority of the children were born at home; 48.8% hospital, 10.5% health centre and 11.0% at a dispensary whereas 25.9% were born at home (Table 2).

Table 2: Child characteristics

Child Characteristics	N=999	
	n	%
Children 0-23 months old	999	100
Children 0-5 months old	301	30.1
Children 6-23 months old	698	69.8
Children 6-11 months old	292	29.2
Children 12-17 months old	223	22.3
Children 18-23 months old	183	18.3
Age (mean +SD)	10.0 (6.6)	
Age verified:		
Health Card	847	84.8
Birth certificate	7	0.7
Seasonal calendar of events	8	0.8
Others	137	13.7
Sex of child:		
Male	516	51.7
Female	483	48.3
Place of delivery:		
Hospital	488	48.8
Health centre	105	10.5
Dispensary	110	11.0
Home	259	25.9
Midwife's home	34	3.4
Others	3	0.3

3.3 Maternal/Caregivers' characteristics

The majority of the mothers/caregivers were relatively young with a mean age of 27.1 ± 6.5 years and a mean parity of 5.5 ± 2.6 children. The majority (86.7%) of the mothers/caregivers were married whereas much smaller proportions were separated/divorced (4.4%) and the rest were either cohabiting, separated/divorced were single or never married (Table 3). The majority (86.3%) of the mothers/caregivers were lactating with only 1.2% were pregnant and lactating. The

mothers/caregivers' level of education was low; half of them (50.3%) were of primary level of education, 13.8% had secondary education and 19.7% no formal education. The majority of the mothers were housewives (49.4%) whereas 14.5% were running their own businesses (Table 3).

Table 3: Maternal and caregivers' characteristics

Characteristics	N=1004	
	n	%
Age (mean \pm SD)	27.1 \pm 6.5	
Religion:		
Christian	771	76.8
Muslim	145	14.4
Traditional	57	5.7
Others	31	3.1
Physiological status:		
Pregnant	36	3.6
Lactating	866	86.3
Pregnant and lactating	12	1.2
Not pregnant/Not lactating	90	9.0
Education:		
No formal education	197	19.7
Less than primary school	132	13.2
Primary school	508	50.8
Secondary school	138	13.8
College/University	29	2.9
Marital status		
Currently married	870	86.7
Cohabiting	11	1.1
Separated/divorced	44	4.4
Widowed	12	1.2
Single/never married	67	6.7
Main occupation:		
Formal employment	37	3.7
Informal employment	33	3.3
Casual labour	44	4.4
Own business	146	14.5
Petty trading	86	8.6
Farming	93	9.3
Dependent	45	4.5
Housewife	496	49.4
Others	24	2.4
Parity (mean\pm)	5.5 (2.6)	

3.4 1. Infant and young child feeding practices

Infant feeding and complementary feeding practices were determined based on a 24-hour recall as recommended by WHO (2010) and the Kenya Ministry of Health (MoH) guidelines (2016). The key indicators are also based on the same guidelines (refer to section 2.9 Definitions of IYCF indicators).

3.4.1 Breastfeeding practices for children 0-23 months old

Breastfeeding was universal with almost all the children (99.8%) having ever breastfed and 86.4% of one year olds were still breastfeeding. The majority (90.8%) of the children were given colostrum and 96.5% were breastfed on demand. Only 45.8% of the children were initiated to breastfeeding timely (within one hour of birth) as per the WHO recommendations (WHO, 2010). The exclusive breastfeeding practice rate was 68.1% (Figure 2). These findings demonstrate that breastfeeding practices were on the whole optimal.

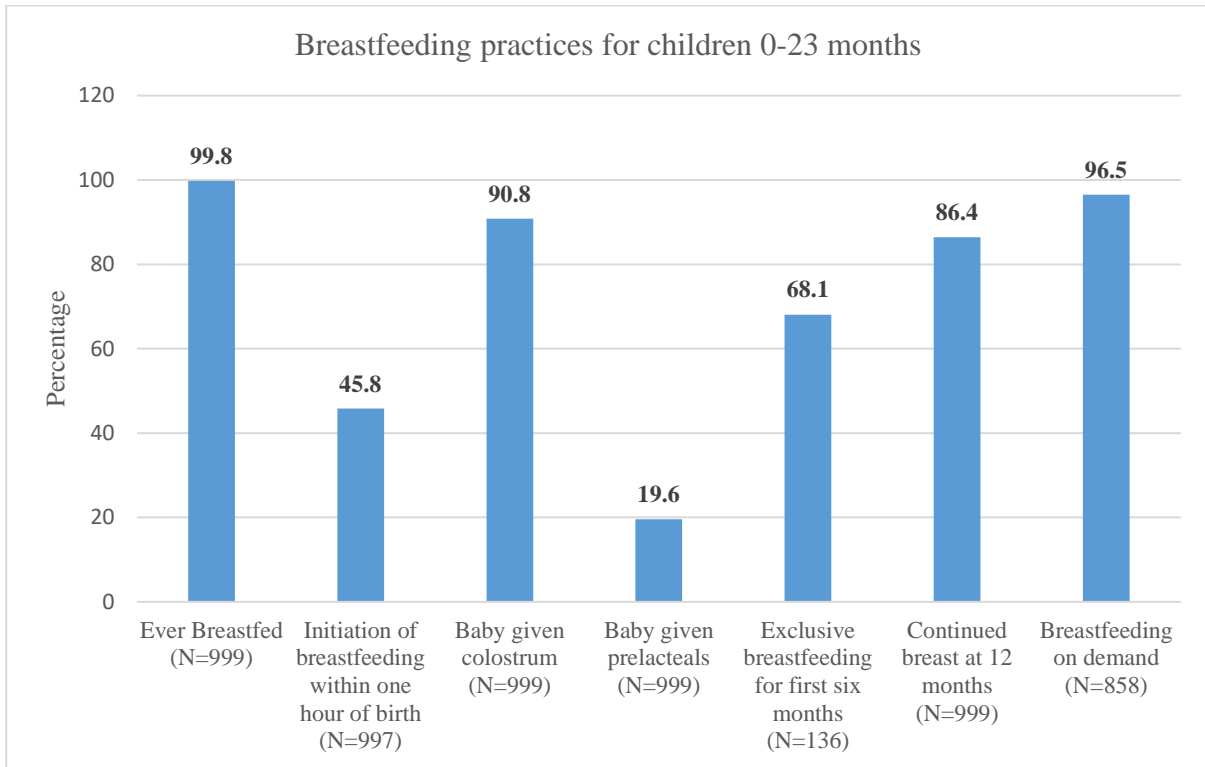


Figure 1: Breastfeeding practices

Disaggregated by age exclusive breastfeeding rate was highest among infants 0-1 month (97.1%) followed by those 0-3 months old at 82.4% and the lowest rate (44.4%) was for infants 4-5 months old showing a decline in the practice as the child become older. Most of the infants were exclusively breastfed up to 3 months as demonstrated by the sharp drop in the rate at 4-5 months of age (Figure 3).

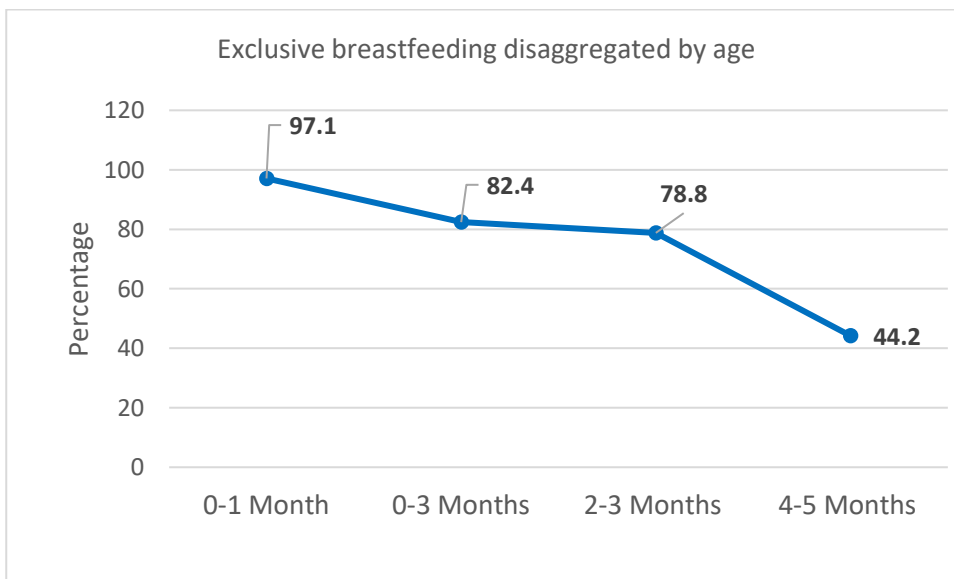


Figure 2: Exclusive breastfeeding rates disaggregated by age of child

Pre-lacteal feeds were given to 19.6 % of the children (Table 4), a practice that should be discouraged because it interferes with the establishment lactation. The most commonly given pre-lacteal feed was

sugar water given to 56.1% of those children who received pre-lacteal feeds followed by sugar/salt solution given to 20.9% and plain water to 12.2%. Various reasons were reported for giving of pre-lacteal feeds; cultural reasons by 39.8%, mother does not or have little breastmilk by 39.8%, baby cries too much by 38.3% whereas 15.8% did so for cultural reasons (Table 4).

Table 4: Pre-lacteal feeding/Types of Pre-lacteal feeds given to infants

Giving of pre-lacteal feeds	N=991	
	n	%
Given pre-lacteal feeds	196	19.6
Pre-lacteal feeds given (N=82):		
Other milks	5	2.5
Plain water	24	12.2
Sugar/glucose water	110	56.1
Gripe water	11	5.6
Sugar/salt solution	41	20.9
Fruit juice	2	1.0
Infant formula	5	2.5
Tea/infusions	6	3.0
Animal fat	2	1.0
Local herbs	2	1.0
Honey	11	5.6
Other	1	0.5
Reasons for giving pre-lacteals:		
No/little breastmilk	78	39.8
Baby cries too much	76	38.8
Cultural reasons	31	15.8
First milk no good for babies	1	0.5
Other	8	4.1

Support offered to mothers to help in start breastfeeding

In terms of breastfeeding support given to mothers to start breastfeeding; 47.2% received such support whereas 52.8%, relatively large proportion did not receive this vital support (Figure 4).

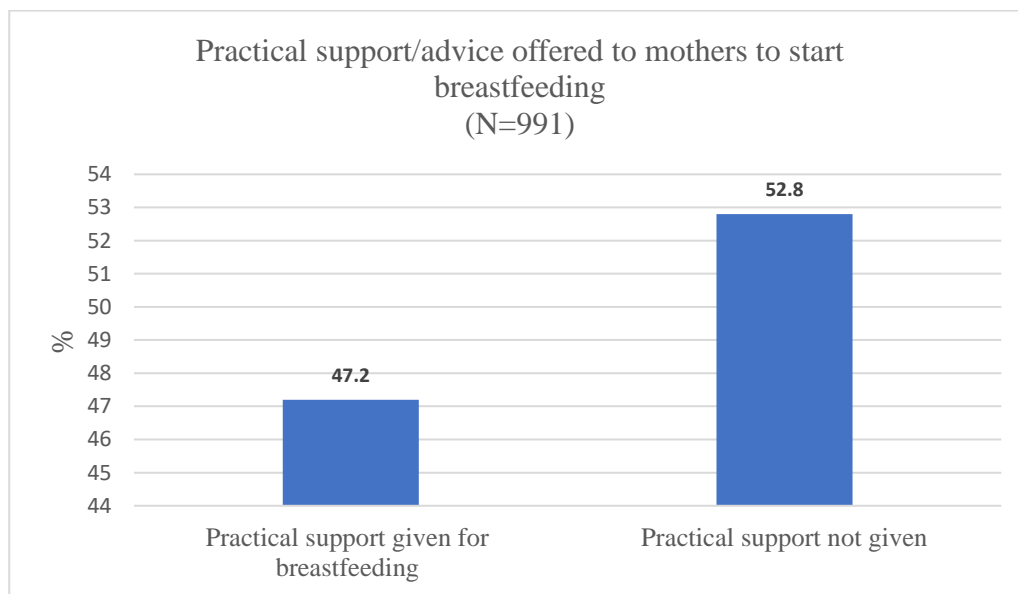


Figure 3: Practical support offered to mothers to start breastfeeding

3.4.2 Bottle feeding practices

Overall, 71.5% of the children were fed using a container the day before the survey. About one-tenth (9.8%) of the children were fed using a bottle with a nipple/teat, a practice that is not recommended because of hygienic reasons as it is difficult to keep the teat clean especially for mothers with poor hygiene practices. The proportion of children who were correctly fed (with cup only) was 45.7% (Figure 5).

