



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

**SURVEY REPORT**

**KWALE COUNTY**

DECEMBER 2017

Independent Consultant  
Sophie Ochola (PhD)  
P.O. BOX 61895 00200  
NAIROBI  
Email: [ocholasa55@gmail.com](mailto:ocholasa55@gmail.com)  
Tel: 0721 449 803

unicef  | for every child

## ACKNOWLEDGEMENTS

I take this opportunity to thank UNICEF for giving me the opportunity to conduct this Maternal Infant and Young Child (MIYCN) Knowledge, Attitudes, Belief and Practices (KABP) survey in Kwale County. My appreciation is extended to the Kwale Country Nutrition Coordinator, UNICEF Nutrition Support Officer Kwale County, officers from MOH and partner organizations for the guidance and assistance accorded me in the course of conducting this assignment. I am also indebted to Dr. Festus Kiplamai for his technical input in the data collection procedure using the Open Data Kit (ODK) platform. My special appreciation to Dr. Judy Munga for the technical assistance offered during training and data collection.

Special thanks also goes to the members of the survey teams for their tireless efforts in ensuring that the survey was conducted professionally and on time. I am also indebted to the community members who willingly participated in the survey and provided the information required.

ACKNOWLEDGEMENTS .....	i
LIST OF TABLES .....	v
LIST OF FIGURES.....	vi
ACRONYMS AND ABBREVIATIONS .....	vii
EXECUTIVE SUMMARY.....	ix
1. INTRODUCTION.....	1
1.1 Background Information .....	1
1.2 Justification to conduct the survey .....	2
1.3 Survey objectives .....	2
1.4 Significance of the survey .....	2
2. METHODOLOGY .....	2
2.1 Survey Design .....	2
2.2. The Target Population .....	3
2.3 Sample Size Determination .....	3
2.3.1 Sample Size Determination for IYCN indicators .....	3
2.3.2 Calculation of number of clusters.....	4
2.3.3 Sample size for focus group discussions (FGDs).....	4
2.4 Sampling Procedure .....	4
2.5 Data collection tools.....	5
2.6. Implementation of the Survey .....	5
2.6.1 Survey Team.....	5
2.6.2 Training of survey team members.....	6
2.6.3 Pre-testing.....	6
2.7 Data collection and quality control.....	6
2.8 Data management and analysis .....	7
2.9 Definition of key MIYCN indicators .....	7
3. RESULTS.....	10
3.1 Child characteristics .....	10
3.3 Maternal/Caregivers' characteristics .....	10
3.4 1. Infant and young child feeding practices.....	11
3.4.1 Breastfeeding practices for children 0-23 months old.....	11
3.4.2 Bottle feeding practices .....	14
3.5 Complementary feeding practices .....	14
3.5.1 Types of foods eaten the previous day by children 6-23 months old.....	14
3.5.2 Introduction and consumption to solid, semi-solid or soft foods .....	15
3.6 Responsive feeding of children 6-23 months old.....	16

3.7 Feeding during illness .....	17
3.8 Knowledge and consumption of micronutrient powders for children 6-23 months old.....	18
3.8.1 Knowledge of micronutrient powders (MNPs) .....	18
3.8.2 Preparation of food and consumption of Micronutrient Powders (MNPs).....	19
3.9 Knowledge on infant and young child feeding practices .....	20
3.9.1 Knowledge on breastfeeding practices .....	20
3.9.2 Knowledge on complementary feeding practices.....	22
3.10 Attitudes on infant and young child feeding practices .....	22
3.11 Perceptions on infant feeding practices .....	23
3.12 Factors influencing Infant and Young Child Feeding (IYCN) practices.....	24
3.12.1 Factors enhancing infant and young child feeding practices.....	24
3.12.2 Barriers to Infant and Young Child Feeding Practices.....	26
3.13 Ante Natal Care (ANC) for pregnant women.....	26
3.13.1 Attendance of ANC clinics and provision of services.....	26
3.14 Iron folic acid supplementation (IFAS) for women currently pregnant women .....	27
3.14.1 Pregnant women’s knowledge on IFAS .....	27
3.14.2 Provision and consumption of IFAS by women currently pregnant .....	28
3.15: Ante-natal care for mothers with children 0-23 months old.....	29
3.15.1 Frequency and timing of ANC attendance .....	29
3.15.2 Services offered at ANC clinic.....	30
3.15.2 Factors influencing ANC attendance.....	31
3.16 Iron and folic acid supplementation (IFAS) for mothers with children 0-23 months old .....	32
3.16.1 Maternal knowledge on IFAS .....	32
3.16.2 Maternal provision and consumption of IFAS by mothers 0-23 months old .....	33
3.16.3 Factors influencing the consumption of IFAS.....	35
3.17. Post-natal care services for mothers with children 0-23 months of age.....	36
3.17.3 Factors influencing the uptake of PNC services.....	36
3.18 Dietary intake by women of reproductive age (15-49 years) .....	37
3.18.1 Foods eaten the previous day by women of reproductive .....	37
3.18.2 Maternal dietary diversity for women of reproductive age group (MMD-W) .....	37
3.18.2 Factors influencing maternal dietary intake .....	38
3.19 Use of fortified food by households .....	38
3.20 Maternal and child nutritional status based on MUAC measurement.....	39
3.21 Access to health and nutrition information via media channel.....	40
3.21.1 Access to various sources of health and nutrition information.....	40
3.21.2 Most popular radio stations .....	40

3.21.3 Access to mobile phones .....	41
3.21.4 Access to Television Set.....	42
<b>4: DISCUSSION .....</b>	<b>43</b>
4.1 Infant and young child feeding practices.....	43
4.1.1 Breastfeeding practices.....	43
4.1.3 Complementary feeding practices .....	43
4.2 Maternal knowledge, attitudes and perceptions on IYCN.....	44
4.3 Responsive feeding practices .....	44
4.4 Feeding of children during illness .....	44
4.5 Access, preparation and consumption micronutrient powders (MNPs) .....	44
4.6 ANC attendance by pregnant women.....	45
4.7 Maternal knowledge on IFAS, provision and consumption by pregnant women .....	45
4.8 Dietary intake of women of reproductive age .....	46
4.9 Access to health and nutrition information via media .....	46
5. CONCLUSIONS .....	46
6. RECOMMENDATIONS .....	48
6.1 Recommendations for programming .....	48
6.2 Recommendations for future surveys .....	49
7. REFERENCES .....	50
8. APPENDICES.....	52

## LIST OF TABLES

Table 1: Calculation of sample size.....	3
Table 2: Child characteristics .....	10
Table 3: Maternal and caregivers' characteristics .....	11
Table 4: Pre-lacteal feeding/Types of Pre-lacteal feeds given to infants .....	13
Table 5: Types of food eaten by children 6-23 months old.....	14
Table 6: Prevalence of Key complementary feeding practices .....	15
Table 7: Responsive feeding of children 6-23 months old.....	17
Table 8: Feeding during illness .....	17
Table 9: Maternal knowledge and sources of MNPs.....	19
Table 10: Preparation of food with and consumption of MNPs.....	20
Table 11: Maternal knowledge on breastfeeding practices .....	21
Table 12: Knowledge of complementary feeding practices .....	22
Table 13: Maternal attitudes on infant and young child feeding practices.....	23
Table 14: Maternal perceptions on infant feeding practices.....	24
Table 15: ANC care for pregnant women .....	27
Table 16: Pregnant women's knowledge on IFAS.....	28
Table 17: Provision and consumption of IFAS by women currently pregnant .....	29
Table 18: Services offered at the ANC clinic.....	31
Table 19: Maternal knowledge on IFAS .....	33
Table 20: Provision and consumption of IFAS by mothers of children 0-23 months.....	34

Table 21: Post-natal care services for mothers with children 0-23 months old.....	36
Table 22: Foods eaten by women the previous day.....	37
Table 23: Use of fortified foods by households .....	39
Table 24: Maternal and child nutritional status (MUAC) .....	39

## LIST OF FIGURES

Figure 1: Map of Kwale County.....	1
Figure 2: Breastfeeding practices .....	12
Figure 3: Exclusive breastfeeding rates disaggregated by age of child .....	12
Figure 4: Practical support offered to mothers to start breastfeeding.....	13
Figure 5: Feeding of children using various containers .....	14
Figure 6: ANC attendance for mothers with children 0-23 months old .....	30
Figure 7: Dietary diversity for women of reproductive age .....	38
Figure 8: Media health and nutrition information channels .....	40
Figure 9: Most popular radio stations.....	41
Figure 10: Access to mobile phones and various services .....	42

## 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 Kwale 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 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 995 children of whom 290 (29.2%) were infants less than 6 months of age and 995 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 (%)
<b>Infant and Young Child Feeding Practices</b>	
Breastfed in demand	96.8
Exclusively breastfed	73.4
Continued breastfeeding at 1 year	86.4
Given pre-lacteal feeds	11.6
Given colostrum	95.2
Initiation of breastfeeding within 1 hour	83.7
Bottle feeding with nipple/teat	11.6
<b>Complementary feeding practices</b>	
Proportion of infants 6-8 months old who received solid, semi-solid or soft foods the previous day	70.2
<b>Minimum Dietary Diversity (MDD)</b>	
% 6-23 months old who received foods from $\geq 4$ food groups	46.3
% 6-23 months who received foods from $\geq 4$ food groups by breastfeeding status:	
• Not breastfed	65.3
• Breastfed	40.6
<b>Minimum Meal Frequency (MMF)</b>	
% of both breastfed and non-breastfed 6-23 months of age who received foods the minimum times or more	56.7
<u>Breastfed:</u>	
• 6-8 months old [2 times]	52.8
• 9-23 months old [3 times]	63.7
<u>Non-breastfed:</u>	
6-23 months old [4 times]	34.8
<b>Minimum Acceptable Diet (MAD)</b>	
% of children 6-23 months of age who receive a minimum acceptable diet	30.5

