FINAL REPORT

NUTRITION CAUSAL ANALYSIS

Cox's Bazar Rohingya Camps, Bangladesh

May 2025

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The assessment was conducted by Patrizia Pajak, *Data Analyst and Research Advisor* – Action Against Hunger UK, assisted by Uwimana Sebinwa, *Senior Nutrition Assessment Advisor* and supervised by Lenka Blanárová, *Deputy Head of Nutrition* – Action Against Hunger UK.

The study's focal points were Jecinter Akinyi Oketch, *Nutrition Manager*, Md. Lalan Miah, *Information Management Officer*, Kibrom Tesfaselassie, *Nutrition Sector Coordinator*, and *Owen White Nkhoma*, *Nutrition Specialist* – UNICEF Bangladesh. Mohammad Ashikulla, Programme Policy Officer, Mahabubul Hashan, Data Analyst – WFP Bangladesh, Md. Ariful Isla Kabir Sujan, *Nutrition Coordinator Expert* - Gonoshasthaya Kendra (GK), Bangladesh, Dr. Md Abul Hasan-HoD and AIMTWG chair-ACF, Bangladesh.

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ABBREVIATIONS

ACF	Action Contre la Faim / Action Against Hunger
ANC	Antenatal Care
ARI	Acute Respiratory Infections
BSFP	Blanket Supplementary Feeding Programme
CIC	Camp In Charge
CMAM	Community Management of Acute Malnutrition
ECCD	Early Childhood Care and Development
FDMN	Forcibly Displaced Myanmar Nationals
FEWSNET	Famine Early Warning System
FGD	Focus Group Discussion
FSL	Food Security and Livelihoods
GAM	Global Acute Malnutrition
GBV	Gender-Based Violence
GFA	General Food Assistance
GMP	Growth Monitoring Programme
HH	Household
HAZ	Height for Age Z-Score
IFA	Iron Folic Acid
IYCF	Infant and Young Child Feeding
MAM	Moderate Acute Malnutrition
MDD	Minimum Dietary Diversity
MUAC	Mid-Upper Arm Circumference
NCA	Nutrition Causal Analysis
NGO	Non-Governmental Organization
ORS	Oral Rehydration Salts
OTP	Outpatient Therapeutic Programme
PNC	Postnatal Care
rCSI	Reduced Coping Strategy Index
RRRC	Office of the Refugee Relief and Repatriation Commissioner
RUTF	Ready-to-Use Therapeutic Food
SENS	Standardized Expanded Nutrition Survey
SAM	Severe Acute Malnutrition
SBC	Social and Behaviour change
SSI	Semi Structured Interview
TBA	Traditional Birth Attendant
TSFP	Targeted Supplementary Feeding Programme
UNICEF	United Nations' Children's Fund
USD	United States Dollar
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WAZ	Weight for Age Z-Score
WHO	World Health Organization
WHZ	Weight for Height Z-Score
WRA	Women of Reproductive Age
WSB	Wheat Soy Blend

FIGURES

TABLES

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Violence in Rakhine State, Myanmar began on 25 August 2017 and drove more than 700,000 Rohingyas to Cox's Bazar, Bangladesh[1]. The refugee camps (Kutupalong and Nayapara Registered Camps and Kutupalong Mega Camps[2]) were expanded to host the new influx, which put an immense strain on the existing infrastructure and humanitarian services. Humanitarian needs in the refugee camps in Cox's Bazar are driven by multiple factors including the protracted Rohingya refugee crisis and vulnerability to climate-induced natural hazards. The situation is aggravated by food insecurity, psychosocial distress, poor living conditions that push children into a spiralling cycle of disease and malnutrition. The population continues to grow after nearly seven years with an estimated 1,065,646 as of March 2025. The Rohingya population continues to live in 33 camps while others (35,357) were relocated to Bhasan Char Island by the Government of Bangladesh[3]. The 2023 Standardized Expanded Nutrition Survey (SENS) indicated a worsening malnutrition situation among children, with severe wasting nearly tripling since 2022. The critical nutrition situation results from the interplay of multiple factors including food, health, WASH, and social protection. Notably, the General Food Assistance (GFA) ration cuts in 2023 may have partly contributed to the situation.

Given the above situation, Nutrition sector partners have been strengthening the comprehensive nutrition programmes to ensure timely treatment and prevention of malnutrition as well as ensuring multisectoral engagement to bring the malnutrition prevalence further down to acceptable levels based on international thresholds[4]. A Nutrition Causal Analysis (NCA) was deemed as necessary to identify specific determinants of malnutrition in the camps. The study serves as a critical starting point for an in depth understanding of the risk factors contributing to the high rates of malnutrition among children in refugee camps. The findings will inform multi-sectoral programming for nutrition and guide potential programmatic adjustments to address the causes of malnutrition, ultimately improving the nutritional status of children, women, and adolescents within the Rohingya refugee community.

Key results

The analyses conducted during this Link NCA study made it possible to categorise 20 risk factors likely to have an effect on the incidence of undernutrition (wasting and stunting) in the study area. Following a triangulation of data from various sources, **six (6) risk factors were identified as having a major impact**, nine (9) risk factors were classified as having an important impact and five (5) risk factors were considered to have a minor impact. Among the major risk factors, two were identified in the mental health and care practices sector, namely **non-optimal breastfeeding practices** and **non-optimal complementary feeding practices,** one in the food security and livelihoods sector namely **low access to income sources** while three risk factors were identified in the water, hygiene and sanitation sector**,** namely **inadequate accessibility, availability and quality of water at household level, poor sanitation practices** and **poor food and environmental hygiene practices.** However, its important to note that indicators from SENS[5] data were not available for many risks factors which may have influenced the categorisation of those under the WASH sector.

It is important to note that three out of six of these risk factors belong to the WASH sector highlighting critical issues linked to the water, hygiene and sanitation within the camps. The remaining three major risk factors belong to the Food Security and Livelihoods, as well as the

[1] Rohingya emergency | UNHCR
[2] Mega camps refer to 31 camps in Ukhiya and Teknaf hosting the unregistered refugees
[3] Joint Government of Bangladesh - UNHCR Population map as of June 2024
[4] de Onis M, Borghi E, Arimond M, Webb P, Croft T, Saha K et al. Prevalence thresholds for wasting, overweight and stunting in children under 5 years. Public Health Nutrition. 2018;1-5. doi:10.1017/S1368980018002434.
[5] SENS 2023, 2022 and 2021

Mental Health and Care Practices sectors. This emphasizes the need for programmatic responses that enhance access to stable income sources within the camps. Consequently this will enhance the nutritional status of children and mothers, increase dietary diversity of children under-five, and enable mothers to exclusively breastfeed without resorting to mixed feeding due to concerns about the perceived inadequacy of breast milk in terms of quality and quantity.

According to the community, undernutrition is caused by poor access to income sources. Income opportunities are mainly provided through cash for work programmes by organisations operating in the camps and is constrained to a small group of men selected at the beginning of each year. Low income sources force the community to adopt negative coping strategies, such as borrowing food from neighbours, selling portions of rations and NFIs, reducing quality and portions of meals within households, seeking casual work within the host community as well as engaging in gambling, kidnapping and drug dealing.

As a result, access to quality diet is limited, with the population relying essentially on food rations to survive. This negatively impacts the nutritional status of women and leads to sub-optimal complementary feeding practices for children. Breastfeeding mothers often feel they are not producing enough milk, adopting non-optimal breastfeeding practices that include dates, honey, flour porridges, and even formula to feed their babies and stop them from crying.

Simultaneously, low women decision-making hinders their ability to use family planning offered at the health facilities contributing to low birth spacing, especially in the most conservative households. Resolving marital disputes through intimacy is common and can result in more children among the couples that fight more. The combination of low birth spacing, and low nutritional status of women increases stress levels for mothers. With multiple young children to care for, they often feel worried and anxious which causes non-optimal mental health and wellbeing of the caregiver and translates into low quality of mother-child interactions. As a result, mothers focus primarily on the younger child leaving the others under the care of their siblings or other family members which influence their food and hygiene practices.

Additionally, despite the close proximity and free access to health facilities, the community faces important quality of care and sociocultural barriers restricting direct access to the health facilities when a child is sick. Mothers instead resort to pharmacies, private clinics and traditional healers to get better and quicker care, possibly delaying treatment and depleting household resources for medicines.

Lastly, non-optimal sanitation practices and reduced availability of water contribute to non-optimal environmental hygiene and sub-optimal personal hygiene practices among children under five, heightening their risk of childhood diseases.

In a **study comparing malnourished children with their non-malnourished siblings**, mothers highlighted that the malnourished children were the younger sibling, were born within less than 24 months and were in worse health at birth compared to their healthy sibling. All mothers had at least 2 births or more prior to their malnourished child and the majority were married in monogamous households. Most mothers initiated breastfeeding within the first hour of birth and were still breastfeeding their malnourished child at the time of the study. However, more than half reported giving their children other liquids within the first six months and even solid/semi-solid foods.

The majority of mothers reported being in a worse health situation when pregnant with their malnourished child suffering from nausea, fatigue, lost appetite, anaemia and experienced physical pain such as headache and backache. Nearly half of the mothers reported having eaten less quality and quantity of foods when pregnant with their malnourished child. Two in three mothers felt sicker during the lactating period of their malnourished child experiencing physical pain, anaemia and loss of appetite. Nearly one in three mothers experienced heavier workload during the pregnancy of their malnourished child and during the breastfeeding

period. One in four reported having also less social support during pregnancy and while breastfeeding their malnourished children, ranking it low or very low.

It is important to note that the current situation has been heavily impacted by extremely limited income opportunities, forcing the community to adopt various negative coping mechanisms. These include reducing portion sizes and the number of meals during the most difficult times of the month, borrowing from neighbours, and even reselling portions of their food allocations. In more desperate cases, community members have started resorting to more severe measures to obtain quick cash to support their families and settle debts, such as gambling, drug dealing, or even kidnapping. The community relies heavily on WFP rations for survival, which are perceived as insufficient to last the entire month, making the last 10 days of each month particularly difficult. The inadequate quantity and quality of food negatively impact breastfeeding practices, with women perceiving their milk supply as inadequate and adoption of mixed feeding practices. Furthermore, older children in the weaning phase struggle to receive the appropriate diversity of foods, including fruits and vegetables as recommended by nutrition centres, due to limited income. Instead, they often consume cheap snacks from local vendors, which parents resort to as a quick fix to calm their crying children and alleviate their guilt. Additionally, persistent conservative views held by husbands, often justified through religious beliefs, and women's limited decision-making power hinder their ability to use contraception. This results in frequent pregnancies, further exacerbating the family's income struggles and the challenging living conditions in the already congested camps.

The unhygienic conditions in the camps linked to lack of sufficient water, inadequate sanitation, and clogged and dirty drainage systems, which worsen during the rainy season, along with inadequate space for children to play, significantly increase their exposure to disease as they play around their houses.

Based on available data (SENS 2023, 2022, 2021), statistical associations through logistic and linear regressions allowed us to observe risk factors and protective factors for acute malnutrition (wasting and stunting). However due to the unavailability of more recent and comprehensive data sources, we are currently unable to distinguish between various pathways of wasting, stunting and underweight. It is important to emphasize that the absence of observed associations should not be interpreted as evidence of their non-existence but rather as gaps in the data. Consequently, the existence or absence of such associations remains uncertain and individual pathways remain unknown.