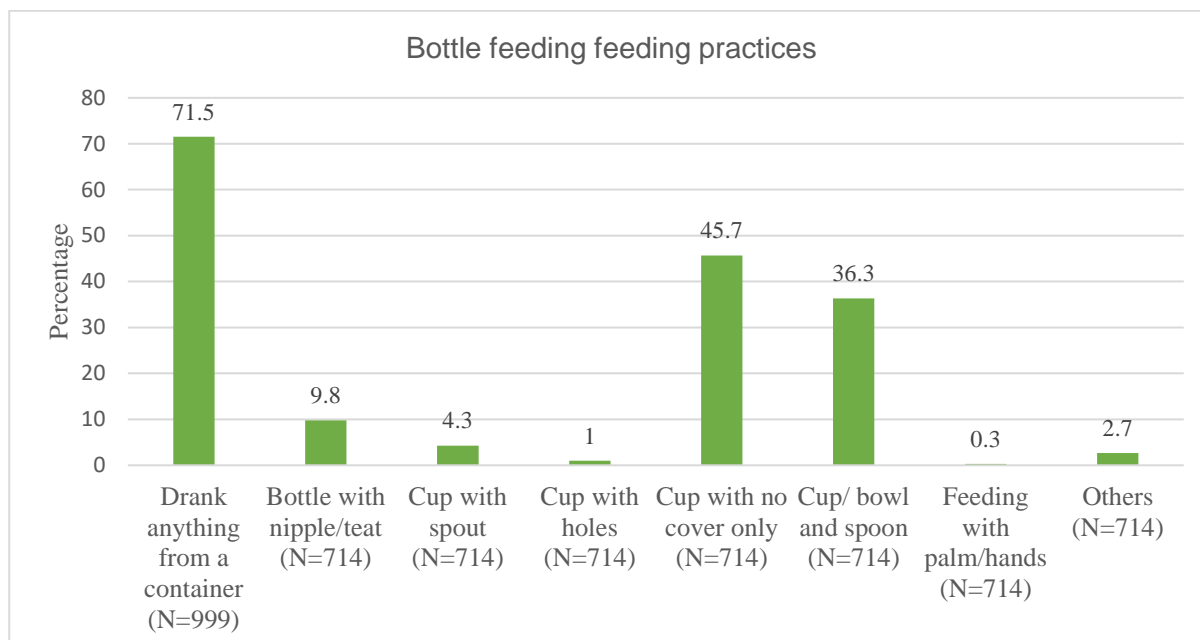


Figure 4: Feeding of children using various containers

3.5 Complementary feeding practices

The main decision maker on what the child eats or does not eat was reported to be the mother by 93.6% of the respondents and only 2.2% of the fathers and 2.7% grandmothers.

3.5.1 Types of foods eaten the previous day by children 6-23 months old

The most consumed foods were roots and tubers eaten by 95.6% of the children followed by cereals at 93.8% and then vitamin A-rich foods by 66.2% (Table 5). Milk and dairy products were eaten by 36.2% of the children, legumes (beans, lentils and nuts) by 34.4% and fish by 30.2%. The least consumed foods were eggs by 15.0% of the children and meats by 16.6% (Table 5).

Table 5: Types of food eaten by children 6-23 months old

Foods eaten the previous day	N=698	
	n	%
Fortified food like cerelac	71	10.2
Cereals (maize, rice, wheat, porridge, sorghum, bread, or other foods grains)	655	93.8
Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside	129	18.5
White potatoes, white yams, cassava or any other foods made from roots	262	37.5
Vitamin A-rich fruits and vegetables	462	66.2
Dark green vegetables	377	54.0
Ripe mangoes, papayas, pawpaw, guava (yellow or orange on the inside of the fruit)	296	42.4
Any other fruits or vegetables	138	19.8
Roots and tubers	667	95.6
Liver, kidney, heart or other organ meats	62	8.9
Meat such as beef, pork, lamb, goat, chicken, or duck	116	16.6
Eggs	105	15.0
Fresh or dried fish	211	30.2
Bean, lentils, or nuts	240	34.4
Cheese and other foods made from milk	253	36.2
Any other solid foods	270	38.7

3.5.2 Introduction and consumption to solid, semi-solid or soft foods

A small percentage (21.1%) of children 6-23 months old were introduced to solid, semi-solid or soft foods at the appropriate age (6-8 months). About one-third of the children (35.5%) both breastfed and non-breastfed attained the Minimum Dietary Diversity (MDD), that is ate foods from **four** or more out of **seven** food groups (WHO, 2010) (see section 2.9 on definitions of IYCF indicators). Disaggregated by breastfeeding status, the percentage of breastfeeding children who attained MDD was 29.9% compared to 59.8% non-breastfed children (Table 6).

The percentage of both breastfed and non-breastfed children who attained the Minimum Meal Frequency (MMF) was 65.0 % (Table 6). Disaggregated by age, 67.1% of children 6-11 months old attained the MMF, those between 12-17 months was 60.5% and 67.2% of children 18-23 months old. Disaggregated by age and breastfeeding status; 71.7% of breastfed children 6-8 months of age and 64.0% those between 9-23 months attained MMF. The percentage of children 6-23 months old who attained MMF was 59.8% (Table 6).

The percentage of children 6-23 months old who received a Minimum Acceptable Diet (MAD) was low at 25.1% (Table 6) implying that about three-quarters of the children were not receiving diverse diets and also the meals were not as frequent as they should be. The children were therefore not getting adequate diet in terms of diversity and quantity. The children who consumed iron-rich and or iron fortified food was 26.1%.

Table 6: Prevalence of Key complementary feeding practices

	n	%
Proportion of infants 6-8 months old who received solid, semi-solid or soft foods the previous day: (N=170)	46	27.1
Minimum Dietary Diversity (MDD)		
Proportion of infants 6-23 months old who received foods from ≥ 4 food groups the previous day: (N=698)	248	35.5
Proportion of children 6-23 months who received foods from ≥ 4 food groups the previous day disaggregated by breastfeeding status: (N=698)		
• Not breastfed (N=132)	79	59.8
• Breastfed (N=566)	169	29.9
Minimum meal frequency (MMF)		
Proportion of breastfed and non-breastfed 6-23 months of age who received foods the minimum times or more the previous day (N=698)	454	65.0
Proportion of both breastfed and non-breastfed who received foods the minimum times or more the previous day disaggregated by age as follows:		
• 6-11 months [2 times] (N=292)	196	67.1
• 12-17 months old (N=223)	135	60.5
• 18-23 months old [3 times] (N=183)	123	67.2
Proportion of breastfed children who received foods the minimum times or more the previous day by breastfeeding status and age:		
Breastfed:		
• 6-8 months old [2 times] (N= 166)	119	71.7
• 9-23 months old [3 times] (N= 400)	256	64.0
Non-breastfed:		
6-23 months old [4 times] (N=132)		59.8
Minimum Acceptable Diet (MAD)		
Proportion of children 6-23 months of age who receive a minimum acceptable diet: N=698	175	25.1
Consumption of iron-rich and or iron-fortified foods (N=698)	182	26.1

3.6 Responsive feeding of children 6-23 months old

Most of the children 6-23 months old (91.5%) were fed by their mothers/caregivers the day before the survey. Over half of the children (56.7%) eat all the food served for them at the main meal. A large majority (70.7%) encouraged the child to eat during the meal (Table 7). The majority of the mothers/caregivers (80.6%) verbally encouraged the child to eat during the main meal; 70.0% praised the child whereas 20.0% ordered the child to eat. The proportion of children who self-fed during the meal was 43.8% with only 18.3% of them self-feeding all the time and 21.2% half the time (Table 7).

Table 7: Responsive feeding of children 6-23 months old

	n	%
Mother/caregiver fed the child the previous day (N=698)		
YES	639	91.5
NO	59	8.5
Child ate all the food at the main meal (N=639)		
YES	362	56.7
NO	266	41.6
DNK	11	1.7
Did you do anything yesterday during the main meal to encourage the child to eat? (N=639)		
YES	452	70.7
NO	187	29.3
How child was encouraged to eat: (N=452)		
Offered another food or liquid	19	4.2
Encouraged verbally	354	78.3
Modeled eating (with or without toy)	19	4.2
Ordered strongly or forced the child to eat	37	8.1
Another helped feed the child	8	1.7
Another person encouraged the child	70	15.5
Talked to the child during the main meal: (N=639)		
YES	515	80.6
NO	123	19.3
DNK	1	0.1
If YES, What did you say? (N=515)*		
Ordered child to eat	103	20.0
Praised the child	314	70.0
Asked the child questions	26	5.0
Talked about the food	103	20.0
Threatened the child	10	1.9
Told the child that she liked the food	46	8.9
Talked about other things	51	9.9
Did the child feed self-feed any moment during the main meal yesterday (N=698)		
YES	306	43.8
NO	388	55.6
DNK	4	0.6
Did the child self-feed all the time during the main meal? (N=306)		
All the time	56	18.3
Half the time	65	21.2
Little bit of the time	183	59.8
DNK	2	0.7

*Multiple responses so total more than 100%

3.7 Feeding during illness

Appropriate feeding during illness is important to confer immunity to the child and also to prevent the child getting from getting malnourished. The majority of the children (70.2%) were offered less breast milk during the last time the child was ill. The same was true for the amount of non-breast milk liquids as 66.2% sick children was offered less amounts than usual. Similarly, the majority of the sick children (69.7%) were fed less food during illness than normal times. The reasons for this was that the children did not want the food or the liquids because of lack of appetite (Table 8). During recovery from illness 13.4% were offered less food, 51.3% the same amount of food as usual and 31.5% more food than usual (Table 8).

Table 8: Feeding during illness

	n	%
Has child ever been sick? (N=999)		
YES	739	74.0
NO	260	26.0
The amount breast milk the child was offered during the last time illness (N=739)		
Less, because the child did not want it	519	70.2
Less because mother decided to give less	6	0.8
More	50	6.8
The same	140	18.9
Child never breastfed or child not breastfeeding before illness	18	2.4
Does not know	6	0.8
The amount of non-breast milk liquids offered to the child during illness: (N=739)		
Less, because the child did not want it	489	66.2
Less because of mother's decision	15	2.0
More	28	3.8
The same	96	13.0
Child never fed on non-breastfed liquids	106	14.3
Does not know	5	0.7
The amount of food offered to the child during illness: (N=739)		
Less, because the child did not want it	515	69.7
Less because of mother's decision	20	2.7
More	17	2.3
The same	93	12.6
Child never fed foods	88	11.9
Does not know	6	0.8
The amount of food offered to the child after illness ended: (N=739)		
Less, because the child did not want it	99	13.4
Less because of mother's decision	13	1.8
More	233	31.5
The same	379	51.3
Does not know	15	2.0

3.8 Knowledge and consumption of micronutrient powders for children 6-23 months old

3.8.1 Knowledge of micronutrient powders (MNPs)

When asked about awareness of MNPs, only 7.8% of the mothers and caretakers indicated that they had seen or heard of them and 70.4% said they had not seen or heard of them. Only 6.1% of the mothers/caretakers had first seen or heard of MNPs from the health facility, 0.6% from community members and 0.8% from other family members (Table 9). Only 0.8% of all the children 6-23 months old received the MNPs in the last 6 months with 5.5% of them having received the commodity from the health facility and 0.7% from the CHVs (Table 9). The major reason why the children had not received MNPs was because the mothers did not know about them as reported by 74.3% and 29.7% stated that they had not been offered the commodity at the health facility (Table 9).