<b>Consumption of iron-rich foods</b>	29.3
<b>Feeding during illness</b>	
Offered less breastmilk to child than usual	78.8
Offered less non-breastmilk to child than usual	69.5
Offered less food to child than usual	74.8
<b>Knowledge on breastfeeding and complementary feeding practices</b>	
Breastfeeding should be initiated within 1 hour of birth	82.5
Baby should be given colostrum	90.3
Baby should not be given pre-lacteal feeds	92.5
Duration of exclusive breastfeeding is 6 months	90.4
Solid, semi-solid and soft foods should be introduced at 6 months	68.5
<b>Attitudes on breastfeeding and complementary feeding practices</b>	
A baby should be breastfed immediately after they are born	82.1
Would you feed your baby colostrum?	93.3
It is important for a baby to breast fed for 6 months without being introduced to anything else including water	84.4
<b>Perceptions to infant feeding practices</b>	
Do not believe that certain foods are taboo and should not be fed to pregnant women	64.4
Do not believe that a new born baby should be given liquids other than breastmilk	76.3
Do not believe that colostrum is dirty and should not be fed to new born babies	79.2
Do not believe that a baby cannot survive on exclusive breastfeeding for 6 months	77.9
Do not believe that certain foods are taboo and should not be fed to a child	68.5
Do not believe that a young child should not be breastfed up to 2 years	76.6
<b>Ante-Natal Care for mothers with children 0-23 months of age</b>	
Attended ANC at least once	98.1
First ANC visit during the first trimester	56.1
Made at least 4 visits during pregnancy	56.9
<b>IFAS for mothers when pregnant with children 0-23 months old</b>	
Heard of IFAS	90.4
First source of information on IFAS:	
• Health staff from health facility	98.3
• Community Health Volunteers (CHVs)	5.6
Know benefits of IFAS	80.2
Number of days for which iron tablets were given:	
<b>Iron tablets:</b>	
< 60 days	62.0
60-89 days	5.0
≥90 days	24.2
<b>Folic acid tablets:</b>	
< 60 days	68.0
60-89 days	10.0
≥90 days	22.0
<b>Combined iron/folic tablets:</b>	
< 60 days	39.9
60-89 days	12.2
≥90 days	47.8
Number of days for which supplements were consumed:	
<b>Iron tablets:</b>	
< 60 days	65.4
60-89 days	11.0
≥90 days	25.0
<b>Folic acid tablets:</b>	
< 60 days	68.0
60-89 days	10.0
≥90 days	22.0
<b>Consumption of IFAS:</b>	
< 60 days	40.5
60-89 days	12.0

≥90 days	47.5
Dietary Diversity for women of reproductive age (MMD-W):	
Attained Minimum Dietary Diversity (ate foods from at least 5 food groups)	45.2

## 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. Most of the children stopped exclusive breastfeeding at 3 months and therefore the need to encourage mothers to continue with the practice up to 6 months so that the children can get 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 addressing the negative cultural beliefs.

**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 address the issues that make women 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. Cultural beliefs on MIYCN need to be addressed using innovative strategies.
- **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 factors that negatively influence ANC attendance and consumption of IFAS should be addressed/
- 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;
- **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: long distance to health facilities; 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 for 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.

## Recommendations

### Recommendations for programming

SR/NO	Immediate and long term Recommendations	By who	By when
1	Conduct 6-day training to health workers on MIYCN,	MOH, UNICEF,Partners	By June 2018
2	Operationalize the SBCC strategy	MOH, UNICEF,Partners	Immediately/ongoing
3	Print and distribute MIYCN reporting tools	MOH, UNICEF,Partners	By August 2018
4	Conduct biannual data quality audits	MOH, UNICEF,Partners	Ongoing/biannually
5	Conduct 5 training on the new growth standards, IFAS and VAS to 200 health workers	MOH, UNICEF,Partners	By August 2018
6	Conduct five days training on MIYCN/ BFCI to at least 500 CHVs	MOH, UNICEF,Partners	Ongoing/complete by June 2019
7	Design, Produce, Disseminate and distribute MIYCN/BFCI IEC material to 30 community units	MOH, UNICEF,Partners	By June 2019
8	Conduct quarterly dialogue meetings at the CUs and at community level per every sub-county (4sc x4q x2yrs)	MOH,UNICEF,Partners	By June 2019
9	Complete and operationalize the common results framework for the Nutrition Multi-sectoral platform.	MOH,UNICEF,IPs and other sectors (Agriculture, Water, NDMA, Social Protection, Education)	By June 2018
10	Implement BFCI steps aimed towards achieving Bay Friendly Communities in 5 CUs.	MOH,UNICEF,IPs	By Nov 2018
11	Conduct health education session on MIYCN twice every month in 80% of health facilities in Kwale	MOH,UNICEF,IPs	
12	Hold biannual multi-sectoral meeting in every sub county	MOH,UNICEF	Ongoing
13	Conduct KABP and SMART Surveys every two years		

### Recommendations for future surveys

- Conduct in-depth MIYCN KABP 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

Kwale County is one of the six counties in the coastal region located in the South coast of Kenya. It borders Taita Taveta County to the West, Kilifi County to the Northwest, Mombasa County and Indian Ocean to the East and Republic of Tanzania to the South. The County is located in the Southeastern and has four sub counties; Msambweni, Lunga Lunga, Kinango and Matuga. It covers an area of 8270.2 square kilometers. This accounts for 1.42 per cent of Kenya's total surface area, of this, 62 square kilometers is under water. The area excludes the 200- miles coastal strip known as the Exclusive Economic Zones (EEZ). The county has a total population of 796,212 (Male-49%, Female-51 %) as projected from KNBS 2009 census. The main tribes are Digo and Duruma tribes who belong to the Mijikenda ethnic group of coastal Kenya.

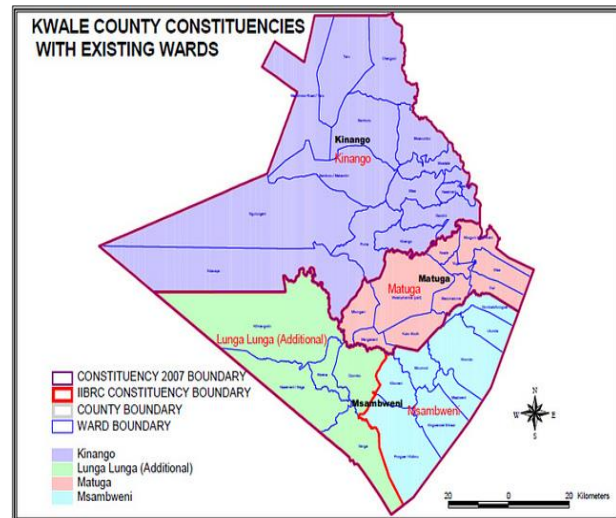


Figure 1: Map of Kwale County

Other tribes in the county include the Kambas, Arabs, Indians and other ethnic groups though to a very small proportion. The county is divided into agro-ecological zones in terms of agricultural potential. Medium potential and marginal lands constitute 15 per cent and 18 per cent of the total land area respectively. The rest 67 per cent is range, arid and semi-arid land suitable only for livestock and limited cultivation of drought resistant crops. Annual precipitation is less than 800mm on the average and is extremely unreliable. The main economic activities in the county include; livestock keeping, mixed farming, fishing, tourism, mining and small scale enterprises. Key agricultural activities and industries pertain to fruit farming where the main agricultural products are oranges, pawpaw, mangoes, and coconuts. The Coastal Upland of the county is identified as an area with medium to high agricultural potential. Mixed farming is spread throughout the county and it is estimated that 22% of the regions income is derived from cash crop farming.

Kwale 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 29.1% of children under five years in Kwale were stunted. The underweight rate was 16.9% and wasting 4.4%.

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 Kwale. 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 Kwale. 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 Kwale County (Annex 3for 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 Kwale County;
- Measuring progress and informing programme design and implementation through application of these findings in Kwale district.

## 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 Kwale 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 Kwale County (Kwale North, Kwale 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 Kwale 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 Kwale 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 seven sub-counties in Kwale 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 seven sub-locations in Kwale 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 Annex2 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 Kwale 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 2). 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 Kwale 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) Kwale, Country Nutrition Coordinator (CNC) Kwale and other officers from MOH. The training took place from 12<sup>th</sup> to 15<sup>th</sup> 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 13<sup>th</sup> to 15<sup>th</sup> December 2017 although they participated in the training for the household survey during the first day of the training (12<sup>th</sup> 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 16<sup>th</sup> to 21<sup>st</sup> December 2017. 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 Kwale, MOH officials and NSO Kwale. 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)<sup>1</sup>.

---

<sup>1</sup> 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.

C. 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

D. Definitions of IYCF indicators:

1. **Early initiation 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).
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 Child characteristics

The total sample size for children 0-23 months was 995 out of which infants 0-5 months of age were 301 (29.2%) 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 70.8% of the total population. The mean age of the children was  $10.0 \pm 6.8$ . Disaggregated further by age, children 6-11 months old formed 26.7%, and those 12-17 months formed 22.3% whereas those 18-23 months old formed 21.8% of the total sample. The mean age of the children was  $10.6 \pm 6.8$  (Table 2). For the majority of the children the age was verified by health card (85.9%) whereas the rest were verified with other means. The sex distribution of the children was almost equal 47.7% males and 52.2% females. Half (51.2%) of the children were born in hospital; 23.7% in midwife's home and 17.6% at home (Table 2).

Table 2: Child characteristics

Child Characteristics	N=995	
	N	%
Children 0-23 months old	995	100
Children 0-5 months old	294	30.1
Children 6-23 months old	683	69.9
Children 6-11 months old	243	24.0
Children 12-17 months old	230	22.7
Children 18-23 months old	210	20.8
Age (mean +SD)	10.5 $\pm$ 6.8	
<b>Age verified:</b>		
Health Card	866	85.9
Birth certificate	7	0.7
Seasonal calendar of events	9	0.9
Others	96	11.0
<b>Sex of child:</b>		
Male	474	47.7
Female	519	52.2
<b>Place of delivery: (N=995)</b>		
Hospital	509	51.2
Health centre/private clinic	58	5.8
Home	175	17.6
Midwife's home	236	23.7
Others	5	0.5

#### 3.3 Maternal/Caregivers' characteristics

The majority of the mothers/caregivers were relatively young with a mean age of  $28.5 \pm 6.3$  years and a mean parity of  $5.4 \pm 2.4$  children. The majority (81.5%) of the mothers/caregivers were married whereas much smaller proportions were separated/divorced (5.2%) and the rest were either cohabiting, separated/divorced were single or never married (Table 3). The majority (88.5%) of the mothers/caregivers were lactating with only 0.5% pregnant and lactating. The mothers/caregivers' level of education was low; 48.7% were of primary level of education, 12.8% had secondary education and 35.1% less than primary education. The majority of the mothers were housewives (58.0%) whereas 12.2% were running their own businesses (Table 3).