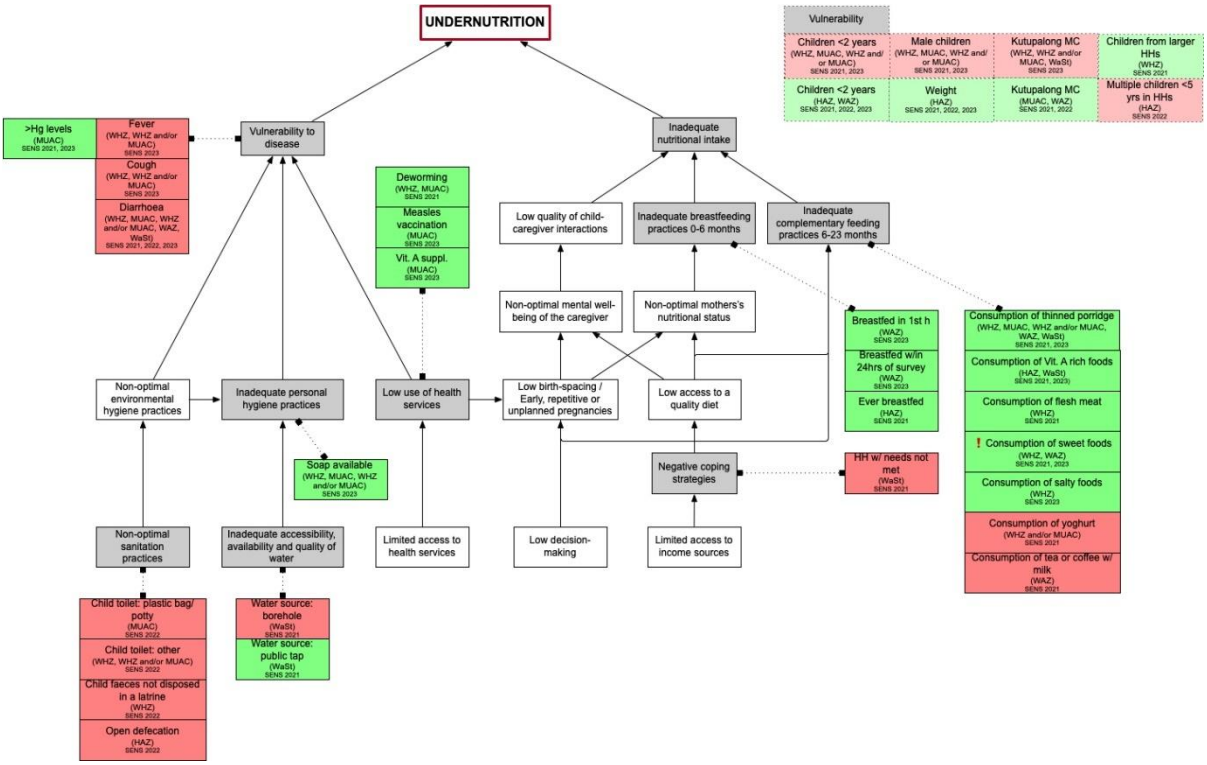
Undernutrition

On the basis of the available evidence, **three causal pathways** built around **seven key risk factors** can explain most cases of undernutrition in the study area.

Firstly, *limited access to income* contributes to *negative coping mechanisms* leading to *low access to quality diet*. This, on one hand, leads to *sub-optimal nutritional status of mothers* hindering *optimal breastfeeding practices*, with caregivers often practicing mixed feeding. On the other hand it causes *sub-optimal complementary feeding practices*, leading to inadequate nutritional intake of children under-five.

Secondly, *limited access to health services* largely linked to quality-of-care barriers reduces use of available health services, with caregivers often resorting to self-medication or alternative medicine practices which increases children's vulnerability to disease.

Lastly, the challenging WASH conditions in the camps, linked to *inadequate availability of water* result in *inadequate personal hygiene practices. Non-optimal sanitation practices* hamper *sub-optimal environmental hygiene* making it even more difficult for mothers to keep their children clean through the day, once again increasing children's vulnerability to disease and subsequently undernutrition.



Risk factors: Children living in a household with unmet needs had an increased risk of concurrent wasting and stunting. Children who consumed yogurt the day prior to the survey showed a higher likelihood of wasting, while children who drank tea with milk had an increased risk of being underweight. Children living in households where a borehole was used as the main water source faced a higher risk of concurrent wasting and stunting. Additionally, children who used a plastic bag or another unspecified type of toilet had an increased risk of wasting. Conversely, children whose feces were not disposed of in a latrine were more likely to be wasted, while those practicing open defecation had a higher risk of stunting. Finally, children who experienced fever or cough had a greater risk of wasting. Children with diarrhoea were at heightened risk of wasting, underweight, and concurrent wasting and stunting. Children receiving ORS treatment for diarrhoea were found to have a higher risk of stunting and underweight; however, this finding appears counterintuitive and should be interpreted with caution.

Vulnerability to wasting was higher among children under 2 years old and male children. Children living in Kutupalong mega camps were more susceptible to wasting and concurrent wasting and stunting according to 2023 data, while those in households with multiple children under-five were more vulnerable to stunting.

Protective factors: Children who consumed any type of thin porridge had a reduced risk of wasting, underweight, and concurrent wasting and stunting. Those who consumed flesh meat had a lower risk of wasting, while children who ate vitamin A-rich foods were less likely to be stunted or experience concurrent wasting and stunting. Additionally, children who consumed salty foods had a lower risk of wasting, and those who ate sweet foods the day before the survey also showed a decreased risk of wasting and underweight. The finding regarding sweet foods appears counterintuitive and should be interpreted with caution. Children who were breastfed within one hour of birth, as well as those breastfed the day before the survey, had a lower risk of being underweight. Children who had ever been breastfed also exhibited a lower

risk of stunting. Children who received measles vaccination, deworming treatment, or vitamin A supplementation within the six months prior to the survey showed a decreased risk of wasting. Furthermore, children with higher haemoglobin levels had a lower likelihood of wasting. Children living in households that used a public tap as the main water source had a lower risk of both wasting and stunting occurring concurrently, while those in households with soap available during the survey were less likely toz\ experience wasting.

Vulnerability to wasting decreased among children living in Kutupalong mega camps according to 2022 data and those living in large households. Vulnerability to stunting decreased in children under the age of 2 and those with a higher weight, with children under the age of 2 also being less likely to be underweight.

Recommendations

Based on the findings of this link NCA study, the following recommendations are proposed for integration into humanitarian interventions provided by the UN and partners operating in the study area:

Dissemination of key finding

Share the main findings of this study with international and national partners and authorities working in the Rohingya camps in Cox's Bazar.
Ensure that findings information inform programmatic responses, particularly interventions targeting women of reproductive age and children under five.

Non-optimal breastfeeding practices

- Implement community dialogue initiatives (ensuring that minimum standards of social and behaviour change communication are met) to promote optimal breastfeeding practices, with a focus on addressing key challenges such as mixed feeding, cultural beliefs, the consumption of sugary foods and liquids between 0-6 months, and the use of breastmilk substitutes. This can be achieved through:
    - Establishing mother to mother support groups and engaging influential family members such as grandmothers and fathers.
    - Training and identifying champion mothers who can advocate for exclusive breastfeeding as champions.
    - Engagement with the Heath sector to strengthen counselling on exclusive breastfeeding into antenatal care (ANC) and postnatal care (PNC) services.
    - Engagement with local authorities regarding the monitoring of breastmilk substitutes supply.
- Implement systems for early identification of breastfeeding mothers experiencing mental health challenges and timely referral to mental health services.

Non-optimal complementary feeding practices

- Develop and integrate social and behaviour change activities to promote optimal complementary feeding practices through diverse approaches such as community engagement, nutrition education, and media campaigns to reduce the consumption of unhealthy sugary and salty snacks among children under five targeting mothers of children under-five, grandmothers, and fathers. This will include for eg. demonstrations of complementary feeding options by utilizing seasonally available fruits and vegetables.
- Implement innovative community engagement strategies to prevent the diversion of RUTF, RUSF, and WSB supplements.

Low income sources:

- Collaborate with Livelihood and Food Security Sector partners to enhance income-generating activities within the camps through:
  - Microenterprise skills such as recycling empty sachets, small handcrafts, and soap making.
  - Small-scale farming activities, including pond aquaculture, poultry, gardening, and kitchen gardening and provision of farming inputs to also improve dietary diversity of children under five.
  - Vocational and technical training for youth.
  - Cash-for-work activities involving volunteer engagement to provide immediate income support and sustainable livelihood options.
- Continue advocating with the Bangladesh government to enable the Rohingya population to participate in income-generating activities and to ease existing restrictions, thereby promoting economic self-reliance and improving their livelihoods.

Sub-optimal accessibility and availability of water

- Collaborate with partners to ensure that sector standards are met for adequate daily water supply, providing a total runtime of 4 hours and a minimum of 20 liters per person per day, while continuously monitoring and maintaining water quality across all camps. Additionally, given the water scarcity in Teknaf, explore opportunities for rainwater harvesting and reservoir construction to enhance water availability.
- Advocate for transitioning from mini water networks to larger, integrated water systems to ensure consistent, high-quality water supply across all camps.
- Strengthen social and behaviour change activities to promote the benefits of chlorinated water over tube-well water and to discourage the use of private pipelines sourced from the host community to ensure safer water practices.

Sub-optimal sanitation practices at household level

- Strengthen community engagement through dialogue, sensitization, and mobilization focused on promoting appropriate sanitation practices, using malnutrition as a trigger to motivate action.
- Enhance latrine accessibility by improving privacy, protection, and safety features, making them more inclusive—for example, installing locks, doors, lights, or providing torches.
- Monitor and ensure construction of new toilets and/or timely repairs of current facilities adjusting to the increased population and new arrivals.

Inadequate food and environmental hygiene

- Conduct community engagement at household level to promote proper waste management and disposal. This will include regular monitoring and waste collection by community volunteers, alongside community-led waste cleaning and drainage clearance campaigns and collaboration among WASH and site management sectors to establish community led teams responsible for regular environmental cleaning.
- Introduce contextually appropriate solutions for managing household animals within living spaces to reduce pathogen transmission, especially in households with vulnerable groups such as women of reproductive age and children under five. This can be achieved by involving community in making animal cages using locally available materials like bamboo or recycled items.

- Encourage community members to consume only freshly cooked food, focusing on WHO 5 keys to safer food.

Other

- Strengthen child's mental wellbeing through implementation of psychosocial stimulation programmes *(including- mother to child integration, actively playing 20-30min daily with children, praising, smiling, giving positive feedback, creating stimulating environment e.g. colorful room environment etc.)*
- Improve mother's motivation, coping mechanisms, and resilience through engagement in psychosocial activities *(including awareness session on mental health, positive parenting skills, stress management, self-care, organize recreational activity to reduce stress, rewarding mother for the progress of child's condition etc.)*
- Provide MHPSS interventions for mother/caregiver with Mental health and psychosocial problems including:
    - Screen all mothers to identify mental health problems at the first contact, refer those in need for psychological/psychosocial counseling and treat those with severe mental health condition.
    - Assess mother's knowledge, perception, and practices about childcare.
    - Establish peer support group for mothers with malnourished children.

I. INTRODUCTION

CONTEXT

Violence in Rakhine State, Myanmar, which began on 25 August 2017, drove more than 700,000 Rohingyas across the border to Cox's Bazar, Bangladesh[6]. Those fleeing the violence joined an estimated 200,000 people who had fled earlier waves of displacement. The pre-existing refugee camps (Kutupalong and Nayapara Registered Camps and Kutupalong Mega Camps[7]) were expanded to host the new influx, which put an immense strain on the existing infrastructure and humanitarian services.

Humanitarian needs in the refugee camps in Cox's Bazar are driven by multiple factors including the protracted Rohingya refugee crisis and vulnerability to climate-induced natural hazards such as cyclones, floods, landslides, and thunderstorms. The situation is aggravated by limited health care, and nutrition services, food insecurity, psychosocial distress, poor living conditions and hence pushing children into a spiralling cycle of disease and malnutrition. In addition, the population continues to grow after nearly seven years of the Rohingya refugee crisis, with an estimated 1,004,986 as of October 2024, and projections indicating an influx of new asylum seekers fleeing the conflict in Myanmar. The Rohingya population continues to live in 33 camps while others (35,357) were relocated to Bhasan Char Island by the Government of Bangladesh[8].

The 2023 Standardized Expanded Nutrition Survey (SENS) indicates a worsening malnutrition situation among children, with severe wasting nearly tripling since 2022. The prevalence of chronic malnutrition and anemia remains critically high. There has also been a decline in key nutrition indicators, including minimum dietary diversity (MDD) (from 28.2% to 26.9%) among children 6-23 months, meal frequency (from 68.6% to 47.3%), and the minimum acceptable diet (from 22.7% to 16.5%) between 2022 and 2023. This deterioration in the nutrition situation results from the interplay of multiple factors across various systems, including food, health, water, sanitation and hygiene (WASH), and social protection. Notably, the General Food Assistance (GFA) ration cuts, which took effect in March 2023, reducing the amount from $12 to $10 in March and to $8 in June 2023, have contributed to the situation.