Table 9: Maternal knowledge and sources of MNPs

	n	%
Seen or heard of micronutrient powders: (N=999)		
YES	79	7.8
NO	710	70.4
DNK	219	21.9
Where first seen or heard of micronutrient powders (N=999)		
Health facility	61	6.1
Community members (<i>barazas</i> /church/neighbor/friend)	6	0.6
Other family member	8	0.8
Other	4	0.4
Did child receive micronutrient powders in the last six months: (N=999)		
YES	8	0.8
NO	991	99.2
Where the micronutrient powders was sourced from: (N=999)		
Bought from shop/chemist	1	0.1
Free from health facility	55	5.5
Free from CHV	7	0.7
Reasons why child did not receive micronutrient powder: (N=928)		
Do not know about micronutrient powder	443	74.3
Discouraged from what I heard from others	4	0.7
The child has not fallen ill, so have not gone to health facility	13	2.2
Health facility outreach or is far	14	2.3
Child receiving therapeutic or supplementary foods	11	1.8
I was not offered micronutrient powder at the health facility	177	29.7
Others	15	2.5

3.8.2 Preparation of food and consumption of Micronutrient Powders (MNPs)

The majority of the mothers/caregivers (82.4%) indicated that they never stayed away from the baby for more than half a day for 0-1 day/week. This is an indication that the majority took care of the children including feeding them by themselves most of the time. A large percentage of the children ate all the food served to them as 52.1% of the children left food once in a while and 15.3% never left food (Table 10). In terms of what is done to the food that remained on the plate, 38.1% of the mothers gave the food to other children whereas 13.9% threw away the food (Table 10).

In terms of frequency with which the children were given MNPs, 75.0% of the mothers/caregivers gave the children the commodity every day, 12.5% every other day and the same percentage (12.5%) gave the children whenever they remembered. These findings indicate that no child was given MNPs every third day as recommended. Half the mothers (50.0%) prepared food with the MNPs correctly; they mixed the MNPs with cooked food that is warm and ready to eat and 87.5% mixed it in the quantity that a child can eat at once. Nonetheless, these findings should be interpreted cautiously given the small sample size, only 8, of mothers/caregivers who gave their children MNPs (Table 10).

Table 10: Preparation of food with and consumption of MNPs

	n	%
How often are you/mother away from the baby for most of the day (more than half a day)? (N=999)		
Always (6 days/week)	80	8.0
Often (4-5 days/week)	23	2.3
Sometimes (2-3 days/week)	73	7.3
Never/few days (0-1 day/week)	823	82.4
How often the child's food remains in the plate (N=653)		
Most of the times/always	152	19.7
Often/several times	99	12.8
Few times/once in a while	402	52.1
Never	118	15.3
What is done to the food that remains on the plate: (N=653)		
Put in the fridge to feed baby later	1	0.2
Put in a cupboard to feed baby later	12	1.8
Put elsewhere to feed baby later	18	2.8
Thrown away	91	13.9
Given to other children	249	38.1
Others	282	43.2
How frequent do you give your child micronutrient powders: (N=8)		
Every day	6	75.0
Every other day	1	12.5
At any day when I remember	1	12.5
Preparation of food with micronutrient powders: (N=8)		
Cook with child's food	1	12.5
Mix with cooked solid or semi-solid food that is warm and ready to it eat	4	50.0
Mix with water	3	37.5
Quantity of food mixed with the micronutrient powder: (N=8)		
All the amount of food prepared for the child	1	12.5
Quantity that a child can eat once	7	87.5

3.9 Knowledge on infant and young child feeding practices

3.9.1 Knowledge on breastfeeding practices

Overall, the mothers/caregivers were knowledgeable on breastfeeding practices (Table 11). About half of the mothers (57.3%) knew the right time to initiate breastfeeding after birth. Majority (78.0%) stated that a baby should be given colostrum. Overall, many mothers did not know the benefits of colostrum to the baby as reported by 47.0%. About one-quarter (24.1%) and 20.3% of the mothers stated that colostrum is nutritious and prevents diseases/infections respectively (Table 11). Most of the mothers (84.6%) stated that babies should not be given pre-lacteals. Maternal knowledge on the duration of exclusive breastfeeding was high with 85.6% reporting that EBF should be conducted for 6 months. Over one-tenth of the mothers (19.8%) reported that babies should be fed liquids with a bottle with nipple/teat and 38.0% indicated that babies should be fed liquids with a cup and 32.4% reported or cup and spoon (Table 11).

Table 11: Maternal knowledge on breastfeeding practices

Breastfeeding practices	n	%
How long after birth should a baby be put to the breast? (N=999)		
Less than one hour	572	57.3
More than one hour	235	23.5
More than 24 hours	24	2.4
DNK	168	16.8
Should a baby be given colostrum? (N=999)		
YES	779	78.0
NO	113	11.3
DNK	107	10.7
What are the benefits of feeding the baby colostrum? (N=999)*		
Nutritious to the baby	241	24.1
Prevents diseases/infections	203	20.3
Cleans baby's stomach	72	7.2
Nothing specific	22	2.2
Others	50	5.0
Don't know	470	47.0
Within the first three days after delivery, should a baby be given anything to drink/eat other than breast milk? (N=999)		
YES	121	12.1
NO	845	84.6
DNK	33	3.3
If YES, What should be given? (N=121)		
Milk other than breastmilk	3	0.4
Plain water	23	19.0
Sugar/glucose water	87	71.9
Gripe water	103	85.1
Sugar/salt solution	23	19.0
Fruit juice	3	2.5
Infant formula/Tea/infusion	1	0.8
Honey	8	6.6
Others	1	0.8
For how long (in months) should a child be fed on breast milk without being given anything else even water? (N=999)		
Less than 6 months	101	10.0
6 months	863	85.6
7-12 months	22	2.2
>12 months	21	2.1
What should be used to feed liquids to a baby? (N=999)		
Bottle with nipple/teat	198	19.8
Cup with spout	28	2.8
Cup with holes	22	2.2
Cup only	380	38.0
Cup/bowl and spoon	324	32.4
Feeding with palm/strokes	3	0.3
Others	44	4.4

*Multiple responses

3.9.2 Knowledge on complementary feeding practices

In terms of having received information on complementary feeding practices, only 30.4% of the mothers/caregivers reported that they had received the information. The main sources of information for the majority of the mothers/caregivers was the CHVs (83.9%); mother/mother in law for 23.7%. The health worker was not mentioned as a source of information by any mother. A large majority of the mothers 79.5% knew that solid, semi-solid or soft foods should be introduced to the child at 6 months of age (Table 12).

Table 12: Knowledge of complementary feeding practices

	n	%
Received information about feeding (N=999)		
YES	304	30.4
NO	688	68.9
DNK	7	0.7
Mother/mother in law	72	23.7
Other relative	12	3.9
Neighbour/friend	10	3.3
Community Health volunteer (CHV)	255	83.9
Print media	16	5.3
Electronic media	3	1.0
Age at which solid, semi-solid and soft foods should be introduced to a child (N=999)		
Less than 6 months	94	9.4
6 months	795	79.5
7 to 12 months	106	10.6
More than 12 months	4	0.4

3.10 Attitudes on infant and young child feeding practices

On the whole, maternal attitudes on infant and young child feeding practices were positive. Most of the mothers (65.0%) were of the opinion that babies should be put to the breast immediately after birth (Table 13). A large majority 85.9% also stated that they would feed their babies colostrum and 80.1% of the mothers also stated that it is important to exclusively breastfeed the baby without giving anything else or drink including water for 6 months.

Table 13: Maternal attitudes on infant and young child feeding practices

	n	%
In your opinion should a baby be put to the breast immediately they are born (N=999)		
YES		
NO	649	65.0
DNK	205	20.5
	145	14.5
Would you feed your baby colostrum? (N=999)		
YES	858	85.9
NO	94	9.4
DNK	47	4.7
Why would you not feed your baby colostrum? (N=94)		
Dirty milk	67	71.2
Not satisfying/sufficient	7	7.4
Mother needs rest	4	4.2
Cultural practices	5	5.3
Others	22	23.4
In your opinion is it important for a baby to be breast fed for 6 months without being introduced to anything else or drink including water? (N=999)		
YES	800	80.1
NO	119	11.9
DNK	80	8.0

3.11 Perceptions on infant feeding practices

Overall, maternal perceptions towards infant feeding practices were positive. The majority of the mothers (65.0%) disagreed with the idea that certain foods are taboo and should not be fed to pregnant women (Table 14). A large majority (76.9%) the mothers also disagreed with the idea that a newborn baby should be given liquids or semi-liquids and 74.5% disagreed with the idea that colostrum is dirty and should not be given to a baby. A large majority (75.9%) of the mothers disagreed with the idea that a baby cannot survive on breastmilk alone for 6 months. In terms of cultural practices, 69.3% of the mothers disagreed with the perception that certain foods are taboo and should not be fed to a child whereas 80.4% disagreed with the idea that children should not be breastfed up to 2 years (Table 14).

Table 14: Maternal perceptions on infant feeding practices

	N=999	
Some people believe that certain foods are taboo and should not be fed to pregnant women		
Agree	256	25.6
Not sure/neutral	102	10.2
Disagree	650	65.0
Some people believe that a new-born baby should be given other liquids/semi-liquids		
Agree	163	16.3
Not sure/neutral	77	7.7
Disagree	768	76.9
Some people believe that colostrum is dirty and should not be fed to new born babies		
Agree	159	15.9
Not sure/neutral	105	10.5
Disagree	744	74.5
Some people believe that a baby cannot survive on exclusive breastfeeding for six months?		
Agree	189	18.9
Not sure/neutral	61	6.1
Disagree	758	75.9
Some people believe that certain foods are taboo and should not be fed to a child.		
Agree	206	20.6
Not sure/neutral	110	11.0
Disagree	692	69.3
Some people believe that a young child should not be breastfed up to 2 years.		
Agree	131	13.1
Not sure/neutral	74	7.4
Disagree	803	80.4

3.12 Factors influencing Infant and Young Child Feeding (IYCN) practices

3.12.1 Factors enhancing infant and young child feeding practices

Breastfeeding practices

In general, the practice of EBF was reported not to be commonly practiced in most of the sub-counties but with variability from one area to another. It was only in Kilifi South where exclusive breastfeeding was reported to be common. This finding is not in agreement with findings from quantitative data which showed that 68.1% of the mothers in the County were exclusively breastfeeding. The following reasons were given for mothers who did not practice EBF:

“No, most of the mothers do not practice exclusive breast feeding because they are not aware of its importance” stated a mother in an FGD in Kilifi South sub-county.

“It is good to breastfeed exclusively but we are unable to practice it due to poor nutrition of the mother”, reported a participant in a FGD in Magarini sub-county.

Knowledge on appropriate IYCN practices was high in some areas despite the low level of EBF practice. The following statement from a woman participant in an FGD in Rabai is an example of this view:

“It is very important to practice EBF for the following reasons; promoting and building immunity of the child, protecting the child from getting HIV, preventing recurrent sickness. EBF very important as it promotes good growth of the child”.

More or less the same benefits of EBF were reported in FGDs in Ganze, Malindi and Kaloleni; demonstrating a high level of knowledge among the mothers, fathers and CHVs.

One of the factors that is probably contributing to optimal breastfeeding practices and in particular EBF rates is the relatively high level of knowledge in the community about breastfeeding practices. The quantitative findings showed the majority of the respondents to be knowledgeable about the critical aspects of breastfeeding such as duration and importance of EBF, timely initiation of breastfeeding, the health benefits of colostrum to the baby and that pre-lacteal feeds should not be given to the baby. These findings were corroborated by those from the FGDs. The community members including the men demonstrated high level of knowledge on breastfeeding practices.