Table 3: Maternal and caregivers' characteristics

Characteristics	N=995	
	n	%
Age (mean $\pm$ SD)	27.0 $\pm$ 6.3	
<b>Religion:</b>		
Christian	331	33.2
Muslim	647	65.0
Traditional	15	1.5
Others	3	0.3
<b>Marital status</b>		
Currently married	812	81.5
Cohabiting	60	6.0
Separated/divorced	52	5.2
Widowed	13	1.3
Single/never married	59	5.9
<b>Physiological status: (N=995)</b>		
Pregnant	28	2.8
Lactating	881	88.5
Pregnant and lactating	5	0.5
Not pregnant/Not lactating	80	8.0
<b>Education:(N=784)</b>		
Less than primary school	275	35.1
Primary school	382	48.7
Secondary school	100	12.8
College/University	27	3.4
<b>Main occupation:</b>		
Formal employment	31	3.1
Informal employment	50	5.0
Casual labour	28	2.8
Own business	121	12.2
Petty trading	10	1.0
Farming	108	10.9
Dependent	53	5.3
Housewife	577	58.0
Others	17	1.7
<b>Parity (mean<math>\pm</math>)</b>	5.4 (2.4)	

### 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. 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 (99.5%) having ever breastfed and 86.4% of one year olds were still breastfeeding. The majority (95.2%) of the children were given colostrum and 96.8% were breastfed on demand. Similarly, a majority (83.7%) of the children were initiated to breastfeeding within one-hour of birth as per the WHO recommendations (WHO, 2010). The exclusive breastfeeding practice rate was 73.4% (Figure 2). These findings demonstrate that breastfeeding practices were on the whole optimal.

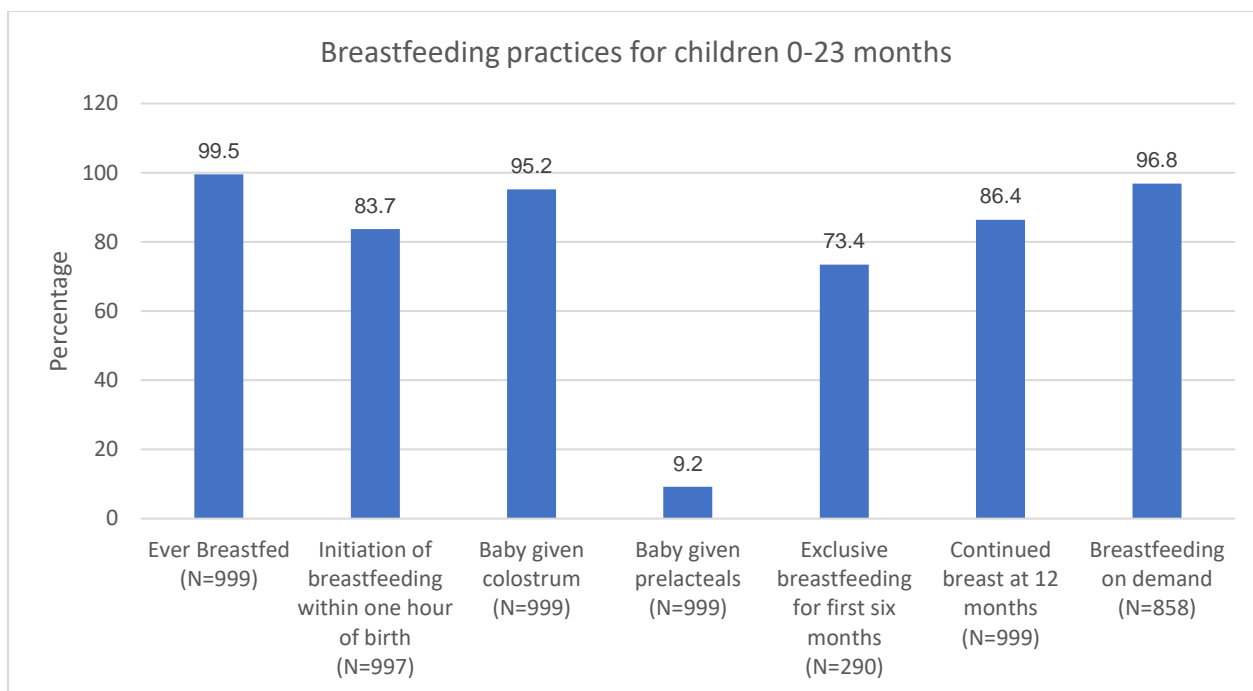


Figure 2: Breastfeeding practices

Disaggregated by age exclusive breastfeeding rate was highest among infants 0-1 month (83.5%) followed by those 0-3 months old at 81.1% and the lowest rate (59.0%) 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).

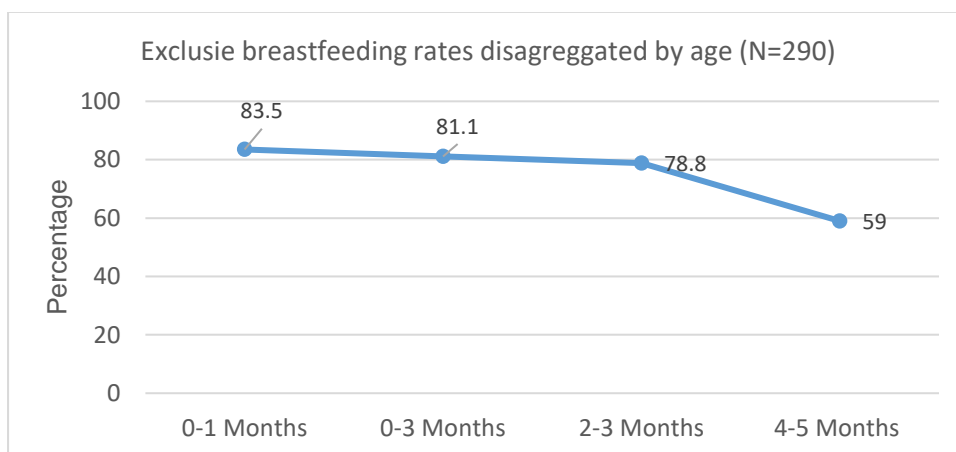


Figure 3: Exclusive breastfeeding rates disaggregated by age of child

Pre-lacteal feeds were given to 9.2% of the children (Table 4), a practice that should be discouraged because it interferes with the establishment lactation. The most commonly given pre-lacteal feeds were sugar water given to 27.5% of those children who received pre-lacteal feeds, plain water to 27.5%, sugar water to 26.4% and other milks by 22.0%. Various reasons were reported for giving of pre-lacteal feeds; cultural reasons by 23.1%, mother does not or have little breastmilk by 47.2%, and baby cries too much by 19.7% (Table 4).

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

Giving of pre-lacteal feeds		
	n	%
Given pre-lacteal feeds	91	9.2
<b>Pre-lacteal feeds given (N=91):</b>		
Other milks	20	22.0
Plain water	25	27.5
Sugar/glucose water	24	26.4
Gripe water	4	4.4
Sugar/salt solution	25	27.5
Fruit juice	3	3.3
Infant formula	2	2.2
Animal fat	1	1.1
Local herbs	3	3.3
Honey	2	2.2
other	5	5.5
<b>Reasons for giving pre-lacteals:</b>		
No/little breastmilk	43	47.2
Baby cries too much	18	19.7
Cultural reasons	21	23.1
Work related obligations	1	1.1
Weather too hot	3	3.3
First milk not good for babies	3	3.3
others	14	15.4

Support offered to mothers to help in start breastfeeding

In terms of breastfeeding support given to mothers to start breastfeeding; 49.5% received such support whereas 49.1%, relatively large proportion did not receive this vital support (Figure 4).

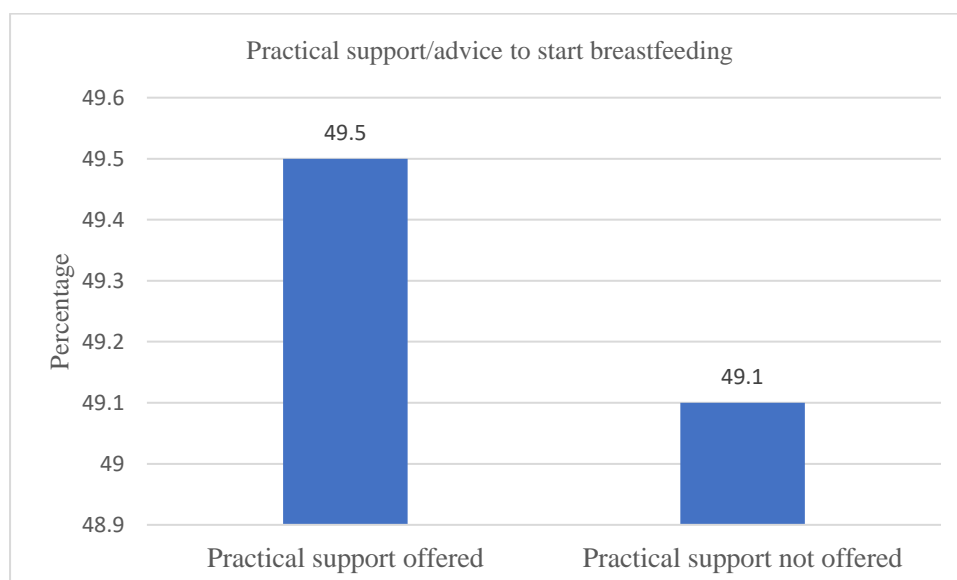


Figure 4: Practical support offered to mothers to start breastfeeding

### 3.4.2 Bottle feeding practices

Overall, 68.3% of the children were fed using a container the day before the survey. About one-tenth (9.2%) 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 39.1% (Figure 5).

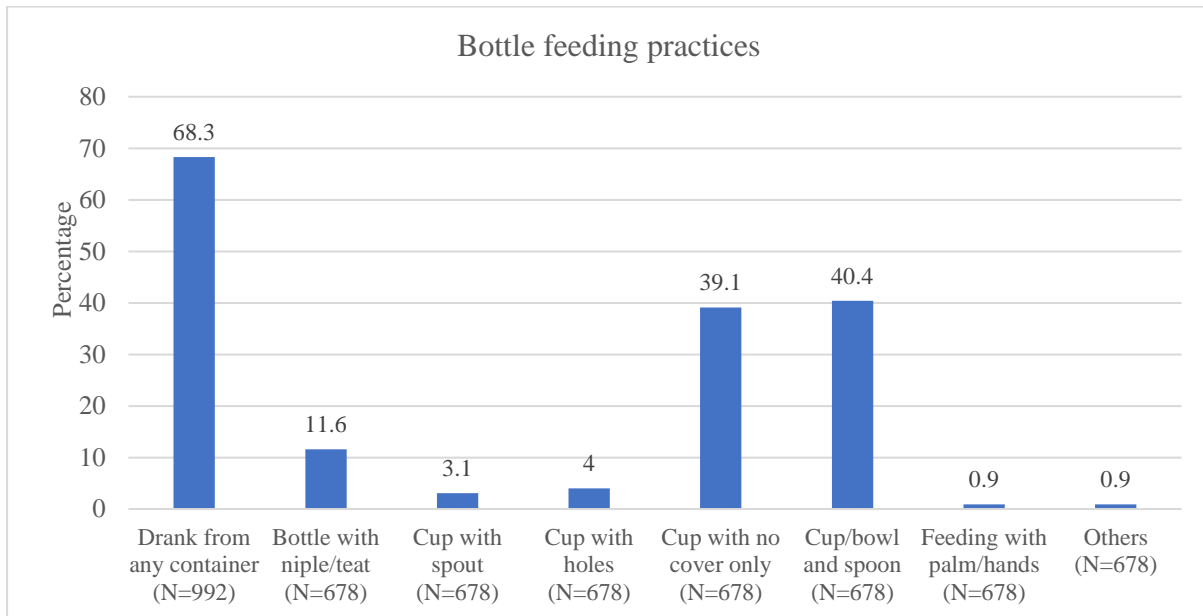


Figure 5: Feeding of children using various containers

### 3.5 Complementary feeding practices

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

The most consumed foods were cereals by 84.1% of the children followed by dark green vegetables 56.1% (Table 5). Milk and dairy products were eaten by 51.0% of the children, legumes (beans, lentils and nuts) by 45.3%, and the least consumed foods was liver, kidney, heart and other organ meats by 12.1% (Table 5).