Given the above situation, the nutrition situation among Rohingya children is of great concern and may lead to growth, developmental, and health consequences if not addressed.

JUSTIFICATION OF THE STUDY

Nutrition sector partners have been strengthening the comprehensive nutrition programs to ensure timely treatment and prevention of malnutrition as well as ensuring multisectoral engagement in addressing the high levels of acute malnutrition to bring it further down to acceptable levels of >10 percent as per the UNHCR standards[9] and 5 percent WHO/UNICEF standards[10].

These comprehensive nutrition services include both treatment and prevention activities. The treatment program includes community-based management of acute malnutrition (CMAM) services (stabilization centers for inpatient management of children with severe acute malnutrition with medical complications, outpatient therapeutic programs (OTPs), targeted supplementary feeding programs (TSFPs), and community outreach and mobilization. The prevention program includes growth monitoring program (GMP), blanket supplementary

[6] Rohingya emergency | UNHCR

[7] Mega camps refer to 31 camps in Ukhiya and Teknaf hosting the unregistered refugees

[8] Joint Government of Bangladesh - UNHCR Population map as of June 2024

[9] UNHCR Handbook for nutrition specific interventions to prevent and treat malnutrition in emergencies

[10] de Onis M, Borghi E, Arimond M, Webb P, Croft T, Saha K et al. Prevalence thresholds for wasting, overweight and stunting in children under 5 years. Public Health Nutrition. 2018;1-5. doi:10.1017/S1368980018002434.

feeding programs (BSFP) for children 6-23 months and Nutrition sensitive E-voucher programme for 24-59 months including promotion of appropriate infant and young child feeding (IYCF) and maternal health and nutrition including social, and behaviour change (SBC). Additionally, micro-nutrition deficiency prevention and control programs are implemented through Iron Folic Acid (IFA) supplementation for pregnant women and adolescent girls, bi-annual vitamin A supplementation, and deworming campaigns.

Due to the situation in the camps coupled with aggravating factors such as congestion, catastrophic weather conditions (monsoon, floods and landslides), health seeking behaviours, food insecurity situation, inadequate WASH services, high levels of vulnerability among the refugees etc., the need for a Nutrition Causal Analysis (NCA) was identified to determine specific determinants of malnutrition in the camps. The study serves as a critical starting point for an in depth understanding of the causes and risk factors contributing to the high rates of malnutrition among children in refugee camps. The findings will inform multi-sectoral programming for nutrition and guide potential programmatic adjustments to address the causes of malnutrition, ultimately improving the nutritional status of children, women, and adolescents within the Rohingya refugee community.

II. OBJECTIVES OF THE STUDY

GLOBAL OBJECTIVE

The main objective of this Link NCA study is to identify the drivers of persistently high levels of acute and chronic malnutrition among Rohingya children in the FDMN camps in Cox's Bazar, Bangladesh. The findings of the study will be used to develop recommendations and evidence-based planning to strengthen the holistic approach to address the burden of malnutrition in the study area while aiming to strengthen the impact of nutrition programming.

SPECIFIC OBJECTIVES

The study specifically aimed to:

1. To identify and categorize risk factors responsible for wasting, stunting, and underweight among children 6-59 months in the FDMN camps;
    - To explore whether any risk factors, especially those with strong associations are influenced by any other variables (age, gender) and relevant geographic or socio-demographic variables (e.g. female and child-headed households, households with disabled members, etc)
    - To understand how risk factors contributing to undernutrition (especially wasting) among children aged 6-59 months have evolved and/or vary across different seasons.
2. To understand how risk factors responsible for undernutrition (wasting, stunting, and underweight) among the children aged 6-59 months interact with each other in order to determine which causal pathways to undernutrition are likely to explain most undernutrition cases in the target area;
3. To identify and map the interventions of operational actors in the target area and analyze the perception and degree of adequacy and appropriation by communities of the current humanitarian operational response in relation to causes of undernutrition.
4. To identify the needs and capacities of communities to respond to the identified underlying mechanisms, while also assessing the coping capacities of FDMNs in relation to their vulnerabilities.
5. To identify with the communities, the levers and barriers likely to influence the main causal mechanisms of undernutrition.
6. To develop recommendations to improve nutrition programs for FDMNs and to support the development of a comprehensive, multi-sectoral strategy.
7. To develop practical action plan for the improvement of nutritional status among women and children living in the FDMN camps in consultation with the stakeholders.

III. METHODOLOGY

METHODOLOGY

A Link NCA Nutrition Causal Analysis is a mixed methods' study for analysing the multi-causality of undernutrition, as a starting point for improving the relevance and effectiveness of multi-sectoral nutrition security programming in a given context. It is a structured, participatory and holistic study that builds on UNICEF's conceptual framework with an objective to build an evidence-based consensus on plausible causes of undernutrition in a local context[11].

The Link NCA methodology offers a unique opportunity for a variety of key informants, from technical experts to community members, to express their opinions on the local causes of undernutrition in the zone of study. The findings are constantly reviewed until validated by all stakeholders. Undernutrition is examined globally, avoiding a vertical, sectoral approach, linking different verified sources of information to build consensus around the plausible causes of undernutrition in a given context. With the recent optimisation of the quantitative component, Link NCA allows to study potential differences in causal mechanisms of wasting, stunting, underweight and anaemia.

KEY STAGES

A. Preparatory phase: Development of study protocol/ Inception workshop (October 2024)

The preparatory phase of the study included the development of the study protocol, including data collection tools, the submission of ToR for approval to relevant government authorities and a consultation of key stakeholders across multiple sectors, including, among others, health and nutrition, food security and livelihoods, water, sanitation and hygiene, child and social protection, and education. The Link NCA team gathered an overall understanding of the local context to propose appropriate methodology adaptations, reflected in the first outline of the study protocol. The protocol outline was then presented during an online inception workshop held on 28 November 2024, allowing participants from all sectors to familiarize themselves with the objectives of the study and key methodological approaches, and suggest further operational adaptations. In addition, stakeholders were invited to share available secondary data sources, such as diverse assessment reports, formative research reports, description of project activities, etc. which were complemented by an online search of published research by the Link NCA team during the secondary data review phase. They were also invited to share with the Link NCA team any observations with relation to studied phenomena (wasting, stunting, underweight) and their perceived determinants, which served as a basis for secondary data review process.

B. Secondary data review and analysis (November-December 2024)

As a next step, a systematic literature review was conducted to gather an overall understanding of the local context and to identify a set of risk factors and their interactions, which could potentially trigger undernutrition among the target population in the zone of study (identification of hypothesised risk factors of undernutrition). The identification of hypothesised risk factors and causal pathways followed the Link NCA *Pathways to Undernutrition* module and all grey literature [12] available locally. The process involved a compilation of available data from 59 documents across various nutrition-specific and nutrition-sensitive sectors, such as Health and Nutrition, Food Security and Livelihoods, Water, Sanitation and Hygiene, Gender, and others. This data spanned up to five years, enabling the analysis of trends and associations between undernutrition and risk factors, both seasonally and over time. Additionally, raw data from previous SENS surveys from 2023, 2022

[11] For more information about the methodology, please refer to www.linknca.org.

[12] Annual, research and technical project reports, working papers, evaluations, policies, etc. produced by government agencies, non-governmental organizations, academia or private companies/consultants.

and 2021 was analysed, conducting logistic and linear regressions using R software to test relationships between household and child indicators with nutritional status of the target populations.

C. Initial technical workshop & Primary qualitative data collection (January-March 2025)

The synthesis of the secondary data review was presented to stakeholders and technical experts across sectors at an initial technical workshop held on 28 January 2025 in Cox's Bazar. Workshop participants were asked to share their observations of emerging risk factors and causal pathways of wasting, stunting and underweight in FDMN camps in Cox's Bazar. These observations enabled the Link NCA team to prioritise certain inquiries during the primary qualitative data collection in order to fill identified research gaps.

Qualitative data collection lasted a bit over 5 weeks, from 2 February to 11 March 2025 due to an extension needed because of the start of Ramadan during the last week of data collection. It consisted of an in-depth study of all the risk factors identified during secondary data review/secondary data analysis stage. The two principal data collection methods included semi-structured interviews (SSI) and focus groups discussions (FGD).

The community-level qualitative enquiry aimed to:

- Understand how communities perceive undernutrition and how/why undernutrition or good nutrition occurs;
- Explore community perceptions of the causes and consequences of poor health, food insecurity and non-optimal care practices in relation to undernutrition and how these interact with each other;
- Identify seasonal and historical trends of undernutrition and its risk factors;
- Identify the solutions likely to influence the main causal mechanisms.

Sampling framework

The objective of the qualitative study sampling framework is not to be statistically representative of the target population but rather to be qualitatively representative of different population segments living in the area, while ensuring the saturation point. The Link NCA methodology guidelines recommend the selection of four localities, generally considered sufficient to complete data saturation by theoretical sufficiency.

In order to ensure that the qualitative data collected represented the realities of the majority of households, purposive sampling was used to select four sectors – one within each representative camp in the study zone. Considering that there are two main areas within the FDMN camps -the Mega Camp and the Registered Camps—four sectors were selected in the Mega Camp but one sector was next to the Registered Camp, due to its significantly larger population and ensure adequate representation of the entire area.

The sectors selected for this study, including the reason for their selection, can be found in Table 1 below.

Camp	Block	Justification
Camp 2E	B	**Main Highway Roadside**: Good access to local markets, with opportunities for selling and sharing in-kind products.
Camp 18	A	**Hilly or Remote Area**: Limited market access, prone to landslides
Camp 26	A	**Water Scarcity Area**: Distant from district centres, limited access to commodities due to high market prices and fewer supplies.
Camp 1W	B	**Mixed Population Areas**: Includes both new and long-term refugees, with increased interaction and proximity to Bangladeshi local communities

Table 1: Qualitative sampling framework for the Link NCA qualitative study in the FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

On the camp sector level, the following categories of participants were selected to participate in semi-structured interviews and focus groups discussions:

a. Community leaders (mahji's, imams/assistant imams, other religious leaders and prominent community figures);
b. Traditional healers and birth attendants;
c. School directors or teachers;
d. Representatives of community-based organisations;
e. Mothers and fathers of children under 5 years of age;
f. Grandparents of children under 5 years of age;
g. Health facility personnel (doctors, nurses, health extension workers);
h. Key government and Non-Governmental Organisation (NGO) staff/volunteers.

Sample size

The qualitative research team spent around 6 consecutive days in each sampled sector. Semi-structured interviews and focus group discussions were limited to a maximum of 1 hour or 1 hour 15 minutes. The group discussions took place between 9:30 a.m. and 2:00 p.m. to adapt to the community's availability and daily routine. During the final week of data collection, the number of FGDs and KIIs was limited to two per day, ensuring completion by 12:30 to accommodate the community's prayer times during Ramadan. In total, the data collection team completed 50 focus group discussions and 42 key-informant interviews and 32 comparative studies as described in Table 2.

Camp	Block	Focus Group discussions	Semi-structured interviews	Comparative study[13]	Restitutions	Days	No. of participants (total)	No. participants (female)
1W	B	13	11	8	1	6	140	98
18	A	13	11	8	1	6	133	90
26	A	12	10	8	1	6	124	77
2E	B	12	10	8	1	8	108	90
TOTAL		**50**	**42**	**32**	**4**	**26**	**558**	**355**

Table 2: Summary of community consultations during the Link NCA qualitative study in the FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

Data collection tools

The qualitative data collection team used semi-structured interviews and focus groups discussions as two principal data collection methods. However, in order to avoid an information bias, the qualitative data collection team used a variety of participatory tools, aiming to reveal real determinants of undernutrition in the area. The selection of participatory tools included, but was not limited to:

a. Historical calendar
b. Seasonal calendar
c. Ranking
d. Storytelling
e. Daily activities chart
f. Meal composition chart
g. Household expenses
h. Health journey / Therapeutic itinerary

The semi-structured interviews and focus group discussions were guided by interview guides, covering key topics related to identified risk factors. The content of interview guides considered available findings for the study zone and instead of repeating certain inquiries it

[13] Structured interview.

aimed to deepen the understanding about individual risk factors and their context-specific interactions.

