

INFANT AND YOUNG CHILD FEEDING SURVEY HOST COMMUNITY, COX'S BAZAR, BANGLADESH

FINAL REPORT
NOVEMBER 2022



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ACRONYMS

ACF	Action Against Hunger – Action Contre la Faim
AIM TWG	Assessment and Information Management Technical Working Group
BoF	Bottle Feeding
CBF	Continued Breastfeeding
CF	Complementary Feeding
CI	Confidence Interval
CMAM	Community based Management of Acute Malnutrition
EBF	Exclusive Breastfeeding
EBF2D	Exclusively Breastfed for the first two days after birth
EIBF	Early Initiation of Breastfeeding
ENA	Emergency Nutrition Assessment
EPI	Expanded Program on immunization
EvBF	Ever Breastfed
GAM	Global Acute Malnutrition
HH	Household
IYCF-E	Infant and Young Child Feeding in Emergency
IYCF	Infant and Young Child Feeding
ISSF	Introduction of Solid, Semi Solid, Soft Food
MAD	Minimum Acceptable Diet
MCH	Maternal and Child Health
MDD	Minimum Dietary Diversity
MixMF	Mixed Milk Feeding
MMF	Minimum Meal Frequency
MMFF	Minimum Milk Feeding Frequency
MSG	Mother Support Group
OTP	Outpatient therapeutic program
PPS	Probability proportional to size
SAM	Severe Acute Malnutrition
SARPV	Social Assistance and Rehabilitation for the Physically Vulnerable
SC	Stabilization Centre
SHED	Society for Health Extension and Development
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SSB	Sugar-Sweetened Beverage
SWB	Sweet Beverage Consumption
TSFP	Targeted Supplementary Feeding Program
UFC	Unhealthy Food Consumption
UNICEF	United Nations Children’s Fund
WFP	World Food Programs
WHO	World Health Organization
ZvF	Zero Vegetable or Fruit Consumption

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Background, Rationale and Survey Objectives:

The population living in Cox's Bazar faces many hardships of extreme weather, cyclones, flooding and lack of livelihood opportunities. These natural disasters often lead to the displacement of the population and the destruction of their homes, agricultural crops, and fisheries. Consequently, the affected communities experience disruptions in their livelihoods and struggle to meet their basic needs.

Living conditions in these communities are substandard, falling below acceptable standards. The lack of adequate infrastructure and basic amenities further compounds the hardships faced by the population. Access to diversified food sources is limited, resulting in poor nutrition and food insecurity among the majority of the population in coastal Upazilas. These conditions contribute to the overall vulnerability and poor living conditions experienced by the underprivileged communities in the area. Additionally, the presence of a large number of forcibly displaced Myanmar Nationals (FDMN)/refugee in the Ukhiya and Teknaf upazilas has placed additional strain on the host communities. The sudden influx of such a significant population has further stretched the already limited resources and infrastructure, impacting the living conditions and well-being of both the host and displaced populations.¹

Further, as clearly stated in the UNICEF malnutrition causal framework. It emphasizes the direct impact of Infant and Young Child Feeding (IYCF) practices on the nutritional status and survival of children under two years of age. Improving and protecting IYCF practices among children aged 0-23 months is crucial for their optimal development. Conducting an IYCF assessment allows for the identification of risk factors and barriers that hinder optimal breastfeeding and appropriate complementary feeding. This assessment helps in understanding challenges faced by caregivers and enables the development of targeted interventions and policies. The data and evidence obtained from the assessment will guide decision-making, program planning, resource allocation, intervention design, and progress monitoring.

The main purpose of the survey was therefore to ascertain the caregiver's² practices on IYCF among the population in the host community covering all 8 upazila in Cox's Bazar District to guide program implementation and therefore maximize the impact of nutrition intervention.

The IYCF survey used a cross sectional survey methodology following the Step by Step Care Guideline³ and adapting two stage cluster sampling design using SMART methodology. A total of 1,129 children aged 0-2 years were included in the survey and the IYCF assessment was conducted in all the eight upazilas (sub-district) of Cox's Bazar district namely, Chakaria, Cox's Bazar Sadar, Kutubdia, Maheshkhali, Pekua, Teknaf, Ukhiya, and Ramu. A total 91 clusters were selected in were included in the survey. Data was collected from 12th to 27th of November 2022, using mobile phones and the Open Data Kit (ODK). Data quality checks were conducted daily, and quantitative data analysis was performed using Epi Info version 7.2.26.

¹ <https://reliefweb.int/report/bangladesh/joint-multi-sector-needs-assessment-j-msna-bangladesh-rohingya-refugees-may-2021>

² Caregiver refers to person who is responsible for childcare and feeding e.g., mother, grandmother, aunty etc.

³ www.nutritioncluster.net/resources/infant-and-young-child-feeding-practices-collecting-and-using-data-step-step-guide-care

Summary of IYCF indicators

Table 1: Summary of IYCF indicators for the November 2022 IYCF Survey in Cox's Bazar district calculated based on WHO/UNICEF 2021 guidelines

S/N	IYCF Indicators	Host Community, Cox's Bazar District Nov. 2022			
		Sample	Frequency	Percentage	95% C. I Value
Breastfeeding practices					
1	Ever breastfed (EvBF) 0-23 months	1,129	1,128	99.9	99.4↔100.0
2	Early initiation of breastfeeding (EIBF) 0-23 months	1,129	838	74.2	71.5↔76.6
3	Exclusively breastfed for the first two days after birth (EBF2D) 0-23 months	1,129	701	62.1	59.2↔64.9
4	Exclusive breastfeeding under six months (EBF) 0-5 months	245	176	71.8	65.8↔77.4
5	Mixed milk feeding under six months (Mix MF) (0-5 months)	245	29	11.8	8.1↔16.6
6	Continued breastfeeding (CBF) (12-23 months)	583	511	87.7	84.6↔90.2
Complementary feeding					
7	Introduction of solid, semi-solid or soft foods 6-23 months (ISSSF)	137	98	71.5	63.2↔78.9
8	Minimum Dietary Diversity 6-23 months (MDD)	884	277	31.3	28.3↔34.7
9	Minimum Meal Frequency 6-23 months (MMF)	884	514	58.1	54.8↔61.4
10	Minimum milk feeding frequency for non-breastfed children 6-23 months (MMFF)	78	25	32.1	21.9↔43.6
11	Minimum Acceptable Diet 6-23 months (MAD)	884	230	26.0	23.2↔29.0
12	Egg and/or Flesh food consumption 6-23 months (EFF)	884	555	62.8	59.5↔66.0
13	Sweet beverage consumption 6-23 months (SwB)	884	264	29.9	26.9↔33.0
14	Zero Vegetable or Fruit Consumption 6-23 months (ZVF)	884	399	45.1	41.8↔48.5
15	Unhealthy Food Consumption 6-23 months (UFC)	884	595	67.3	64.1↔70.4
Other Indicators					
16	Bottle Feeding 0-23 months (BoF)	1,129	188	16.7	14.6↔19.0

Key Highlights

Breastfeeding Practices

- The early initiation of breastfeeding is commendable in Cox's Bazar district, with 74.2% of children being breastfed within one hour of birth, surpassing the national average of 41% (MICS 2019). However, the low participation of caregivers in nutrition education sessions negatively impacts their knowledge regarding early initiation of breastfeeding.
- Exclusive breastfeeding within the first two days after birth was found to be suboptimal, with only 62.1% of children being exclusively breastfed within two days after birth. Maternal health issues immediately after delivery which affected mother's breastfeeding coupled with unhealthy cultural beliefs and norms have contributed to the introduction of pre-lacteal feeds.
- The prevalence of exclusive breastfeeding for the recommended 6-month duration among infants aged 0-5 months (71.8%) is above the national average of 63.0% (MICS 2019), indicating a good practice in the district.
- The level of continued breast feeding in children aged 12-23 months was 87.7%. However, there are concerns regarding continued breastfeeding in children aged 12-23 months, as some mothers tend to stop breastfeeding if they become pregnant again due to religious beliefs. This religiously influenced practice negatively affects continued breastfeeding in communities where child spacing is not fully practiced.
- Additionally, there is a gender preference observed in breastfeeding duration, with male children being breastfed up to 2 years and female children up to 2.5 years, based on the belief that male children develop strength faster.

Complementary Feeding practices

- The timely introduction of complementary foods at 6 months in the Cox's Bazar district is slightly below the national average (71.5% vs. 75%), however, the difference is not statistically significant. Social influences from family members and the absence of the mother were identified as factors affecting the timely introduction of solid/semi-solid foods. This can result in either early or late introduction of such foods before the 6th month after birth.
- There is a lack of dietary diversity among children aged 6-23 months in the district, with only 31.3% consuming five or more of the eight food groups within a 24-hour period. This poor dietary diversity aligns with the 2019 MICS results which was at 30.0% at division level while the national average was at 34.0%, indicating a reliance on culturally acceptable foods lacking nutritional diversity and a lack of knowledge about child-specific diets.
- Minimum acceptable diet among children 6–23 months in the district was found to be 26.0% of the sampled children. The national average from the MICS in 2019 was 27%. The results therefore are indicative of a very poor complementary feeding practice in the district.
- The high prevalence of sweet beverage consumption (29.9%) among surveyed children contradicts WHO guidelines on complementary feeding, which advise against providing sweet drinks to children as they offer no nutrients other than energy and may displace more nutritious foods. The easy access and affordability of these sweets within the community contribute to their consumption.
- Additionally unhealthy food consumption among children 6–23 months was found to be 67.3% of the sampled children which is high. These unhealthy foods consumed by children are mostly

sweetened foods, especially sweetened cake biscuits and fried chips/crisps. The easy access and affordability of these sweets' foods within the community

Preference to Delivery location and Education levels of caregivers

- Birth delivery location, the survey findings from Cox's Bazar host community reveal 52.1% of the caregivers reported to have given birth in a health facility. This is mostly attributed to strong cultural and religious ties, as well as poor anticipation of delivery timing.
- Only 45.7% of the caregivers reported to have completed primary education while 2.5% reported to have reached or completed a bachelors and above. The finding is an indicative of very low literacy rates among the caregivers of children aged 0-23 months in Cox's Bazar District. A further correlation analysis using excel was done between the level of education and introduction of solid/semi solid foods. The correlation coefficient was found to be 0.0832 which is below 0.5. This shows that there is a positive but weak correlation between the level of education and the timely introduction of complementary feeding, suggesting that higher education levels may have a slight influence.
- Additionally, there is a strong positive correlation between age of children and timely introduction of solid and semi solid foods with a correlation coefficient of 0.67. this is indicative that age have a strong positive influence on timely introduction of solid/semi solid foods hence positive impact on complementary feeding practices. However, this should be interpreted with caution due to the ordinal nature of the data collected.

Conclusion

Overall, this IYCF survey was the first one done in Cox's Bazar district to inform the new IYCF indicators released by the WHO and UNICEF in 2021.

The breastfeeding and complementary feeding practices in Cox's Bazar District exhibit both positive and suboptimal aspects. While rates of early initiation of breastfeeding and exclusive breastfeeding for the recommended duration are commendable, challenges such as low participation in nutrition education sessions and the introduction of pre-lacteal feeds persist. Concerns also arise from religiously influenced breastfeeding cessation and gender-based differences in breastfeeding duration. Additionally, suboptimal practices in complementary feeding, including delayed introduction of solid/semi-solid foods and limited dietary diversity, contribute to the overall picture.

To address these challenges, targeted interventions should be developed, focusing on addressing cultural and religious influences, enhancing nutrition education, and empowering caregivers through literacy programs. Community-based awareness campaigns, engagement with religious leaders, and promoting facility-based deliveries can all contribute to improving feeding practices. Efforts should also aim to diversify available foods, discourage the consumption of unhealthy options, and promote healthier choices. Ultimately, the goal is to empower caregivers, dispel misconceptions, and promote knowledge and practices that ensure optimal infant and young child feeding in Cox's Bazar District.

Looking at the IYCF assessment findings, the level of breastfeeding and complementary feeding practices is all within the national average as per the 2019 Multi-Indicator Cluster Survey findings. While the breastfeeding feeding practices are generally within acceptable levels, complementary feeding practices continue to remain of high concern, especially on Minimum Dietary Diversity and Minimum Acceptable Diet.

Strong cultural and religious influences on IYCF practices were noticed all along this survey. Introduction of pre-lacteal feeds was a common practice as result of a strong cultural believe that giving honey, mustard seeds and sugar/glucose water enhances child's lips movement and improves suckling. This has negatively affected exclusive breastfeeding under six months. Mothers who reported to have given birth at home because of cultural barriers were also deprived of the first help/guidance given by medical personal with regards to appropriate breastfeeding practices immediately after delivery at the health facility or later one during the 1000 days window of opportunity. This therefore had a negative impact on the breastfeeding practices of the child in his/her first two years of life.

Recommendations

Short Term

- Strengthen the integrated preventive nutrition programming (IYCF-E) with health (Immunization, ANC, Sick child Consultation, GMP etc.)
- Increase the knowledge and skills of health and nutrition service providers on breastfeeding support and promotion at facility and household level
- Strengthen the community awareness interventions through training and engage peer counsellors, mother to mother support groups and community-support groups to provide counselling, and guidance to mothers in their own communities on Infant and Young Child Feeding including hygiene practices
- Scale up outreach activities through quality home visits, group meetings, growth monitoring sessions, and cooking sessions (i.e., Mukhe vat) for nutrition education and interpersonal communication to facilitate knowledge into optimal practices

Medium term

- Mainstream and prioritize the promotion and support of breast-feeding activities at community level
- Ensure that monitoring, evaluation, and research are conducted regularly and are used to revise strategies and interventions for improving infant and young child feeding
- Strengthen monitoring and enforcement procedures of the National Code/BMS Act to detect code violations more effectively and to accelerate the legal process when need arise

Long term

- Strengthen Baby-Friendly Hospital Initiative, through more integration with nutrition program
- Ensure advocacy and behaviour change communication toward IYCF recommended practices
- Develop advocacy and contextual communication materials for all audiences/stakeholders
- Ensure that governments, private sectors, and other concerned parties share responsibility for successful implementation of the National Strategy regarding IYCF through a functional nutrition governance mechanism
- Revitalize District and Upazilas nutrition coordination committee and develop local level planning for implementing Multi-sectoral Minimum Nutrition Package

- Ensure that the nutrition sector focuses more on host community nutrition programming through coordination and funding advocacy
- Pay a special focus on nutrition sensitive activities for minimizing economic barrier and ensure availability of nutritious diet year-round like Income generating activities, homestead gardening/ kitchen gardening, live-stock rearing etc. to meet the nutritional needs
- Periodically update the guidelines, SOP as required, considering new research findings and international recommendations/updated guideline
- Implement Health system strengthening activities for promoting institutional delivery
- Promote gender equality and empower women in multi sectoral approach to fight against malnutrition and improve IYCF related decision making
- Ensure access to formal education for the community members living Cox's Bazar district, with a strong focus on girls

1. INTRODUCTION AND BACKGROUND

1.1 Description of study location and population



Figure 1: Map of Bangladesh showing locations of all districts (source)

Bangladesh is divided into 8 Divisions (Dhaka, Chittagong, Khulna, Sylhet, Rajasthani, Barisal, Rangpur, and Mymensingh) which are then divided into 64 districts comprising 492 Sub districts/Upazilas.

Cox's Bazar district is one of the highly disaster-prone districts of Bangladesh. There are eight upazilas (sub-Districts) in Cox's Bazar district: Chakaria, Cox's Bazar Sadar, Kutubdia, Maheshkhali, Pekua, Teknaf, Ukhiya, and Ramu.

The district is bounded by Chittagong district on the north, Bay of Bengal on the south, Bandarban district, Arakan (Myanmar) and the Naf river on the east, the Bay of Bengal on the west.

The longest sea beach of the world belongs to Cox's Bazar. It is the seventh largest district of the 11 districts of Chittagong division and holds the 26th' position among the 64 districts of Bangladesh

At the same time, over the past four decades, in successive waves, the district has received Rohingya refugees fleeing violence in Rakhine State, Myanmar. Since August 2017, an estimated 750,000 Rohingya refugees have fled to Cox's Bazar District, Bangladesh, where approximately 957,971 refugees are now residing in 34 camps in Ukhiya and Teknaf Upazilas.