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

Foods eaten the previous day	N=704	
	n	%
Fortified food like cerelac	78	11.1
Cereals (maize, rice, wheat, porridge, sorghum, bread, or other foods grains	596	84.7
Pumpkin, carrots, squash, or sweet potatoes that are yellow or orange inside	243	34.5
White potatoes, white yams, cassava or any other foods made from roots	328	46.6
Dark green vegetables	395	56.1
Ripe mangoes, papayas, pawpaw, guava (yellow or orange on the inside of the fruit)	306	43.5
Any other fruits or vegetables	167	23.7
Liver, kidney, heart or other organ meats	85	12.1
Meat such as beef, pork, lamb, goat, chicken, or duck	135	19.2
Eggs	151	21.4
Fresh or dried fish	279	39.6
Bean, lentils, or nuts	319	45.3
Cheese and other foods made from milk	359	51.0

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

The main decision maker on what the child eat and should not eat was reported to be mother for 92.3% of the children. Fathers and grandmothers made the decision for a small percentage of the children 3.3% and 2.9% of the children respectively.

A majority of the children (70.2%) of children 6-23 months old were introduced to solid, semi-solid or soft foods at the appropriate age (6-8 months). About half of the children (46.3%) 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 65.3% compared to 42.6% non-breastfed children (Table 6).

The percentage of both breastfed and non-breastfed children who attained the Minimum Meal Frequency (MMF) was 56.7 % (Table 6). Disaggregated by age; 52.8% of children 6-11 months old attained the MMF compared to 63.1% of children 18-23 months old and 54.8% 18-23 months old Disaggregated by age and breastfeeding status breastfed children 6-8 months old who attained MMF was 51.8% and those 9-23 months were 63.7%. The proportion of non-breastfed children 6-23 months old who attained MMF was 34.8% (Table 6).

The percentage of children 6-23 months old who received a Minimum Acceptable Diet (MAD) was 30.5% (Table 6) implying that about two-thirds 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.

A small percentage of children (29.3%) received iron-rich or iron-fortified foods (Table 6).

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=141)	99	70.2
<b>Minimum Dietary Diversity (MDD)</b>		
Proportion of infants 6-23 months old who received foods from $\geq 4$ food groups the previous day: (N=704)	325	46.3
Proportion of children 6-23 months who received foods from $\geq 4$ food groups the previous day disaggregated by breastfeeding status: (N=702)		
<ul style="list-style-type: none"> <li>• Not breastfed (N=111)</li> <li>• Breastfed (N=591)</li> </ul>	73 252	65.3 42.6
<b>Minimum meal frequency (MMF)</b>		
Proportion of breastfed and non-breastfed 6-23 months of age who received foods the minimum times or more the previous day (N=704)	360	56.7
Proportion of both breastfed and non-breastfed who received foods the minimum times or more the previous day disaggregated by age as follows:		
<ul style="list-style-type: none"> <li>• 6-11 months [2 times] (N=265)</li> <li>• 12-17 months old (N=222)</li> <li>• 18-23 months old [3 times] (N=217)</li> </ul>	140 140 119	52.8 63.1 54.8
Proportion of breastfed children who received foods the minimum times or more the previous day by breastfeeding status and age:		
Breastfed:		
<ul style="list-style-type: none"> <li>• 6-8 months old [2 times] (N= 137)</li> <li>• 9-23 months old [3 times] (N= 454)</li> </ul>	71 289	51.8 63.7
Non-breastfed: 6-23 months old [4 times] (N=112)	39	34.8
<b>Minimum Acceptable Diet (MAD)</b>		
Proportion of children 6-23 months of age who receive a minimum acceptable diet: N=704	215	30.5
<b>Consumption of iron-rich and or iron-fortified foods (N=704)</b>	206	29.3

### 3.6 Responsive feeding of children 6-23 months old

Most of the children 6-23 months old (86.0%) were fed by their mothers/caregivers the day before the survey. Over half of the children (48.6%) eat all the food served to them at the main meal. A large majority (82.1%) of the mothers encouraged the child to eat during the meal (Table 7). The majority of the mothers/caregivers (80.1%) verbally encouraged the child to eat during the main meal; 60.1% praised the child whereas 22.9% ordered the child to eat. The proportion of children who self-fed during the meal was 29.4% with only 36.7% of them self-feeding all the time and 25.9% half the time and 34.8% a little bit of the time (Table 7).

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

	n	%
Mother/caregiver fed the child the previous day (N=694)		
YES	639	91.5
NO	59	8.5
Child ate all the food at the main meal (N=607)		
YES	295	48.6
NO	297	48.9
DNK	15	2.5
Did you do anything yesterday during the main meal to encourage the child to eat? (N=608)		
YES	499	82.1
NO	109	17.9
How child was encouraged to eat: (N=499)		
Offered another food or liquid	46	9.2
Encouraged verbally	400	80.1
Modeled eating (with or without toy)	27	5.4
Ordered strongly or forced the child to eat	33	6.6
Another helped feed the child	4	0.8
Another person encouraged the child	26	5.2
Talked to the child during the main meal: (N=608)		
YES	519	85.6
NO	79	13.0
DNK	2	0.3
If YES, What did you say? (N=519)*		
Ordered child to eat	119	22.9
Praised the child	311	60.1
Asked the child questions	16	3.1
Talked about the food	102	19.6
Threatened the child	16	3.1
Told the child that she liked the food	31	6.0
Talked about other things	32	6.1
Did the child feed self-feed any moment during the main meal yesterday (N=704)		
YES	296	29.4
NO	395	39.2
Did the child self-feed all the time during the main meal? (N=296)		
All the time	112	37.8
Half the time	79	26.7
Little bit of the time	106	35.1
DNK	3	3

\*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 (78.8%) 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 69.5% sick children was offered less amounts than usual. Similarly, the majority of the sick children (74.8%) 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 13.5% were offered less food, 49.1% the same amount of food as usual and 33.1% more food than usual (Table 8).

Table 8: Feeding during illness

	n	%
Has child ever been sick? (N=977)		
YES	739	74.0
NO	260	26.6
The amount breast milk the child was offered during the last time illness (N=730)		
Less, because the child did not want it	575	78.8
Less because mother decided to give less	3	0.4
More	44	6.0
The same	96	13.2
Child never breastfed or child not breastfeeding before illness	14	1.9
Does not know	9	1
The amount of non-breast milk liquids offered to the child during illness: (N=730)		
Less, because the child did not want it	508	69.5
Less because of mother's decision	12	1.6
More	37	5.1
The same	54	7.4
Child never fed on non-breastfed liquids	124	17.0
Does not know	7	0.9
The amount of food offered to the child during illness: (N=730)		
Less, because the child did not want it	546	74.8
Less because of mother's decision	13	1.8
More	5	0.7
The same	54	7.3
Child never fed foods	121	16.6
Does not know	3	0.4
The amount of food offered to the child after illness ended: (N=730)		
Less, because the child did not want it	99	13.5
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 4.7% of the mothers and caretakers indicated that they had seen or heard of them and 82.9% said they had not seen or heard of them. Only 4.3% of the mothers/caretakers had first seen or heard of MNPs from the health facility, 1.1% from community members and another 1.1% from other family members (Table 9). Only 3.1% of all the children 6-23 months old received the MNPs in the last 6 months with 4.3% of them having received the commodity from the health facility and 1.0% 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 90.1% and 12.4% 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=995)		
YES	48	4.7
NO	825	82.9
DNK	123	12.4
Where first seem or heard of micronutrient powders (N=995)		
Health facility	43	4.3
Community members ( <i>barazas</i> /church/neighbor/friend)	1	1.1
Other family member	1	1.1
Other	2	0.2
Did child receive micronutrient powders in the last six months: (N=995)		
YES	31	3.1
NO	964	96.9
Where the micronutrient powders was sourced from:(N=995)		
Free from health facility	30	4.3
Bought from health facility	1	1.0
Reasons why child did not receive micronutrient powder: (N=704)		
Do not know about micronutrient powder	634	90.1
Discouraged from what I heard from others	3	0.4
The child has not fallen ill, so have not gone to health facility	8	1.1
Health facility outreach or is far	3	0.4
Child receiving therapeutic or supplementary foods	3	0.4
I was not offered micronutrient powder at the health facility	87	12.4
Others	1	0.1

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

The majority of the mothers/caregivers (72.7%) 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 52.6% of the children left food once in a while and 12.3% never left food (Table 10). In terms of what is done to the food that remained on the plate, 38.4% of the mothers gave the food to other children whereas 36.1% threw away the food (Table 10).

In terms of frequency with which the children were given MNPs, 32.3% of the mothers/caregivers gave the children the commodity any day they remembered and the same proportion (32.3%) could not remember how frequently they gave the commodity. Only 9.7% of the mothers gave the children MNPs every third day as per recommendations. These findings indicate that very few children were given MNPs as recommended. Half the mothers (51.6%) cooked the food with MNPs and 12.9% mixed it in cooked food that was warm and ready to it as per the recommendations. Nonetheless, these findings should be interpreted cautiously given the small sample size, only 31, of mothers/caregivers who gave their children MNPs (Table 10). In any case it was reported that MOH had not supplied the health facilities with MNPs and therefore the related education on the benefits, preparation and frequency of consumption had not been given to the mothers.