Overall, the views of the community about exclusive breastfeeding were positive based on the quantitative findings but the findings from the FGDs indicated that it was not easy to practice EBF because of the various challenges such as poor nutrition resulting in many mothers not producing adequate milk. Cultural beliefs were reported not to be a major hindrance to appropriate IYCN practices.

Complementary feeding practices

There was high knowledge demonstrated by mothers and other community members on appropriate complementary feeding practices. For example, the community members knew that complementary foods should be introduced at 6 months of age but this knowledge did not necessarily translate into practice.

“Introduction of complementary feeding for the majority of the children starts at 3-4 months but could be earlier or later depending on the mother”, stated a participant in an FGD.

During the FGDs, it was reported in most of the villages that complementary feeding practices were inadequate for the majority of the children. Many children did not receive a variety of foods as recommended. This finding was in agreement with the quantitative data which showed high level of knowledge on and at the same time inappropriate feeding practices based on most of the key indicators of complementary feeding. Many mothers were not able to translate the knowledge on complementary feeding into feeding practices because of factors beyond their control such as unavailability and inaccessibility of foods.

3.12.2 Barriers to Infant and Young Child Feeding Practices

During the FGDs, many barriers were reported to be interfering with appropriate infant feeding practices as indicated below:

- Inadequate food for mothers affecting milk production among breastfeeding mothers. Poverty was cited as the main reason causing household food insecurity and therefore why the mothers do not have an adequate diet;
- EBF in particular is not practical when mother is sick;

- High maternal workload affecting time mother is available to breastfeed and prepare appropriate complementary foods for the baby;
- For mothers who work away from home it is not possible to practice EBF;
- Unavailability and inaccessibility of foods to provide appropriate complementary feeding to the children;
- Some husbands do not like the practice of EBF and therefore do not allow their wives to do so; and
- Some mothers do not have adequate knowledge on the appropriate IYCN practices.

3.13 Ante Natal Care (ANC) for women pregnant during the survey

3.13.1 Attendance of ANC clinics and provision of services

Women who were currently pregnant during the survey were asked questions about ante-natal care during the pregnancy. Over half (58.3%) of the women had received ANC services (Table 15). The mean age of gestation at which the first ANC visit was made was 5.4 ± 1.6 months. In terms of frequency of ANC attendance, the mean number of times was 2.6 ± 1.6 . The majority of the women received services from public health facilities: hospital (39.3%); public health centre (10.7%) and public health dispensary 50.0%. The majority (92.9%) of the women were attended to by nurses/midwives. Most of the women received the essential services which should be offered in ANC clinics (Table 15). All the women had their weights measured; HIV status tested (96.4%) and 82.1% were supplied with IFAS. The least offered service was the taking of MUAC measurement at 50.0%.

When asked about services which had been offered to them at least once, the majority of the women had received the critical services offered in ANC clinic. Test for pregnancy and HIV/AIDS and provision of IFAS were the most commonly provided services; offered to 92.9%, 92.8% and 92.8% of the pregnant women respectively. The least provided services were breast feeding and infant feeding information offered to only 60.7% of the mothers (Table 15). The overall picture is that nutrition services were not offered to the same extent as the other health services.

Table 15: ANC care for pregnant women

	N=48	
	n	%
Seen anyone for ANC during this pregnancy (N=48)		
YES	28	58.3
NO	20	41.7
Gestation age when first received ANC services (N=28)	Mean 5.4 ± 1.6	
Mean number of times received ante-natal care (N=28)	Mean 2.6 ± 1.6	
Where ANC services were received: (N=28)		
Public Hospital	11	39.3
Public Health Centre	3	10.7
Public Dispensary	14	50.0
Who attended to you during ANC visits (N=28)		
Doctor	2	7.1
Nurse/Midwife	26	92.9
Services offered at ANC at least once (N=28)		
Weight measurement	28	100
BP measurement	26	92.9
Iron folic acid supplementation	23	82.1
Anti-malaria drugs	22	78.6
Blood sample/HB	26	92.9
Urine sample	26	92.9
Tetanus vaccine	27	96.4
De-worming tables	23	82.1
HIV test	27	96.4
Mosquito net provided	25	89.3
MUAC measurement	14	50.0
Information or counseling that you have received during this pregnancy on the following: (N=28) *		
Test during pregnancy	26	92.9
Birth planning	21	75.0
Place of delivery	24	85.7
Own health & hygiene	22	78.6
Own nutrition	21	75.0
HIV/AIDS	26	92.8
Breastfeeding	17	60.7
Infant feeding	17	60.7
Iron folate supplementation	26	92.9
Growth monitoring	21	75.0
The source of information given: (N=28)		
Doctor	5	17.8
Nurse	25	89.2
Relative/Friend/Neighbour	1	3.6
CHW	1	3.6

*Multiple responses

3.14 Iron folic acid supplementation (IFAS) for women currently pregnant women

3.14.1 Pregnant women's knowledge on IFAS

Pregnant women were asked questions to establish their knowledge on IFAS. The majority of the women (85.4%) had heard about IFAS and 97.5% of them first heard of IFAS at the health facility (Table 16). A high percentage of the women (72.9%) reported that they knew the benefits of IFAS. The women were highly knowledgeable on the health benefits of IFAS taken during pregnancy; with a large percentage (88.6%) reporting that IFAS increases blood, 20.0% it helps development of the foetus; and 22.9% that it improves immunity among other correct responses (Table 16).

Table 16: Pregnant women's knowledge on IFAS

	n	%
Heard information on IFAS for pregnant women: N=48		
YES	41	85.4
NO	7	14.6
Where first heard information on IFAS: N=41*		
Health staff of health facility	40	97.5
CHVs	1	2.4
Husband/Male partner	1	2.4
Other family member	2	2.9
Know benefits of taking IFAS during pregnancy (N=48)		
YES	35	72.9
NO	13	27.1
The benefits of taking IFAS tablets during pregnancy: (N=35)		
Prevents anaemia among pregnant women	2	5.7
Prevents dizziness	2	5.7
Increases blood	31	88.6
Helps development of the foetus	7	20.0
Improves immunity	2	5.7
Increases energy	8	22.9
Others	2	5.7
Do not know	2	5.7

*Multiple responses

3.14.2 Provision and consumption of IFAS by women currently pregnant

The pregnant women were asked to state whether they had received IFAS or not during the current pregnancy. Slightly over three-quarters (77.1%) reported that they had received the supplements. Of those who received the supplements; 51.4% iron tablets, 45.9% folic acid and 29.7% received the combined supplements (Table 17) indicating that the most of the women received either iron tablets or folic acid and the minority received the combined iron/folic acid tablet. The pregnant women who received iron tablets did so for a mean number of days of 38.8 ± 32.8 ; folic acid tablets for 27.5 ± 10.9 days and the combined iron/folic acid tablets for 32.6 ± 20.1 days.

Overall, there was a discrepancy in the number of the supplements given and the number consumed with the number given being higher than that consumed. The mean number of days for which the pregnant women consumed the iron supplements was 31.5 ± 31.5 ; folic acid tablets 26.6 ± 14.3 and the combined iron and folic acid tablet 20.9 ± 13.3 days (Table 17) indicating that there were some days that the supplements were not consumed despite having received them. When asked if there were days the women had the supplements but did not take them, 27.1% of the women responded in the affirmative. The most common reason given for not taking the supplements was forgetfulness reported by 61.5% of the women and negative side effects by 15.4%. These findings however should be interpreted cautiously because of the relatively small sample size (N=13) as shown in Table 17.

The pregnant women were also asked whether they were currently taking food supplements fortified with micronutrients. None of the women reported taking supplements such CSB, Advantage PLUS or UNIMIX. The majority (70.8%) reported that they were not taking any supplements. All the same, 27.1% reported eating soil/mineral stones and 2.1 were taking herbal supplements (Table 17).

Table 17: Provision and consumption of IFAS by women currently pregnant

Provision of IFAS		
	n	%
Have received any of the following: (N=48)		
YES	37	77.1
NO	11	22.9
Types of IFAS received: (N=48)*		
Iron tablets/syrup	19	51.4
Folic acid tablets	17	45.9
Combined iron/folic acid	11	29.7
Number of days for which the supplements have been given (N=37):		
Iron tablets/syrup	38.8 (±32.8)	
Folic acid tablets	27.5 (±10.9)	
Combined iron/folic acid	32.6 (±20.1)	
Consumption of IFAS		
Number of days the supplements have been consumed (mean ±)		
Iron tablets/syrup	31.5 (±31.5)	
Folic acid tablets	26.6 (±14.3)	
Combined iron/folic acid	20.9 (±13.3)	
Days you have heard IFAS at home but did not take them (N=48)		
YES	13	27.1
NO	35	72.9
Reasons for not taking them* (N=13)		
Forgot	8	61.5
Side effects	2	15.4
Felt better and did not think I needed them anymore	1	7.7
Did not know how long to take the tablets	1	7.7
Currently taking any of the following: (N=48)		
Herbal supplements	1	2.1
Soil/mineral stones	13	27.1
No supplements	34	70.8

*Multiple responses

3.15: Ante-natal care for mothers with children 0-23 months old

3.15.1 Frequency and timing of ANC attendance

Mothers of children 0-23 months old were asked questions about their ANC attendance when pregnant with the youngest child. A large percentage (95.7%) of the mothers attended ANC at least once (Figure 6). Only 1.9% of the mothers made a first ANC visit during the first month of pregnancy. Almost half (49.1%) made their first visit during the second trimester followed by 18.5% during the second trimester and 13.2% during the third trimester. The percentage of mothers who made at least 4 visits during the entire pregnancy period was 57.3% (Figure 6).

The mean gestation age at which the first ANC visit was made was 4.8 ± 1.5 . The mean number of times that the mothers attended ANC was 5.4 ± 1.8 .

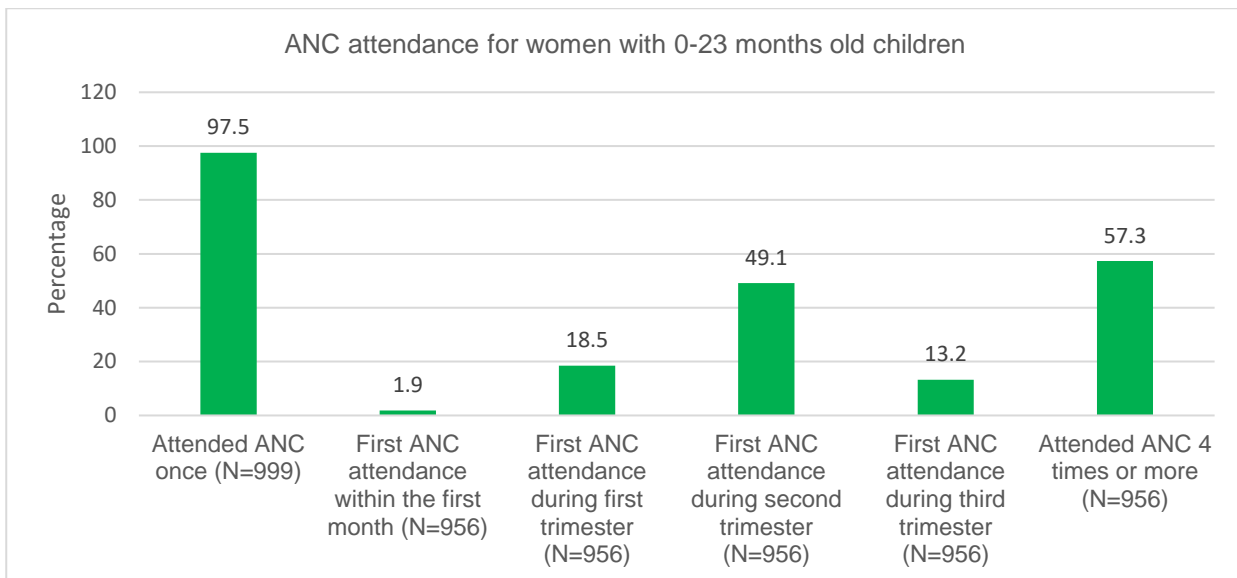


Figure 5: ANC attendance for mothers with children 0-23 months old

Reasons for not attending ANC

The reasons given by the few mothers who did not attend ANC included health facility being too far away reported by 67.4% and not being aware of the existence or the importance of attending ANC reported by 11.6% of the mothers.