The population living in the in-Cox's Bazar district face many hardships of extreme weather, cyclones, flooding and lack of livelihood. Living conditions in these communities are not up to the standards and this prompt UN agencies, international NGOs, including ACF, to come forward with specific nutrition specific and sensitive programs, tailored to these communities.

In Ukhiya and Teknaf Upazilas, ACF is supporting the implementation of CMAM programs through one local partner - SHED. There is a triparty agreement between SHED, WFP and ACF where ACF is supporting for the management of SAM and WFP is responsible for the management of MAM.

In Kutubdia, Moheshkhali and Pekua Upazilas, WFP is supporting supplementary feeding program (SFP) in partnership with the local NGOs SHED and SARPV for the prevention of moderate acute malnutrition among children and PLWs. The project has been designed to be fully integrated in the Government of Bangladesh MoHFW Health Facilities. Currently, there is no SAM programme in these Upazilas.

One of the important components of this project is to create better awareness among the population on nutrition and improve their health and nutrition practices. The intervention also comprised community mobilization through male and female forum, IYCF counselling through model mother and community nutrition volunteers, building technical capacity of partner and government health and family planning staffs of the Upazilas.

In Ramu, Chakaria and Cox's Bazar Sadar, there is no CMAM or other integrated nutrition program. However, UNICEF is supporting the implementation of Community Based Nutrition Program (CBNP) that includes SAM inpatient Management, CG & CSG meeting, UNCC, IYCF messaging, GMP, Adolescent IFA distribution etc.

1.2 Survey justification in the host community in Cox's Bazar

There was no comprehensive nutrition survey conducted in the whole district to ascertain the nutrition situation over the recent 5 years, however, periodic follow up SMART surveys were conducted in Teknaf, Ukhiya, Maheshkhali and baseline for Pekua, Cox's Bazar Sadar and Kutubdia Upazilas, the findings show a medium to high Global Acute Malnutrition prevalence and considering the different contributing factors malnutrition become a concern for the government for this upazilas since long.

Infant and young child feeding (IYCF) practices directly affect the nutritional status of children under two years of age and ultimately affecting child survival. Protecting, and where necessary, improving the IYCF practices in children aged 0-23 months of age is therefore critical to improve development of children. For example, IYCF-E services are being implemented in both refugee sub-district and host community to tackle the issue of poor IYCF practices.

Since 2009, ACF with the financial support from UN agencies (e.g.: UNICEF, WFP and UNHCR) and other donors (e.g.: ECHO) has regularly been monitoring the nutrition and health situation through conducting SMART, SENS and SQUEAC surveys in both sub-districts and different Upazilas of Cox's Bazar district as part of the needs assessment, periodic monitoring, and effective response planning. Apart from core indicators (e.g.: anthropometry and mortality) key indicators on IYCF were often included in the SMART surveys, as proxy indication of IYCF situation. The sample size calculated based on anthropometric indicator was used as a proxy for IYCF indicators. However, it is noted that IYCF indicators require a larger sample size, and therefore the results of the IYCF indicators assessed within the framework of SMART surveys are only an indication and not representative for the whole population.

Furthermore in early 2022, UNICEF collaborated with nutrition sector partners to discuss the need for an Infant and Young Child Feeding (IYCF) survey. Recognizing ACF's expertise and experience in this field, UNICEF formed a partnership with ACF to conduct a comprehensive IYCF survey using the new IYCF indicators to get a reliable picture of the IYCF practices in host community in Cox's Bazar district in reference to the newly released IYCF indicators by WHO/UNICEF in 2021. Indeed, WHO/UNICEF have released new guidelines for assessing IYCF Indicators that include a comprehensive list of 16 indicators to support programmatic action and to contribute to monitoring progress on IYCF. No further assessments were

conducted following this new guideline in Bangladesh. The 17th Indicator was however excluded as it is only a graphical representation with no significant impact on programing decision.

Therefore, to conduct full scale IYCF survey was needed to generate comprehensive information practices as per new guideline including understanding of important socio-cultural issues and related barriers as well as appropriate ways to address them to make positive impact on improvement of IYCF practices.

With funding support from UNICEF, ACF conducted this independent IYCF survey in the district. The findings are expected to be used by the nutrition sector to develop more effective longer-term strategies for improvement and scale-up of IYCF–E and IYCF program in the district.

2. SURVEY PURPOSE

2.1 General objective

The main purpose of this survey was to ascertain the caregiver's⁴ practice on infant and young child feeding of the population in Cox's Bazar district to guide program implementation and therefore maximize the impact of nutrition intervention.

2.2 Specific objectives

- To determine key breast feeding and complementary feeding practices from caregivers of children aged 0-23 months on the following IYCF indicators
 1. Children aged 0-23 months who were reported to have been ever breastfed
 2. Early initiation of breastfeeding within an hour of birth
 3. Exclusively breastfed within the first two days after birth.
 4. Exclusively breastfed within six months
 5. Mixed milk feeding under six months
 6. Continued breastfeeding at 12-23 months
 7. Introduction of solid, semi-solid or soft foods in children aged 6–8 months
 8. Minimum dietary diversity in children aged 6–23 months.
 9. Minimum meal frequency in children aged 6–23 months
 10. Minimum milk feeding frequency for non-breastfed for aged children 6–23 months
 11. Minimum acceptable diet in children 6–23 months
 12. Egg and/or flesh food consumption in children 6–23 months
 13. Sweet beverage consumption in children 6–23 months
 14. Unhealthy food consumption in children 6–23 months
 15. Zero vegetable or fruit consumption in children 6–23 months
 16. Bottle feeding in children 0–23 months
- To determine key factors (e.g., knowledge, barriers, and boosters, religious or cultural belief, decision makers etc.) that influence IYCF practices among children aged 0 – 23 months through focus group discussion as a common approach.
- To provide recommendations adapted to the context for the revision of existing IYCF interventions, new strategies, approaches, and new modalities of intervention to comprehensively address the identified challenges, barriers/bottlenecks regarding breastfeeding and complementary feeding practices and how they will be incorporated into the existing IYCF program.

⁴ Caregiver refers to person who is responsible for childcare and feeding e.g., mother, grandmother, Aunty etc.

3. SURVEY METHODOLOGY

3.1 Survey area

The survey was conducted in all the eight upazilas of Cox's Bazar district, the sample frame comprising all the 8 upazilas in the district.

3.2 Survey design

The IYCF survey adapted a cross sectional survey methodology following the Step by Step CARE Guideline⁵ and employed a two stage cluster sampling using SMART methodology. Villages in the host community were considered as the smallest geographical unit and enumeration area (Clusters).

The assessments consisted of quantitative and qualitative studies. The standard WHO questionnaire based on the new 2021 WHO/UNICEF guidelines for measuring IYCF indicators was used to determine the core 17 IYCF indicators.

The questionnaire was administered to mothers/ main caregivers of children aged 0 to 23.9 months and was conducted within their homes by trained survey teams that visited the households selected for this assessment

Additionally, to get full information about socio-cultural norms, factors influencing behaviors, as well as knowledge level, attitudes, beliefs, and IYCF practices, focus group discussions (FGD) were conducted to collect qualitative data. Each FGD comprised between 10 to 12 participants. To avoid one sex dominating the other during discussions, the FGD groups were organized according to the below categories. The groups selected for the FGD were mainly the key influencers in childcare which include breastfeeding mothers, fathers, grandmothers, and other key influencers like aunties, mothers' in-laws, grandmothers, fathers and religious leaders and other close relatives of mothers with under two years of age children in the district in Cox's bazar.

3.3 Target population

The target population for the survey were children aged between 0 to 23 months and their primary caregivers residing across all the 8 upazilas in Cox's Bazar district.

3.4 Sample size determination

The sample size was determined using the cluster sampling procedures described in the CARE guideline for IYCF assessments and the SMART methodology⁶. To calculate the most accurate sample size for this assessment, a default prevalence of 50% across all indicators was used with a design effect of 1.5 and precision of 8% to give a large and representative sample as per guideline since there was no baseline survey. To determine the sample size for each of the indicators with the ENA for SMART software (version Jan 11th, 2020), the following formula was used:

$$N = \left[t^2 \times \frac{p(1-p)}{d^2} \right] \times DEFF$$

⁵ Infant And Young Child Feeding Practices, A Step-by-Step Guideline, Care 2010

⁶ <https://smartmethodology.org/about-smart/>

Were

- N = Required sample size
- T: Normal deviate (confidence limit) taken as 2.045 at 95% confidence level
- P: Indicator prevalence
- D: Acceptable degree of accuracy (precision) desired
- DEFF: Design Effect

Assumptions

- Precision (d) = 8 %; The CARE guideline recommends to not enter a number greater than 10 for precision (i.e., no less than 90%) and a number lower than 10 (i.e., no less than 80%) for power. Therefore, a precision of 8% was preferred to give meaningful sample size
- Design Effect (DEFF): 1.5 – This assumes that there were some levels of heterogeneity in the IYCF practices in the refugee camps
- Prevalence (P) = Since no baseline indicators were available, 50% prevalence was used as default as per the CARE guideline. By choosing 50%, we intend to maximize our sample size to get a representative sample for each indicator. Percent lower or higher than 50% yield smaller sample sizes
- 95% Confidence Interval specified

The population size for the under 2 was estimated at 222,407 (calculated from the overall population of 2,780,096). The sample was found at 245 children. A design effect of 1.5 was used as a correction factor based on the assumptions that IYCF practices are heterogeneous in the host community.

Cluster sampling requires a larger sample size than simple or systematic random sampling. This is because subjects within the same cluster are generally more like each other than to members of different clusters, which results in a decrease in precision. This factor was compensated by increasing the sample size through the design effect.

The relevant factors were entered into the ENA for SMART software (Version Jan 11th, 2020) including precision and DEFF. The sample for children was then multiplied by 4 as per the CARE guideline to cater for the 4 age categories (0 – 5, 6 – 11, 12 – 17 and 18 – 23.9) and obtain a significant sample size for the under 2 population.

As recommended by the CARE Step-by-step Guide (2010), the sample size was then multiplied by 4 to allow for large enough samples for disaggregation into 4 age categories for children 0 – 5, 6 – 11, 12 – 17 and 18 – 23.9 during data analysis. It yields a final sample size of 980 (245*4) children to be included in the survey for the host community.

Cluster sampling required a larger sample size than simple or systematic random sampling. This is because subjects within the same cluster are generally more like each other than to members of different clusters, which results in a decrease in precision. This was compensated by increasing the sample size through the design effect.

$$n_{HH} = \frac{n_{children}}{HH\ Size \times \% \ of \ under\ five \times 0.4}$$

NB: 0.4 since children 0-23 months are being sampled

To use the above formula to obtain the total number of households to be included in the IYCF survey, the below information was taken into consideration.

- Number of children is 980 (245*4 age groups)
 - HH average size is 5.1 (source; Baseline integrated SMART nutrition survey in Cox’s Bazar Sadar upazilas, July 2021)
 - % Of under-five children is 11.2 (source; Baseline integrated SMART nutrition survey in Cox’s Bazar Sadar upazilas, July 2021)
 - % Of under two children in each population is 40% (0.4) of the under-five (Based on CARE step-by step guide)
- To get the denominator, we multiplied $5.1 * 0.112 * 0.4 = 0.22848$ children <24 months per household.

$$\text{NHH} = 980 / 0.22848$$

$$\text{Total Households} = 4289 \text{ households}$$

Table 2: Total number of households after inclusion of non-response rate

S/N	Households before inclusion of NRR.	Expected NRR	Total HHs including NRR
1	4289	5% (215HHs)	4504

The table 3 below provides the breakdowns per age categories for each IYCF indicator.

Table 3: Expected sub-groups in the under 2 years population

S/N	Indicators	Sub-Sample age group	Proportion of U2	Denominator
1	Child ever breastfed (0-23 Months)	0-23	100%	980
2	Early initiation of breastfeeding (0-23 Months)	0-23	100%	980
3	Exclusively breastfed within the first two days after birth.	0-23	100%	980
4	Exclusive breastfeeding under 6 months of age	0-5	25%	245
5	Mixed milk feeding under six months	0-5	25%	245
6	Introduction of Semi-solid, solid, or soft food	6-8	12.5%	123
7	Continued breastfeeding at 12-23 months	12-23	50%	490
8	Egg and/or flesh food consumption in children 6–23 months	6-23	75%	735
9	Sweet beverage consumption in children 6–23 months	6-23	75%	735
10	Unhealthy food consumption in children 6–23 months	6-23	75%	735

11	Zero vegetable or fruit consumption in children 6–23 months	6-23	75%	735
12	Minimum dietary diversity	6-23	75%	735
13	Minimum meal frequency	6-23	75%	735
14	Minimum milk feeding frequency for non-breastfed for aged children	6-23	75%	735
15	Minimum acceptable diet	6-23	75%	735
16	Bottle feeding	0-23	75%	980

3.5 Determinations of clusters

The above formula was used to obtain the required household sample size. The teams conducted the survey in 4504 households in the study area to obtain the significant number of children for representative data. This household sample size was then divided by the total number of households expected to be visited per day (50 HHs) to obtain the number of clusters in the study area: 90.08 (91) clusters.

3.6 Sampling procedure

Quantitative Data Collection: A two-stage sampling methodology was used to select the sample for the quantitative component of the survey. The primary sampling unit was all the villages in all the eight upazilas while the basic sampling unit was all households in the selected villages (including mothers/care givers of children 0-23 months old).

3.6.1 First stage sampling (selection of clusters)

As indicated above, a cluster was deemed to be equivalent to a village in the host community and was assumed to be the smallest administrative unit and so was considered as the basic sampling unit. This implies that the sampling frame consisted of the list all the villages in all the sub-districts in the Cox’s Bazar district for the survey.

This list was obtained prior to the data collection and contained the name of upazilas with their estimated population sizes from BBS population estimate. The clusters to be included in the survey were selected using the probability proportional to population size using ENA (11th Jan 2021 Version).

3.6.2 Second stage sampling (selection of households)

At stage 2, the survey adopted the simple random sampling to select the eligible households⁷ included in the survey from the sampled clusters. Prior to the data collection, the survey teams conducted a comprehensive household listing of all the eligible households in all the selected clusters with the help of the local guides/village guide or elders. This enabled a smooth management of the second stage sampling using the simple random sampling.

⁷ Eligible Households were the households with children between 0 and 23.9 months, hence the sampling frame for the 2nd stage was all households with children 0 – 23.9 in the sample villages

Primary contact was established with the village leaders and an updated list of households was obtained. All the selected households were surveyed from the randomly selected households and no replacements were done for absent households and those households with no children.

On the day of data collection, verifications were done to amend any changes in the household list. The teams used a random number generator to select required number of households randomly. A community nutrition volunteer or leader was appointed to guide the survey teams to the selected households on the day of the interview.

3.6.3 Segmentation of households

Clusters assigned to villages larger than 200 households were divided into smaller segments. This division was based on existing administrative units (neighborhoods, etc.), natural landmarks (river, road, mountains, etc.) or public places (market, schools, mosques, temples, etc.). Once those segments were defined with an approximate population size, one segment was then chosen randomly applying PPS sampling technique.

3.7. Qualitative data

Information about socio-cultural norms, factors influencing behaviors, as well as knowledge level, attitudes, beliefs, and practices on IYCF were obtained using FGD to collect the qualitative data. Each FGD comprised between 10 to 12 participants. To avoid one sex dominating the other during discussions, the groups were organized according to the below categories.