Table 10: Preparation of food with and consumption of MNPs

	n	%
How often the child's food remains in the plate (N=749)		
Most of the times/always	145	19.4
Often/several times	117	15.6
Few times/once in a while	394	52.6
Never	92	12.3
What is done to the food that remains on the plate: (N=659)		
Put in the fridge to feed baby later	4	0.6
Put in a cupboard to feed baby later	17	2.6
Put elsewhere to feed baby later	34	5.2
Thrown away	238	36.1
Given to other children	253	38.4
Others	113	17.1
How frequent do you give your child micronutrient powders: (N=31)		
Every day	1	3.2
Every other day	4	12.9
Every third day	3	9.7
2 days per week at any time	3	9.7
At any day when I remember	10	32.3
Cannot remember/Do not know	10	32.3
Preparation of food with micronutrient powders: (N=31)		
Cook with child's food	16	51.6
Mix with cooked solid or semi-solid food that is warm and ready to it eat	4	12.9
Mix with water	2	6.5
Mix with child's drink	4	12.9
Others	5	16.1
Quantity of food mixed with the micronutrient powder:(N=31)		
All the amount of food prepared for the child	11	35.5
Quantity that a child can eat once	15	48.4
Other	5	16.1

### 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 (82.5%) knew the right time to initiate breastfeeding after birth. Majority (90.3%) stated that a baby should be given colostrum. Many mothers knew the benefits of colostrum to the baby; 42.2% reported that colostrum is nutritious to the baby; and 41.1% prevents diseases/infections. About one-quarter (24.3%) stated that colostrum cleans the baby's stomach whereas 31.8% of the mothers did not know the benefits of colostrum (Table 11). Most of the mothers (92.5%) stated that babies should not be given pre-lacteals. Maternal knowledge on the duration of exclusive breastfeeding was high with 90.4% reporting that EBF should be conducted for 6 months. The proportion of mothers who reported that babies should be fed liquids with a bottle with nipple/teat was 18.6% and 48.4% indicated that babies should be fed liquids with a cup and 24.0% cup and spoon (Table 11).

Table 11: Maternal knowledge on breastfeeding practices

<b>Breastfeeding practices</b>	<b>n</b>	<b>%</b>
How long after birth should a baby be put to the breast? (N=995)		
Less than one hour	819	82.5
More than one hour	104	10.5
More than 24 hours	11	1.1
DNK	59	5.9
Should a baby be given colostrum? (N=995)		
YES	898	90.3
NO	44	4.4
DNK	52	5.2
What are the benefits of feeding the baby colostrum? (N=995)*		
Nutritious to the baby	420	42.2
Prevents diseases/infections	412	41.1
Cleans baby's stomach	242	24.3
Nothing specific	24	2.7
Others	19	2.4
Don't know	316	31.8
Within the first three days after delivery, should a baby be given anything to drink/eat other than breast milk? (N=995)		
YES	60	6.0
NO	925	92.5
DNK	15	1.5
If YES, What should be given?* (N=60)		
Milk other than breastmilk	10	17.0
Plain water	18	30.5
Sugar/glucose water	28	47.4
Gripe water	3	5.1
Sugar/salt solution	12	20.3
Infant formula/Tea/infusion	1	1.7
Honey	1	1.7
Others	3	5.0
For how long (in months) should a child be fed on breast milk without being given anything else even water? (N=995)		
Less than 6 months	71	7.1
6 months	899	90.4
7-12 months	21	2.1
12- 23 months	9	0.9
24 months	2	0.2
What should be used to feed liquids to a baby? (N=995)		
Bottle with nipple/teat	185	18.6
Cup with spout	24	2.4
Cup with holes	31	3.1
Cup only	482	48.4
Cup/bowl and spoon	239	24.0
Feeding with palm/strokes	1	0.1
Gourd	1	0.1
Others	28	2.8

\*Multiple responses

### 3.9.2 Knowledge on complementary feeding practices

In terms of having received information on complementary feeding practices, 51.1% 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 (74.9%); mother/mother in law for 27.1%. The health worker was not mentioned as a source of information by any mother. A large majority of the mothers 68.5% 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=991)		
YES	506	51.1
NO	478	48.2
DNK	7	0.7
Source of information on feeding: (N=506)		
Mother/mother in law	137	27.1
Father/father in law	1	0.2
Other relative	21	4.1
Neighbor/friend	19	3.7
Siblings	9	1.8
CHVs	379	74.9
Print media	87	17.2
Electronic media	3	0.6
Others	12	2.4
Age at which solid, semi-solid and soft foods should be introduced to a child (N=983)		
Less than 6 months	55	5.6
6 months	618	68.5
7 to 12 months	306	25.6
Over 12 months	3	0.3

### 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 (82.1%) were of the opinion that babies should be put to the breast immediately after birth (Table 13). A large majority 93.3% also stated that they would feed their babies colostrum and 84.4% of the mothers believed that a baby can survive for 6 months without giving anything else or drink including water.

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=995)		
YES	817	82.1
NO	111	11.2
DNK	67	6.7
Would you feed your baby colostrum? (N=995)		
YES	940	93.3
NO	30	3.0
DNK	14	1.4
Why would you not feed your baby colostrum? (N=30)		
Dirty milk	25	83.3
Not satisfying	3	10.0
Mother needs rest	1	3.3
Cultural practice	3	10.0
Others	6	20.0
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=993)		
YES		
NO	838	84.4
DNK	93	9.4
	60	6.0

### 3.11 Perceptions on infant feeding practices

Overall, maternal perceptions towards infant feeding practices were positive. The majority of the mothers (64.4%) disagreed with the idea that certain foods are taboo and should not be fed to pregnant women (Table 14). A large majority (76.3%) of the mothers also disagreed with the idea that a new-born baby should be given liquids or semi-liquids and 79.2% disagreed with the idea that colostrum is dirty and should not be given to a baby. A large majority (77.9%) of the mothers disagreed with the idea that a baby cannot survive on breastmilk alone for 6 months. In terms of cultural practices, 76.6% of the mothers disagreed with the perception that certain foods are taboo and should not be fed to a child whereas 76.6% 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	%
Some people believe that certain foods are taboo and should not be fed to pregnant women (N=980)		
Agree	293	29.9
Not sure/neutral	56	5.7
Disagree	631	64.4
Some people believe that a new-born baby should be given other liquids/semi-liquids (N=995)		
Agree	179	17.9
Not sure/neutral	58	5.8
Disagree	761	76.3
Some people believe that colostrum is dirty and should not be fed to new born babies (N=995)		
Agree	137	13.7
Not sure/neutral	71	7.1
Disagree	791	79.2
Some people believe that a baby cannot survive on exclusive breastfeeding for six months? (N=995)		
Agree	156	15.6
Not sure/neutral	65	6.5
Disagree	781	77.9
Some people believe that certain foods are taboo and should not be fed to a child (N=995)		
Agree	242	24.2
Not sure/neutral	74	7.4
Disagree	686	68.5
Some people believe that a young child should not be breastfed up to 2 years. (N=995)		
Agree	175	17.5
Not sure/neutral	59	5.9
Disagree	768	76.6

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

#### 3.12.1 Factors enhancing infant and young child feeding practices

Factors influencing IYCF Feeding practices were determined mainly through FGDs with the mothers, fathers and CHVs in addition to the quantitative data collected through the household survey.

#### 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. There were a few villages for example Mbuyuni and Bomani where the practice was reported to be common with about 50% of the women practicing it. In one of the FGDs conducted for men, a participant reported that; *“Our wives are given health education at the health facilities and are asked to exclusively breastfeed the children but the majority of them do not. When you ask them they will tell you that they do. If you want to know how they feed their children, ask us we men”*.

The finding that exclusive breastfeeding is not common is not in agreement with findings from quantitative data which showed that 73.8% of the mothers in the County were exclusively breastfeed.

The following reasons were given for mothers who did not practice EBF:

*“Grandmothers secretly gives milk and other foods to be baby because this is the tradition”,* stated a mother in an FGD.

*“Breastmilk is not adequate for the baby’s growth. Babies who are exclusively breastfed are underweight. Breastmilk is watery and therefore not adequate for the baby”,* reported a participant in an FGD.

*“Our wives are given health education about exclusive breastfeeding but don’t practice it because of low socio-economic factors”,* stated a man in an FGD.

In contrast, the few mothers who practiced EBF reported that:

*“EBF is the best system because it make the baby healthier and prevent diseases, it increases milk production for the mother. The longer the mother practices EBF the better they get at breast feeding”.*

- Overall, the community members knew the health benefits of exclusive breastfeeding even though this knowledge did not necessarily translate into practice. The community members knew that; EBF is important and that there is a big difference in terms of health of the children. Those who were exclusively breastfed are healthier; and
- Some mothers have the knowledge about EBF. Those who were taught about exclusive breast feeding practice it perfectly. Two CHVs said that their relatives exclusively breastfed their babies because they were taught about exclusive breast feeding.

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 to be among the hindrances 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. Despite this the majority of the mothers introduced foods from 2-4 months with some starting as early as one month. The majority of the community members were of the opinion that most of the children received adequate complementary feeding.

The following statement was made by several members of the FGD groups; *“Complementary feeding practices are adequate because foods are introduced early and therefore the children do not cry from hunger since breastmilk alone is not adequate to satisfy the child”*.

In contrast, a few of the FGD participant stated that *“Complementary feeding practices were not adequate because of low socio-economic status of the households and thus the inability to buy a variety 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;
- 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 pregnant women

#### 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 (71.9%) of the women had received ANC services (Table 15). The mean age of gestation at which the first ANC visit was made was  $5.2 \pm 1.4$  months. In terms of frequency of ANC attendance, the mean number of times was  $3.6 \pm 1.8$ . The majority of the women received services from public health facilities: hospital (30.4%); public health centre (4.3%) and public health dispensary 60.9%. The majority (78.3%) 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 blood sample taken; weight measurement (95.6%); given anti-malaria drugs (95.6%) and 91.3% were supplied with IFAS. The least offered service was the taking of MUAC measurement at 34.8%.

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 was conducted for 95.7% of the women; provision of IFAS (91.3%) and the least offered service was provision of information on infant feeding at 56.5% (Table 15). The overall picture is that nutrition services were not offered to the same extent as the other health services. It should however be noted that the sample size for the pregnant women was small (N=32).