The last day of the data collection in each sampled community will be dedicated to a restitution of findings to community representatives with an objective to seek their feedback on the interpretation of collected data and, more importantly, to engage them in a design of community-based solutions to identified problems and their prioritisation.

For more information about the qualitative study methods and tools, please refer to Qualitative Study Guide in *Annex C*.

Team composition and training

Qualitative data collection was led by the Link NCA Analyst assisted by four research assistants, one supervisor and four community health volunteers (1 per location) who mobilised participants for community exchanges.

Prior to the start of data collection, members of the qualitative study team attended a three-day training course, which took place in Cox's Bazar from 29th to 1st February 2025. The training included modules on the Link NCA methodology and data collection tools, as well as an explanation of the ethical considerations to be respected during the study. A series of simulations were integrated into a learning process to check team members' understanding of key concepts and practices and to ensure a high level of quality in data collection. The training was followed by a pilot test which took place on 1st of February in camp 2w in Ukhiya, Cox's Bazar.

D. Synthesis of results/ Dissemination (March - May 2025)

Upon the completion of a data collection stage, all collected data sets were duly analysed and triangulated in order to categorise risk factors according to their relative impact on undernutrition in the study zone. The categorisation of risk factors considered all sources of information collected in the course of study. The results were presented to key decision-makers and operational partners during a final technical workshop held online on the **20th May 2025**, allowing a variety of stakeholders to input on findings and operational recommendations. During an uptake workshop held on **27th May 2025**, these were further developed into a multisectoral strategy for FDMN camps in Cox's Bazar and an action plan for stakeholders to follow in order to address identified causal patterns in an effective way with an objective of curbing rising rates of undernutrition in the area.

DATA PROCESSING AND ANALYSIS

Qualitative data were recorded manually in a notebook and transcribed electronically at the end of each data collection period in a sampled community The data were compiled in NVivo software and coded by theme for more efficient analysis, guaranteeing the confidentiality of the speakers. All views were then analysed using qualitative content analysis methods.

ETHICAL CONSIDERATIONS

The following provisions were complied with during this Link NCA study:

a. All relevant authorities were duly informed about the study and had expressed their agreement with the study implementation via support letters addressed and delivered to the Camp in Charge (CiC) and Refugee Relief and Repatriation Commissioner (RRRC);
b. The participants were selected equitably and their informed consent were sought to ensure that they participate in the study voluntarily;
c. The participants were able to participate in more than one focus group discussion, if they choose to, but considering their other engagements, community leaders were advised to spread the selection of participants across the whole sector;
d. The community leaders were informed of the selection of their community for the purpose of a qualitative study at least one day in advance. During the initial meeting they received

a detailed planning of research activities in their community to facilitate the participant selection process and ensure the participants' availability at stated times. The detailed schedule were modified if required by village members. The qualitative team adapted its routine as far as possible, taking into account time constraints of the study;

e. The anonymity of participants was ensured during all stages of the study (data collection, data analysis and data storage). Their names were neither collected nor shared;
f. The data collection team organised a community wrap-up discussion during the last day of the data collection in order to allow communities to review their findings, rank identified risk factors and prioritise actions for the way forward;
g. All children aged 6 – 59 months who were identified as suffering from moderate or severe acute malnutrition and/or other medical condition were referred to the nearest health facility for appropriate treatment.

STUDY LIMITATIONS

- **Lack of secondary data:** Despite availability of multiple SENS data (2021-2023) the collected indicators were quite restricted compared to the hypothesized risk factors examined in this study. Furthermore, only the child and household modules could be merged, excluding the indicators available in the women's module which reduced even more the number of available indicators for regression analyses.
- **Statistical associations**: It is advisable to assess statistical associations with caution, as observed links do not necessarily prove causality, while unobserved links do not mean that causality does not exist. Correlations should therefore be considered in a broader context, triangulated with other data sources, and as such can be used to prioritise current and future interventions. For the purposes of this report, all statistical associations with a **p-value <0.05** are qualified as '**significant**' in relation to the outcome of interest, i.e. wasting, stunting, underweight and concurrent wasting and stunting with the aim of informing future research into the relationships between these risk factors and nutritional status.
- **Confounding variables**: The statistical analyses carried out in this study are based on unadjusted regression models that do not consider the effects of confounding variables. The aim of these analyses is to determine the relationships between the nutritional status of children under 5 and a variety of individual and household indicators based on their independent significant associations to enrich triangulation with other data sources. However, these associations should be viewed with caution as they may change in more complex models.
- **Lack of privacy during discussions**: Despite good attendance and engagement during the FGDs, the crowded environment limited privacy during conversations. Most discussions took place inside homes, where multiple family members were present in adjacent rooms, sometimes interrupting or overhearing the dialogue. This lack of confidentiality hindered the team's ability to explore sensitive topics related to gender issues and negative coping mechanisms in greater depth.

IV. RESULTS

UNDERNUTRITION

QUALITATIVE INQUIRY FINDINGS

Community perceptions of causal pathways of undernutrition

According to the community, undernutrition is caused by poor access to income sources. Income opportunities are mainly provided through cash for work programmes by organisations operating in the camps and is constrained to a small group of men selected at the beginning of each year. Low-income sources force the community to adopt negative coping strategies, such as borrowing food from neighbors, selling portions of rations and NFIs, reducing quality and portions of meals, seeking casual work within the host community as well as engaging in gambling, kidnapping and drug dealing.

As a result, access to quality diet is limited, with the population relying essentially on food rations to survive. This negatively impacts the nutritional status of women and and leads to sub-optimal complementary feeding practices for children. Breastfeeding mothers often feel they are not producing enough milk, adopting non-optimal breastfeeding practices that include dates, honey, flour porridges, and even formula to feed their babies and stop them from crying.

Simultaneously, low women decision making hinders their ability to use family planning offered at the health facilities contributing to low birth spacing, especially in the most conservative households. Resolving marital disputes through intimacy is common and can result in more children among the couples that fight more. The combination of low birth spacing and low nutritional status of women increases stress levels for mothers. With multiple young children to care for, they often feel worried and anxious which causes non-optimal mental health and wellbeing of the caregiver and translates into low quality of mother-child interactions. As a result mothers focus primarily on the younger child leaving the others under the care of their siblings or other family members which influence their food and hygiene practices.

Additionally, despite the close proximity and free access to health facilities, the community faces important quality of care and sociocultural barriers restricting direct access to the health facilities when a child is sick. Mothers instead resort to pharmacies, private clinics and traditional healers to get better and quicker care, possibly delaying treatment and depleting household resources for medicines.

Lastly, non-optimal sanitation practices and reduced availability of water contribute to non-optimal environmental hygiene and sub-optimal personal hygiene practices among children under five, heightening their risk of childhood diseases.

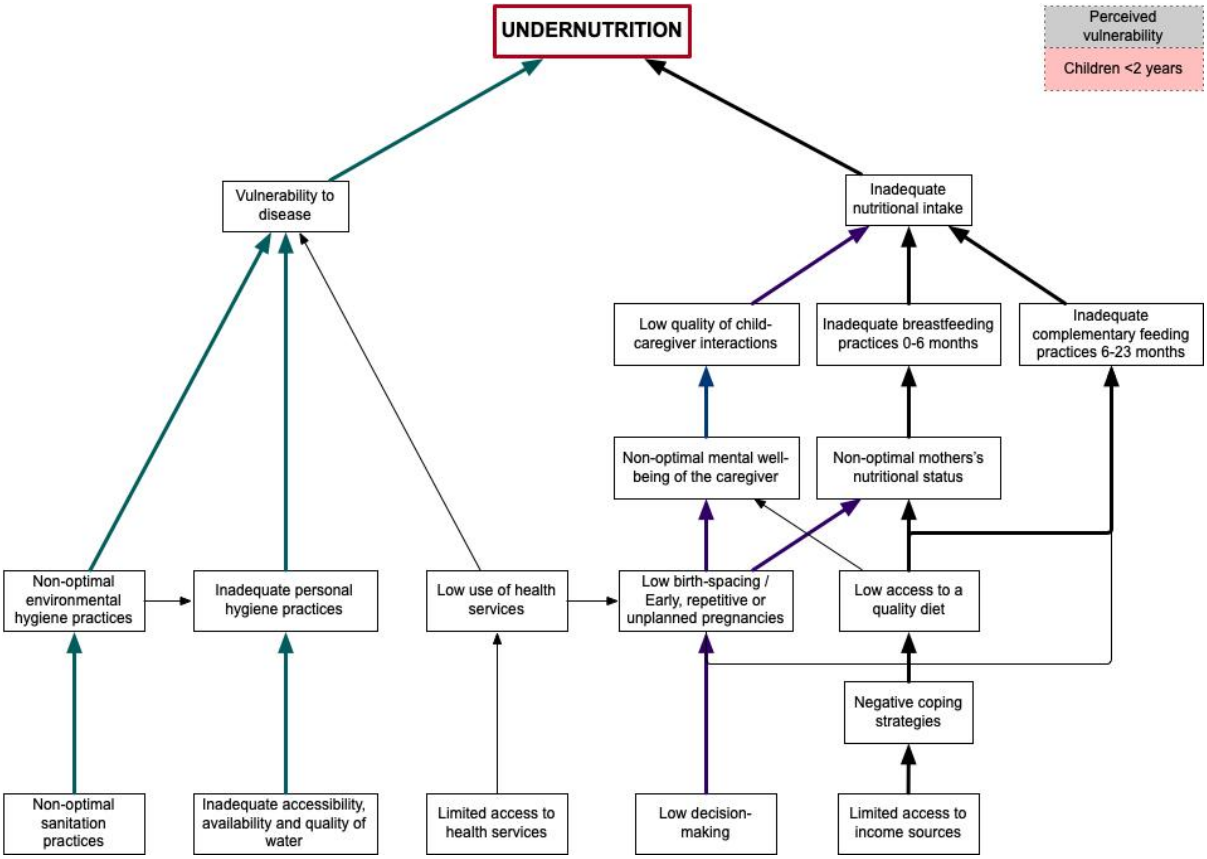


Figure 1: Community perceptions of causal patterns of undernutrition, Rohingya camps, Cox's Bazar

ACUTE MALNUTRITION

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC
GAM (WHZ)	**15.4%** (11.9 - 19.5) (SENS 2023) **12.4 %** (9.5 - 16.1) (SENS 2022) **13.7 %** (10.5-17.7) (SENS 2021)	**9.6%** (6.9 - 13.2) (SENS 2023)	**15.1%** (SENS 2023)	**10.3%** (7.4 – 14.2) (SENS 2022) **12.5%** (9.0-17.1) (SENS 2021)	**9.2%** (6.3 – 13.2) (SENS 2022) **12.2%** (8.8-16.7) (SENS 2021)
MAM (WHZ)	**13.3%** (10.2 - 17.1) (SENS 2023) **11.7 %** (9.0 - 15.1) (SENS 2022) **12.4 %** (9.4-16.2) (SENS 2021)	**8.7%** (6.2 - 12.2) (SENS 2023)	**13.1%** (SENS 2023)	**10%** (7.1 – 13.9) (SENS 2022) **12.4 %** (9.4-16.2) (SENS 2021)	**8.8%** (6.0 – 12.7) (SENS 2022) **10.0 %** (7.0-14.2) (SENS 2021)

[14] The data included in this section is not exhaustive and represents only an overview of the data available at the time of the preparatory phase of the study. It is possible that new data sources have since been published. Moreover, it is important to note that the inclusion of these data in the Link NCA report does not mean approval or comparability, as some data are not automatically comparable. It is therefore advisable to assess these data with caution and refer to the sources cited for further information.