1. Fathers of under 2 years children (4 FDGs)
2. Mothers of under 2 years children (4 FDGs)
3. Grandmothers of under 2 year's children (4 FDGs)
4. Mixed group of population –key influential to promote IYCF practices: Aunties, sisters, Mothers' in-laws, grandmothers, fathers, and religious leaders of breastfeeding mothers. (4 FDG)

Eight randomly selected clusters in the list of already selected clusters in the sub-district were selected to conduct the FGD. Two FGDs in each of the eight selected clusters were done, for a total of 16 FGDs per survey. The FGDs mainly focus on the below topics purposely selected:

1. Early initiation of breastfeeding. This mainly focused on respondents' knowledge on breastfeeding immediately after birth and other perceptions that might affect timely introduction of breast milk to children within the first hour after the birth.
2. Exclusive breastfeeding. This section focused on knowledge on the importance of exclusive breastfeeding and ascertained other context specific harmful cultural practices that affect breastfeeding practices.
3. Continuation of breastfeeding. This section mainly focused to understand keys contributing factors that affect continuation of breastfeeding.
4. Mixed milk feeding. This section mainly focused to capture key influencing factors that promote the practice of feeding formula and/or animal milk in addition to breast milk among infants less than six months of age. Although this is not a recommended practice as non-human milks are likely to displace breast milk, this practice is common across many countries. Mixed milk feeding with breast milk plus a breast milk substitute is associated with increased risks of early cessation of breastfeeding, reduced breast milk production and altered gut microflora. The risk of diarrhea

among mixed-fed infants in poor sanitation areas tends to be higher than the risk among infants fed only with breast milk. This indicator is useful for advocacy purposes in documenting the extent to which non-human milks are used to substitute breastfeeding.

5. Complementary feeding (CF). The sections majorly focused on understanding the knowledge on the healthy, nutritious, and diversified foods recommended for timely introduction of solid/semi solid foods and consider what is locally/culturally acceptable foods for complementary feeding and ascertain any context specific harmful cultural practices/taboos/social norms /beliefs affecting CF practices.
6. Bottle-feeding and intake of unhealthy food items. This was done to determine the driving factors of bottle-feeding and the hygiene related practices/measures to ensure safe bottle-feeding. In addition, existing practices, social norms/beliefs/ taboos regarding unhealthy food consumption among children 6–23 months were analysed.
7. Challenges during childcare and feeding practices. This intended to explore key challenges faced by caregivers during childcare and feeding practices
8. Health and nutrition education program. This intended to determine caregiver’s awareness on IYCF related health and nutrition education programs including their level of understanding and key barriers to perceive IYCF messages while attending education sessions.

These eight key topics were purposely selected because they play a significant role in child’s health. A delay in introduction of age-appropriate complementary feeding will deprive the child of significant nutrients needed for the child’s growth whereas use of bottle-feeding increase chance of children contracting infections if proper hygiene practices are not followed.

3.8 Data collection tools

Standard tools were developed and contextualized based on the survey objectives. The tools were reviewed and validated by the representatives from ACF, UNICEF, IYCF and AIM TWG. In addition, the tools were developed to meet global standards with various modules being adopted from available global tools such as World Health Organization (WHO) and UNICEF ones.

3.9 Survey variables as per WHO/UNICEF 2021 guideline

Age: The main source for this information was the child’s birth certificate and any other official documentation. In the absence of this document, a local event calendar was used to estimate the age.

Sex: recorded as either “f” for female or “m” for male.

Ever Breastfed (EvBF); Percentage of children born in the last 24 months who were ever breastfed.

$$\frac{\text{Children born in the last 24 months who were ever breastfed}}{\text{Children born in the last 24 months}} \times 100$$

Early initiation of breastfeeding (EIBF): Percentage of children born in the last 24 months who were put to the breast within one hour of birth.

$$\frac{\text{Children born in the last 24 months who were put to the breast within one hour of birth.}}{\text{Children born in the last 24 months.}} \times 100$$

Exclusively breastfed for the first two days after birth (ebf2d): Percentage of children born in the last 24 months who were fed exclusively with breast milk for the first two days after birth.

Children born in the last 24 months who were fed exclusively for the first two days after birth.
Children born in the last 24 months.

Exclusive Breastfeeding Under six months (EBF): Proportion of infants 0-5 months of age who are fed exclusively with breast milk.

Infants 0-5 months of age who received only breast milk during the previous day
Infants 0-5 months of age

Mixed Milk Feeding Under six months (MixMF): Percentage of infants 0–5 months of age who were fed formula and/or animal milk in addition to breast milk during the previous day.

Infants 0–5 months of age who were fed formula and/or animal milk in addition to breast milk during the previous day.
Infants 0–5 months of age.

Continued Breastfeeding 12–23 months (CBF): Percentage of children 12–23 months of age who were fed breast milk during the previous day.

Children 12-23 months of age who received breast milk during the previous day
Children 12-15 months of age

Introduction of solid, semi-solid or soft foods 6–8 months (ISSF): Proportion of children 6–8 months of age who consumed solid, semi- solid or soft foods during the previous day.

Infants aged 6–8 months who consumed solid, semi-solid or soft foods during the previous day.
Infants 6–8 months of age.

Minimum Dietary Diversity (MDD) 6–23 months: percentage of children 6–23 months of age who consumed foods and beverages from at least five out of eight defined food groups during the previous day. Questions about foods will be asked using an open recall...

1. Breast milk.
2. Grains, roots, tubers, and plantains.
3. Pulses (beans, peas, lentils), nuts and seeds.
4. Dairy products (milk, infant formula, yogurt, cheese).
5. Flesh foods (meat, fish, poultry, and organ meats).
6. Eggs.
7. Vitamin-A rich fruits and vegetables; and
8. Other fruits and vegetables.

Children 6–23 months of age who received foods from ≥ 5 food groups during the previous day
Children 6-23 months of age

Minimum Meal Frequency (MMF) 6–23 months: percentage of children 6–23 months of age who consumed solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) at least the minimum number of times during the previous day.

Numerator: Children 6–23 months of age who consumed solid, semi-solid or soft foods at least the minimum number of times during the previous day.

Denominator: Children 6–23 months of age.

The minimum number of feeding times is defined as:

- Two feedings of solid, semi-solid or soft foods for breastfed infants aged 6–8 months.
- Three feedings of solid, semi-solid or soft foods for breastfed children aged 9–23 months; and
- Four feedings of solid, semi-solid or soft foods or milk feeds for non-breastfed children aged 6–23 months whereby at least one of the four feeds must be a solid, semi-solid or soft feed.

Minimum milk feeding frequency for non-breastfed children 6–23 months: percentage of non-breastfed children 6–23 months of age who consumed at least two milk feeds during the previous day.

Non-breastfed children 6–23 months of age who consumed at least two milk feeds during the previous day.

Non-breastfed children 6–23 months of age.

Minimum acceptable diet 6–23 months (MAD): Percentage of children 6–23 months of age who consumed a minimum acceptable diet during the previous day.

Children aged 6–23 months who consumed a minimum acceptable diet during the previous day.

Children 6–23 months of age.

The minimum acceptable diet is defined as:

- For breastfed children: receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day.
- For non-breastfed children: receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day as well as at least two milk feeds.

Egg and/or flesh food consumption 6–23 months: percentage of children 6–23 months of age who consumed egg and/or flesh food during the previous day.

Children 6–23 months of age who consumed egg and/or flesh food during the previous day.

Children 6–23 months of age.

Sweet beverage consumption 6–23 months: percentage of children 6–23 months of age who consumed a sweet beverage during the previous day.

Children 6–23 months of age who consumed a sweet beverage during the previous day.

Children 6–23 months of age.

Unhealthy food consumption 6–23 months: Proportion of children 6–23 months of age who consumed selected sentinel unhealthy foods during the previous day.

Children 6–23 months of age who consumed selected sentinel unhealthy foods during the previous day.

Children 6–23 months of age.

Zero vegetable or fruit consumption 6–23 months: Proportion of children 6–23 months of age who did not consume any vegetables or fruits during the previous day.

Children 6–23 months of age who did not consume any vegetables or fruits during the previous day.

Children 6–23 months of age.

Bottle feeding 0–23 months: Proportion of children 0–23 months of age who were fed from a bottle with a nipple during the previous day.

$$\frac{\text{Children 0–23 months of age who were fed from a bottle with a nipple during the previous day.}}{\text{Children 0–23 months of age.}}$$

Infant feeding area graphs (ag) while the indicators recommended above are useful for comparing population groups, targeting programs, and evaluating progress over time, they provide a limited understanding of how population-level feeding patterns change with the age of the infant. In addition to calculating numerical indicators, it is recommended to present graphic displays of IYCF indicators.

3.10 Survey organization

3.10.1 Team composition

ACF recruited an IYCF survey consultant from ACF Canada to provide technical assistance to implement the survey remotely. The consultant was responsible in ensuring the overall technical support and data quality of the survey and work closely with the ACF Surveillance Head of Department who was responsible for the overall coordination and implementation of the assessment. One Surveillance Manager and 6 supervisors (ACF-2, Nutrition Sector partners –SHED 6) were responsible for operational and technical support to the teams including field supervision.

A total of eight teams of three members per team (1 supervisor, 1 team leader, 1 interviewer) were deployed for the quantitative survey. A team was dedicated to conduct the FGDs for the qualitative component, consisted of five members (2 supervisors, 1 team leader and 2 interviewers). An additional team leader was assigned to oversee the logistics arrangements, perform health screening for the survey enumerators, organize refreshments, support data collection in case of drop out /illness of other members.

Reserve survey team (composed of 1 team leader and 1 interviewer) was recruited in case of any COVID-19 cases reported among the team members where isolation or home quarantine is required or in case of absence of any survey team members.

Supervision of data collection was done by the ACF nutrition sector partner’s staff mainly from SHED. In addition, community nutrition volunteers and village/community leaders from selected clusters were assigned to support survey teams in identifying selected households and ensuring maximum participation in the survey.

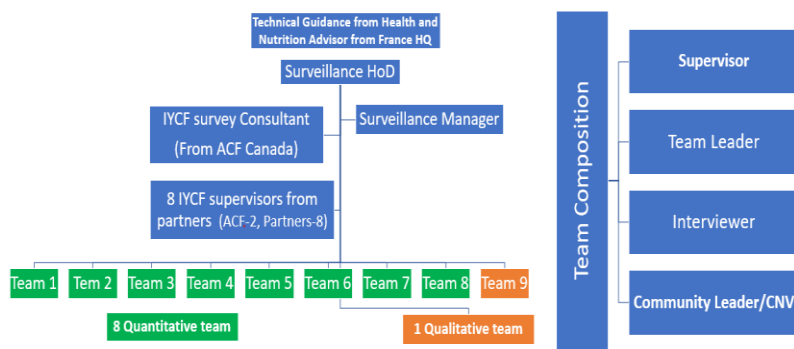


Figure 2: Organogram and team composition of IYCF survey team

3.10.2 Training and pilot testing

Five days of enumerators training including pilot testing of the tools was conducted for the first IYCF survey done in the refugee camps of Cox's Bazar district in October 2022. 2 days refresher training was conducted for new supervisor and existing enumerators to ensure the teams reacquainted themselves with the survey objectives, methodology, interview techniques, and administration of survey instruments and accurate recording of responses, data collection tools and field procedures.

3.11 Data collection and analysis

The data collection lasted for 12 days. Quantitative data collection was done using the mobile phone technology with the ODK collect. The data collection tools were programmed into ODK and then the application was installed in all the tablets that were used for data collection. The survey teams had the required capacity and experience in using mobile technology for data collection and management.

The data was thereafter downloaded and exported to excel. The analysis of data was done using Epi info referring to the new 2021 WHO IYCF guide.

For the qualitative data, FGD were done using a paper-based questionnaire. Notes were taken during the discussions, and qualitative team supervisors recorded and synthesized the results of the investigation to identify key barriers and boosters influencing IYCF practices to better explain the quantitative findings. Data analyses were done in two stages:

1. After each discussion and at the end of each day of data collection, the qualitative team reviewed the responses from the FGD to identify the key themes emerging from the responses.
2. Once all the selected upazilas have been visited by the quantitative team, the team came together to provide feedback and triangulate the themes that emerged from group discussions. Analysis was done using flipcharts and triangulation techniques to identify key factors (e.g., knowledge, barriers, and boosters, religious or cultural belief, decision makers etc.) that influence IYCF practices among children aged 0 – 23 months.

3.12 Data quality

To ensure high data quality throughout the survey process, the following were ensured:

- Data collection was implemented using the mobile technology (ODK) in which all skip patterns were programmed to have quality control skip rules and hence reduce data collection and entry errors.
- High quality supervision of data collection was ensured throughout the data collection process, with the surveillance head of department, survey manager, supervisor from partner's organization supporting the ACF survey team in Cox Bazar being the overall lead.
- The quantitative and qualitative teams were different, to limit bias in data collection of both quantitative and qualitative data common when the same data collection teams are responsible for both survey components.
- The training and pilot exercise were done over four days to provide sufficient time for quality preparation.

3.13 COVID 19 precautionary measures

- Face masks, alcohol-based hand sanitizers and gloves were provided to the survey team members. Each team member was provided at least two masks per day.
- Face masks were also provided to household caregivers who are directly in contact with the survey teams (survey respondents and the FGD members).
- Introduction, consent, and interviews were done outside in an open, shaded area with enough space for proper physical distancing as much as possible.
- All team members for both quantitative and qualitative survey sanitized their hands immediately before and after entering a household, using alcohol-based hand sanitizer with at least 70% alcohol.
- Team leaders in each team were responsible to monitor the temperature and potential sickness symptoms among team members twice a day and report to the survey manager if any health issue raised (morning before fieldwork and after return from the field).

3.14 Ethical Considerations

Prior to the start of quantitative and qualitative data collection, the survey teams had some time for introduction. The purpose of the survey and how long the survey will take were explained to the respondents. The team also guaranteed the respondents or the FGD members on the confidentiality and privacy of the information that will be collected during the survey. No personal and family information shall be revealed during reporting, rights and privacy of the respondent shall be respected. If respondent wishes not to respond to a question or wishes to drop the survey, their decision should be respected and applied. Therefore, the survey only proceeded upon getting informed consent from the respondents and from the FGD participants.

3.15 Survey Limitations

- Information gathered during the FGDs may have some degree of exaggeration due to participant's expectations. It was anticipated that during the sessions, some participants may have heightened the magnitude of problem with expectations from humanitarian actors to intervene as quickly as possible, phenomena common in area where population are used to get humanitarian assistance. However, this was minimized through proper explanation about the "benefit" of participating to the FGD during the introduction and consent.
- Health indicators like birthplace/locations should be interpreted with caution as the assessment was conducted in the aftermath of the covid-19 pandemic hence mothers might have preferred home delivery as compared to delivery at health facilities. Hence the results should not be used to show a poor performance of health facilities as the recall period is only 23 months prior and only represent the most recent birth.

4. RESULTS

4.1 Survey Demographic Information and Child's relationships to caregivers in Cox's Bazar District

A total of 4450 (98.8% of the target) households were visited during the data collection and 1129 (115%) children aged 0-23 months were considered for data analysis. Below is the figure showing the numbers of planned against visited clusters, households, and children.