3.15.2 Services offered at ANC clinic

Mothers were asked to state the information or counselling offered during the ANC clinics, most of the essential services supposed to be provided during ANC visits were offered as reported by a majority of the mothers (Table 18). A majority of the women (87.3%) went through a pregnancy test and 89.5% HIV/AIDS test. The other essential services were provided to over 70.0% of the mothers with the exception of counseling on infant feeding offered to 55.8%.

When asked what services were provided at least once during the ANC visits, most of the services had been offered to large majority of the mothers: weight measurement to 96.5%; IFAS 94.2%, BP measurement to 96.2% and the rest of the services were offered to over 75.0% of the mothers with the exception of MUAC measurement taken for 45.3% of the mothers (Table 18).

Table 18: Services offered at the ANC clinic

	n	%
Information or counseling that you have received during this pregnancy on the following:*(N=956)		
Test during pregnancy	835	87.3
Birth planning	716	74.9
Place of delivery	787	82.3
Own health & hygiene	718	75.1
Own nutrition	673	70.4
HIV/AIDS	856	89.5
Breastfeeding	687	71.9
Infant feeding	533	55.8
Iron folate supplementation	800	83.7
Growth monitoring	666	69.7
Services offered at ANC at least once (N=956)		
Weight measurement	923	96.5
BP measurement	912	95.4
Iron folic acid supplementation	901	94.2
Anti-malaria drugs	867	90.7
Blood sample/HB	920	96.2
Urine sample	919	96.1
Tetanus vaccine	859	89.9
De-worming tables	740	77.4
HIV test	936	97.9
Mosquito net provided	849	88.8
MUAC measurement	433	45.3
Services offered at ANC at least once (N=956)		
Weight measurement	923	96.5
BP measurement	912	95.4
Iron folic acid supplementation	901	94.2
Anti-malaria drugs	867	90.7
Blood sample/HB	920	96.2
Urine sample	919	96.1
Tetanus vaccine	859	89.9
De-worming tables	740	77.4
HIV test	936	97.9
Mosquito net provided	849	88.8
MUAC measurement	433	45.3

3.15.2 Factors influencing ANC attendance

Information on the factors influencing ANC attendance was collected mainly from the FGDs conducted with various members of the community.

ANC clinic attendance

ANC attendance was reported to vary from one area to another and that many women did not attend on a regular basis. It was reported that many women start attending ANC late because they do not want to attend many times. The following statement expresses this view;

“The mothers go to the clinic at a late stage of pregnancy or during delivery when there is complication. They tend to start very late because they do not want to visit the clinic many times” said a participant in an FGD.

Factors that influence ANC attendance positively

During the FGDs it was reported that women were encouraged to attend ANC clinics by the services provided which included: health education on immunization; monitoring of the growth of the foetus; counselling on how to live positively and avoid panic during delivery; timely intervention in case of any health problems diagnosed in the mother during pregnancy and also provision of food supplements.

Factors that influence ANC attendance negatively

The major reasons were given for irregular or non-visits to the ANC clinics were mainly:

- High transport costs to the health facilities;
- Some considered it a waste of time and others was just because of laziness;
- Fear of HIV/AIDS test;
- Negative attitude of health workers towards the women;
- Some of the mothers do not have a self-drive and motivation to make them seek the services. They keep on postponing the visit until the end of the pregnancy;
- Ignorance on the value of attending ANC. This challenge was reported to be more among illiterate mothers who have more difficulty in understanding the health benefits of accessing ANC services; and
- Some women do not want medicines provided in the facility but prefer seeking services from traditional medicine men.

Overall illiteracy, ignorance and cultural factors influenced the attendance of ANC negatively.

3.16 Iron and folic acid supplementation (IFAS) for mothers with children 0-23 months old

3.16.1 Maternal knowledge on IFAS

Mothers were asked questions to establish their knowledge on various aspects of IFAS. The majority of the mothers had heard of IFAS (82.8%). The main source of information where the majority of the mothers first heard of IFAS was the health facility by 96.1% (Table 19). The other minor sources of information was the community members (*barazas*/church/neighbours) for 0.7% of the mothers. CHVs was a source of information for only 2.2% of the mothers. The majority of the mothers (81.6%) reported that they knew the benefits of IFAS with the majority of them (70.2%) stating that it increased blood and smaller proportions (12.0%) and 13.3% stating that it prevents anaemia and prevents dizziness respectively (Table 19).

Table 19: Maternal knowledge on IFAS

	n	%
Heard information on IFAS for pregnant women: (N=999)		
YES	827	82.8
NO	172	17.2
Where first heard of information on IFAS: (N=827)		
Health staff of health facility	795	96.1
CHVs	18	2.2
Community members (<i>baraza</i> /church/neighbour)	6	0.7
Friend/support group	7	0.8
Husband/male partner	1	0.1
Other family member	17	2.1
IEC Material	1	0.1
Other	8	0.9
Know benefits of taking IFAS during pregnancy (N=999)		
YES	742	74.3
NO	257	25.7
The benefits of taking IFAS tablets during pregnancy:* (N=742)		
Prevents anaemia among pregnant women	89	12.0
Prevents dizziness	99	13.3
Increases blood	604	81.4
Helps development of the foetus	69	9.3
Improves immunity	41	5.5
Increases energy	59	8.0
Other	28	3.8
Do not know	52	7.0

*Multiple responses

3.16.2 Maternal provision and consumption of IFAS by mothers of children 0-23 months old

Maternal Provision of IFAS

Mothers were asked about the IFAS they received during the pregnancy of their youngest child aged 0-23 months old. The majority (89.8%) reported that they had received IFAS during the pregnancy (Table 20). Slightly over half (54.0%) of the mothers received iron tablets, 53.6% received folic acid and 47.3% received 47.3% of the combined iron/folic acid supplement. The majority of the mothers received IFAS for less than 60 days; iron tablets 69.8%, folic acid 75.9% and combined iron/folic acid 65.3%. Those who received the supplements for ≥ 90 days were relatively few; 24.2% for iron supplements, 18.3% for folic acid and 26.4% for the combined iron and folic acid supplements (Table 20).

Maternal consumption of IFAS

In terms of the number of days the mothers consumed IFAS during the entire pregnancy period, the majority consumed the supplements for less than 60 days; 71.3% (iron tablets), 77.5% folic acid supplements and 69.8% combined iron and folic acid supplements (Table 20). Those who consumed the three types of supplements for ≥ 90 days were less than 35.0% for each of the three types.

Almost one third of the mothers (32.1%) reported that there were days that they had the supplements at home but did not take them (Table 20). The main reasons given by those who did not take the supplements despite having them at home were forgetfulness reported by 45.6% and side effects caused by the tablets such as nausea by 41.1%.

Table 20: Provision for and consumption of IFAS by mothers of children 0-23 months

	n	%
Provision of IFAS		
Received any of the following when pregnant with child: (N=999)		
YES	897	89.8
NO	102	10.2
Received Iron tablets/syrup (N=897)	484	54.0
Received Folic acid tablets (N=897)	481	53.6
Received Combined iron/folic acid (N=897)	424	47.3
Number of days for which the supplements were given:		
Iron tablets/syrup: (N=484)		
<60 days	338	69.8
60-89 days	29	6.0
≥ 90 days	117	24.2
Folic acid tablets: (N=481)		
<60 days	366	75.9
60-89 days	28	5.8
≥ 90 days	87	18.3
Combined iron/folic acid: (N=424)		
<60 days	277	65.3
60-89 days	35	8.3
≥ 90 days	112	26.4
Consumption of IFAS		
Number of days the supplements were consumed throughout the pregnancy		
Iron tablets/syrup: (N=484)		
<60 days	346	71.3
60-89 days	24	5.0
≥ 90 days	114	23.6
Folic acid tablets: (N=421)		
<60 days	372	77.5
60-89 days	26	5.4
≥ 90 days	82	17
Combined iron and folic acid: (424)		
<60 days	296	69.8
60-89 days	34	8.0
≥ 90 days	94	22.2
Days you had IFAS at home but did not take them (N=889)		
YES	285	32.1
NO	604	67.9
Reasons for not taking them* (N=285)		
Forgot	130	45.6
Side effects	117	41.1
Felt better and did not think I needed them anymore	8	2.8
Did not know for how long I should take the tablets	5	1.7
Did not know the benefits of taking IFAS	6	2.1
Other	40	14.0

3.16.3 Factors influencing the consumption of IFAS

During the FGDs it was reported that many pregnant women did not consume IFAS on a regular basis despite the majority being knowledgeable on the health benefits of the commodity. This finding was in agreement with that from the quantitative findings. The level of knowledge varied from one area to another and among men and women. In general, women were more knowledgeable than men on

the benefits of IFAS. Despite the relatively high level of knowledge on IFAS, it was reported during the FGDs that many women did not take IFAS. The few who took IFAS were reported to have done so mainly because of the health benefits the supplements confer to the mother and the unborn baby.

The majority of the women did not take IFAS or took them irregularly because of the following reasons:

- Side effects which include nausea and dizziness. One woman stated in an FGD; *“I do not like them because they make me sick”*. One man commented that IFAS, make their wives sickly and sluggish. He stated that IFAS *inaharibu mambo*; implying that taking of IFAS makes their wives lose interest in sex.
- Some women are not allowed by their husbands to seek medical services from health facilities; and
- Limited knowledge on IFAS among some women particularly illiterate ones who did not easily understand the health benefits of the commodity.

Cultural factors were reported not to influence the taking of IFAS. A participant in an FGD stated that; *“There are no cultural hindrances that discourage women to seek health services except for miracle church which discourage people from seeking health services”*. All the participants in this FGD were in agreement with this observation.

3.17. Post-natal care services for mothers with children 0-23 months of age

Mothers of children 0-23 months old were asked questions about post-natal services they received after the delivery of their youngest child. A majority of the mothers (71.2%) delivered at a hospital whereas 16.1% delivered at assisted by a TBA. Those who delivered at home without assistance were 8.7% (Table 21). Of those mothers who did not deliver in a health facility, 35.4% took the child to the clinic within 24 hours of birth and 45.6% within 2 weeks of birth and 8.4% after one month (Table 21).

The majority of those mothers who did not deliver in a health facility received postnatal care from a health care worker at varying times from; within 48 hours (35.4%), one week 29.1%, two weeks 29.1% and one month 30.2% (Table 21). A relatively large percentage of mothers (13.7%) did not receive post-natal care from a health care worker.

Table 21: Post-natal care services for mothers with children 0-23 months old

	n	%
Place of delivery of child (N=988)		
At home by TBA	159	16.1
At home by nurse	2	0.8
At home without assistance	86	8.7
Hospital	703	71.2
Other	32	3.2
If not at health facility, how long did it take before you took child to clinic for the first time? (N=285)		
Immediately (within 24 hours)	101	35.4
Within the first 2 weeks	130	45.6
Between 2 weeks to one month	23	8.1
After one month	24	8.4
Child not taken	4	1.4
Does not intend to take child to clinic	3	1.1
If you did not deliver at health facility, how long after delivery were you seen by a health care worker? (N=285)		
Immediately (within first 48 hours)	101	35.4
Within one week	83	29.1
Within two weeks	38	13.3
After one month	24	8.4
Not seem	39	13.7

3.17.3 Factors influencing the uptake of PNC services

The uptake of PNC services was reported to be low during the FGDs, a finding that concurs with that from the quantitative data. This was true especially for those women who deliver at home.

“Some women do not attend PNC because they do not know the importance or health benefits of the services offered”, stated a man in an FGD.

“Some are not aware of the importance of PNC services for the mother. They only go for family planning services, immunization of the child and to know if the baby is sick or malnourished”, reported a CHV in an FGD.