SAM (WHZ)	**2.1%** (1.1 - 3.9) (SENS 2023) **0.7 %** (0.3 – 1.9%) (SENS 2022) **1.3 %** (0.5-3.1) (SENS 2021)	**0.9%** (0.3 - 2.5) (SENS 2023)	**2.0%** (SENS 2023)	**0.3 %** (0.1 – 1.9%) (SENS 2022) **1.6 %** (0.6-3.9) (SENS 2021)	**0.4 %** (0.1 – 2.0%) (SENS 2022) **2.2 %** (1.0-4.8) (SENS 2021)
GAM by MUAC	**4.5%** (2.8 - 7.1) (SENS 2023) **2.5%** (1.5 – 4.3) (SENS 2022) **1.7 %** (0.9-3.2) (SENS 2021)	**3.2%** (1.8 - 5.6) (SENS 2023)	**4.4%** (SENS 2023)	**2.6%** (1.3 – 5.1) (SENS 2022) **3.9 %** (2.1-7.0) (SENS 2021)	**1.5%** (0.6 – 3.7) (SENS 2022) **4.4 %** (2.6-7.6) (SENS 2021)
MAM by MUAC	**3.3%** (1.9 - 5.7) (SENS 2023) **2.2%** (1.2 – 3.9) (SENS 2022) **1.7 %** (0.9-3.2) (SENS 2021)	**2.9%** (0.1 - 1.6) (SENS 2023)	**3.3%** (SENS 2023)	**2.6%** (1.3 – 5.1) (SENS 2022) **3.1 %** (1.6-6.0) (SENS 2021)	**1.5%** (0.6 – 3.7) (SENS 2022) **3.3 %** (1.8-6.2) (SENS 2021)
SAM by MUAC	**1.2%** (0.6 - 2.6) (SENS 2023) **0.4%** (0.1 – 1.5) (SENS 2022) **0%** (SENS 2021)	**0.3%** (0.1 - 1.6) (SENS 2023)	**1.2%** (SENS 2023)	**0%** (SENS 2022) **0.8 %** (0.2-2.8) (SENS 2021)	**0%** (SENS 2022) **1.1 %** (0.4-3.2) (SENS 2021)
Combined GAM[15] (WHZ and/or MUAC and /or edema)	**16.3%** (12.7 - 20.5) (SENS 2023) **13.2%** (10.2 – 16.8) (SENS 2022) **14.1%** (10.8-18.2) (SENS 2021)	**11.3%** (8.4 - 15.0) (SENS 2023)	**16.1%** (SENS 2023)	**11.5%** (8.1 – 15.3) (SENS 2022) **13.7%** (10.0-18.4) (SENS 2021)	**9.9%** (6.9 – 14.0) (SENS 2022) **13.7%** (10.1-18.3) (SENS 2021)
Combined MAM (WHZ and/or MUAC and /or edema)	**13.6%** (SENS 2023) **12.3%** (SENS 2022) **12.8%** (SENS 2021)	**10.1%** (SENS 2023)	**13.4%** (SENS 2023)	**10.8%** (SENS 2022) **11.3%** (SENS 2021)	**9.5%** (SENS 2022) **10.7%** (SENS 2021)

[15] The combined acute malnutrition prevalence (cGAM) by weight-for-height Z-score (WHZ) and/or low MUAC and/or edema is the most relevant indicator for caseload planning for nutrition treatment programs

Combined SAM (WHZ and/or MUAC and /or edema)	**2.7%** (1.5 - 4.6) (SENS 2023) **0.9%** (0.4-2.1) (SENS 2022) **1.3%** (0.5-3.1) (SENS 2021)	**1.2%** (0.5 - 2.9) (SENS 2023)	**2.6%** (SENS 2023)	**0.7%** (0.2-2.4) (SENS 2022) **2.3%** (1.1-5.0) (SENS 2021)	**0.4%** (0.1-2.0) (SENS 2022) **3.0%** (1.5-5.7) (SENS 2021)
Concurrent wasting + stunting (WaSt)	**7%** (SENS 2023)	**2.9%** (SENS 2023)	**6.8%** (SENS 2023)		

Risk factors[16] : Age < 24[17], Fever[18], Diarrhoea[19], Cough, difficulties breathing & fever[20]

- GAM in 2023 was the highest since the 2017 influx. GAM is higher in younger children (21% for ages 6-23 months) compared to older children (11% for ages 24-59 months), with minimal differences between sexes (15% females vs. 13.4% males), consistent with 2022[21] and 2021[22] surveys.
- 72% of GAM cases identified by WHZ and most low MUAC cases (90.1%) were among children 6-23 months.
- The most vulnerable to acute malnutrition are boys, children under 24 months and those with younger mothers, as their risk decreases with maternal age.[23]
- Undernutrition is most prevalent during the summer months (March to June), coinciding with an increase in malnutrition-related illnesses like diarrhea, fever, and skin diseases. Swollen abdomens, known as "pet fola," are often attributed to children consuming insects, which are believed to cause spleen malfunction, or from wheat soya blend Super Cereal, thought to induce digestion issues. Overeating after periods of low food intake is also linked to abdominal swelling and diarrhoea. Weight loss and symptoms like “sunken eyes” are primarily attributed to sanitation and hygiene factors rather than dietary insufficiency. Boys are viewed as more vulnerable to these issues due to perceived lower hygiene practices, while girls are associated with cleanliness. Although some acknowledge a link between low dietary intake and thinness, they often describe it in terms of blood deficiency. Extreme thinness is frequently attributed to the "evil eye," especially related to public breastfeeding, wherein strangers' gazes are believed to curse the child. The community distinguishes between natural and supernatural causes of illness, often attributing more severe conditions to supernatural influences.[24]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results from SENS 2023 and 2021, children under two years were more likely to be wasted based on weight-for-height z-scores, MUAC, and combined indices ($p \leq 0.01$). According to the linear regression results from SENS 2023 and 2021 older children were less likely to be wasted based on MUAC ($p<0.01$). Additionally, according to SENS 2023 and 2021 male children were at a higher risk of becoming wasted based on multiple indices ($p = 0.04$, $p = 0.04$, $p=0.02$). According to logistic regressions on SENS 2023 children living in Kutupalong Mega Camps or Registered camps had a higher risk

[16] In the context of this Link NCA report, a risk factor means a factor that increases a child's risk of undernutrition, whereas a protective factor means a factor that reduces this risk. For example, according to the sources cited, children aged between 6 and [23] months had a higher risk of acute malnutrition.
[17] AAH, “Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox’s Bazar, Bangladesh,” 2019.
[18] AAH.
[19] AAH, “Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox’s Bazar, Bangladesh,” 2019.
[20] AAH.
[21] UNHCR, WFP & ACF Bangladesh, “2022 Standardized Expanded Nutrition Survey (SENS) Report.”
[22] UNHCR, WFP & ACF Bangladesh, “2021 Standardized Expanded Nutrition Survey (SENS) Report.”
[23] AAH, “Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox’s Bazar, Bangladesh.”
[24] AAH.

of being wasted based on multiple indices (p<0.03) while based on SENS 2021 children living Kutupalong Mega Camps had a lower risk of being wasted based on MUAC (P=0.03).

According to regressions on SENS 2021 children living in larger households based on size were also less likely to be wasted.

QUALITATIVE INQUIRY FINDINGS

In the Link NCA qualitative study, we focused on understanding how local communities view and deal with acute malnutrition. By exploring the terms they use, we gain valuable insights into their perceptions. This approach is crucial for grasping the socio-cultural context in which acute malnutrition occurs and where management and prevention programmes operate.

The community referred to acute malnutrition using 28 terms of which 23 were used to identify wasting and 5 to describe kwashiorkor. Wasting was considered the most prevalent form of malnutrition seen in the community. Two main forms of wasting were mostly mentioned: one characterised by a very skinny child (*Ledaya*), and another form where a thin body was accompanied by a bloated abdomen (*Pet fula*, *Pettoa*). Additional variations included a child with repeated sickness, prominent bones, or a child about to die. Loss of weight, lack of appetite, diarrhoea and fever were common symptoms in acutely malnourished children while visible swelling or physical disability were recognised as the main characteristic to distinguish between the two forms.

Acute malnutrition - wasting	
Leda/ Ledaya (male) *Laduni (female)*	*child very skinny*
Pet fula biyaram,	*child with bloated stomach*
Chona Petto	*child with bloated stomach (chickpea belly)*
Pettoa/ Majala dor	*child with large belly but other body parts are thin*
Niyana Biyaram/Puana biyaram	*child who is getting thinner by the day*
Ruga/Beyaraimma/ Nittipirailla beram/ Oshuikka	*child who is always sick*
Niyatara jor	*child with repeated fever*
Filay	*child is eating a lot of food but getting thinner by the day*
Moraiya	*child who is dying*
Faissha beram	*child skinny like the fish named faissha fish*
Jira/ Chittaya/ Chittani	*child thin and skinny*
Pon chida	*child whose hip is thin like the flattened rice called chida*
Hemgla	*child wasted as a result of hereditary disease caused by ghosts*
Alu Haddi	*child with "only bones"*
Pilay	*child with big liver*
Khinaporainna	*child too weak and about to die*
Acute malnutrition - kwashiorkor	
Vainga	*disabled child*
Olim Berum	*child with a swollen body due to water retention, causing the skin to appear pale*
Fula beram	*child with swollen body*
Jolontor	*child with water accumulated in the body's tissue*
Pilay	*child with big liver*

Table 3: List of local terms used to describe acute malnutrition in the FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

Communities highlighted the distinction between occasional childhood illnesses such as fever, cough or scabies, and malnutrition which was seen as different due to its longer duration. believed to be caused by supernatural factors, such as evil possession by jinn or ghosts, contracted during the mother's pregnancy, and/or considered hereditary. As a result, seeking help from a traditional healer was often mentioned as the first option for treatment, with a

visit to a health facility occurring only after a few days and/ or if the traditional treatment failed. Some community members reported using traditional healing as a complementary treatment alongside care from health facilities, while others believed that traditional treatments were more appropriate if malnutrition was caused supernatural factors.

According to community exchanges, the most vulnerable children to wasting are those aged 0-2 years, particularly around the time complementary foods are introduced, children living in large or polygamous households, those from families with limited income opportunities or where women lack support, orphans, children with a widowed or divorced mother, or raised with step-siblings, as well as children from families with poor hygiene practices. No clear pattern emerged regarding differences between sexes.

Most terms used to describe undernutrition, including those for wasting and stunting, carried negative connotations. Mothers often felt judged by society, with terms like *Ledaya* ("*very skinny child"), Alu Haddi ("only bones"),* and *Fet Fula* or *Pettoa ("bloated stomach")* implying that they were not properly caring for their children.

Regarding seasonality, malnutrition was perceived to be more common during winter, when pneumonia, cough, and cold are more prevalent, and in the summer, which is linked to a higher incidence of diarrhoea.

According to community members, the number of wasting cases has decreased compared to five years ago. This decline was attributed either to the effectiveness of preventative interventions, such as reproductive health programs, nutrition supplements, and health promotion awareness sessions, or to improvements in environmental cleanliness, which are believed to prevent Jinn attacks (spirits are thought to dwell in unclean places, and attacks were more frequent when the environment was overgrown with jungle and unclean).

According to community exchanges, cases of Kwashiorkor were uncommon. This condition was generally associated with blood-related issues, problems with the spleen or liver, or physical disabilities.

According to the comparative study, most interviewed malnourished children in the sample (n=32) were female (n=19). The age varied from 6-58 months. When comparing malnourished children to their siblings, the majority (n=26) were the younger sibling and nearly two in three (n=22) were born within less than 24 months.

A summary of community perceptions of the causes and treatment of two forms of acute malnutrition can be found in table 4 below.