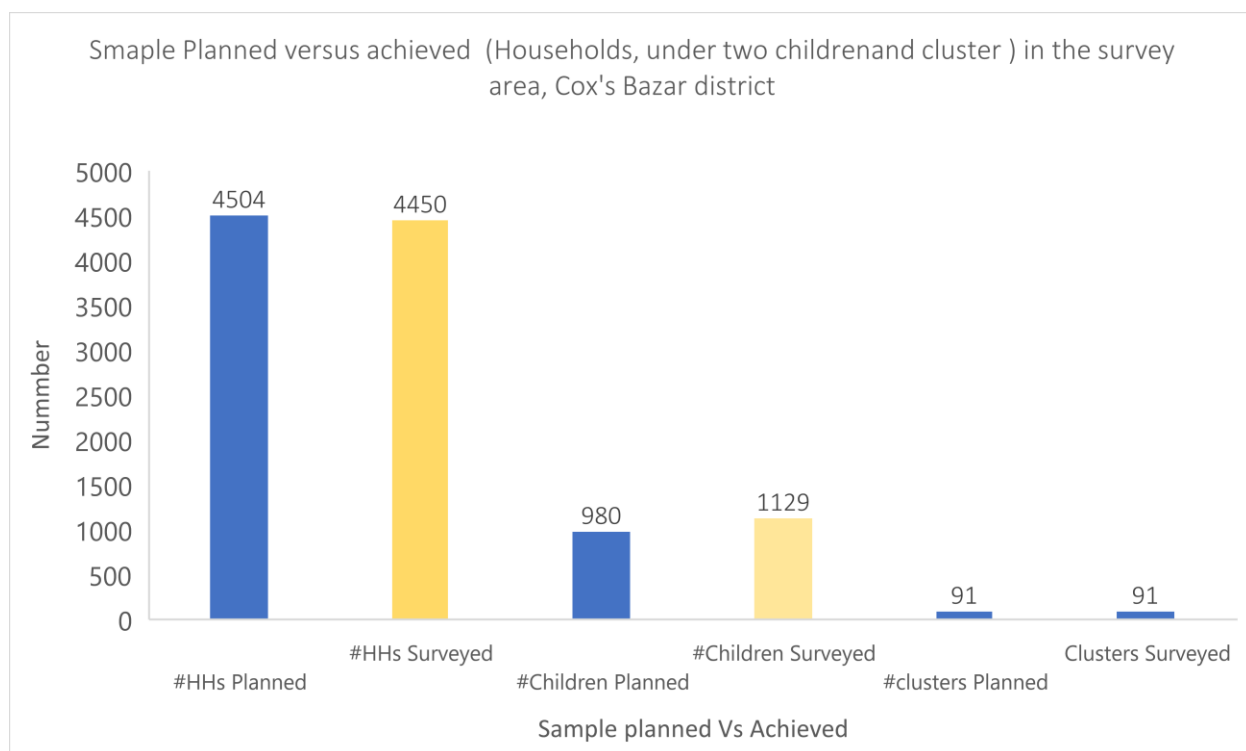


Figure 3: Planned versus achieved sample size (Clusters, households and under two children) in Cox's Bazar district

A total of 1129 children aged 0-23 months were achieved as opposed to the 980 children planned. This gives a significant sample size in term of children for meaningful results. Looking at the representation by sex, 50.2% of the children population were male children while the female children represented 49.8% of the children aged 0-23 months among the sampled population in Cox's Bazar district.

Table 4: Sample size for children 0-23 months segregated according to the 4-age categories (planned versus achieved) in Cox's Bazar district

Total sample	Expected	Surveyed	Proportion/Mean
Total surveyed households	4504	4450	NA
Total population	NA	6636	NA
Mean family size	NA	5.8	5.8
Age sub-groups and gender distribution	Expected	Surveyed	Proportion/Mean
Children 0-23 months	980	1129	125.4%

% Of children 6 to 23 months	735	884	120.3%
% Of children 12 to 23 months	490	513	104.7%
% Of children 0 to 5 months	245	245	100%
% Of children 6 to 8 months	123	137	111.4%
Segregation by Sex			
Male	490	567	50.2%
Female	490	562	49.8%
Children with fully verified birth dates	N/A	1128	99.9%

98.6 % of the caregivers during the survey in the host community in Cox's Bazar district have reported being the biological mother to the children that they were interviewed for; while only 0.5% were grandparents to the children, 0.3% were foster mother, 0.2% were sister and 0.4% were aunt.

4.1.2 Marital status, age at Marriage and physiological status of sampled women with children aged 0-23 months

This information was only considered for women, with the main purpose to find out the proportion of women married and therefore assumed to be receiving more family support compared to single women. This support may facilitate IYCF practices and potential family income to purchase additional food for the children and get access to basic services. In this survey, 99.0 % of the mothers were married and all of them were living with their partners.

Table 5: Marital status of female caregivers in the surveyed area and married women living with partners in Cox's Bazar district

Female caregiver's status	Sample	Frequency	Percentage	95% CI value
Married	1129	1119	99.0	98.3-99.5
Divorced	1129	4	0.4	0.1-1.0
Single (no married)	1129	3	0.3	0.1-0.8
Widowed	1129	3	0.3	0.1-0.8
Married women and living with their partners	Sample	Frequency	Percentage	95% CI value
Yes	1129	1129	100	100-100
No	1129	0	0	0.0-0.0

0.4 % of female respondents got married before their 18th birthday whereas 99.6% got married from 18th year and above. The average age among married women is 26.03 years old.

Table 6: Age of female caregivers of children aged 0-23 months when they get married in Cox's Bazar district

Age of female caregivers when they get married (N=1129)	Frequency	Percentage	95% CI value
18 and above years	1125	99.6	99.1-99.9
Below 18 years	4	0.4	0.1-0.9

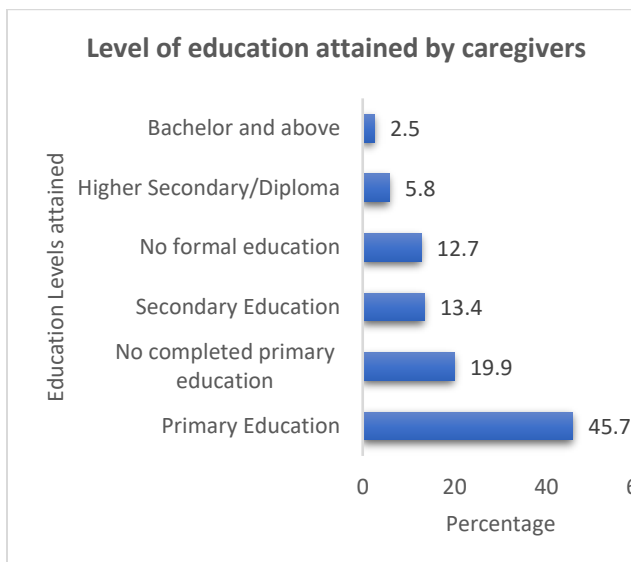
Majority of the biological caregivers/mothers (74.9%) were lactating children between 6-23 months, with an average age of 14.1 months while biological mothers who reported to be breastfeeding children below the age of 6 months were 22.6% and children's average age was 3.1 months.

2.4% of the biological caregivers/mothers who reported that they were pregnant had children with average age of 18.1 months, meaning they have stopped breastfeeding their child before getting pregnant. While those who biological mothers who reported neither pregnant nor Lactating were only 0.1%.

Table 7 : Physiological status of surveyed biological female caregivers/mothers of children aged 0-23 months in Cox's Bazar district

Physiological status of biological caregivers to child (N=1113)	Frequency	Percentage	95% CI value
Lactating (with child 6-23 months)	834	74.9	72.3-77.4
Lactating (with child less than 6 months)	251	22.6	20.2-25.0
Pregnant	27	2.4	1.6-3.5
Not pregnant or lactating	1	0.1	0.2-0.5
Total	1113	100	N/A

4.2.0 Level of Education, participation in Nutrition Education and challenges reported among caregivers of children aged 0-23 months



Formal education is vital for caregivers in making critical decisions on breastfeeding and complementary feeding practices. Caregivers with some level of education often make appropriate choices for their children's health and nutritional status. According to the findings, 45.7% of the women reported obtaining some form of primary education while 13.4% of the caregivers reported to have completed secondary level of education. Higher education and those with bachelors or above were only 5.8 % and 2.5% of the surveyed population, respectively. To note that 12.7% of caregivers reported to have no formal education at all and 19.9% of them have not completed their primary education.

Figure 4: Level of education among caregivers of children aged 0-23 months in Cox's Bazar district

A further correlation analysis using excel was done between the level of education and introduction of solid/semi solid foods. The correlation coefficient was found to be 0.0832 which is below 0.5. This shows that there is a positive but weak correlation between the level of education and timely introduction of complementary feeding

Additionally, there is a strong positive correlation between age of children and timely introduction of solid and semi solid foods with a correlation coefficient of 0.67. this is indicative that age have a strong positive

influence on timely introduction of solid/semi solid foods hence positive impact on complementary feeding practices. However, this should be interpreted with caution due to the ordinal nature of the data collected.

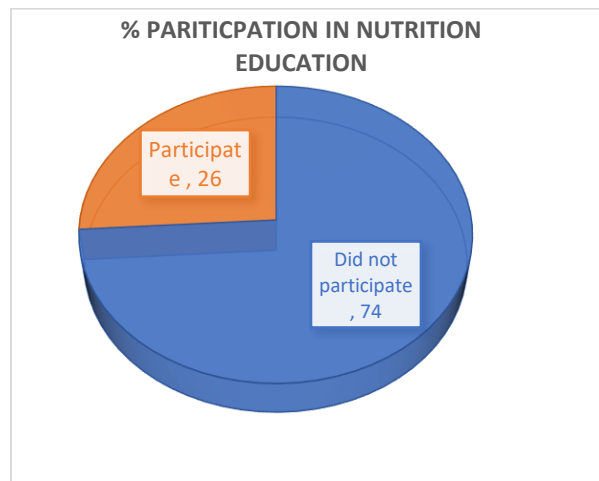
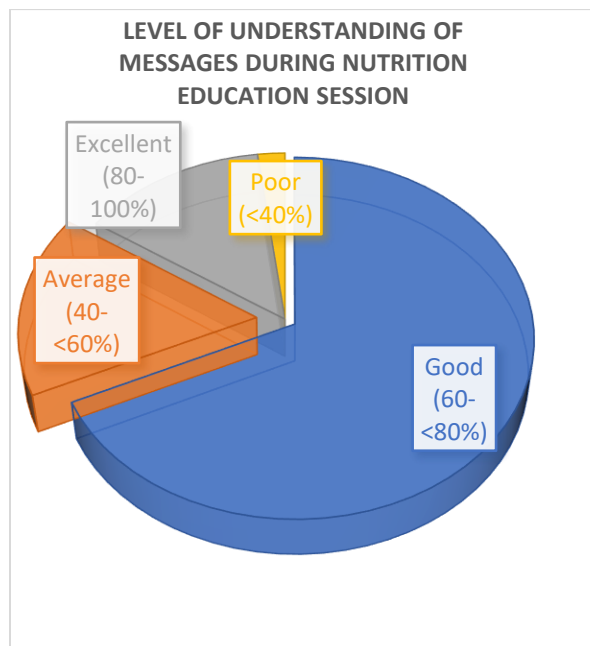


Figure 5: Participation in nutrition education session among caregivers of children aged 0-23 months in Cox's Bazar district

The participation of caregivers in nutrition education is very low in in Cox's Bazar district. Only 26% of the caregivers reported to have attended nutrition education sessions while 74% did not attend or participate in any nutrition education sessions.



A significant number (68.1%) of caregivers reported a good level of understandings of the nutrition education messages. While those who reported excellent level of understanding were at 13.6%, those who reported poor and/or average understanding were at 2.0% and 16.3% respectively

reported excellent level of understanding were at 13.6%, those who reported poor and/or average understanding were at 2.0% and 16.3% respectively

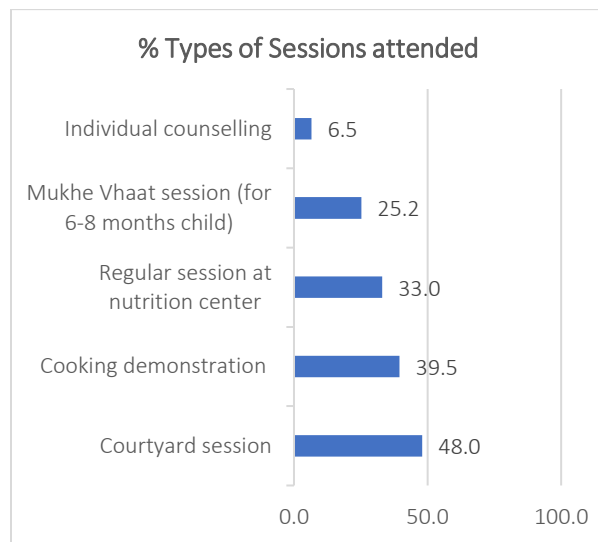


Figure 7: Types of nutrition education sessions mostly attended by caregivers of children aged 0-23 months in Cox's Bazar district

Participation in nutrition education is vital for reaching out with breastfeeding and complementary feeding related information's to pregnant and lactating mothers to make an informed decision during the first 1000

days of life. According to the findings, the main nutrition education sessions attended were the courtyard sessions attended by 48% of the caregivers of children aged 0-23 months, while other caregivers mostly attended sessions as cooking demonstration (39.5%).

Mukhe Vhaat⁸ sessions for children aged 6-8 months were at 25.2%. The session with the lowest attendance is individual counseling session, attended by only 6.5% of the surveyed caregivers.

Further analysis was done for the 54 caregivers who reported either poor or average levels of understanding in the nutrition education sessions. Many of the attendees reported not remembering the sessions after some time.

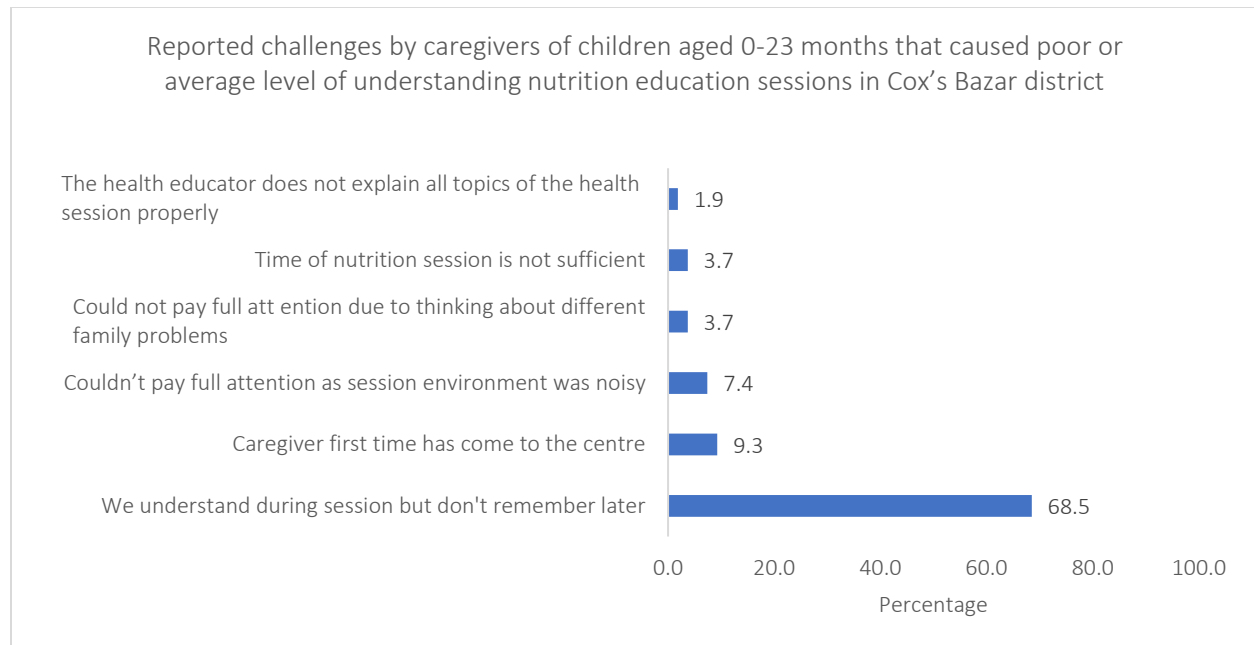


Figure 8: Reported challenges by caregivers of children aged 0-23 months that caused poor or average level of understanding nutrition education sessions in Cox's Bazar district

4.3. Means of Livelihood and main source of food for Households in Cox's Bazar

4.3.1 Household's sources of dependency/livelihoods and main sources of food in Cox's Bazar district

Data on household dependency and main source of food were collected to ascertain how the caregivers gather food for their families and children aged 6-23 months in the district.

Based on the survey findings, multiple varieties of livelihoods that families in Cox's Bazar were depending on were highlighted, with 22.1% of the caregivers reporting to be mainly dependent on unskilled waged labor (including agriculture). While those depending on skilled labor were at 19.4%, 16.3% were salaried/wage employees.