The main barriers to the uptake of PNC services included: long distance to health facility; negative attitudes by health workers towards the women; fear of being tested for HIV/AIDS and inadequate knowledge on the health benefits of attending PNC.

3.18 Dietary intake by women of reproductive age (15-49 years)

Information was collected to establish the quality of dietary intake by the mothers. Twenty-four hour (24 hour-recall) dietary intake was used to collect the data to establish; the types of foods eaten and the dietary diversity.

3.18.1 Foods eaten the previous day by women of reproductive

Mothers/caregivers were asked to state the foods they ate the previous day. The foods consumed were categorized into foods groups as shown in Table 22. The majority of the mothers/caregivers (90.7%) ate cereals followed by spices and condiments (mostly used in cooking food) by 86.7% and sweets and condiments (mainly in sugar in tea and other beverages) by 76.8%. The least consumed foods were eggs eaten by 7.3% of the mothers (Table 22).

Table 22: Foods eaten by women the previous day

Food groups	1010	
	n	%
Cereals (maize, rice, wheat, sorghum, millet or any other grains or foods made from these foods)	980	97.0
Vitamin A-rich vegetables and tubers	426	42.2
Dark green leafy vegetables	705	69.8
Other vegetables (tomato, onion, eggplant etc.)	599	59.3
Other vitamin A-rich vegetables and fruits	156	15.6
Other fruits (inclusive of wild fruits)	158	15.8
Meat, poultry, fish	478	47.3
Eggs	74	7.3
Pulses (beans, peas and lentils)	339	33.6
Milk and milk products	275	27.2
Oils and fats		
Sweets (sugar, honey, sweetened soda, sweetened juices, sugary foods such as chocolates, candies, cookies and cakes)	776	76.8
Spices and condiments	876	86.7

3.18.2 Maternal dietary diversity for women of reproductive age group (MMD-W)

Consumption of a minimum of foods from at least 5 out of 10 food groups based on FAO guidelines (FAO, 2016) [see section 2.9 under methodology for details of food groups] was considered an attainment of minimum dietary diversity (MDD) for the women of reproductive age (MDD-W). The percentage of women who attained the MDD-W was 35.1% (Figure 7) implying that two-thirds of the women were consuming diets limited in a variety of nutrients. The mean MDD-W was 3.0 ± 1.6 .

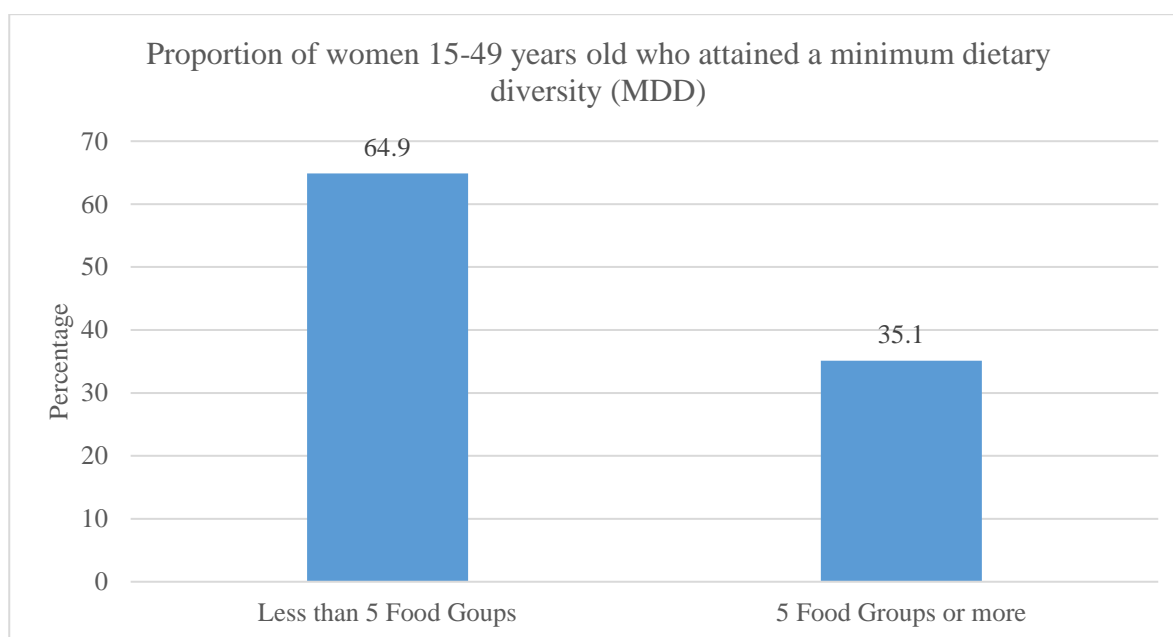


Figure 6: Dietary diversity for women of reproductive age

3.18.2 Factors influencing maternal dietary intake

The findings of the FGDs were in agreement with those of the quantitative findings which showed that the dietary intake of both pregnant and lactating women was inadequate with limited variation between the areas and/or communities. The factors influencing maternal nutrition and dietary intake of women reported among these communities were majorly the same. Availability of foods was reported to be a major factor negatively influencing dietary intake among women; the markets were either too far or transport costs too high for the people to access foods. In addition, it was reported that there was no variety of foods available in the markets and this contributed to the low dietary diversity consumed by the women. Another major factor contributing to inadequate dietary intake was poverty; the majority of the households had limited income or purchasing power to buy adequate foods for the women particularly pregnant and lactating women. In some of the communities, cultural factors also influenced the foods eaten by pregnant and lactating women. For example, pregnant women are not supposed to take milk, not allowed to eat chicken gizzard and sheep liver when slaughtered at home as the community believes the infant would grow big hence difficulties during delivery. Adolescence pregnancy was another factor negatively influencing dietary intake of the girls as expressed in the statement below;

“Lack of support for pregnant and adolescent mothers from family members result in inadequate dietary intake and stress among such mothers”, stated a woman in an FGD.

3.19 Use of fortified food by households

Mothers/caregivers of children 0-23 months old were asked questions about use of fortified foods in their households and the benefits of feeding fortified foods to children. The majority of the mothers/caregivers (79.7%) reported that they used foods and food products enriched with vitamins and minerals (Table 23). When asked the specific fortified foods they consumed, the majority of the households (92.9%) reported that they consumed fortified salt, 79.0% consumed fortified wheat flour, 77.9% consumed fortified maize flour, whereas 68.4% fortified cooking fats and oils (Table 23). The main oil/fat consumed by the majority of the households was oil by 92.4% of the households followed by vegetable fat by 6.5% (Table 23).

The mothers/caregivers were asked about the benefits of feeding children fortified flours and oils with vitamins and minerals. About one-third of the mothers/caregivers (35.0%) reported that the fortified foods makes children healthy, strong and active and 18.0% stated they make the child healthy and strong. Almost half of the mothers/caregivers (46.9%) did not know the benefits of feeding a child foods fortified with minerals and vitamins (Table 23).

Table 23: Use of fortified foods by households

	n	%
Use of foods and food products enriched with vitamins and minerals (N=1004)		
YES	800	79.7
NO	204	20.3
Used fortified foods used: (N=800)		
Maize flour	623	77.9
Wheat flour	632	79
Margarine	205	25.6
Cooking fats and oils	547	68.4
Salt	743	92.9
Sugar	270	33.7
Other	2	0.2
What is the main oil/fat consumed by your household? (N=800)		
Vegetable fat	52	6.5
Animal fat	5	0.6
Oil	739	92.4
Others	4	0.5
In your opinion, what are the benefits of feeding children flours and oils fortified with vitamins and minerals* (N=1004)		
Improve body's ability to fight diseases	181	18.0
Improves child's appetite	71	7.1
Improve child's to learn and develop	52	5.2
Makes children healthy, strong and active	351	35.0
Prevent vitamins and minerals deficiency	48	4.8
Others	22	2.2
DNK	471	46.9

* Multiple responses

3.20 Maternal and child nutritional status based on MUAC measurement

Maternal nutritional status based on MUAC measurement showed that 1.9% of the women were wasted (Table 24). This finding may be an indication that the women were probably getting adequate macronutrients but inadequate micronutrients as just one-third of them consumed the recommended minimum dietary diversity. The rate of wasting among the children (MUAC < 125mm) was high as 15.4% were wasted with 2.4% being severely wasted (Table 24).

Table 24: Maternal and child nutritional status (MUAC)

Maternal and child nutritional status	n	%
Maternal Nutritional Status (N=1004)		
Normal <210 mm	19	1.9
Wasted ≥210 mm	985	98.1
Child nutritional status (N=665)		
Severely wasted <115 mm	16	2.4
Moderately wasted >115 mm to <125mm	85	13.0
At risk 125 to <135 mm	230	35.1
Normal ≥135 mm	326	49.8

3.21 Access to health and nutrition information via media channel

3.21.1 Access to various sources of health and nutrition information

Mothers/caregivers were asked to state the media sources through which they access health and nutrition information. The most common channel was radio on mobile phone listened to by 56.3% of the respondents followed by radio set at 53.0%. The Television (TV) set was watched by 32.3% and internet and newspaper by 18.8% each (Figure 8).

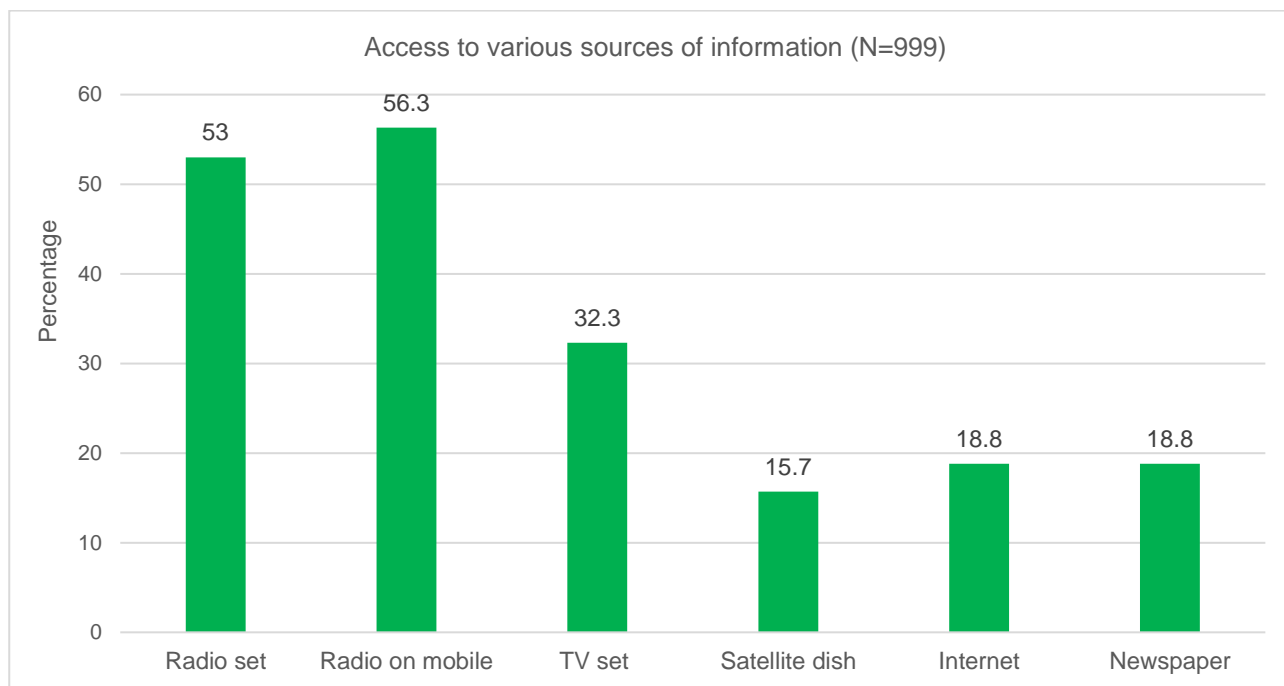


Figure 7: Media health and nutrition information channels

3.21.2 Most popular radio stations

The radio stations which were listened to most were Kaya FM by 34.7% of the respondents, Pwani FM by 19.2% and Citizen FM by 15.0%. The least listened to radio channels were Lulu FM by 8.8% and Radio Maisha by 7.0% (Figure 9).