ACUTE MALNUTRITION - WASTING	
Causes	▪ hereditary disease caused by evil spirit possession, with jinn or ghosts (*Chummadia*) sucking children's blood, or the evil eye, leading to extreme thinness and weakness. The mother is said to be haunted by an evil spirit during pregnancy if she goes out at specific times—such as early morning, noon when the sun is directly overhead, from the afternoon to night, on Saturdays or Tuesdays, or at night when there is no moon. ▪ lack of nutritious food ▪ maternal illness during pregnancy (acute respiratory infection, jaundice, nausea during first trimester) ▪ maternal malnutrition during pregnancy ▪ sub-optimal IYCF practices: - insufficient breastfeeding due to maternal illness or stress; insufficient milk production due to evil eye (one breast produce more milk while less production in another) - child becoming sick after drinking the milk following a breast engorgement (*dudhbara*)– when a mother is not breastfeeding regularly, as a result the milk spoils in the breast and once they feed again the child becomes sick with diarrhea, bloating/ swollen belly and stomach-ache - introduction of solid foods before 6 months - children under 2 years fed with formula milk ▪ inappropriate hygiene practices, both personal and environmental ▪ inappropriate food preparation practices for super cereal, leading to indigestion and diarrhoea ▪ previous illnesses (diarrhoea and fever, parasitic infections, measles, jaundice)

	▪ tonsillitis or throat infections that make children eat less due to pain while swallowing. ▪ stomach ulcer, making difficult for the child to eat ▪ spleen related disease ▪ linked with chronic conditions such as disability or epilepsy
Vulnerability	▪ children under 2 years of age ▪ children of mothers with poor nutritional status ▪ children from families with low income/ no capable income provider/ fathers lacking work opportunities ▪ children of single mothers (widowed or divorced) ▪ children from families with inadequate hygiene practices (both personal and environmental) ▪ children from large households, with several young children, and polygamous families ▪ twins ▪ children from families where women face a heavy workload/ lack support ▪ children whose mother passed away or abandoned ▪ children whose mother remarried multiple times and have step-siblings ▪ children raised by a stepmother ▪ children who are frequently going out (may get haunted by jinn or ghosts) ▪ children of women who take injections and pills, reducing breastmilk production
Prevention	▪ ensure personal hygiene practices ▪ provide complementary food beside breastfeeding ▪ take child to hospital when sick ▪ staying indoors to avoid getting haunted by jinn or ghosts
Treatment	▪ Resort to traditional healers (Boiddo) or religious leader who recite some words, give amulets (Tabiz), blow with holy water. Traditional healers practice spiritual protection rituals (seal houses to prevent spirits from entering and place protective amulets around the home). Traditional healers are better placed to treat malnutrition caused by jinn or ghosts ▪ Care at the health centre with Ready to Use Therapeutic Food (RUTF) or Ready to Use Supplementary food (RUSF) ▪ Administration of herbal medicine (pakhon, seeds, roots)
ACUTE MALNUTRITION - KWASHIORKOR	
Causes	▪ unknown cause ▪ intestinal infection causing diarrhoea, vomiting, cough ▪ pneumonia ▪ enlarged liver

Table 4: Summary of community perceptions of the causes and treatment of the two forms of acute malnutrition in the FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

STUNTING

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC
Stunting (HAZ)[25]	41.3% (37.0 - 45.8) (SENS 2023) 41.2% (36.2 - 46.5) (SENS 2022) 30.2% (26.1-34.6) (SENS 2021) 34.2% (SENS 2020)	38.5% (37.0 - 45.8) (SENS 2023)	41.2% (SENS 2023)	37.1% (31.8 - 42.7) (SENS 2022) 30.2% (24.9-36.1) (SENS 2021) 29.1% (SENS 2020)	36.5% (31.0 – 42.3) (SENS 2022) 32.8% (27.5-38.6) (SENS 2021) 34.7% (SENS 2020)
Severe stunting (HAZ < -3)	7.8% (6 – 10.1) (SENS 2022) 6.5 % (4.6-9.2) (SENS 2021)			9.3% (6.5 – 13.1) (SENS 2022) 4.3 % (2.4-7.6) (SENS 2021)	6.6% (4.2 – 10.1) (SENS 2022) 3.7 % 2.0-6.7) (SENS 2021)

[25] Very high/critical if ≥ 30% (WHO-UNICEF)

Stunting (HAZ) 6-23m	30.6% (27.0 - 34.4) (SENS 2023)	29.2% (23.3 - 35.9) (SENS 2023)	30.5% (SENS 2023) 41%[26] (SENS 2022)		
Stunting (HAZ) 24-59m	47.8% (41.3 - 54.5) (SENS 2023)	42.9% (35.7 - 50.4) (SENS 2023)	47.6% (SENS 2023)		

Risk factors[27] : Cough, difficulties breathing & fever[28] , Male[29]

Protective factors: Age < 24[30]

- Stunting trends by age group indicate that a high proportion of Rohingya children developed stunting during the weaning period.
  The overall increase starting from 2022 was possibly attributed to inadequate prevention programmes, which were disrupted by COVID-19 restrictions affecting nutrition, food security, and social protection
- Children over 24 months and those in households with more than 11 members are particularly vulnerable to stunting. Limited female autonomy and decision-making contribute to poor birth spacing, with siblings less than 12 months apart being more likely to be stunted, especially if the mother's first pregnancy was before age 18. Caregivers with lighter workloads are more likely to engage in appropriate interactions with their children, reducing stunting risk. Hygiene practices, like covered water storage, weakly protect against stunting, while soap availability significantly correlates with lower chronic malnutrition odds. Children whose mothers had their first pregnancy before age 18 are often found unclean. Interestingly, reliance on humanitarian assistance may protect against chronic undernutrition, possibly due to its positive impact on household income. However, households receiving such assistance tend to achieve lower individual dietary diversity scores, likely influenced by the ways assistance is provided.[31]
- Stunting is primarily seen as a hereditary condition, with a common belief that stunted children are merely "bad luck" or a natural part of life. Families with income from labour or construction are believed to be less vulnerable as they can afford nutritious food and hygiene supplies, while families lacking financial resources are often believed to have malnourished children.[32]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to logistic regressions from SENS 2023, 2022 and 2021 children under two years were less likely to be stunted ($p < 0.01$, $p = 0.04$, $p < 0.01$). Logistic regression results based on SENS 2022 showed that children living in households with a higher number of children under five had a higher risk of being stunted ($p < 0.01$).

QUALITATIVE INQUIRY FINDINGS

Community perceptions of stunting

The communities referred to stunting using four terms below referring to a short height. The word *Baitta ("short child")* was reported to be negatively connoted.

[26] KTP MC+NYP RC + KTP RC
[27] In the context of this Link NCA report, a risk factor means a factor that increases a child's risk of undernutrition, whereas a protective factor means a factor that reduces this risk. For example, according to the sources cited, children aged between 6 and 23 months had a higher risk of acute malnutrition.
[28] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[29] AAH.
[30] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh"; AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[31] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[32] AAH.

Stunting	
Baitta/ Baittani	*short child*
Guraya/ Genda/ Tena	*child of small height*

Table 5: List of local terms used to describe stunting in the FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

Regarding the perceived causes, community members attributed the condition to evil spirit possession by jinn or ghosts. Other causes included inappropriate care practices, mother illness during pregnancy, consequence of low birth weight, or genetic condition linked to the parent's short stature. While the number of wasted children was reported to have decreased since 2020, community members were divided on the number of stunted children, with some reporting fewer cases and others noting these cases were still common.

Similar to wasting, the number of stunted children was generally reported to have decreased over the past few years. This improvement was attributed to various nutritional programs and awareness-raising sessions on healthy feeding practices.

CHRONIC MALNUTRITION - STUNTING	
Causes	▪ hereditary disease caused by jinn and ghosts ▪ pregnant woman spiritually affected by evil (jinn and ghosts) after going far away from home at night ▪ sub-optimal diet/lack of nutritious food ▪ sub-optimal care practices (children not fed timely or adequately, lacking sleep, resulting in children constantly falling sick) ▪ consequence of low birth weight ▪ maternal illness during pregnancy ▪ genetic

Table 6: Summary of community perceptions of the causes and treatment of stunting in the FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

UNDERWEIGHT

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC
Prevalence WAZ (-2 z-score)	38.2% (33.2-43.5) (SENS 2023) 36.7 % (32.1 - 41.6) (SENS 2022) 31.7% (SENS 2021) 30.8% (SENS 2020)	31.5% (26.8- 36.6) (SENS 2023)	36%[5] (SENS 2022)	35.3 % (30.1 - 40.9) (SENS 2022) 30.5% (SENS 2021) 30.9% (SENS 2020)	28.2 % (23.2 - 33.8 (SENS 2022) 30.4% (SENS 2021) 34.6% (SENS 2020)
Prevalence of severe underweight (<-3 z-score)	6.9% (4.8 – 9.8) (SENS 2022)			9.1% (6.8-12.1) (SENS 2023) 5.3% (3.3 – 8.5) (SENS 2022)	6.1% (4.0-9.1) (SENS 2023) 4% (2.3 – 7.1) (SENS 2022)

Risk factors: Male[33], Diarrhoea[34]

[33] AAH; AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[34] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."

- Both moderate and severe underweight were less prevalent in children under 6 months and nearly equal among those aged 12-47 months[35].
- Gender-wise, prevalence was similar overall, except in Kutupalong RC, where boys had higher rates at 37.5% compared to girls at 23.9%. Underweight children were distributed equally or more among different age groups in Kutupalong Mega Camps and Nayapara RC[36].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to linear regressions from SENS 2023, 2022 and 2021 older children were more likely to be underweight (p <0.01). Similarly, according to logistic regression results from SENS 2021 children under two years were less likely to be underweight (p = 0.01). Additionally, based on linear regressions from SENS 2022 children living in households with a higher number of children under-five had a higher risk of being underweight (p = 0.01). According to logistic regressions based on SENS 2022, children living in Kutupalong registered camps were less likely to be underweight (p = 0.02).

MICRONUTRIENT DEFICIENCIES

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC
Childhood anaemia (6-59m)[37]	38.1% (32.2 - 44.3) (SENS 2023) 50.5% (45.9-55.2) (SENS 2021)	40.1% (32.4 - 48.4) (SENS 2023)	38.2% (SENS 2023)	47.3 % (41.0-53.6) (SENS 2021)	44.6% (38.6-50.8) (SENS 2021)
Severe anaemia (Hb < 7)	0% (SENS 2021)			0% (SENS 2021)	0.4% (SENS 2021)
Childhood anaemia (6-23m)	56.0% (46.9 - 64.7) (SENS 2023)	60.0% (51.0 - 68.4) (SENS 2023)	56.2% (SENS 2023)		
Childhood anaemia (24-59m)	27.2% (22.3 - 32.7) (SENS 2023)	30.1% (21.6 - 40.3) (SENS 2023)	27.3% (SENS 2023)		
Concurrent anaemia + wasting	1.9% (SENS 2023)	2% (SENS 2023)	1.9% (SENS 2023)		
Concurrent anaemia + stunting	11.9% (SENS 2023)	11% (SENS 2023)	11.9% (SENS 2023)		
Concurrent anaemia + wasting + stunting	3.7% (SENS 2023)	3.2% (SENS 2023)	3.7% (SENS 2023)		

Risk factors: Age <24[38], Child sex (male)[39], Diarrhoea[40]

Protective factors: Higher maternal age[41]

[35] UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report."
[36] UNHCR, WFP & ACF Bangladesh, "2021 Standardized Expanded Nutrition Survey (SENS) Report."
[37] High if ≥ 40%
[38] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh"; AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[39] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[40] AAH.
[41] AAH.

- Anaemia is the second most prevalent form of undernutrition among children under-five years of age in Rohingya refugee camps, following stunting, with the highest prevalence in Kutupalong Mega Camps [42].
- Mothers some key factors contributing to anaemia are caesarean delivery, intestinal worms, inadequate food intake, mental stress, anxiety, lack of sleep, poor hygiene, and recurrent illness.[43]
- To prevent anaemia, they stressed the importance of consuming nutritious foods, including red spinach, dal, eggs, fish, milk, meat, pumpkin, apples, and oranges. They advised avoiding processed foods and maintaining cleanliness in homes and toilets.[44]
- Limited female autonomy and poor birth spacing contribute to increased anaemia risk. Early breastfeeding reduces anaemia rates. Long wait times for water access and chlorinated water treatment are linked to higher anaemia prevalence.[45]

HEALTH AND NUTRITION

CHILDHOOD ILLNESSES

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC	KTP MC+NYP RC + KTP RC
Child prevalence of diarrhoea 6-59m	22.0% (18.1 - 26.4) (SENS 2023) 9.5% (5.9-13) (SENS 2022) 10% (7.0-13.0) (SENS 2021) 14.9% (SENS 2020)	14.9% (11.3 - 19.3) (SENS 2023)	21.6% (SENS 2023)			

- The top five causes of morbidity in under-fives were: skin disease like scabies (33%), URTI (29%), watery diarrhoea (11%), LTRI (6%).[46]
- Registered Camps reported lower prevalence of diarrhoea than Mega Camps for both age groups. Diarrhoea was more prevalent among wasted children (28%) than non-wasted children (18%).[47] Seasonal variations are observed, peaking during the monsoon rains[48]. The two-week prevalence of diarrhea among children aged 6-59 months rose from in 2023, with a higher incidence noted in younger children aged 6-23 months at 31.5%[49].
- Diarrhoea is attributed to various causes, including dietary changes and unhygienic conditions, with the community linking its increase to overcrowding and poor sanitation in the camps. Sudden increases in food consumption, have led to digestive issues in children, prompting parents to limit solid food during diarrhoea episodes. The community frequently mentions fever, cough, and diarrhoea as prevalent childhood illnesses. Despite these challenges, the perceived incidence of childhood diseases has decreased since the peak of the crisis in 2017, with improvements attributed to better sanitation, while measles cases have reportedly ceased, although skin diseases are on the rise.