⁸ Session conducted when a child between 6-8 months is gradually fed with solid foods or family foods

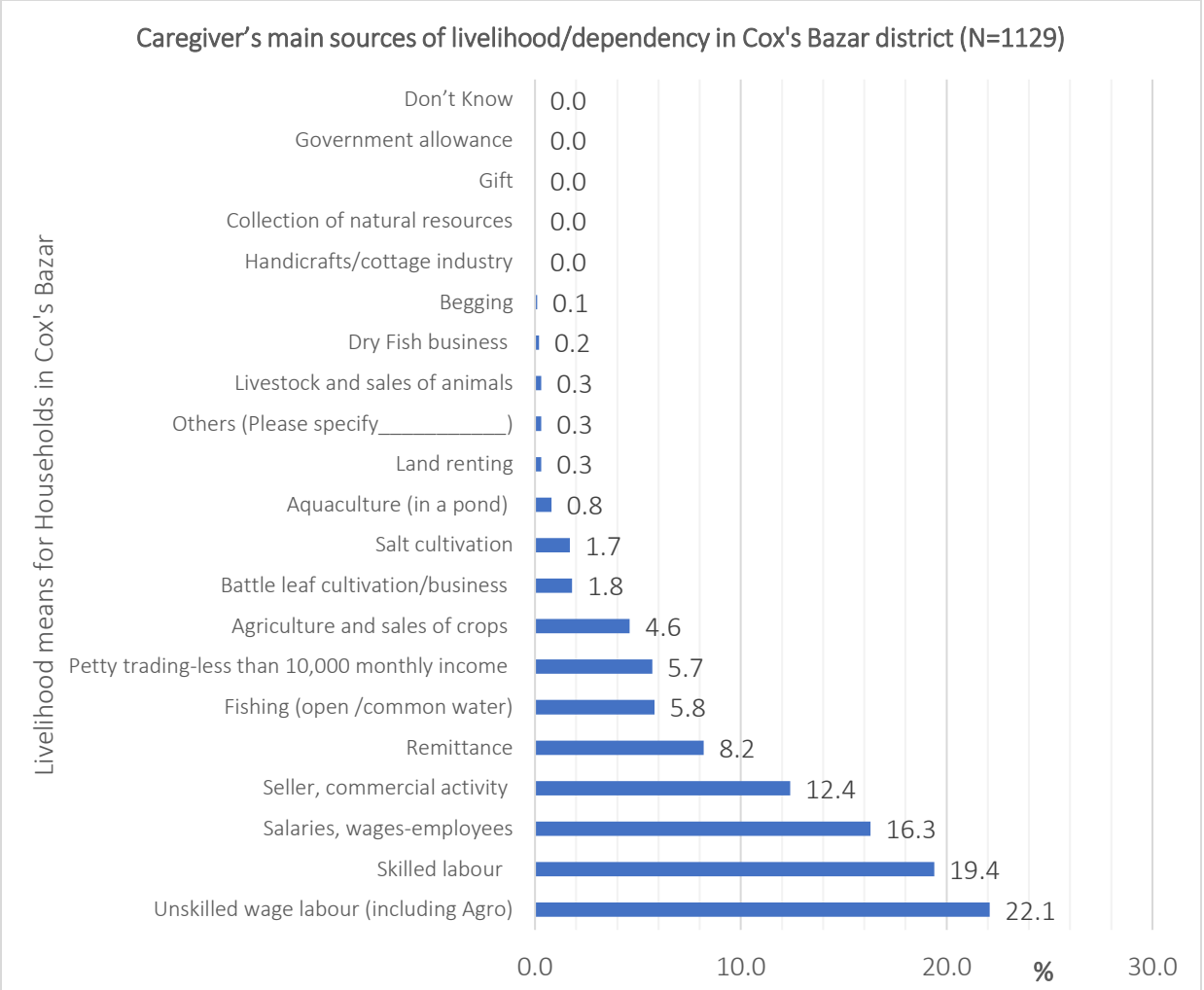


Figure 9: Caregiver's main sources of dependency in Cox's Bazar district

Nearly 90% of the households depends on purchasing food from the markets as their main source of food. While 10.1 % of the caregivers rely on their own production for food supplies, this therefore reveals that the population in Cox's Bazar district is quite vulnerable to market and prices shocks. The 0.1% of 'others' were not specified.

4.3.2 Main sources of food for households in Cox's Bazar district (N=1129)

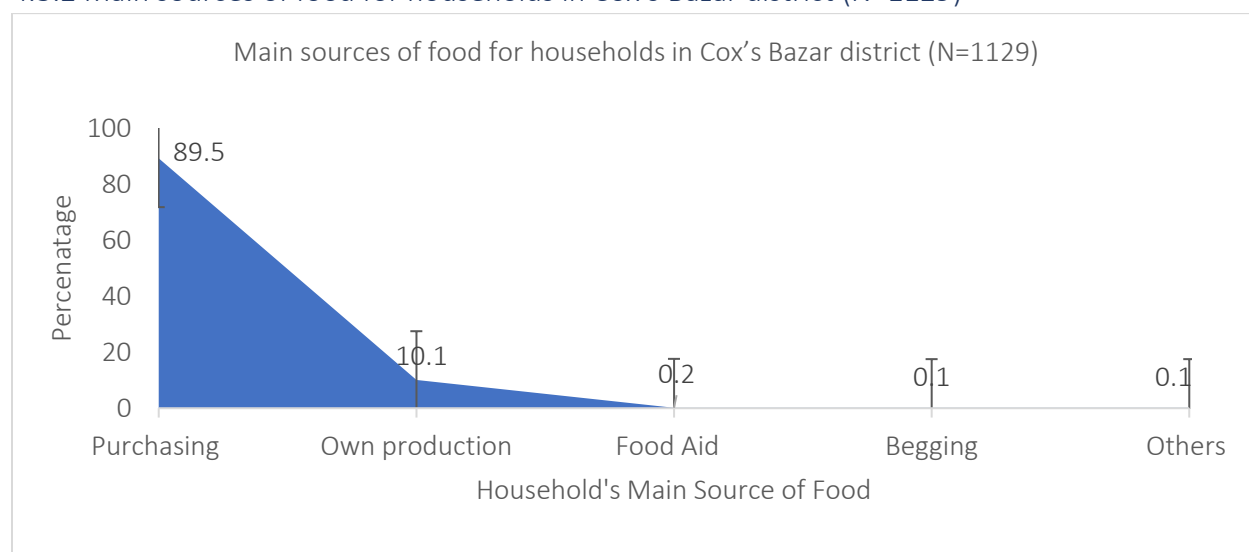


Figure 10: Main sources of food for households in Cox's Bazar district

4.4. Reproductive and maternal health for female caregivers of children 0-23 months in Cox's Bazar District

4.4.1 Birth delivery location and reasons for choosing the location in Cox's Bazar district

The survey findings from Cox's Bazar host community revealed a relative higher prevalence of birth delivery at health facility, as 52.1% of the mothers reported to have given birth in the health facility while 47.7% delivered at home. However, strong cultural/religious ties and poor anticipation of delivery timing continue to hamper efforts to encourage mothers to deliver in health facilities.

Table 8: Birth delivery location for female caregivers of children aged 0-23 months in Cox's Bazar district

Place of birth (N=1129)	Frequency	Percentage	95% CI value
Health Facility	588	52.1	49.1-55.0
Home	539	47.7	44.8-50.7
Others	2	0.2	0.0-0.7
Total	1129	100	

Additionally, a proportion of 80.4 % (n=908) of the births were normal births while 19.6% (n=221) were through caesarian section.

The above finding should however be interpreted with caution due to the following limitations

- The findings only represent the most recent childbirth with a recall period of 23 months and does not necessarily determine the mother's previous birth location.
- This assessment was conducted in the aftermath of the Covid-19 pandemic, and as a result many families might have avoided health facilities due to the stigma that might be associated with health facilities during the Covid-19 Pandemic hence chose to deliver at home.
- During the Covid-19, there were movements and crowd related restriction which might have also deterred some mothers for going to health facilities for birth delivery.

- This survey findings should not be directly compared to other facility-based surveys/Health Sectors assessment due to the methodological difference.

Harmful cultural believes/practices and family/husband refusal due to religious/cultural ties continue to hinder women from delivering in a health facility. For instance, the survey findings show that 31.5% of the women reported that it is not their culture to deliver in a health facility whereas 6.5% of the women reported refusal by their husbands to deliver in a health facility. Difficulties to travel during the night and the lack of anticipation toward the start of the labor period were also among the challenges reported by the women as an obstacle to reach the health facility on time.

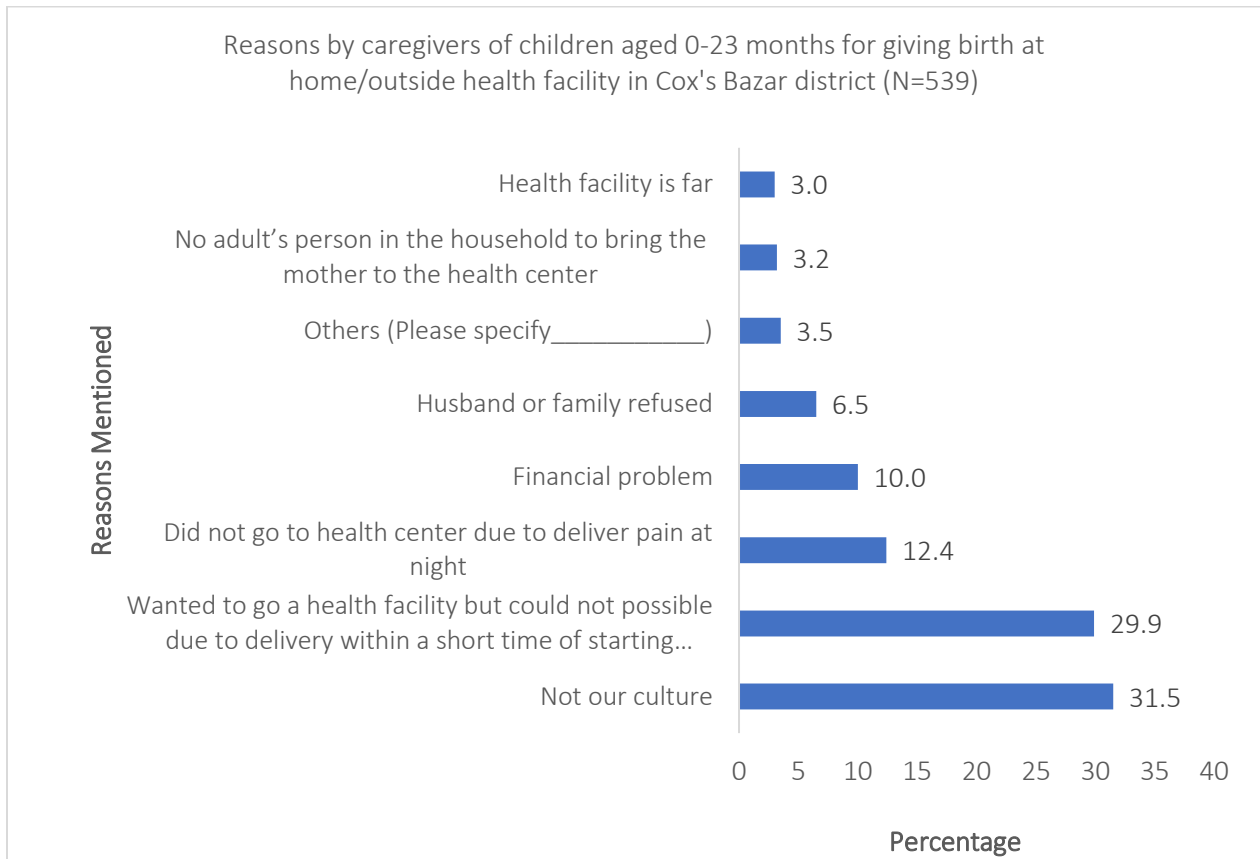


Figure 11: Reported reasons by caregivers of children aged 0-23 months for giving birth at home/outside health facility in Cox's Bazar District

4.5. Breastfeeding Practices and breastfeeding challenges for children 0-23 months in Cox's Bazar District

4.5.1 Ever breastfed Children aged 0-23 months

Breastfeeding is recommended for all infants worldwide. The survey findings from Cox's Bazar district show that 99.9% of the children aged 0-23 months in the district were ever breastfed.

Table 9: Children aged 0-23 months ever breastfed among the sampled population in Cox's Bazar District

Children 0-23mths ever breastfed (N=1129)	Frequency	Percentage	95% CI value
Yes	1128	99.9	99.5-99.9
No	1	0.1	0.02-0.5

Out of the 1129 caregivers of children aged 0-23 months, 214 (19%) of them reported to have faced breastfeeding problems, as described in the table below.

Table 10: Caregivers of children 0-23 months who reported having breast feeding problems in Cox's Bazar district

Occurrence of breastfeeding problem (N=1129)	Frequency	Percentage	95% CI value
No	915	81.0	70.6-83.3
Yes	214	19.0	16.7-21.4
Types of breastfeeding problems faced (N=214)			
Not enough milk	134	62.6	55.8-69.1
Nipple/breast problem	45	21	15.8-27.1
Child was very sick	11	5.1	2.6-9.0
Breast milk is delayed	10	4.7	2.3-8.4
Other	9	4.2	1.9-7.8
Child cannot suck breast milk properly (LBW baby/Cleft lip/palate)	5	2.3	0.8-5.4
Total	214	100	N/A

67.5% of the caregivers facing breastfeeding issues have received support from various sources, while 14.3% of them have not received any support as described in the table below.

Table 11: Support received by caregivers of children aged 0-23 months for their expressed breastfeeding challenges in Cox's Bazar district

Getting support for the above-mentioned breastfeeding problem (N=214) ⁹	Frequency	Percentage	95% CI value
No	29	13.5	9.3-18.8
Yes (185)			
Healthcare provider	147	68.7	62.0-74.8
Family member	23	10.7	6.9-15.7
Neighbors	8	3.9	1.6-7.2

⁹ This is a single choice response hence analysis of frequencies for choices was done on a single denominator of 214 (breastfeeding problems).

Other	4	1.8	0.5-4.7
Relatives	2	0.9	0.1-3.3
Nutrition service provider	1	0.5	0.01-2.5
Total	214	100	N/A

4.5.2 Early initiation of breastfeeding within an hour of birth

WHO Global Strategy¹⁰ for IYCF recommends for infants to be breastfed within one hour of birth. The WHO guidelines on maternity care also state that “all mothers should be supported to initiate breastfeeding as soon as possible after birth, within the first hour after delivery”.

The prevalence of early initiation of breastfeeding among children aged 0-23 months within the host community is at 74.2%. The findings show a much better practices above the 2019 MICS national prevalence which was at 41%.

Table 12: Children aged 0-23 months who were introduced to breast milk timely after birth (Early initiation of breastfeeding immediately and or less than an Hour) in Cox’s Bazar district

Early initiation of Breastfeeding (N=1129)	Frequency	Percentage	95% CI value
Early Initiation within 1 hour (immediately + <1 hour) <ul style="list-style-type: none"> ▪ <i>Immediately (n=90, 7.9%)</i> ▪ <i>Less than an hour after birth (n=748, 66.27%)</i> 	838	74.2%	71.6-76.7
More than an hour and less than 24 hours	266	23.5%	21.2-26.1
More than 24 hours or after 1 day	24	2.1%	1.4-3.1
More than one day	1	0.1	0.02-0.5

4.5.2.1 Reasons for not introducing child to breast milk immediately or within an hour of birth in Cox’s Bazar district

25.7 % (n=291) of the caregivers could not breastfeed immediately or within an hour of birth for their children aged 0-23 months. Several reasons were cited: Those who reported that child was separated from mother was 19.7% of the sample; those who reported that the mother felt ill were 46.6% (n=135) while those who reported that child’s illness affected the introduction of child to breast milk were 14.1% (n=41). It should be noted that nearly 50% of the mothers delivered at home. Hence, there might have been no health practitioner around them to give proper guidance and advice on early initiation of breastfeeding.