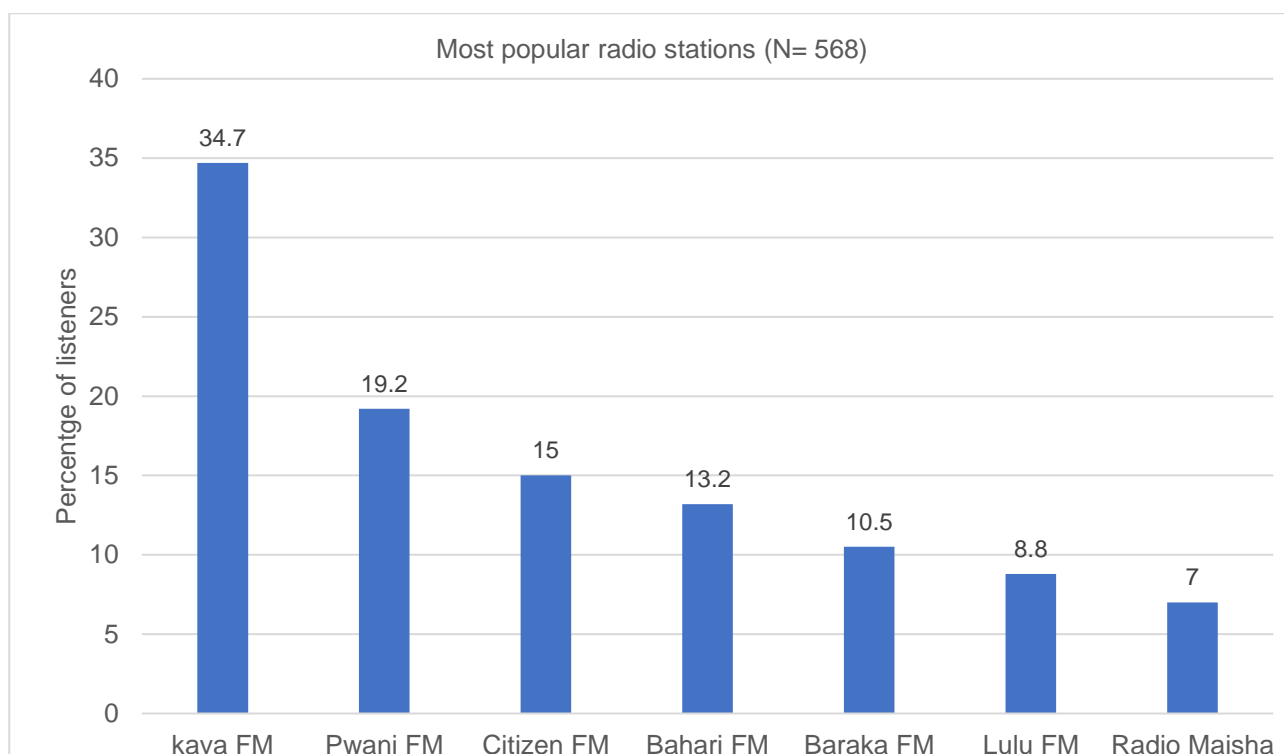


Figure 8: Most popular radio stations

The respondents were asked to state the last time they listened to a radio. About half of the respondents (46.8%) had listened to a radio station the day before the survey whereas 12.8% had access to a radio within the last 7 days (Table 25). A considerable proportion (8.2%) had stayed for longer than 12 months before accessing a radio. Almost one-tenth of the respondents (9.0%) had never accessed a radio station.

Table 25: Frequency of listening to radio stations

	N=999	
	n	%
Today/yesterday	472	46.8
Not yesterday but within 7 days	129	12.8
More than a week but within this month	53	5.3
Longer than a month but within 3 months	59	5.9
Longer than 3 months but within 12 months	55	5.5
Longer than 12 months	83	8.2
Never	91	9.0
DNK	66	6.5

The respondents were also asked to state if they had listened to *Jamii na Lishe Bora* programme on KAYA FM radio and at what frequency. About one-tenth of the respondents (12.2%) had listened to the programme within the last one week and 4.4% had listened to the programme in the last 2 weeks and a similar percentage in the last one month (Table 26).

Table 26: Frequency of listening to *Jamii na lishe bora* programme on KAYA FM radio

Listened to Jamii na lishe Bora Programme on Kaya FM	N=999	
	n	%
Total listened	305	30.3
Listened within last 1 week	123	12.2
Listened within last 2 weeks	44	4.4
Listened within last 1 month	44	4.4
Listened within last 3 months	49	4.9
Listened within past 1 year	20	2.0
Listened in over 1 past year	6	0.6

3.21.3 Access to mobile phones

When asked about access to mobile phone and the kinds of services the respondents have on their phones, 80.0% reported that they had access to calls and texts only. Those who had access to calls, texts and internet were 39.7% and those with all these services including social media applications were 31.9% (Figure 10).

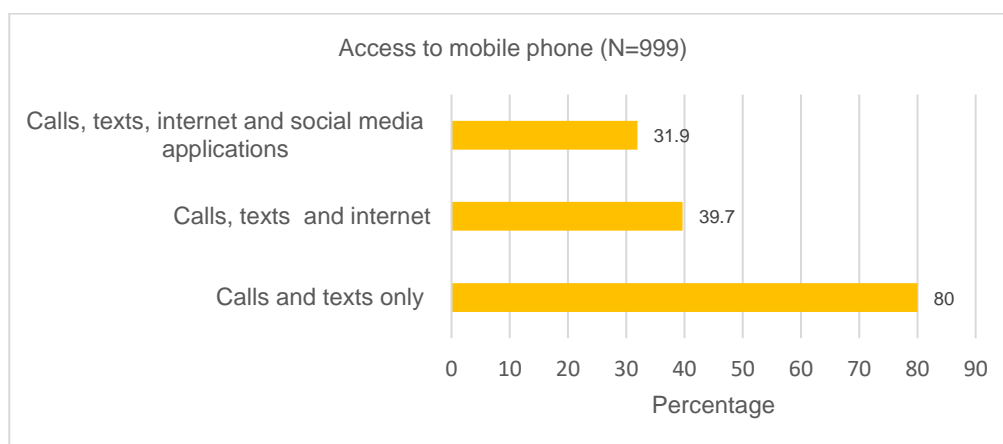


Figure 9: Access to mobile phones and various services

3.21.4 Access to Television Set

About one-quarter of the respondents (22.5%) had access to a TV set on the day of the survey or the previous day, 9.7% within the last 7 days, 4.5% within the month whereas 23.5% had never had access to a TV set. Over one-tenth (12.0%) stated that they did not know whether they had access or not (Table 27).

Table 27: Access to Television Set

Access to TV sets	N=999	
	n	%
Today/yesterday	227	22.5
Not yesterday but within 7 days	98	9.7
More than a week but within this month	45	4.5
Longer than a month but within 3 months	62	6.2
Longer than 3 months but within 12 months	67	6.6
Longer than 12 months	148	14.7
Never	237	23.5
DNK	121	12.0

4: DISCUSSION

This discussion focuses on the key indicators of MIYCN. An attempt is made to discuss the plausible reasons for the observed rates in these indicators based on both the quantitative and qualitative findings. Qualitative data from this survey was used wherever appropriate to triangulate, or provide in-depth information, to the quantitative findings. Discrepancies between quantitative and qualitative findings, if any, are highlighted. The findings of this survey will provide baseline information useful for setting benchmarks and measuring progress of MYICN interventions County level.

4.1 Infant and young child feeding practices

Appropriate infant and young child feeding practices play a major role in the healthy growth and development of children. The impact of undernutrition during the “window of opportunity” from minus 9 to 24 months (i.e. from pregnancy to two years old) has irreversible long-term effects on health and on cognitive and physical development.

4.1.1 Breastfeeding practices

Overall, the breastfeeding practices were optimal except for the following indicators: giving of pre-lacteal feeds; timely initiation of breastfeeding; practical support given to mothers to help start breastfeeding; and bottle feeding with teat/nipple. The high prevalence of the majority of the key indicators of breastfeeding practices may have been contributed to by the high level of knowledge among mothers, fathers and other community members.

The attitudes and perceptions towards breastfeeding practices were positive and again there was agreement in the findings from the household survey and those from the FGDs. Cultural barriers were reported to be a hindrance the adoption of scientifically appropriate feeding practices among some women and in some areas/regions. Nonetheless, despite the relatively high exclusive breastfeeding rate recorded in this survey, effort is still needed to improve the rate to at least 90%, the minimum recommended by WHO to have impact on and reduce mortality by 13% among the underfives (Lancet, 2003). There is need also for concerted efforts to improve the rates of the breastfeeding indicators and also to ensure that the gains made are not lost. In addition, most children stop exclusive breastfeeding at 3 months and therefore the need for more intense promotion to encourage mothers to continue the practice up to 6 months.

4.1.3 Complementary feeding practices

Overall, the complementary feeding practices were sub-optimal despite the high knowledge and positive attitudes and perceptions. Cultural beliefs and practices were also reported to be no longer a major barrier to adoption of appropriate IYCN practices. The majority of the children were receiving foods with limited dietary diversity and less than recommended frequency of meals, implying that they were not getting enough of a variety of nutrients for healthy growth and development. The children were therefore most likely deficient in micronutrients. This was compounded by the fact that consumption of MNPs among the children was very limited.

The major barriers to adoption of appropriate feeding practices were reported to be unavailability and inaccessibility to foods. It was reported by the county personnel that there was a prolonged drought just before the survey and therefore this exacerbated the food insecurity situation probably contributing to some of the poor indicators of complementary feeding practices. Other barriers to appropriate feeding practices reported during the FGDs were: high maternal workload affecting time mother is available to prepare appropriate complementary foods for the baby.

Concerted efforts should be put into place to improve complementary feeding practices in the County. Knowledge alone will not improve the practices. There is need for innovative strategies to address the causes of inadequate complementary feeding practices. These strategies should include nutrition sensitive interventions using a multi-sectoral approach to address food security issues which is the major cause of poor complementary feeding practices.

4.2 Maternal knowledge, attitudes and perceptions on IYCN

Knowledge on IYCN practices was high and attitudes and perceptions were positive. The high level of knowledge among mothers and caregivers was demonstrated by the findings from the household surveys and corroborated by the findings from the FGDs. The knowledge levels were on the whole higher for breastfeeding indicators than complementary feeding practices. A smaller proportion of mothers/caregivers had received information on complementary feeding practices compared to those who had received information on breastfeeding practices. Efforts should be made for dissemination of messages on appropriate complementary feeding practices using all the available channels including mass media particularly radio (KAYA FM) to also explore the potential of using mobile phones text messages.

4.3 Responsive feeding practices

Overall the findings on responsive feeding practices were positive as the majority of the mothers talked to the children and verbally encouraged them to eat. Most of the mothers encouraged the children to self-feed which was a positive practice. Nonetheless, there is need to discourage mothers not to order children to eat. About one-quarter of the mothers did so. This practice could have detrimental effects on eating habits as the child may associate meals with unpleasant times or may develop negative perceptions about meals.

4.4 Feeding of children during illness

Appropriate feeding during illness is important to provide immunity to the child and also to prevent the child getting from getting malnourished. Feeding of children during illness was poor. The majority of the children received less food, less liquids and less breastmilk during illness mainly because the child did not want the food because of low appetite. This may imply that the children whose diets are not adequate based on the findings of this survey face a higher risk of malnutrition when sick. During illness the body requires more nutrients to fight the infection and boost the immunity system. During recovery, a higher proportion of children were given more or the same amount of food as they usually eat when they are not ill – but the percentage who received more food was low. Feeding during illness therefore needs more emphasis in the messages on appropriate feeding of children.