Table 15:ANC care for pregnant women

	n	%
Seen anyone for ANC during this pregnancy (N=32)		
YES	23	71.9
NO	9	28.1
Mean gestation age when first receive Ante-natal care (N=23)	Mean 5.2 (1.4)	
Mean number of times received ante-natal care(N=23)	Mean 3.6 (1.8)	
Where ANC services were received:(N=23)		
Home	1	4.3
Public Hospital	7	30.4
Public Health Centre	1	4.3
Public Dispensary	14	60.9
Who attended to you during ANC visits(N=23)		
Doctor	4	17.4
Nurse/Midwife	18	78.3
CHV	1	4.3
Services offered at ANC at least once (N=23)		
Weight measurement	22	95.6
BP measurement	20	87.0
Iron folic acid supplementation	21	91.3
Anti-malaria drugs	22	95.6
Blood sample/HB	23	100.0
Urine sample	21	91.3
Tetanus vaccine	21	91.3
De-worming tables	15	65.2
HIV test	22	95.6
Mosquito net provided	18	78.2
MUAC measurement	8	34.8
Information or counseling that you have received during this pregnancy on the following:(N=23) *		
Test during pregnancy	22	95.7
Birth planning	19	82.6
Place of delivery	19	82.6
Own health & hygiene	20	87.0
Own nutrition	17	73.9
HIV/AIDS	20	87.0
Breastfeeding	17	73.9
Infant feeding	13	56.5
Iron folate supplementation	21	91.3
Growth monitoring	20	87.0
The source of information given:(N=23)		
Doctor	3	13.0
Nurse	19	82.6
CHW	1	4.3

\*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 (93.8%) had heard about IFAS and 96.7% of them first heard of IFAS at the health facility (Table 16). About half of the women (53.1%) reported that they knew the benefits of

IFAS with 65.2% of them stating that it increases blood and 21.7% prevents anaemia (Table 16).

Table 16: Pregnant women’s knowledge on IFAS

	n	%
Heard information on IFAS for pregnant women: (N=32)		
YES	30	93.8
NO	2	6.3
Where first heard information on IFAS: (N=30)		
Health staff of health facility	29	96.7
CHVs	1	3.3
Know benefits of taking IFAS during pregnancy (N=32)		
YES	17	53.1
NO	15	46.9
The benefits of taking IFAS tablets during pregnancy:* (N=17)		
Prevents anaemia among pregnant women	5	21.7
Prevents dizziness	2	8.7
Increases blood	15	65.2
Improves immunity	1	4.3
Increases energy	2	8.7

\*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. A large majority (87.5%) reported that they had received the supplements. Of those who received the supplements;75.0% iron tablets, 53.6% folic acid and 35.7% 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 51.5±43.2; folic acid tablets for 50.6±45.6 days and the combined iron/folic acid tablets for 57.0±53.7days.

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 49.9±44.4; folic acid tablets 48.2±47.2 and the combined iron and folic acid tablet 52.1±57.0days (Table 17) indicating that there were some days that the supplements were not consumed despite having received them as stated by 21.9% of the women. The most common reason given for not taking the supplements was forgetfulness reported by 42.9% of the women and negative side effects also by 42.9%. These findings however should be interpreted cautiously because of the relatively small sample size (N=32) 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 or ready to use supplementary foods whereas 12.5% took herbs. About one-third (31.3%) reported that they eat soil/mineral stones and 25.0% took no food supplements (Table 17).

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

<b>Provision of IFAS</b>		
	n	%
Have received the following: (N=32)		
YES	28	87.5
NO	4	12.5
Iron tablets/syrup (N=28)*	21	75.0
Folic acid tablets (N=28)	15	53.6
Combined iron/folic acid (N=28)	10	35.7
Number of days for which the supplements have been given:(mean and SD)		
Iron tablets/syrup	51.5 (43.2)	
Folic acid tablets	50.6 (45.6)	
Combined iron/folic acid	57.0 (53.7)	
<b>Consumption of IFAS</b>		
Number of days the supplements have been consumed(mean and SD)		
Iron tablets/syrup	49.9 (44.4)	
Folic acid tablets	48.2 (47.2)	
Combined iron/folic acid	52.1 (57.0)	
Days you have heard IFAS at home but did not take them(N=32)		
YES	7	21.9
NO	25	78.1
Reasons for not taking them* (N=7)		
Forgot	3	42.9
Side effects	3	42.9
Did not know how long I should take them	1	14.3
Currently taking any of the following:*(N=32)		
CSB, Advantage PLUS, UNIMIX or ready to use supplementary feed	0	0
Herbal supplements	4	12.5
Soil/mineral stones	10	31.3
None	8	25.0

\*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 0-23months old were asked questions about their ANC attendance when pregnant with the youngest child. A large percentage (98.1%) of the mothers attended ANC at least once (Figure 6). Only 2.4% of the mothers made a first ANC visit during the first month of pregnancy. Majority of the mothers (62.3%) made their first visit during the second trimester followed by 56.1% during the first trimester and 15.3% during the third trimester. The percentage of mothers who made at least 4 visits during the entire pregnancy period was 56.9% (Figure 6).

The mean gestation age at which the first ANC visit was made was  $4.9 \pm 1.6$ . The mean number of times that the mothers attended ANC was  $4.6 \pm 7.5$ .

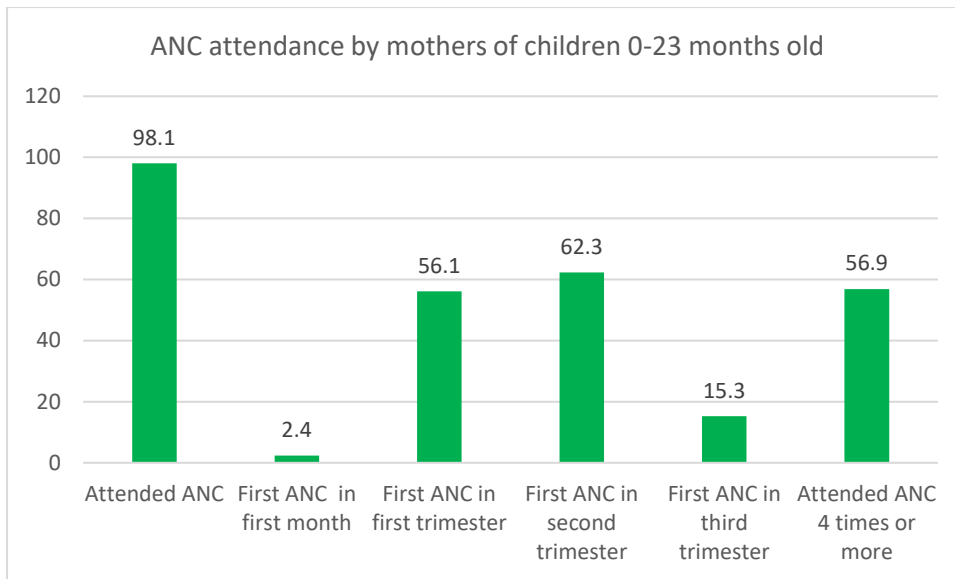


Figure 6: ANC attendance for mothers with children 0-23 months old

### 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 21.0% and the same percentage stated that they were not aware of the existence or the importance of attending ANC. almost half of the mothers (47.4%) gave other varied reasons for not attending ANC and 10.5% gave no reasons for non-attendance.

### 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 (92.3%) went through a pregnancy test and 93.4% HIV/AIDS test. The other essential services were provided to over 70.0% of the mothers.

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 98.4%; IFAS 96.9%, BP measurement to 96.9% and the rest of the services were offered to over 75.0% of the mothers with the exception of MUAC measurement taken for 47.5% of the mothers (Table 18).

Table 18: Services offered at the ANC clinic

	n	%
Information or counseling that you have received during your pregnancy:*(N=974)		
Test during pregnancy	899	92.3
Birth planning	846	86.9
Place of delivery	876	89.9
Own health & hygiene	821	84.3
Own nutrition	788	80.9
HIV/AIDS	910	93.4
Breastfeeding	790	81.1
Infant feeding	680	69.8
Iron folate supplementation	872	89.5
Growth monitoring	888	91.2
Services offered at ANC at least once* (N=974)		
Weight measurement	958	98.4
BP measurement	944	96.9
Iron folic acid supplementation	943	96.8
Anti-malaria drugs	925	95.0
Blood sample/HB	959	98.5
Urine sample	959	98.5
Tetanus vaccine	902	92.6
De-worming tables	740	76.0
HIV test	961	98.7
Mosquito net provided	901	92.5
MUAC measurement	463	47.5

### 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;

*“I start attending ANC at 7 months of pregnancy because I do not experience any complications. I therefore do not see the need of attending many times”*, stated a participant in a women’s FGD.

*“Our wives do not to attend ANC visits due to the harshness of the health care workers;”* said a man 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:

- Negative attitude of health workers towards the women;
- Those who do not experience complications do not see the need to attend the ANC clinics regularly;
- Ignorance on the value of attending ANC. This challenge was reported vary from one area to another; and
- Cultural beliefs: Some of the community members believe that the babies to be born are affected by the medicines the mothers receive during ANC.

### 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 (90.4%). The main source of information where the majority of the mothers first heard of IFAS was the health facility by 98.3% (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 5.6% of the mothers. The majority of the mothers (80.2%) reported that they knew the benefits of IFAS with the majority of them (81.5%) stating that it increases blood and smaller proportions (31.4%) and 11.9% stating that it prevents anaemia and prevents and increases energy respectively (Table 19).

Table 19: Maternal knowledge on IFAS

	n	%
Heard information on IFAS for pregnant women:(N=982)		
YES	888	90.4
NO	94	9.6
Where first heard of information on IFAS: (N=888)		
Health staff of health facility	873	98.3
CHVs	50	5.6
Community members ( <i>baraza</i> /church/neighbour	6	0.7
Friend/support group	6	0.7
Husband/male partner	5	0.5
Other family member	13	1.5
IEC material	2	0.2
Mass media	24	2.7
Other	2	0.2
Know benefits of taking IFAS during pregnancy (N=991)		
YES	795	80.2
NO	187	18.9
The benefits of taking IFAS tablets during pregnancy:*(N=795)		
Prevents anaemia among pregnant women	250	31.4
Prevents dizziness	117	14.7
Increases blood	648	81.5
Helps development of the foetus	66	8.3
Improves immunity	69	8.7
Increases energy	95	11.9
Improves concentration	2	0.2
Other	8	1.0
Do not know	44	5.5

\*Multiple responses

### 3.16.2 Maternal provision and consumption of IFAS by mothers 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  $\geq 90$  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).

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

	n	%
<b>Provision of IFAS</b>		
Received any of the following when pregnant with child:*(N=983)	928	94.4
Received Iron tablets/syrup	579	58.9
Received Folic acid tablets	441	44.8
Received Combined iron/folic acid	393	40.0
Number of days for which the supplements were given:		
Iron tablets/syrup: (N=579)		
<60 days	359	62.0
60-89 days	29	5.0
≥ 90 days	117	24.2
Folic acid tablets: (N=441)		
<60 days	300	68.0
60-89 days	44	10.0
≥ 90 days	97	22.0
Combined iron/folic acid: (N=393)		
<60 days	157	39.9
60-89 days	48	12.2
≥ 90 days	188	47.8

### 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; 65.4% (iron tablets), 68.0% folic acid supplements and 47.5% combined iron and folic acid supplements (Table 21). Those who consumed each of the three types of supplements for ≥ 90 days were less than 35.0% except for the combined IFAS for which 47.5% of the mothers consumed the supplement during this period.