Table 13: Reasons for not introducing child (0-23 months) to breast milk immediately or less than an hour after birth in Cox’s Bazar district

Reasons for not introducing child to breast milk immediately or less than 1hr after birth (N=291)	Frequency	Percentage	95% CI value
Mother’s Illness	135	46.6	40.7-52.5
Mother and Child separated	57	19.7	15.2-24.7

¹⁰

https://books.google.co.ke/books/about/Global_Strategy_for_Infant_and_Young_Child.html?id=biABXOXrajYC&printsec=frontcover&source=kp_read_button&hl=en&redir_esc=y#v=onepage&q&f=false

Others	57	19.6	15.2-24.7
Child fell sick	41	14.1	10.3-18.7
Others (N=57)			
Waiting for Azan, then given breastmilk	30	52.6	38.9-66.0
Delay in cleaning Mother and Child before given Breastmilk	12	21.1	11.4-33.9
Baby Slept immediately after birth	10	17.5	8.7-29.9
Delivery in nurse house, after that they return their home and given breastmilk.	2	3.5	0.4-12.1
Mother's breast milk is delayed, so late to give Breast Milk	2	3.5	0.4-12.1
Child was born during Ramadan period hence Breastfeeding was delayed by 2 hours	1	1.8	0.04-9.4

4.5.3 Exclusively breastfed within the first two days after birth

WHO Guidelines on maternity care state that “mothers should be discouraged from giving any food or fluids other than breast milk, unless medically indicated”. Feeding newborns anything other than breast milk has the potential to delay their first critical contact with their mother and can make it more difficult to establish breastfeeding over the long term. The survey findings show that 62.1% (n=701) of the children aged 0-23 months were exclusively breastfed within the first two days after birth.

Table 14: Children 0-23 months who were fed with breast milk only within the first two days after birth in Cox’s Bazar district

Exclusive breastfeeding within 2 days after birth (N=1129)	Frequency	Percentage	95% CI value
Yes	701	62.1	59.2-64.9
No	428	37.9	35.1-40.7

The practice of feeding child with only breastmilk within the first two days after birth was found to be greatly negatively affected by strong cultural believes and norms where caregivers introduce pre-lacteal feeds to their infants right after birth. Additionally, the qualitative findings revealed some isolated cases where mothers became unconscious after delivery or were suffering from diseases such as breast tumor/cancer/mastitis, which affects the infant feeding practices in the host communities in Cox’s Bazar district. Other medical conditions such as caesarian delivery and babies born prematurely affected exclusive breastfeeding.

4.5.3.1 Reasons for not exclusively breastfeeding children born in the last 24 months for the first two days after birth in Cox’s Bazar district

Data was collected to obtain the reasons why caregivers gave their children some foods/liquids within the first two days after birth instead of only breastmilk. It was found out that strong cultural believes motivated caregivers to give other foods/liquids to children within the first two days after birth. 77.6% of the caregivers mentioned ties to family, culture, social and religious believes as the main reasons for giving other foods/liquids before breast milk/colostrum. Other reasons also included mothers not producing enough breastmilk within the first two days after birth at 16.5%. This rate can be correlated to the one above describing the main breastfeeding problems expressed by the caregivers (table 15): not enough milk. The 0.7% of ‘others’ have not been detailed by the surveyed caregivers.

Table 15: Reasons for not exclusively breastfeeding 0-23 months children within 2 days after birth in Cox's Bazar district

Reasons children were given other feeds within the first two days after birth (N=428)	Frequency	Percentage	95% CI Value
Family culture, social or religious beliefs	332	77.6	73.4-81.3
Not enough milk	71	16.5	13.4-20.4
Mother ill/weak	13	3.0	1.8-5.1
Child ill/weak	5	1.2	0.5-2.7
Others (Please specify_____)	3	0.7	0.2-2.0
Nipple/breast problem	2	0.5	0.1-1.7
Do not know	2	0.5	0.1-1.7
Total	428	100.0	N/A

4.5.3.2 Common types of foods/drinks given by caregivers to their newborns within two days after birth in Cox's Bazar district

The figure below shows the most common types of foods or drinks given to children aged 0-23 months within the first two days after birth. According to the survey findings, honey (64.3%) was the main food given to children within the first two days after birth. Mastered seed is also commonly given while sugar/glucose water and Cocaco¹¹ are among the leading foods/drinks given to children.

¹¹ Cocaco: Cereal based product. Mother prefer to give Cocaco to their child in case of less production of breastmilk

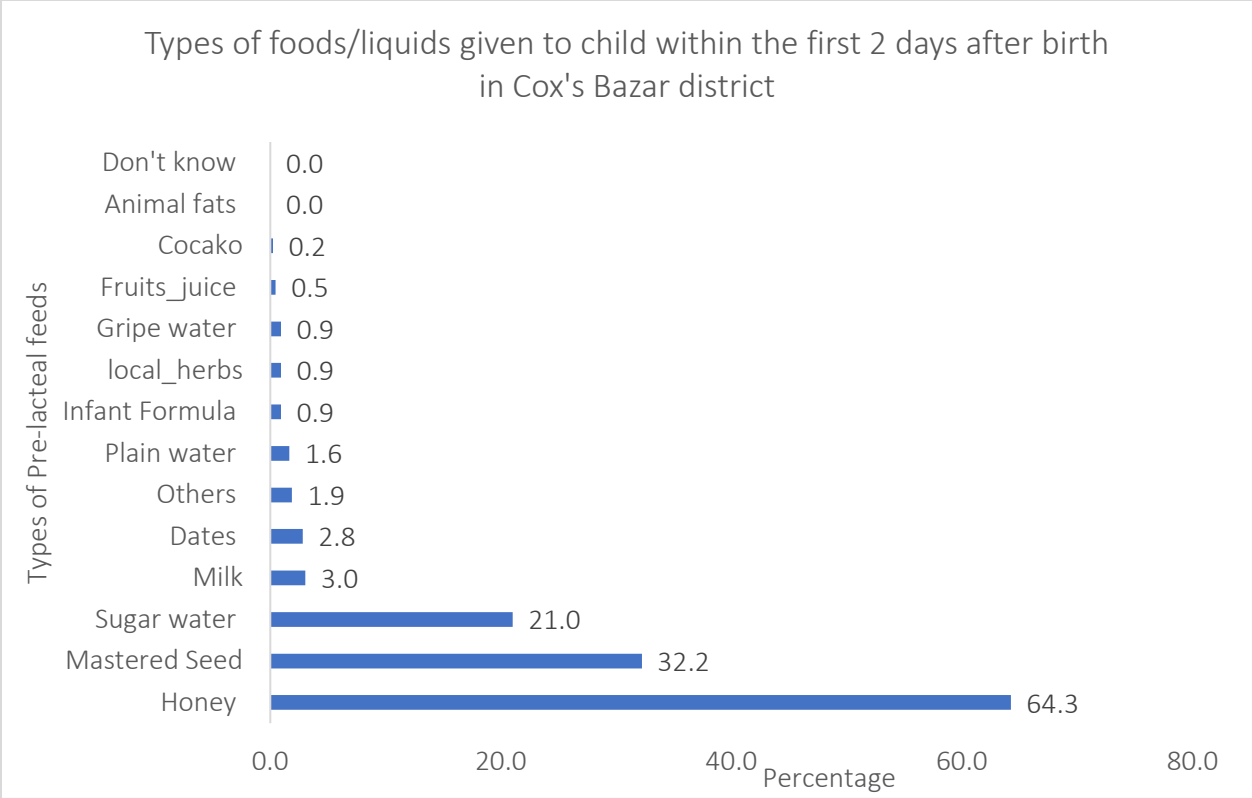


Figure 12: Type of foods given to children within the first two days after birth in Cox’s Bazar district

The focus group discussions findings show a strong relationship with the quantitative findings. Most of the caregivers practice feeding and introducing honey, sugar, sweet water, or mustard oil to their children within the first 2 days after birth because it is believed to enhance lip movement of a child. This was reported in majority of the FGD by mothers and grandmothers of children aged 0-23 months in the host community. This greatly affect exclusive breastfeeding of children under 6 months since they already receive other foods within two days after birth.

4.5.4 Exclusively breastfed within six months

WHO Global Strategy for IYCF recommends for infants to be exclusively breastfed until they turn six months of age. Exclusive breastfeeding is the safest and healthiest option for children everywhere, guaranteeing infants a food source that is uniquely adapted to their needs while also being safe, clean, healthy, and accessible. Exclusive breastfeeding was proven to protect against diarrhea, lower respiratory infections, acute otitis media and childhood overweight and obesity.

Table 16: Children aged 0-5 months who were exclusively breastfed until the sixth month in Cox’s Bazar District

Exclusive breastfeeding over the last 24 hours (N=245)	Frequency	Percentage	95% CI value
Yes	176	71.8	65.8-77.4
No	69	28.2	22.6-34.2

71.8% of the sampled infants 0-5 months in Cox’s Bazar district were reported to have been exclusively breastfed for the first 6 months after birth. The prevalence of exclusive breastfeeding in Cox’s Bazar was found to be above the national average of 63.0% which shows a good practice in the district.

Additionally, the qualitative findings showed that mothers have adequate knowledge on exclusive breastfeeding. However, introduction of some pre-lacteal feeds to infants mostly for cultural and religious reasons continues to be a major challenge faced that directly affects exclusive breastfeeding. It is reported across most of the focus group discussions that mothers gave their newborn babies honey, or sweet water before the colostrum in accordance with their traditional and cultural believes.

4.5.5 Mixed milk feeding under six months

Mixed milk feeding with breast milk plus a breast milk substitute is associated with increased risks of early cessation of breastfeeding, reduced breast milk production and altered gut microflora. 11.8% (n=29) of the children aged 0- 5 months in Cox’s Bazar district were fed with milk substitutes in addition to breast milk.

Table 17: Children 0-5 months fed with both breastmilk and other dairy products (Mixed Milk Feeding) in Cox’s Bazar District

Mixed milk feeding for children 0-5mths (N=245)	Frequency	Percentage	95% CI value
No	216	88.2	83.4-91.9
Yes	29	11.8	80.7-16.6

4.5.6 Continued breastfeeding at 12-23 months

WHO Global Strategy for IYCF recommends that a child should continue to be breastfed for until two years or beyond. Children who continue to breastfeed after one year of age meet a substantial portion of their energy needs with the breast milk in their diet. Continued breastfeeding is also vital during illness, while sick children often have little appetite for solid food, continued breastfeeding can help prevent dehydration while also providing the nutrients required for recovery.

Table 18: Children 12–23 months of age who were fed breast milk during the previous day in Cox’s Bazar District

Continued breastfeeding at 12-23 months (N=583)	Frequency	Percentage	95% CI value
Yes	511	87.7	84.7-90.1
No	72	12.3	9.9-15.3

According to the survey findings, 87.7% (n=511) of the children aged 12-23 months in Cox’s Bazar district were breastfed 24 hours prior to the survey date. However, caregivers during the focus group discussions reported that mothers who get pregnant while still breastfeeding usually stop breastfeeding the current child even if this child is still at a recommended breastfeeding age.

This practice is related to religious believes where breastfeeding while being pregnant is considered a sin among the religious communities, hence directly affecting the continued breastfeeding practices in communities where child spacing is not fully practiced.

Additionally, preference of breastfeeding by gender was also noticed during the qualitative discussions where mothers reported that males are breastfed up to 2 years while female children can be breastfed up to 2 and half years, as it is believed that male children get stronger faster than female children.

4.6. Complementary Feeding Practices for children 0-23 months among the Host Community in Cox's Bazar District

4.6.1 Introduction of solid, semi-solid or soft foods in children aged 6–8 months

Introduction of complementary foods at six months of age while continuing to breastfeed is highly recommended as per WHO IYCF global strategy. After the first six months of life, infants' nutrient demands start to exceed what breast milk alone can provide and this leaves them vulnerable to malnutrition unless solids/semi foods are introduced.

Table 19: Infants 6–8 months of age who consumed solid, semi-solid or soft foods during the previous day in Cox's Bazar District

Infants 6-8 months who consumed solid, semi-solid or soft foods during the previous day (N=137)	Frequency	Percentage	95% CI value
Yes	98	71.5	63.2-78.9
No	39	28.5	21.1-36.8

According to the survey findings, 71.5% (n=98) of the sampled children aged 6-8 months were timely introduced to complementary feeding in addition to breastmilk. The survey results show a slight drop below the national average of 75%, however, the difference is not statistically significant.

The qualitative results from the focus group discussions also indicate that caregivers have good knowledge on timely introduction of complementary feeding. Nevertheless, the practices on timely introduction of solid/semi solid foods continues to be negatively affected by some social influence from family members like in-laws, grandmothers, and neighbors, hence resulting either to too early or late introduction of solid/semi solids before the 6th month after birth.

4.6.2 Minimum dietary diversity in children aged 6–23 months.

WHO guiding principles for feeding breastfed and non-breastfed children recommend that children aged 6–23 months should be fed a variety of foods to ensure that their nutrient needs are met.

A diet lacking in diversity can increase the risk of micronutrient deficiencies, which may have a damaging effect on children's physical and cognitive development.

Table 20: Children 6–23 months of age who consumed foods and beverages from at least five out of eight defined food groups during the previous day

Minimum dietary diversity (N=884)	Frequency	Percentage	95% CI Value
No	607	68.7	65.4-71.6
Yes	277	31.3	28.4-34.6

31.3% (n=277) of the children aged 6-23 months were reported to have eaten at least five or more of the eight food groups 24 hours prior to the survey date. The results are indicative of a very poor dietary diversity score among the sampled population in Cox's Bazar district. The results match to the 2019 multi-Indicator

cluster survey (MICS) which showed a rate at 30.0% at division level while the national average was at 34.0%. The mostly commonly consumed foods are as seen in the figure below (multiple answers per caregiver).

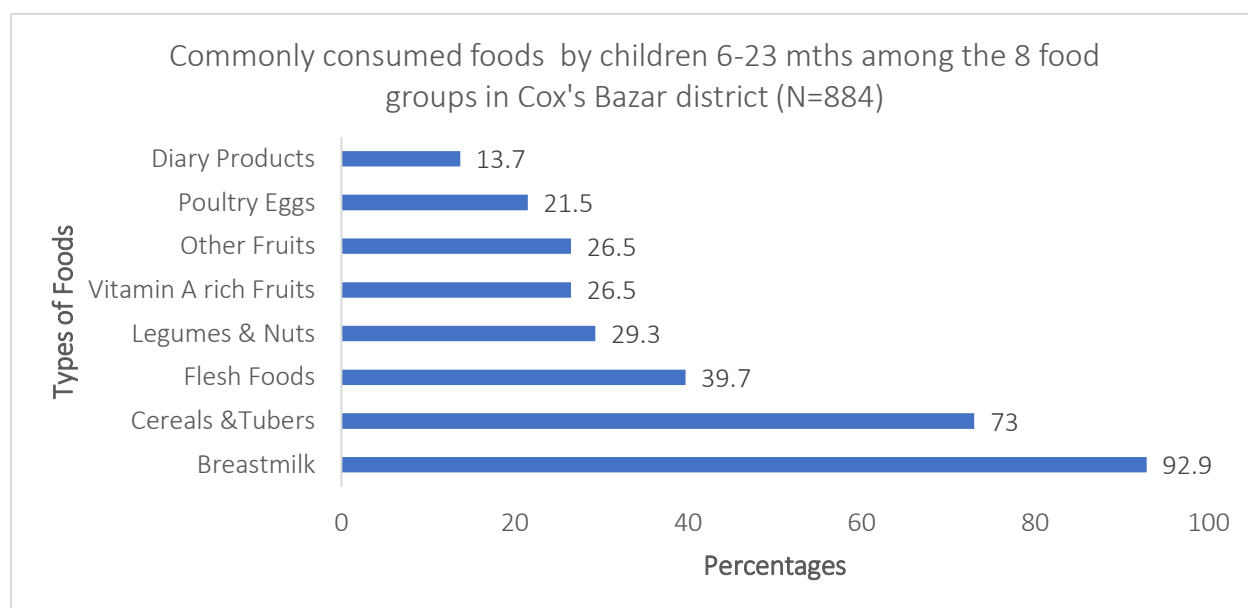


Figure 13: Common foods consumed by children aged 6-23 months among the eight food groups in Cox Bazar District

4.6.3 Minimum meal frequency in children aged 6–23 months

The proportion of children aged 6-23 months who ate at least two or more solid/semi-solid foods was at 58.1%. The finding is below the national average of 65% as per the 2019 Multi-Indicator Cluster Survey (MICS).