[42] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[43] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[44] UNHCR, WFP & ACF Bangladesh.
[45] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[46] Rohingya Refugee Response, "Health," n.d., https://rohingyaresponse.org/sectors/coxs-bazar/health/.
[47] UNHCR, WFP & ACF Bangladesh.
[48] UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report."
[49] UNHCR, WFP & ACF Bangladesh, '2023 Standardized Expanded Nutrition Survey (SENS) Report'.

- Therapeutic journeys for children with fever typically begin at the camp health centre. If fever persists, caregivers may invite an imam for blessings or consult a "Myanmar doctor". Children with diarrhoea are often treated outside the health centre, as it is seen as a minor condition. Families may consult local pharmacists for saline solutions or antidiarrheal medications first, and if symptoms last over five days, they may seek supernatural remedies before returning to the health centre. For skin diseases, which cause significant discomfort, mothers usually seek medical attention promptly, but long wait times may lead them to leave without consultation, prompting husbands to buy antifungal creams. If these treatments fail, they might visit another health centre to avoid queues[50].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2023, children who had fever and cough in the two weeks prior to the survey were more likely to be wasted based on weight-for-height z-scores and combined weight-for-height and/or MUAC ($p = 0.03$, $p = 0.04$). Furthermore, children who experienced diarrhea in the two weeks leading up to the survey were also more likely to be wasted based on weight-for-height z-scores, MUAC, and combined indices ($p < 0.01$, $p < 0.01$, $p < 0.01$), and they were more likely to be concurrently wasted and stunted ($p = 0.01$). Similarly, the logistic regression results of SENS 2022 indicated that children with diarrhea in the two weeks before the survey were more likely to be wasted based on MUAC ($p < 0.01$). According to the logistic regression results of SENS 2021, children who had diarrhea in the two weeks prior to the survey were also more likely to be wasted based on weight-for-height z-scores, MUAC, and combined indices ($p < 0.01$, $p = 0.005$), as well as being concurrently wasted and stunted ($p = 0.02$).

Additionally, the linear regression results from the SENS 2023 and 2021 surveys showed that children with higher hemoglobin levels were less likely to be wasted based on their MUAC ($p < 0.01$).

QUALITATIVE INQUIRY FINDINGS

Participants described a healthy child as having good appetite, playing actively, getting proper sleep and being always happy. A sick child was described instead as crying frequently, refusing to eat or breastfeed, losing weight gradually, not sleeping well and remaining inactive. The community commonly links most childhood illnesses to an unhygienic environment and/or inadequate childcare practices. Emphasis was placed on the importance of cleanliness, providing nutritious food at appropriate times, and ensuring children get adequate sleep to prevent illness. Conditions such as diarrhoea, vomiting, and skin diseases are often associated with poor environmental and personal hygiene, particularly when children play in unclean surroundings. Weather is also perceived as a factor in illness. Cold weather is believed to cause respiratory infections, while hot weather is thought to affect digestion and promote food contamination, leading to diarrhoea. In addition, certain illnesses—such as epilepsy, anaemia, and stomach-aches—are attributed to supernatural causes, including jinn, ghosts, or the evil eye.

A summary of community perceptions of the causes and treatment of recurrent childhood illness can be found in Table 7 below.

Disease	Cause	Treatment	Further information
ARI/Cough	- cold weather*/ cold air inhaled - lack of sunlight in densely built-up areas causing cold - poor hygiene practices, playing with soil and sand - getting wet during rainy season	- traditional remedies: khassura (powder of snail shells**), hot mustard oil with lemon juice or garlic, juice of baby bottle gourd boiled, lime mixed with baking soda - drinking holy water	*children get cough if they don't wear warm clothes, get uncovered at night, drink cold water, or bathing with cold water due to lack of fuel ** the powder is used for removing cough from the inside

[50] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."

		- hospital treatment in severe cases	
Anemia	- lack of nutritious food - feeding the children with outside food before six months of age - Jinn suckling the child's blood	- N/A	Associated with food shortages Decrease observed compared to 2020, now only few cases
Diarroea *ga Lamani, cerani*	- hot weather* - contaminated/ dirty food** - fried food - poor environmental/ personal hygiene practices - breathing in bad smell from drains and latrines - children drinking excessive water or cold water - improper consumption of the super cereal provided by the nutrition centre***	- tablets from the local pharmacy - home made ORS with sugar, salt and water - ORS from the health centre - cooked sagu**** (little balls of cassava root), semolina, rice with dry fish curry	*excessive heat impacts digestion in children and food spoils quickly **snacks bought outside (Singara, piyaju), contaminated with flies and/ or eaten without washing hands ***supercereal eaten dry, or mixed with cold water ****clears the stomach
Vomit *Bumi*	- high fever - indigestion - comes with strong cough - parasites - mother feeding the baby stale breastmilk* - breathing in bad smell from drains and latrines	- salt, sour things - medication from the market - hospital or heath centre treatment in severe cases	*milk that stays in the breast for a long time without being fed to the baby
Dengue	- mosquito bites*	- bathing the child and giving paracetamol syrup** - community hospital treatment	*breeding is facilitated by poor environmental hygiene practices (stagnant and unclean water, poor waste management) **bought at the local pharmacy as a precautionary measure
Fever *ga jor*	- Getting wet in the rain or as a result of sweating when playing under the sun - Cold weather - Poor environmental practices	- wrap with wet clothes - auto medication - community hospital - host community doctors - traditional remedies/ religious leader	Associated with cough and cold
Chickenpox *Ara*	- Due to hot temperatures during summer	- swiping child's body with coconut water and giving goat milk to drink*	*goat milk from host community
Stomachache, colic baby	- due to ghosts and the evil eye - consumption of ice cream and spicy snacks*	- traditional healer	*Especially during summer, children demand these snacks when they come back from outside
Epilepsy/ convulsions *Khechani beram, Chuapira*	- due to ghosts and the evil eye - high fever	- traditional healer/ religious leader treatment (mostly) with holy water, amulet *(tabij)* and blowing spells (*Jad fuk*) - health facility treatment	
Skin diseases/ scabies *Bishtua,pechara*	- poor personal hygiene practices - unclean environment - consuming food treated with formalin causes skin problems - consuming excessive amounts of allergic foods such as potatoes, eggplants, and oily foods can trigger itching	- Health centre treatment (ointment) - hospital referral for severe cases referred - bath with hot water	scabies spread rapidly due to congestion in the camp, and worsens with hot temperatures

Table 7: Summary of community perceptions of the causes and treatment of childhood illnesses, FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

In many cases, parents do not go to the health facility as a first option. Instead, they rely on remedies from traditional healers or religious leaders, or on medications from the market as their initial line of treatment. They typically consult the health centre only after a few days if the condition does not improve, or for specific illnesses known to have effective treatment at the health centre, such as scabies.

Traditional remedies from religious leaders mainly involve the use of holy water, amulets (*tabij*), and blowing spells (*jad fuk*). Other traditional medicines include a variety of mixtures or recipes

used to treat common childhood illnesses—for example, powdered snail shells (*khassura*) for respiratory infections, or cassava roots for treating diarrhoea.

A declining trend in childhood illnesses has been observed since 2020. This has been attributed to improvements in the quality of health services, increased awareness of hygiene and childcare practices, and better overall hygiene conditions in the camp—such as the construction of additional toilets, improved drainage systems, and regular cleaning of the surroundings. In terms of seasonality, as depicted in Table 8 below diarrhoea was primarily associated with the summer season and high temperatures, with occasional cases were persisting during the rainy season. Dengue fever was reported to occur mainly during the rainy season, while respiratory infections and cold were said to increase during the winter months. The transition between seasons was identified as a vulnerable period for fever. Skin diseases were reported throughout the year, with a noticeable increase during the summer.

The fear of kidnapping was mentioned as an additional factor contributing to childhood illnesses, as children are more and more kept inside in congested homes.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Climate												
Season	*Winter*		*Summer*				*Rainy season*				*Winter*	
Health												
Diarrhoea			+++	+++	+++	+++	++	++	++	++		
ARI/ Cough	+++	+++					++	++	++	++	+++	+++
Fever	++	+++	+++			+++	+++	++	++	+++	+++	++
Dengue							+++	+++	+++	+++		

Table 8: Seasonal calendar for childhood morbidity, FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

In the study comparing malnourished children with their non-malnourished siblings, 91% of malnourished children (n=29) had a poor health status while breastfeeding, with most (n=24, 75%) experiencing frequent fever, diarrhoea and respiratory infections. Most mothers (n=28, 88%) followed the recommended vaccination schedule for the malnourished child, with no difference noted in terms of how precisely they followed it compared to their healthy siblings.

A. LIMITED ACCESS TO HEALTH SERVICES

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	+++
Categorisation by the qualitative team	+++
Influence of historical and/or seasonal variations on undernutrition trends	+
Overall interpretation	++

SECONDARY DATA REVIEW[14]

[51] Based on the Link NCA "Mechanisms of undernutrition" module
[52] If cross-sectional studies with statistical associations are available for the study area. Otherwise, hypothetical strength of association, if based on prevalence values.

Indicator	Total FDMN	FDMN at Coxs Bazar
HH facing barriers to healthcare access	55% (REVA6 2022) 48% (REVA5 2021)	52% (REVA7 2023)
HH Proportion of monthly expenditure on medical care	6% (REVA6 2022) 8% (REVA5 2021)	7% (REVA7 2023)

- Visits to individual doctors increased slightly from 10% to 11%, while private healthcare visits surged from 18% to 37%. Conversely, visits to NGO healthcare facilities dropped from 55% to 35%.[53]
- Covid had an impact on needs in terms of refusal of provision of treatment, reluctance in seeking treatment at health centres for fear, lack of health staff and treatment options[54] .
- Free primary and secondary healthcare facilities, managed by international humanitarian organisations, are available in the camps, alongside free secondary and tertiary care outside the camp. In addition to free treatment, Rohingya people pay for medical care from local Bangladeshi doctors and pharmacists. An emerging black market for drugs, where unqualified sellers provide basic medical advice is also present. Individuals navigate a mix of paid and free services, along with qualified and unqualified care. The second most common reason for households taking on debt is to cover health-related expenses (43% of Rohingya in Cox's Bazar)[55].

Specific barriers of access included:

- **Geographical barriers:** Lack of transportation[56], hilly terrain, complicated access during monsoon due to roads deterioration, bridges washed away and mud hindering both patients' travel and practitioners' service delivery[57], inadequate public lighting making night-time transport challenging[58]. Nearly half of people across the camps (49%) accessed a health facility within 15 min, 41% reported needing between 15-30 min while 10% needed more time[59]. Slightly better access in the registered camps compared to the mega camps[60]. People prefer nearby facilities but will travel further for better treatment[61].
- **Temporal barriers:** long waiting times[62].
- **Financial barriers:** high cost of medication[63], payment for medical service[64] when unavailable in the camp.
- **Socio-cultural barriers:** Faith healers (moulana, fokir, imam, hujur) use Quranic verses and various texts to address health issues like stomach aches, headaches, dizziness, nerve problems, and infertility. They treat conditions believed to be caused by evil spirits, such as behaviours seen as 'mad' and menstrual or pregnancy issues linked to possession.