Over one-third of the mothers (28.2%) reported that there were days that they had the supplements at home but did not take them (Table 21). The main reasons given by those who did not take the supplements despite having them at home were forgetfulness reported by 51.8% and side effects caused by the tablets such as nausea by 43.1% (Table 21).



Table 21: Maternal Consumption of IFAS

	n	%
Number of days the supplements were consumed throughout the pregnancy		
Iron tablets/syrup: (N=579)		
<60 days	379	65.4
60-89 days	64	11.0
≥ 90 days	145	25.0
Folic acid tablets: (N=441)		
<60 days	300	68.0
60-89 days	44	10.0
≥ 90 days	97	22.0
Combined iron and folic acid: (393)		
<60 days	47	12.0
60-89 days	187	47.5
≥ 90 days		
Days you had IFAS at home but did not take them(N=903)		
YES	255	28.2
NO	647	71.6
DNK	1	0.1
Reasons for not taking them* (N=255)		
Forgot	132	51.8
Side effects	110	43.1
Felt better and did not think I needed them anymore	14	5.5
Did not know for how long I should take the tablets	10	3.9
Did not know the benefits of taking IFAS	20	7.8
Other	7	2.7
Currently taking any of the following:		
CSB, Advantage PLUS, UNIMIX (N=982)	11	1.1
Ready to use supplementary feed (N=992)	11	1.1
Herbal supplements (N=993)	75	7.6
Soil/mineral stones (N=993)	143	14.4

### 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”*.
- Some of the husbands stated the fear that if their wives take these supplements for too long the unborn babies may be negatively affected.
- Limited knowledge on IFAS among some women and men about 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 and in particular IFAS*”.

### 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 (74.0%) delivered at a hospital whereas 15.9% delivered at home assisted by a TBA. Those who delivered at home without assistance were 6.1% (Table 22). Of those mothers who did not deliver in a health facility, 40.0% took the child to the clinic within 24 hours of birth and 36.7% within 2 weeks of birth and 10.5% after one month (Table 22).

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 (46.6%), one week 17.0%, two weeks 15.8% and one month 11.7% (Table 22). A relatively large percentage of mothers (8.9%) did not receive post-natal care from a health care worker.

Table 22: Post-natal care services for mothers with children 0-23 months old

	n	%
Place of delivery of child(N=954)		
At home by TBA	152	15.9
At home by nurse	5	0.5
At home without assistance	58	6.1
Hospital	706	74.0
Other	32	3.4
If not at health facility, how long did it take before you took child to clinic for the first time?(N=248)		
Immediately (within 24 hours)	100	40.3
Within the first 2 weeks	91	36.7
Between 2 weeks to one month	21	8.5
After one month	26	10.5
Child not taken	8	3.3
Does not intend to take child to clinic	6	0.8
If you did not deliver at health facility, how long after delivery were you seen by a health care worker?(N=248)		
Immediately (within first 48 hours)	115	46.6
Within one week	42	17.0
Within two weeks	39	15.8
After one month	29	11.7
Not seen	22	8.9

#### 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.

“Many women attend PNC mainly to have the child immunized. The majority of the women do not attend to be checked for any complications that may develop after delivery”, stated a CHV in an FGD.

The main barriers to the uptake of PNC services included: long distance to the health facility; long queues at the health facility 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 food groups as shown in Table 23. The majority of the mothers/caregivers (94.9%) ate cereals followed by sweets and condiments (mainly in sugar in tea and other beverages) by 82.7%. Spices and condiments (mostly used in cooking food) by 80.7% and The least consumed foods were nuts eaten by 12.8% of the mothers and eggs by 13.6% (Table 23).

Table 23: Foods eaten by women the previous day

Food groups	N=1008	
	n	%
Cereals (maize, rice, wheat, sorghum, millet or any other grains or foods made from these foods)	957	94.9
Vitamin A-rich vegetables and tubers	441	43.8
Dark green leafy vegetables	649	64.4
Other vegetables (tomato, onion, eggplant etc.)	677	67.2
Other vitamin A-rich vegetables and fruits	211	20.9
Meat, poultry, fish	506	50.2
Eggs	137	13.6
Pulses (beans, peas and lentils)	460	45.6
Milk and milk products	419	41.6
Nuts	129	12.8
Sweets (sugar, honey, sweetened soda, sweetened juices, sugary foods such as chocolates, candies, cookies and cakes)	822	82.7
Spices and condiments	802	80.7

#### 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 45.2% (Figure 6) implying that over half of the women were consuming diets limited in a variety of nutrients.

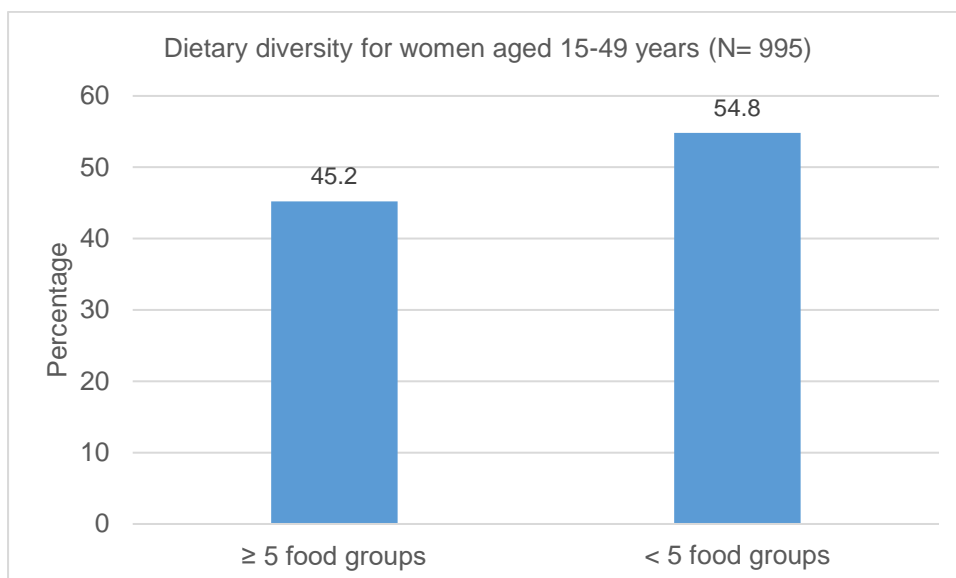


Figure 7: Dietary diversity for women of reproductive age

### 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 especially during the rainy season. 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 eat prawns and octopus because the community believes the baby would have challenges in crawling.

*“Poverty and low purchasing power is mainly responsible for the poor dietary intake of pregnant women; 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 (83.1%) reported that they used foods and food products enriched with vitamins and minerals (Table 24). When asked the specific fortified foods they consumed, the majority of the households (93.0%) reported that they consumed fortified salt; 91.9% consumed fortified wheat flour, 79.0% consumed fortified maize flour, whereas 67.5% fortified cooking fats and oils (Table 24). The main oil/fat consumed by the majority of the households was oil by 78.5% of the households followed by vegetable fat by 19.0% (Table 24).

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. Half of the mothers/caregivers (50.1%) reported that they improve the body's ability to fight diseases and 44.2% did not know the benefits of feeding a child foods fortified with minerals and vitamins (Table 24).

Table 24: Use of fortified foods by households

	n	%
Use of foods and food products enriched with vitamins and minerals (N=984)		
YES	818	83.1
NO	166	16.9
Used fortified foods used: (N=818)		
Maize flour	646	79.0
Wheat flour	752	91.9
Margarine	120	14.7
Cooking fats and oils	552	67.5
Salt	761	93.0
Sugar	509	62.2
Other	1	0.1
In your opinion, what are the benefits of feeding children flours and oils fortified with vitamins and minerals* (N=818)		
Improve body's ability to fight diseases	410	50.1
Improves child's appetite	139	17.0
Improve child's to learn and develop	103	12.6
Makes children healthy, strong and active	362	44.2
Prevent vitamins and minerals deficiency	38	4.6
Others	3	0.4
DNK	269	32.9
What is the main oil/fat consumed by your household? (N=956)		
Vegetable fat	182	19.0
Animal fat	23	2.4
Oil	751	78.5

\* 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 25). 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 5.0% with 1.5% being severely wasted (Table 25).

Table 25: 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 $\geq$ 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 set listened to by 60.1% of the respondents followed by radio on mobile phone 55.8% and the same proportion (55.8%) had access to mobile phones. The Television (TV) set was watched by 29.2% and internet by 11.1% and newspaper by 10.5% each (Figure 8).

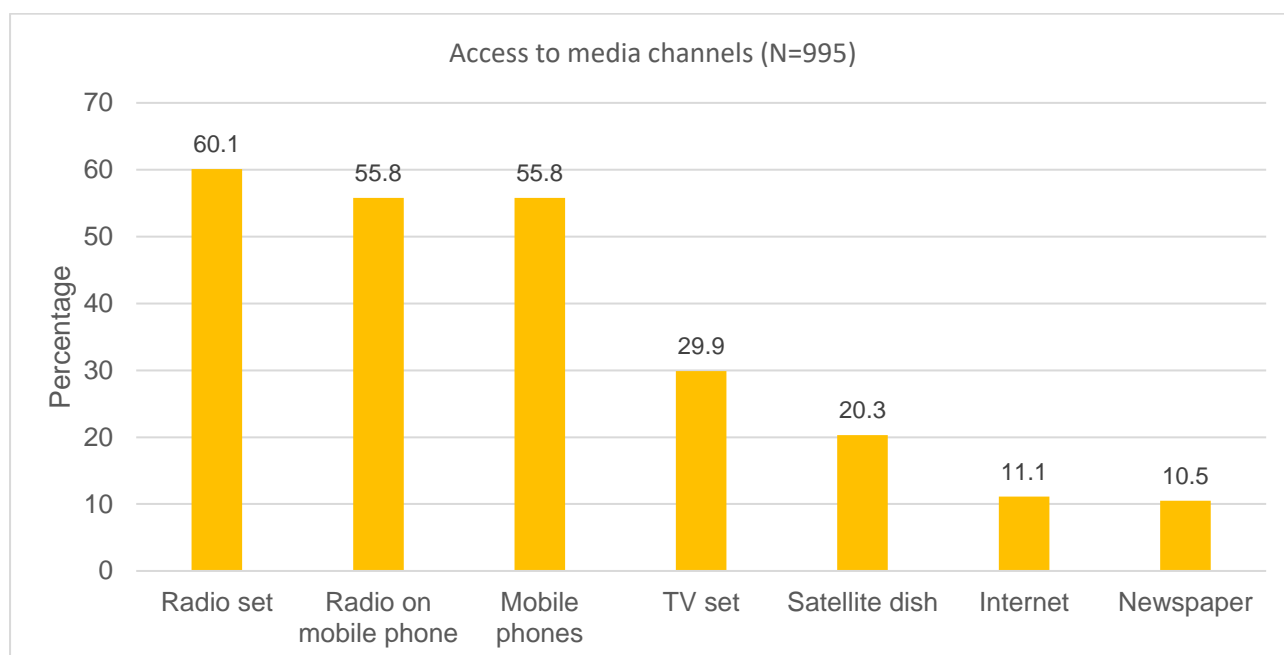


Figure 8: Media health and nutrition information channels

#### 3.21.2 Most popular radio stations

The radio stations which were listened to most were Kaya FM by 76.4% of the respondents, Citizen FM by 15.9% and the least listened to was Pwani by 5.4% of the respondents (Figure 9).