Table 21: Children 6–23 months of age who consumed solid, semi-solid or soft foods at least the minimum number of times during the previous day in Cox’s Bazar District

Minimum meal frequency – children 6-23 months (N=884)	Frequency	Percentage	95% CI Value
Yes	514	58.1	54.8-61.4
No	364	41.9	38.6-45.1

The qualitative results from the focus group discussions reveal that mothers have a good knowledge on how often a child above 6 months should eat but the actual practices are not always followed. Reliance on less expensive and less diversified food in terms of nutrients seems to be a common practice within the host community in Cox’s Bazar district.

4.6.3.1 Minimum meal frequency for breastfed children aged 6-8 months, breastfed children aged 9-23 months and non-breastfeed children aged 6-23 months

Furthermore, analysis was done for minimum meal frequency per different age categories for breastfed and non-breastfed children in Cox's Bazar District. Infants aged 6-8 months who were breastfed the previous day and ate at least two or more solid, semi-solid or soft foods were 49.6%.

Table 22: Minimum meal frequency for breastfed children aged 6-8 and 9-23 months and for non-breastfeed children aged 6-23 months in Cox's Bazar District

Response	Frequency	Percentage	95% CI value
Breastfed children aged 6–8 months who ate solid, semi-solid or soft foods at least 2 times the previous day (N=135)			
No	68	50.4	41.6-59.1
Yes	67	49.6	40.9-58.4
Breastfed children aged 9-23 months who ate solid, semi-solid or soft foods at least 3 times the previous day (N=671)			
Yes	408	60.8	57.0-64.4
No	263	39.2	35.6-42.9
Non-Breastfed children aged 6-23 months who ate solid, semi-solid or soft foods at least 4 times the previous day including milk feeds (N=78)			
Yes	39	50.0	34.6-61.5
No	39	50.0	34.6-61.5

The proportion of children between aged 9-23 months who were breastfed the previous day and ate at least three or more solid, semi-solid or soft foods were 60.8% while those aged 6-23 months and non-breastfed the following day who ate four or more solid, semi-solid or soft foods and or milk feeds were only 50%.

4.6.4 Minimum milk feeding frequency for non-breastfed for aged children 6–23 months.

Milk and other dairy products are rich sources of calcium and other nutrients. WHO guiding principles for feeding non-breastfed children aged 6–23 months state that the amount of milk needed to meet nutrient requirements depend on the other foods consumed by the child. Only 32.1% (n=25) of the non-breastfed surveyed population aged 6-23 consumed some dairy products either infant formula, diary milk or both.

Table 23: Non-breastfed children aged 6–23 months who consumed at least two milk feeds during the previous day (Minimum Milk feeding Frequency for non-breastfed children) in Cox's Bazar District

Minimum Milk feeding Frequency for non-breast-fed children 6-23 months (N=78)	Frequency	Percentage	95% CI value
No	53	67.9	56.4-78.1
Yes	25	32.1	21.9-43.6

4.6.5 Minimum acceptable diet in children 6–23 months (Minimum acceptable diet¹²)

WHO guiding principles on feeding breastfed child and non-breastfed child recommend that children aged 6–23 months should be fed meals at an appropriate frequency and with adequate variety to ensure that energy and nutrient needs are met. This indicator combines information on minimum dietary diversity and minimum meal frequency, with the extra requirement that non-breastfed children should have received milk at least twice on the previous day.

Table 24: Children 6–23 months of age who consumed a minimum acceptable diet during the previous day in Cox’s Bazar District

Minimum acceptable diet (N=884)	Frequency	Percentage	95% CI value
No	654	74.0	70.9-76.7
Yes	230	26.0	23.2-29.0

The survey results show that only 26.0% (n=230) of the sampled children received a minimum acceptable diet. The national average from the MICS in 2019 was 27%. The results therefore are indicative of a very poor complementary feeding practice in Cox’s Bazar district.

4.6.7 Egg and/or flesh food consumption in children 6–23 months

Meat, poultry, fish or eggs are essential foods that should be eaten daily, or as often as possible”. Very strong evidence from previous studies suggests that children who consume eggs and flesh foods have higher intakes of various nutrients important for optimal linear growth. Consuming eggs is associated with increased intakes of energy, protein, essential fatty acids, and vitamins. Additionally, introduction of meat as an early complementary food for breastfed infants was associated with improved protein and zinc intake.

Table 25: Children 6–23 months of age who consumed egg and/or flesh food during the previous day in Cox’s Bazar District

Consumption of egg and/or flesh food for children 6-23 during the previous day (N=884)	Frequency	Percentage	95% CI value
Yes	555	62.8	59.5-66.0
No	329	37.2	34.0-40.5

The survey findings from Cox’s Bazar shows the suboptimal level of egg and flesh food consumption among the sampled children aged 6-23 months is at 62.8% (n=555). This is indicative of slightly low intake of egg and/or flesh foods in the district.

4.6.8 Sweet beverage consumption in children 6–23 months

The consumption of sweet beverages among the surveyed children aged 6-23 months in Cox’s Bazar district was 29.9% (n=264). The high prevalence of consumption of sweet beverages contradicts with WHO guiding principles on complementary feeding which advice against giving sweet drinks, such as soft drinks to children as they contribute no nutrients other than energy and may displace more nutritious foods. The

¹² The minimum acceptable diet is defined as for breastfed children, receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day, while for non-breastfed children receiving at least the minimum dietary diversity and minimum meal frequency for their age during the previous day as well as at least two milk feeds.

easy access and affordability of these sweets foods within the community have highly encouraged their consumption.

Table 26: Children 6–23 months of age who consumed a sweet beverage during the previous day in Cox’s Bazar District

Sweet beverage consumption (N=884)	Frequency	Percentage	95% CI value
No	620	70.1	67.0-73.1
Yes	264	29.9	26.9-33.0

4.6.9 Unhealthy food consumption in children 6–23 months

67.3% (n=595) of the sampled children aged 6-23 months consumed unhealthy food during the day/night prior to the survey date. These unhealthy foods consumed by children are mostly sweetened foods, especially sweetened cake biscuits and fried chips/crisps. As for the sweet beverage, easy access, and affordability of these sweets foods within the community have highly encouraged their consumption.

Table 27: Children 6–23 months of age who consumed selected sentinel unhealthy foods¹³ during the previous day in Cox’s Bazar District

Unhealthy food consumption (N=884)	Frequency	Percentage	95% CI value
Yes	595	67.3	64.1-70.4
No	289	32.7	29.6-35.9

4.6.10 Zero vegetable or fruit consumption in children 6–23 months

Low vegetable and fruit consumption is associated with increased risk of non-communicable diseases. While there is no universal recommendation for the optimal number of servings of vegetables and fruits per day for infants over six months of age, consumption of zero vegetables or fruits on the previous day represents an unhealthy practice.

Table 28: Children 6–23 months of age who did not consume any vegetables or fruits during the previous day in Cox’s Bazar District

Consumption of vegetables or fruits (N=884)	Frequency	Percentage	95% CI value
Did not consume vegetable or fruit	485	45.1	51.5-58.2
Consumed vegetable or fruit	399	54.9	41.8-48.5

45.1%; (n=399) of the sampled children reported to have not consumed vegetables in the previous day. This could mainly be associated to culturally or traditionally preferred meals that are low in vegetable

¹³ Selected sentinel unhealthy foods are candies, chocolate, and other sugar confections, including those made with real fruit or vegetables like candied fruit or fruit roll-ups. – Frozen treats like ice cream, gelato, sherbet, sorbet, popsicles, or similar confections. – Cakes, pastries, sweet biscuits and other baked or fried confections which have at least a partial base of a refined grain, including those made with real fruit or vegetables or nuts, like apple cake or cherry pie. – Chips, crisps, cheese puffs, French fries, fried dough, instant noodles, and similar items which contain mainly fat and carbohydrate and have at least a partial base of a refined grain or tuber. These foods are also often high in sodium.

content and most probably cheaper. The mainly consumed foods/products among children were cereals and breastmilk while eggs, milk and milk products are the least consumed products.

4.6.11 Bottle feeding in children 0–23 months

WHO guiding principles recommend avoiding the use of feeding bottles because they are difficult to keep clean and represent a particularly important route for the transmission of pathogens. Bottle-feeding may also interfere with optimal suckling behavior.

The survey findings reveal that the proportion of children who drunk from a bottle with a nipple during the previous day was only at 16.5% (n=188) within the host community in Cox’s Bazar District. This indicates that the practice is still common among the population specially working mothers and caregivers who are always committed with other daily activities hence leaving the child at home with a caregiver.

Table 29: Children 0–23 months of age who were fed from a bottle with a nipple during the previous day in Cox’s Bazar District

Bottle feeding with nipple for children 0-23mths (N=1129)	Frequency	Percentage	95% CI value
No	941	83.3	81.0-85.4
Yes	188	16.7	14.6-19.0

5.0. Trends Analysis of key indicators between the MICS 2019, The refugee camp IYCF survey, October 2022, and the Host Community IYCF survey - November 2022, Cox’s Bazar District

Note: The trends analysis cannot be performed for all the IYCF indicators as some indicators were not collected under the 3 surveys acknowledged in this report. However, some proxy information and trends can be sorted out to better understand the IYCF situation on Cox’s Bazar, Bangladesh.

5.1 Birth delivery location for mothers of children 0-23 months

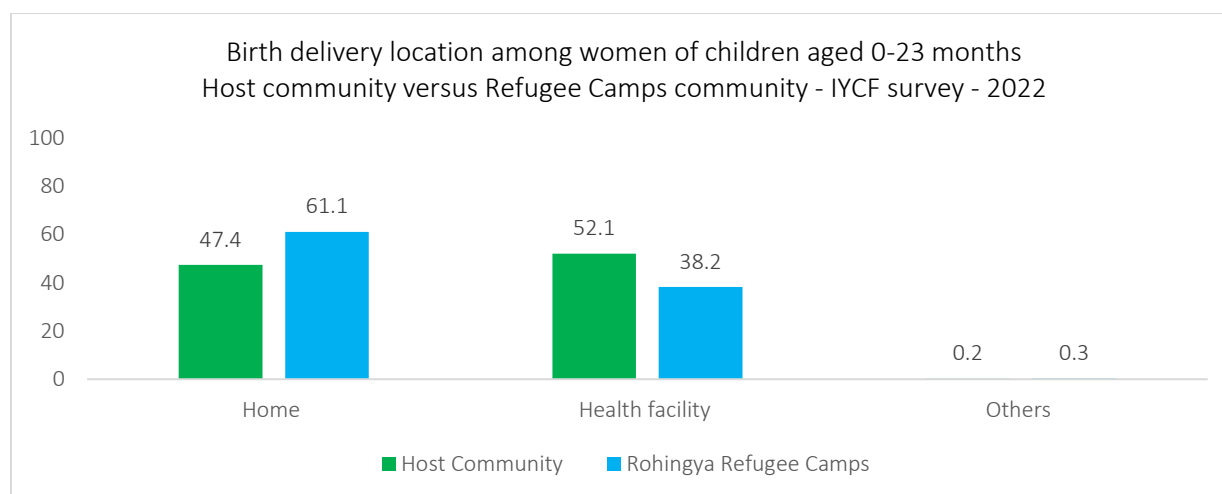


Figure 14: Location of delivery for mothers for their most recent child aged 0-23 months among the surveyed population in Cox’s Bazar district and Rohingya refugee Camps

When comparing the birth delivery locations, the findings show that birth deliveries happen more often at health facility level instead at home for the host community in Cox’s Bazar district compared to the Rohingya refugee community. The ‘others’ concern mainly women who delivered outside of their home, most often on their way to health facility.

Cultural, religious, and societal influence seems to strongly affect the birth delivery locations among the refugee communities as well as among the host community in Cox’s Bazar district. Therefore, there should be more advocacy and awareness during antenatal care but also at community level involving community leaders and family influencers to encourage mothers to go to health facilities for birth delivery.

5.2 Breastfeeding Practices

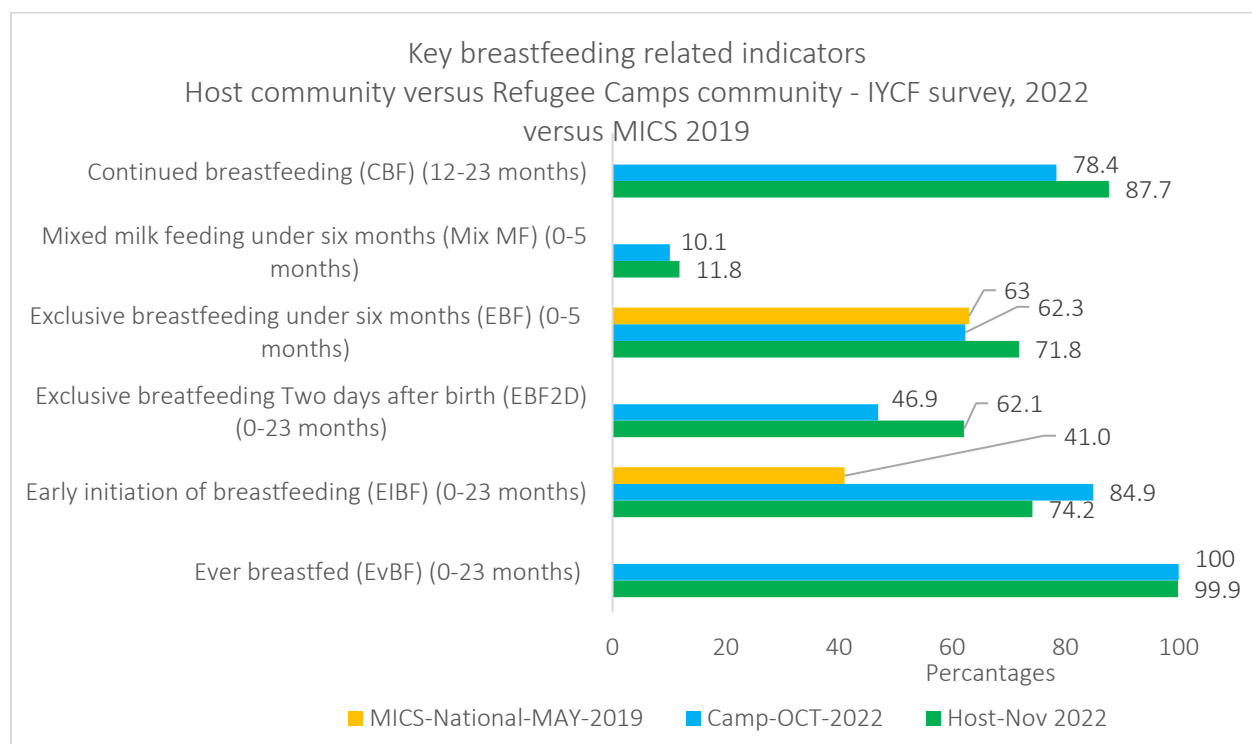


Figure 15: Breastfeeding indicators for host community survey in comparison to Refugee camps in Cox’s Bazar District and National MICS 2019 results

5.2.3. Complementary Feeding practices – Comparison of key indicators between the host versus the refugee communities (2022) versus the MICS - 2019