4.5 Access, preparation and consumption micronutrient powders (MNPs)

On the whole, the coverage for the key indicators of MNPs were low. The knowledge on MNPs was limited only 24.3% of the mothers had heard of MNPs and yet it was reported that there were no stock outs of the commodity in 2017. Therefore, access to MNPs was a challenge as less than one-quarter of the children received MNPs in the last 6 months. It is therefore recommended that awareness creation should be conducted for all stakeholders. Appropriate messages on the health benefits of MNPs, preparation and frequency of consumption should be developed and disseminated to all stakeholders.

4.6 ANC attendance by pregnant women

The major objective of antenatal care during pregnancy is to identify and treat problems such as anaemia and infections. Screening for complications take place during ANC visits and advice is given on a range of issues, including place of delivery and referral of mothers needing further medical attention. The WHO recommendations, adopted by the MOH in Kenya stipulates that pregnant women should visit ANC at least 4 times during pregnancy and that the first visit should take place during the first trimester.

Overall, the majority of the pregnant women attended ANC at least once, most of them making their first visit during the second trimester instead of the recommended first trimester. This first visit, if started at the right time offers good opportunity for women to be reached with the full ANC service package including assessment, counselling on key IFAS messages etc. About half the women made the recommended 4 ANC visits. The majority of the mothers received the essential services that should be offered at the ANC clinics at least once during the entire pregnancy period. The overall implication of these findings is that the women are not getting critical services including check-ups on a frequent basis as per the recommendations because they do not visit ANC clinics regularly neither do they make timely first visit.

- The interventions geared towards improving ANC attendance should address the factors hindering attendance for most women including: distance to health facilities, high maternal workload, high transport costs to the health facilities; fear of HIV/AIDS test; and negative attitude of health workers towards the women.

4.7 Maternal knowledge on IFAS, provision and consumption by pregnant women

Maternal knowledge on the health benefits of IFAS to the pregnant and unborn baby was high among the community members but with variability from one area to another. The high knowledge did not necessarily translate into consumption of the supplements, one per day as per the WHO and MOH recommendations. The main source of information for the majority was the health facility and less from the CHVs. In terms of provision, there was no significant difference in the amount of the different types of IFAS given to the mothers. The majority of the mothers received IFAS to last less than 60 days and the majority also consumed the IFAS for less than 60 days and yet it was reported there were no issue with the stocks of this commodity. The provision of IFAS for less than 60 days may be partly explained by the fact that the pregnant women do not attend ANC frequently and therefore they do not get adequate supply of IFAS.

The main reasons for the inadequate consumption was reported to be the side effects (nausea and vomiting) and forgetfulness. In some cases, it was reported that IFAS made the women sick interfering with their interest in sex. The community (all stakeholders including fathers) should be sensitized to understand the benefits of and the frequency of taking IFAS during pregnancy.

It should also be noted that recall bias could also have affected the number of IFAS reported to have been received and consumed. This may be particularly true for those mothers whose children were above the age of 12 months.

4.8 Dietary intake of women of reproductive age

Dietary diversity is an indicator of diet quality; the Minimum Dietary Diversity for women of reproductive age (MDD-W) is the consumption of foods from at least five or more of ten food groups as per FAO, 2016 guidelines (refer to section 2.9 in the methodology section). Those women who

attain the MDD-W are highly likely to consume at least one animal- source food and either pulses or nuts/seeds and food items from two or more of the fruit/vegetable food groups.

Maternal dietary intake was poor given that one-third of the women attained the MDD-W with a mean dietary score of 2.2 ± 2.1 . The MDD-W was low indicating low quality diet. The major reasons for poor dietary intake were food insecurity and lack of purchasing power. Cultural factors were reported during the FGDs to affect the diet of a minority of pregnant women.

4.9 Access to health and nutrition information via media

The most common channel of access to information was the radio (both set and mobile) followed by mobile phones and then TV sets. Almost half of the respondents listen to the radio daily with KAYA FM as the most popular radio station. Almost one third of the respondents listened to the programme *Jamii Na Lishe Bora* messages on the radio. A large majority (80.0%) of the respondents had access to mobile calls and texts. The implications of these findings is that the radio through KAYA FM channel and the mobile phones offer a great opportunity and potential for dissemination of health and nutrition messages.

5. CONCLUSIONS

Breastfeeding practices: Overall the practices were optimal except for: initiation of breastfeeding; provision of pre-lacteal feeds; practical support given to mothers to help start breastfeeding; and bottle feeding with teat/nipple. Efforts should continue to ensure that the gains made are not lost. Despite the fact that EBF has improved significantly, the rate should be improved further to reach 90%, the minimum recommended by WHO to have impact on and reduce mortality by 13% among the underfives. The majority of the children stop exclusive breastfeeding at 3 months; there is need to encourage the women to continue with this practice up to 6 months for the children to have the full benefits of exclusive breastfeeding.

Complementary feeding practices: Overall, the CF practices were sub-optimal implying that a majority of the children were not getting adequate diet. Most of the children received diets that did not provide adequate nutrients in terms of quantity and variety for healthy development. Given that knowledge and cultural practices were not the major hindrances to appropriate complementary feeding practices, there is need for innovative and nutrition-sensitive interventions with a multi-sectoral approach to address food insecurity which is the major hindrance to appropriate feeding practices.

Knowledge on MIYCN practices was high and the attitudes and perceptions positive. Promotion of appropriate MIYCN messages should be up-scaled using various channels for greater coverage. Messages to promote appropriate MIYCN practices should continue to be disseminated with particular emphasis on areas where knowledge was reported to be relatively low and among women of low levels of education or those who are illiterate as it was reported during the FGDs that their knowledge level was low.

In terms of ANC attendance, the majority of the pregnant women make at least one visit to a skilled health provider. The challenge was with the frequency of ANC attendance as only half of the pregnant women received ANC services at least 4 times by a skilled health provider in line the WHO and MOH recommendations. The other challenge was the timing of the first visit to the ANC; only one quarter of the women make first ANC visit during the first trimester. It is therefore important to establish the reasons why mothers do not start attending ANC in a timely manner and at the recommended frequency. This information should be useful in addressing the development of messages on the health benefits of attending ANC and also useful in addressing the barriers to pregnant women attending ANC as recommended.

The coverage for the provision and consumption of IFA supplements to pregnant women was low. The majority of the pregnant women received and consumed IFAS for less than 60 days. This may be explained to a certain extent the infrequent visits to ANC clinics. There is need to train the CHVs on IFAS so that they promote the consumption and address the mothers' challenges in the use of the supplements at the household level. It was reported that this training has not been conducted yet. May be frequent follow-up at the household level by the CHVs may encourage pregnant women and remind them to take IFAS. One of the reasons given for not taking IFAS on a regular basis was forgetfulness. There is also need to address the cultural issues that were reported to negatively affect consumption of IFAS and also to provide information on how the side effects could be minimized.

Responsive feeding: Overall, responsive feeding practices were positive as the majority of the mothers talked to children and encouraged them to eat and self-feed. There is need to discourage the practice of ordering and threatening children to eat as was reported by about one-fifth of the mothers.

Feeding during illness: Overall, poor feeding practices and should therefore be appropriately addressed in the behaviour change communication messages.

Maternal dietary intake: Maternal dietary intake needs improvement given that less than half of the mothers attained a minimum dietary diversity. The major hindrance to adequate dietary intake is food insecurity and poverty. So addressing food security issues would improve mothers' dietary intake.

Factors influencing MIYCN practices

Factors influencing MIYCN positively

- **High level of knowledge on breastfeeding and complementary feeding practices among** the mothers and the community as a whole. This together with the positive attitudes and perceptions to IYCF practices may have contributed to the appropriate breastfeeding feeding practices. The knowledge and positive attitudes and perceptions towards complementary feeding did not necessarily translate to improved practices.
- **High level of maternal knowledge** on the health benefits of ANC attendance and consumption of IFAS during pregnancy influenced mothers to seek these services. Despite this, many mothers did not seek these services regularly.
- **The services provided at the ANC such as;** growth monitoring of the foetus, checking of anaemia and provision of supplementary foods encouraged mothers to attend ANC clinics.

Barriers to appropriate MIYCN practices

- **Household food insecurity** resulting into inadequate dietary intake affecting milk production among breastfeeding mothers. Similarly, food insecurity was a major factor contributing to inappropriate complementary feeding practices because of unavailability and inaccessibility of a variety of foods. Poverty and low purchasing power were reported to major constraints to household food security. Poor household food security was also a major factors constraining maternal adequate dietary intake;
- **High maternal workload** affecting time mother is available to provide quality care to the child and also to breastfeed and prepare appropriate complementary foods for the baby;
- **Inadequate knowledge on complementary feeding practices** particularly on how to prepare foods for the children was reported to be a constraint to appropriate feeding practices;
- **The women who did not attend ANC regularly** were discouraged by: the high maternal workload; long distance to health facilities; mandatory HIV testing and some were discouraged by their husbands from attending;

- **The women who did not take IFAS on a regular basis** were discouraged by the side effects (nausea and vomiting) while some forgot to take them. Cultural issues were also a hindrance to the taking of IFASA by some women; and
- **Access to health and nutrition information via media channel.** Many mothers have access to and listen to the KAYA FM radio channel. A large majority of the mothers also have access to mobile phones and therefore these two channels offer a great opportunity and potential for dissemination of health and nutrition messages.

6. RECOMMENDATIONS

6.1 Recommendations for programming

Table 28: Recommendations

SR/No	Recommendations	Persons responsible	Timeline
1	Fully operationalize the County Social and Behaviour Change Communication Plan to promote adoption of appropriate MIYCN practices	MOH, UNICEF, Nutrition IPS	December 2018
2	Scale up functionalization of Community Units	CHMT	December 2018
3	Initiate Baby friendly Community Units in already functional Community Units	MOH, UNICEF, Nutrition IPS	September 2018
4	Recruit more nutritionists	County Government	April 2019
5	Establish Multi Sectoral Platform to enhance collaboration with nutrition sensitive sectors in addressing nutrition issues. This will facilitate partnering and building complementarities amongst various partners in the County	Departments of Health, Agriculture, Child Protection Services, Water, and Education	September 2018
6	Train newly recruited health workers on MIYCN/MIYCN – E and BFCI modules.	MOH, UNICEF, Nutrition IPS	September 2018
7	Fully operationalize the County Complementary Feeding Action Plan address the below optimal complimentary feeding practices (MAD, MMF, MMD).	MOH, UNICEF, Nutrition IPS	December 2018
8	Train additional community units on Module 8. CHV's least provided information on complementary feeding	MOH, UNICEF, Nutrition IPS	December 2018
9	Use of local radio stations for messaging – themed messaging exclusively with Infant and Young Child feeding messages targeted towards behavior change and knowledge creation	MOH, UNICEF, Nutrition IPS	December 2018
10	Scale up Mother to Mother Support Groups (MSG's) to cover all Community Units.	CHMT	September 2018
11	Re-orientation of Health Workers on initiation of breastfeeding support once mothers deliver (Breast Crawl and KC)	CHMT	September 2018
12	Develop contextualized interventions targeting key influencers such as the mother in law who are a main source of information on infant and young child feeding	CHMT	December 2018

6.2 Recommendations for future surveys

- Conduct in-depth MIYCN KAPB qualitative surveys to provide detailed sub-county level information to allow for appropriate programming taking into account any differences in the sub-counties.
- The questionnaire should be shortened and made to focus on the key MIYCN indicators. Questions with a high possibility of recall bias e.g. IFAS for mothers with children 0-23

months old- the target population should be changed to mothers with younger children to minimize recall bias.

- Data analysis: It is recommended that qualitative data be analysed using data analysis software for improved efficiency. It is also recommended that basic inferential statistics be included in the analysis to provide information for more targeted MICYN messages.
- The ToR should include maternal nutrition and other-related indicators e.g. IFAS and ANC based on the WHO and MOH guidelines.

7. REFERENCES

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8. APPENDICES



ADDITIONAL
QUESTIONS for UNIC



Kilifi Report slides
FINAL.pptx



Villages in Kilifi by
Sub-county.docx



NITWG validated
UNICEF KABP MIYCN



Training Schedule
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