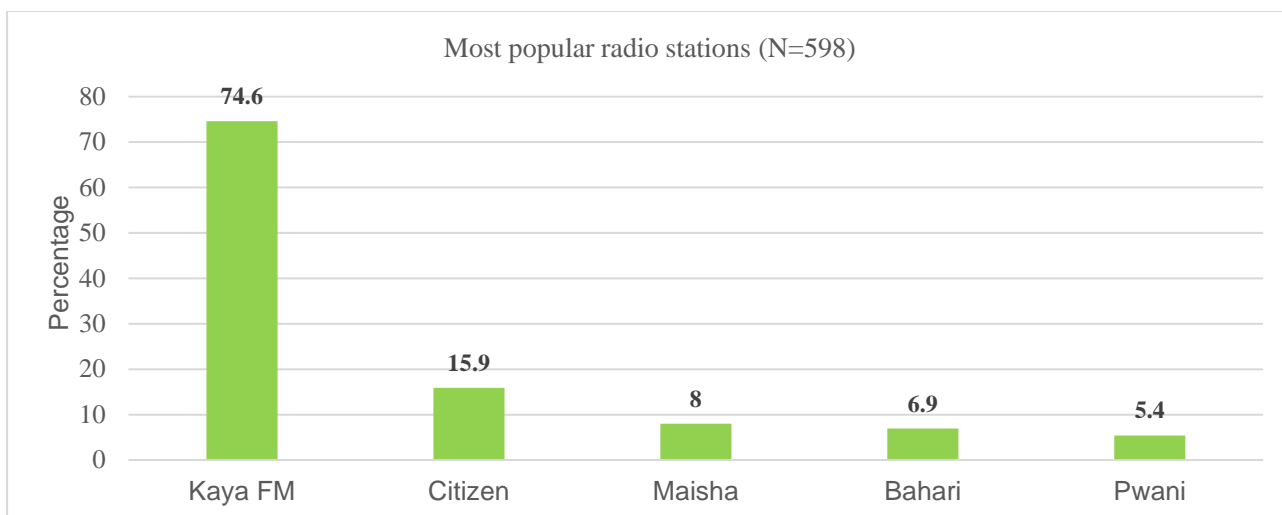


Figure 9: Most popular radio stations

The respondents were asked to state the last time they listened to a radio. About half of the respondents (49.4%) had accessed a radio station the day before the survey whereas 10.4% had access to a radio within the last 7 days (Table 26). A considerable proportion (13.8%) had stayed for longer than 12 months before accessing a radio. Almost one-tenth of the respondents (7.3%) had never accessed a radio station.

Table 26: Frequency of listening to radio stations

	N=997	
	n	%
Today/yesterday	493	49.4
Not yesterday but within 7 days	104	10.4
More than a week but within this month	42	4.2
Longer than a month but within 3 months	37	3.7
Longer than 3 months but within 12 months	41	4.1
Longer than 12 months	68	6.8
Never	138	13.8
DNK	73	7.3

### 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, 79.1% reported that they had access to calls and texts only. Those who had access to calls, texts and internet were 24.9% and those with all these services including social media applications were 19.3% (Figure 10).

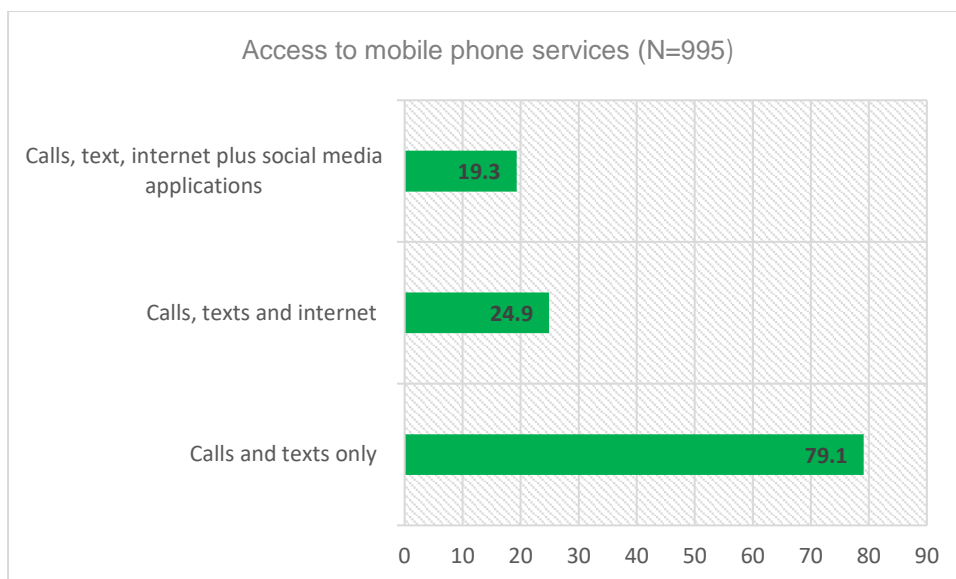


Figure 10: Access to mobile phones and various services

### 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 to 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.

#### 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 reported to a barrier to adoption of appropriate IYCN practices but not to large extent. 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 although survey was conducted during the rainy season and there many vegetables and fruits in season.

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.

#### 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 4.7% of the mothers had heard of MNPs. It was reported by the County health personnel that MOH had not supplied MNPs to the County. It is therefore recommended that the commodity be made available as soon as possible especially in the light of the inadequate of the children with relatively few children attaining the MDD. Once the MNPs are made available, then messages on sensitization, benefits and 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, and cultural issues such as traditional herbalists and TBAs regarded as better in palpitations than health workers.

#### 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 of the mothers 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. It was reported by the County officials that there were no stock outs of the commodity in 2017.

The main reasons for the inadequate consumption was reported to be the side effects (nausea and vomiting) and forgetfulness. In some cases, perceptions such as *taking IFAS for too long may cause damage to the unborn baby*. 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 as less than half (45.2%) of the women attained the MDD-W. 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 some of the 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 half of the respondents listened to the radio daily and 30.3% had 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. It should be noted that the majority of the children stop exclusive breastfeeding at 3 months and are therefore not getting the full health benefit of exclusive breastfeeding. Promotion of appropriate practice should continue to encourage the mothers to exclusively breastfeed up to 6 months.

**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 addressing the negative cultural beliefs.

**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 address the issues that make women 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 and yet no stock outs of the commodity were reported by the county officials. 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. Cultural beliefs on MIYCN need to be addressed using innovative strategies.
- **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 factors that negatively influence ANC attendance and consumption of IFAS should be addressed.
- 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;
- **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: long distance to health facilities; 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 for 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

SR/NO	Immediate and long term Recommendations	By who	By when
1	Conduct 6-day training to health workers on MIYCN,	MOH,UNICEF,Partners	By June 2018
2	Operationalize the SBCC strategy	MOH,UNICEF,Partners	Immediately/ongoing
3	Print and distribute MIYCN reporting tools	MOH,UNICEF,Partners	By August 2018
4	Conduct biannual data quality audits	MOH,UNICEF,Partners	Ongoing/biannually
5	Conduct 5 training on the new growth standards, IFAS and VAS to 200 health workers	MOH,UNICEF,Partners	By August 2018
6	Conduct five days training on MIYCN/ BFCI to at least 500 CHVs	MOH,UNICEF,Partners	Ongoing/complete by June 2019
7	Design, Produce, Disseminate and distribute MIYCN/BFCI IEC material to 30 community units	MOH,UNICEF,Partners	By June 2019
8	Conduct quarterly dialogue meetings at the CUs and at community level per every sub-county (4sc x4q x2yrs)	MOH,UNICEF,Partners	By June 2019
9	Complete and operationalize the common results framework for the Nutrition Multi- sectoral platform.	MOH,UNICEF,IPs and other sectors (Agriculture, Water,NDMA,Social Protection, Education)	By June 2018
10	Implement BFCI steps aimed towards achieving Bay Friendly Communities in 5 CUs.	MOH,UNICEF,IPs	By Nov 2018

11	Conduct health education session on MIYCN twice every month in 80% of health facilities in Kwale	MOH,UNICEF,IPs	
12	Hold biannual multi-sectoral meeting in every sub county	MOH,UNICEF	Ongoing
13	Conduct KABP and SMART Surveys every two years		

## 6.2 Recommendations for future surveys

- Conduct in-depth MIYCN KABP 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

Infant and Young Child Feeding Practices: Collecting and Using Data: A Step-by-Step Guide. Cooperative for Assistance and Relief Everywhere, Inc. (CARE). 2010.

Secondary Data Analysis and Literature Review of Knowledge, Attitudes, Beliefs and Practices (KABP) of the 10 Key Child Survival Development and Protective Behaviour. April 2016.

Kwale County LRA report, July 2017

Knowledge Attitudes and Practices (KAP) Survey for Kwale North and East Sub-Counties. Final Report. International Medical Corps. November 2013.

Maternal Infant and Young Child Nutrition (MIYCN) Knowledge, Attitudes and Practices (KAP) Survey Report for Kwale Central Sub-County. World Vision. January 2015.

WHO, 2010, Indicators for assessing infant and young child feeding practices part 2: measurement. World Health Organization. Dept. of Child and Adolescent Health and Development. ISBN 978 92 4 159929 0 (NLM classification: WS 120)










Republic of Kenya. Ministry of Health. Maternal Infant and Young Child Nutrition. Knowledge, Attitudes and Practice (KAP) Questionnaire (June 2015).

Republic of Kenya. Ministry of Health. The Kenya MIYCN Assessment Field Manual (2016).





## 8. APPENDICES

 KAP QUESTIONNAIRE 151	 ADDITIONAL QUESTIONS for UNIC	 KABPS_2017_Kwale_ Final.xls	 KABPS_2017_Kwale_ Final.xls	 KABPS_2017_Kwale_ FINAL_RESULTS 22-1
 KWALE DATA.sav	 Villages in Kwale by Sub-county.docx	 NITWG validated UNICEF KABP MIYCN	 KWALE PRESENTATION SLID	