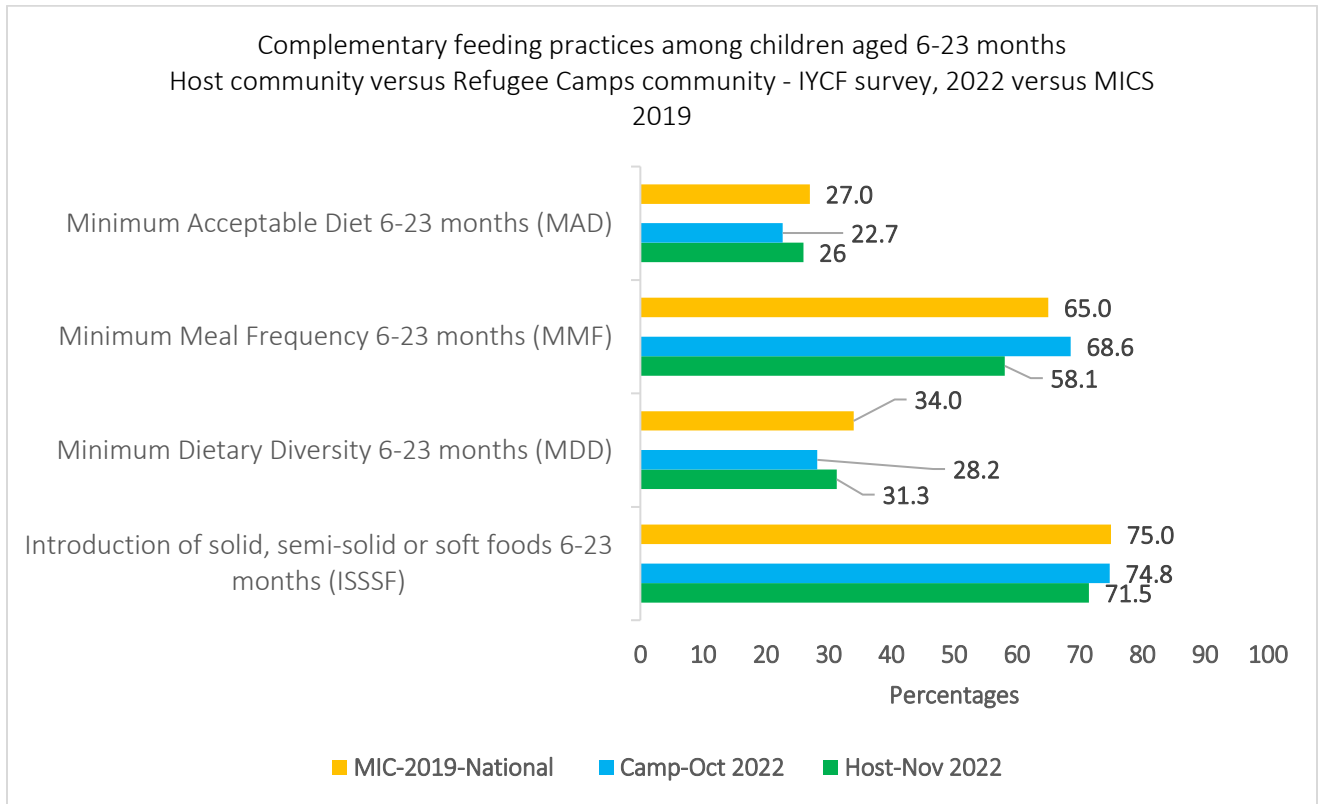


Figure 16: Complementary feeding practices among children aged 6-23 months in the host community in Cox’s Bazar district in comparison to Rohingya refugee camps and MICS-2019 National and Divisional Results

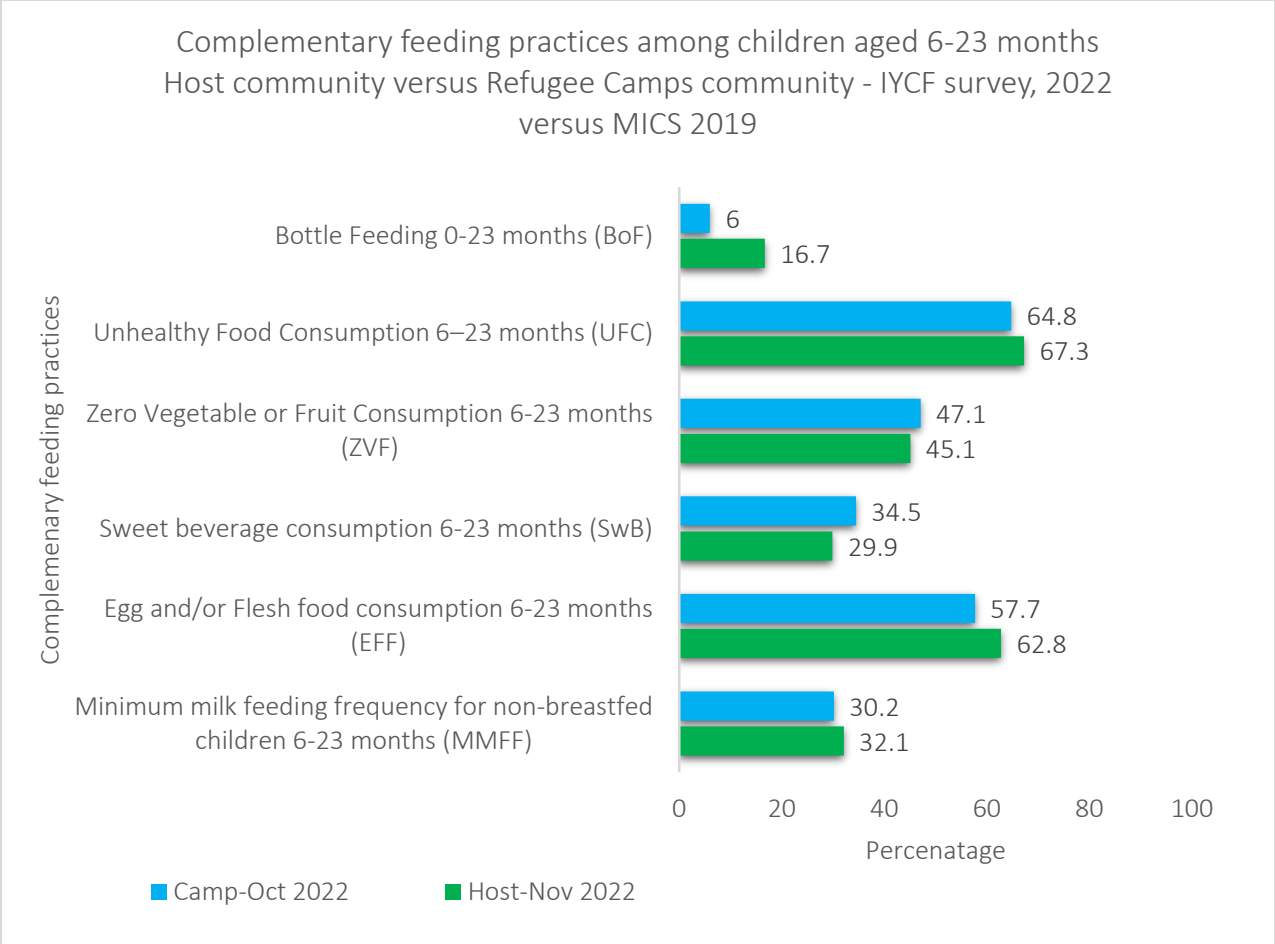


Figure 17: Complementary feeding practices among children aged 6-23 Months in the Cox’s Bazar district in comparison to Rohingya refugee camps Oct 2022 Findings.

6.0 DISCUSSION

5.1. Caregiver's maternal health practices and nutrition education participation.

Birth delivery location, the survey findings from Cox's Bazar host community reveal a suboptimal level of delivery at health facility. Only 52.1% of the caregivers reported to have given birth in a health facility. Strong cultural/religious ties and poor anticipation of delivery timing continue to hamper efforts to encourage mothers to deliver in health facilities

Education levels of female caregivers in Cox's Bazar. Only 45.7% of the caregivers reported to have completed primary education while 2.5% reported to have reached or completed a bachelors and above. The finding is an indicative of very low literacy rates among the caregivers of children aged 0-23 months in Cox's Bazar District. A further correlation analysis using excel was done between the level of education and introduction of solid/semi solid foods. The correlation coefficient was found to be 0.0832 which is below 0.5. This shows that there is a positive but weak correlation between the level of education and timely introduction of complementary feeding

Additionally, there is a strong positive correlation between age of children and timely introduction of solid and semi solid foods with a correlation coefficient of 0.67. This is indicative that age has a strong positive influence on timely introduction of solid/semi solid foods hence positive impact on complementary feeding practices. However, this should be interpreted with caution due to the ordinal nature of the data collected.

5.2 Breastfeeding Practices

Generally, the breastfeeding practices among the host communities in Cox's bazaar district are suboptimal, the practice exclusive breastfeeding within the first two days after birth was found to be 62.1%, while the prevalence of exclusive breastfeeding until sixth month was at 71.8% of the sampled population in Cox's Bazar district. The early initiation of breastfeeding within the first hour after birth was reported to be at 74.2%. It was noted that introduction of child to pre-lacteal feeds after birth continues to be a common practice among the caregivers within the community. This is mainly associated to cultural and religious beliefs hence affecting caregiver's capacities to emphasize the recommended practices. It is reported across most of the focus group discussions that pre-lacteal feeds given by caregivers to the newborn babies were mainly honey, sweet water and mustarded seeds. This is believed to enhance child's lip movement and facilitate breastfeeding.

Several breastfeeding problems were reported, with the main one related to the perceived insufficient production of breastmilk. This has especially affected the breastfeeding of newborn babies, with low support given to mothers to initiate and maintain the breastfeeding (14.3% of mothers with no support).

Additionally, the practice of feeding infants under six months with breast milk substitutes like infant formulas and other animal milk in addition to breast milk was very common within the host communities. According to the findings, 11.8% of the children aged 0- 5 months were fed with milk substitutes in addition to breast milk.

It is recommended to continue breastfeeding for two years or beyond. Children who are still breastfed after one year of age can meet a substantial portion of their energy needs with the breast milk in their diet and continued breastfeeding is also vital during illness. Whilst children aged 12-23 months who continued to be breastfed as recommended were 87.7% of the sampled population, it was noted that mothers who get

pregnant while still breastfeeding usually stop breastfeeding the current child because it is believed to be a sin, hence directly affecting the continued breastfeeding practices when birth spacing is not effective.

5.3. Complementary Feeding practices

Except for timely introduction of solid, semi-solid or soft foods for children aged 6-8 months commonly known as Mukhe Baat which was at 71.5%, other complementary feeding practices like minimum meal frequency, minimum dietary diversity and minimum acceptable diet were found to be very low, being respectively at 58.1%, 31.3% and 26%.

The qualitative results indicate that caregivers have good knowledge on complementary feeding practices. Nevertheless, feeding the child on the recommended diet and the frequency continues not to be adequately practiced among the caregivers as reflected by the quantitative indicators.

In addition, WHO guiding principles on complementary feeding advice against giving sweet drinks, such as soft drinks, as they contribute no nutrients other than energy and may displace more nutritious foods. Higher intakes of sugar-sweetened beverages (SSBs) have been associated with an increased obesity risk among children of all ages. Early introduction of SSBs (before 12 months of age) is associated with obesity at six years of age.¹⁴ The consumption of sweet beverages among the surveyed children aged 6-23 months in Cox's Bazar district was 29.9%. The high prevalence of consumption of sweet beverages contradicts with WHO guiding principles on complementary feeding which advice against giving sweet drinks, such as soft drinks to children as they contribute no nutrients other than energy and may displace more nutritious foods. The easy access and affordability of these sweets foods within the community may have highly encouraged its consumption. 67.3% of the sampled children aged 6-23 months consumed unhealthy food during the day/night prior to the survey date. These unhealthy foods consumed by children are mostly sweetened foods, especially sweetened cake biscuits and fried chips/crisps. The easy access and affordability of these sweets foods within the community has highly encouraged its consumption.

Bottle feeding is highly discouraged because they are difficult to keep clean and represent a particularly important route for the transmission of pathogens. Bottle feeding may also interfere with optimal suckling behavior. In the host community, it was found that 16.7% of children 6-23 months were fed with a bottle during the 24 hours prior the survey.

6. CONCLUSION

Overall, this IYCF survey was the first of its kind to be conducted in Cox's Bazar district to inform the new IYCF indicators released by the WHO and UNICEF in 2021.

The host community in Cox's Bazar district demonstrates commendable breastfeeding practices, with a high rate of early initiation of breastfeeding surpassing the national average. However, there are challenges related to exclusive breastfeeding within the first two days, influenced by maternal health issues and cultural beliefs. Despite this, the prevalence of exclusive breastfeeding for the recommended 6-month duration is above the national average, indicating a positive practice. Continued breastfeeding in children aged 12-23 months is a concern due to religious beliefs related to pregnancy, impacting breastfeeding duration. Complementary feeding practices show a slightly lower timely introduction of solid foods, influenced by social factors. Dietary diversity and minimum acceptable diet practices are poor and continue to remain of high concern with high consumption of sweet beverages and unhealthy foods. The education levels of caregivers and their correlation with complementary feeding practices suggest a weak positive influence. Age of children demonstrates a strong positive correlation with timely introduction of solid

¹⁴ Pan L, Li R, Park S, Galuska DA, Sherry B, Freedman DS. A longitudinal analysis of sugar-sweetened beverage intake in infancy and obesity at 6 years. *Pediatrics*. 2014;134(1): S29–S35

foods. Mothers who reported to have given birth at home because of cultural barriers were also deprived of the first help/guidance given by medical personal with regards to appropriate breastfeeding practices immediately after delivery at the health facility or later one during the 1000 days window of opportunity. This therefore had a negative impact on the breastfeeding practices of the child in his/her first two years of life.

These findings highlight the need for targeted interventions to improve complementary feeding practices, increase nutritional diversity, and address cultural and educational barriers in the host community of Cox's Bazar.

7. RECOMMENDATIONS

Short Term

- Strengthen the integrated preventive nutrition programming (IYCF-E) with health (Immunization, ANC, Sick child Consultation, GMP etc.)
- Increase the knowledge and skills of health and nutrition service providers on breastfeeding support and promotion at facility and household level
- Strengthen the community awareness interventions through training and engage peer counsellors, mother to mother support groups and community-support groups to provide counselling, and guidance to mothers in their own communities on Infant and Young Child Feeding including hygiene practices
- Scale up outreach activities through quality home visits, group meetings, growth monitoring sessions, and cooking sessions (i.e., Mukhe vat) for nutrition education and interpersonal communication to facilitate knowledge into optimal practices

Medium term

- Mainstream and prioritize the promotion and support of breast-feeding activities at community level
- Ensure that monitoring, evaluation, and research are conducted regularly and are used to revise strategies and interventions for improving infant and young child feeding
- Strengthen monitoring and enforcement procedures of the National Code/BMS Act to detect code violations more effectively and to accelerate the legal process when need arise

Long term

- Strengthen Baby-Friendly Hospital Initiative, through more integration with nutrition program
- Ensure advocacy and behaviour change communication toward IYCF recommended practices
- Develop advocacy and contextual communication materials for all audiences/stakeholders
- Ensure that governments, private sectors, and other concerned parties share responsibility for successful implementation of the National Strategy regarding IYCF through a functional nutrition governance mechanism
- Revitalize District and Upazilas nutrition coordination committee and develop local level planning for implementing Multi-sectoral Minimum Nutrition Package
- Ensure that the nutrition sector focuses more on host community nutrition programming through coordination and funding advocacy
- Pay a special focus on nutrition sensitive activities for minimizing economic barrier and ensure availability of nutritious diet year-round like Income generating activities, homestead gardening/ kitchen gardening, live-stock rearing etc. to meet the nutritional needs
- Periodically update the guidelines, SOP as required, considering new research findings and international recommendations/updated guideline
- Implement Health system strengthening activities for promoting institutional delivery
- Promote gender equality and empower women in multi sectoral approach to fight against malnutrition and improve IYCF related decision making
- Ensure access to formal education for the community members living Cox's Bazar district, with a strong focus on girls

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8.0 ANNEXES

8.1 QUESTIONNAIRE FOR QUANTITATIVE DATA

[..\..\IYCF Quantitative Questionnaire Cox-Bazar BGL Final.pdf](#)

8.2 FGD GUIDE

IYCF perceptions and beliefs: Mother with children under 2 years

[..\..\FGD Revised Questionnaires\FGD Tools- Mothers with CU2 perception of IYCF.docx.pdf](#)

Factors influencing IYCF practices (Perceptions, belief and religious or cultural norms): Fathers of Under 2 children

[..\..\FGD Revised Questionnaires\FGD Tools - Fathers with CU2 perception of IYCF.docx.pdf](#)

Factors influencing IYCF practices (Perceptions, belief and religious or cultural norms, roles, and responsibilities): Grandmother of Under 2 children

[..\..\FGD Revised Questionnaires\FGD Tools- Grandmothers with CU2 perception of IYCF.docx.pdf](#)

Factors influencing IYCF practices (Perceptions, belief and religious or cultural norms): Other influential caregivers (sisters, brothers, In-laws, and neighbors) to Mothers/caregivers of under 2 children

[..\..\FGD Revised Questionnaires\FGD Tool Relative Neighbors to Mothers with CU2.docx.pdf](#)

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