[53] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[54] ISCG CXB et al.
[55] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[56] Health Sector Bangladesh, "Public Health Needs Assessment in Rohingya Camps 2024-25," https://app.powerbi.com/view?r=eyJrIjoiMGIyOTE0YmYtYzM3ZC00YTE0LWJmYzktYzQ2MzFkNzQ3MzI0IiwidCI6ImY2MTBjMGI3LWJkMjQtNGIzOS04MTBiLTNkYzI4MGFmYjU5MCIsImMiOjh9.
[57] Zahin, and Al Mamun, 'Understanding Health-Seeking Behaviour of the Rohingya Community'.
[58] N Zahin, and A Al Mamun, "Understanding Health-Seeking Behaviour of the Rohingya Community," 2021, : https://rohingyaresponse.org/wp-content/uploads/2023/04/RESEARCH-REPORT-MARCH-2021-Understanding-the-health-seeking-behavior-of-the-Rohingya-community.pdf.
[59] Health Sector Bangladesh.
[60] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[61] N Zahin, and A Al Mamun, "Understanding Health-Seeking Behaviour of the Rohingya Community," 2021, : https://rohingyaresponse.org/wp-content/uploads/2023/04/RESEARCH-REPORT-MARCH-2021-Understanding-the-health-seeking-behavior-of-the-Rohingya-community.pdf.
[62] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[63] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[64] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings"; WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."

Rohingya classify medical problems as either 'doctor's diseases' or 'faith healers diseases'[65]. If patients don't recover after multiple doctor visits, they turn to faith healers, who provide comfort through amulets and recitations. Faith healers may refer patients to doctors if needed and consult them for their own health. Many people also seek treatment outside the camps for serious conditions. Cultural and religious factors can inhibit Rohingya women from discussing health with male doctors, complicating diagnosis and treatment. Limited health services and a shortage of female health professionals impede access for women and girls[66], and facility-based antenatal care further creates barriers for women and girls in need[67]. that A key advantage of 'Myanmar' doctors, pharmacists, and hazar's is that they provide home visits, which is highly valued in the community as it allows women to adhere to restrictions on female movement. Additionally, caregiving responsibilities largely prevent mothers from taking sick children to medical centres[68].

- **Quality of care:** Lack of specific services, lack /incorrect medication, discrimination/mistreatment [69,70,71], limited availability of female doctors linked to security concerns, overcrowding leading to referrals to other camps due to limited space for procedures, community's expectations for medical treatment differing from healthcare providers with a strong preference for injectables perceived to be more effective, and dissatisfaction with prescriptions often restricted to three days[72].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

Barriers to access to healthcare services

Geographical barriers

While various healthcare facilities are available in the camps, geographical barriers impact access, particularly during the rainy season. The hilly terrain and resulting slippery roads pose major obstacles, particularly for pregnant women and those residing in the furthest and elevated blocks. During this season, roads become muddy and sometimes impassable, reducing the number of people who can easily reach health facilities. During summer the heat also affects women and children however, healthcare facilities are more easily accessible during winter and dry seasons.

Some women also reported that fear of verbal harassment and kidnapping incidents compel women to travel to healthcare facilities in groups to feel safer, but it doesn't prevent them from seeking healthcare services.

Socio-cultural barriers

Healthcare access within the community is affected by a complex interplay of cultural norms, religious beliefs, and the perceived low quality of care at different healthcare facilities. Several women, particularly those from more conservative families, feel uncomfortable seeking care at hospitals, citing concerns about modesty and lack of privacy especially surrounding childbirth as well as fear of judgment or perceived loss of dignity. In fact, according to the

[65] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.
[66] Zahin, and Al Mamun, "Understanding Health-Seeking Behaviour of the Rohingya Community."
[67] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report," 2020.
[68] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.
[69] Health Sector Bangladesh, "Public Health Needs Assessment in Rohingya Camps 2024-25"; ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[70] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees."
[71] Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector, "GBV Safety Audit for Nutrition Facilities - A Mixed-Method Assessment Report."
[72] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.

Muslim religion women can only interact and be visited by female healthcare professionals (Cf. **Hyp B. Childbirth**)

Quality of care barriers

Although healthcare is free at camp health facilities, its quality is often perceived as poor, resulting in widespread dissatisfaction. As a consequence, many community members turn to more expensive alternatives, such as pharmacies and private clinics outside the camps, to obtain timely treatment, which presents a significant financial burden on their households.

Health facilities, often understaffed and under-resourced, typically offering only paracetamol for most illness. Community members report dissatisfaction with the limited medication offered at the health facility, preferring instead to access antibiotics and alternative treatments to expedite their children's recovery. More serious conditions are at times overlooked, with nurses prioritizing personal tasks like phone use over patient care and exhibiting rude or dismissive behaviour when enquiries about examinations or alternative treatments are raised. Even when children present with fever, health workers sometimes deny the illness, leading mothers to seek treatment elsewhere. The limited availability of essential medications, coupled with long waiting times and inadequate examinations, pushes many to seek care directly from traditional healers or to self-medicate with over-the-counter drugs. The time commitment clashes with childcare responsibilities, particularly for women without adequate support and multiple children under-five while also risking potential repercussions from their husbands, due to their lengthy absence. The community highlighted that the situation has been persistently poor over the last 3 years, with little improvement despite official complaints to the CiC. The poor quality of care particularly affects families with little resources who lack the means to seek better care alternatives, and either rely entirely on the care provided in the camp hospitals or fall in debt to purchase medicines or access private treatment.

Traditional healers are sought for common childhood illnesses like colds, stomach pain and diarrhoea as well as wasting. The perceived convenience and familiar approach, coupled with long waiting times and inadequate care provided at hospitals, contributes to this parallel treatment itinerary. Traditional healers are sought for common childhood illnesses as well as wasting when the disease is believed to be associated with spiritual causes such as ghost possession (jinn) or evil eye. Mothers relate the child's sickness to spiritual forces when they do not improve in a few days. When traditional healers are consulted, they offer treatment through amulets, and spiritual practices such as blowing holy water and prayer as main remedies.

Historical changes

Access to healthcare services within the community has undergone shifts over the past five years. In 2020, fear of COVID-19 infection led to a decrease in healthcare visits. However, as the pandemic subsided, access returned to pre-pandemic levels. Since 2022 increased awareness campaigns and improved access to services resulted in a substantial rise in the number of patients seeking care at the facilities but the closure of some healthcare facilities has led to a greater concentration of patients at the remaining ones.

B. LIMITED UTILISATION OF HEALTH SERVICES

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	+++
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	NA
Categorisation by the qualitative team	+
Influence of historical and/or seasonal variations on undernutrition trends	+
Overall interpretation	++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC	KTP MC+NYP RC + KTP RC
Use of ORS during diarrhoea episode ***6-59m***	81.3% (SENS 2023) 84.6% (SENS 2022)	92.3% (SENS 2023)	81.8% (SENS 2023)	76.5% (SENS 2022)	84.9% (SENS 2022)	
Use of zinc during diarrhoea episode ***6-59m***	51.4% (SENS 2023) 58.8% (SENS 2022)	78.8% (SENS 2023)	52.6% (SENS 2023)	47.1% (SENS 2022)	60.0% (SENS 2022)	
Measles vaccination with card or recall ***9-59m***	97.2% (SENS 2023) 93.4% (SENS 2022) 89.6% (SENS 2021) 76.2% (SENS 2019)	98.5% (SENS 2023)	97.3% (SENS 2023)	99% (SENS 2022) 98.8% (SENS 2021) 75.7% (SENS 2019	99.2% (SENS 2022) 95.8% (SENS 2021) 84.1% (SENS 2019	>93% (SENS 2022)
Vitamin A supplementation within past 6 months with card or recall ***6-59m***	91.8% (SENS 2023) 93.9% (SENS 2022) 93.4% (SENS 2021) 59.6% (SENS 2019)	90.6% (SENS 2023)	91.7% (SENS 2023)	90.5% (SENS 2022) 90.3% (SENS 2021) 15.8% (SENS 2019)	85.0% (SENS 2022) 93.1% (SENS 2021) 2.5% (SENS 2019)	>85% (SENS 2022)
Deworming ***24-59m***	94.7% (SENS 2023) 97.6% (SENS 2022) 88.4% (SENS 2021)	97.4% (SENS 2023)	94.8% (SENS 2023)	95.6% (SENS 2022) 90.3% (SENS 2021)	96.4% (SENS 2022) 93.7% (SENS 2021)	>95% (SENS 2022)
Blanket supplementary feeding programme coverage ***6-59m***	82.7% (SENS 2021)	96.9% (SENS 2023)	93.5% (SENS 2023)	95.4% (SENS 2022) 84.1% (SENS 2021)	95.3% (SENS 2022) 85.9% (SENS 2021)	
Blanket supplementary feeding programme coverage ***6-23m***	92.3% (SENS 2023)	96.9% (SENS 2022)				96.9% (SENS 2022)
Nutrition-sensitive e-voucher coverage ***24-59m***	94.4% (SENS 2023)	87.3% (SENS 2022)				87.3% (SENS 2022)
Place of delivery: home						61.55% (IYCF survey 2022)
Place of delivery: health facility						38.2% (IYCF survey 2022)
Antenatal care coverage (pregnant)	89.1% (SENS 2023) 93.4% (SENS 2022) 75% (SENS 2021)	94.7% (SENS 2023)	89.3% (SENS 2023)	72.4% (SENS 2022) 78.4% (SENS 2021)	91.3% (SENS 2022) 87% (SENS 2021)	72.4% to 93.4% (SENS 2022)

Iron folic acid supplementation coverage (pregnant)	93.8% (SENS 2023) 85.5% (SENS 2022) 62.5% (SENS 2021)	92.1% (SENS 2023)	93.7% (SENS 2023)	69% (SENS 2022) 73% (SENS 2021)	91.3% (SENS 2022) 89.1% (SENS 2021)	
HH owning at least one mosquito net (any type)	100% (SENS 2023) 99.4% (SENS 2022) 98.5% (SENS 2021) 87.8% (SENS 2019)	99.6% (SENS 2023)	99.9% (SENS 2023)	97.4% (SENS 2022) 96.8% (SENS 2021) 85.5% (SENS 2019)	100% (SENS 2022) 99.6% (SENS 2021) 93.3% (SENS 2019)	
% children U5 sleeping under a LLIN	69.9 % (SENS 2023)	71.2 % (SENS 2023)	70.0% (SENS 2023)	34.7% (SENS 2021)	14.7% (SENS 2021)	
Childhood mortality (u5) >1 deaths/10,000/day	0.35 (SENS 2022) 0.18 (SENS 2021) 0.31 (SENS 2020)			0.00 (SENS 2022) 0.62 (SENS 2021) 0.00 (SENS 2020)	0.00 (SENS 2022) 0.80 (SENS 2021) 0.58 (SENS 2020)	

Risk Factors: Caregiver rest after childbirth (<7days) (WHZ)[73]

Protective Factors: Fever: Sought care at health centre (HAZ)[74], Micronutrient powders (WAZ), Deworming (6-59m) (WAZ)[75]

Curative services

- **Malnutrition treatment:** OTP and TSFP coverage were both close to the high coverage classification but below the SPHERE standard (>90%), due to insufficient systematic screening/ misclassification[76]. Misue of RUTF/ RUSF, with parents pausing their use if the children have diarrhoea or vomiting, sharing or selling of rations[77].
- **Delivery**: main reasons for preferred home-delivery included having a quick delivery (38.6%), delivery at night (23.5%), nobody to bring the woman to the hospital (15%), cultural barriers (11%), husband refusing (9.6%)[78]. Fears of caesarean sections (believed to limit future pregnancy) and male doctors significantly deter Rohingya women from medical facility deliveries, and conspiracy beliefs about organ removal further fuel distrust towards medical professionals. Women worry about husbands' fidelity during hospital stays, men also prefer home births to ensure household chores are managed. Medical centre deliveries are seen as only necessary for complicated cases[79].

Preventative services

- **Vaccination**: campaigns in 2023 achieved nearly 100% coverage for the Oral Cholera Vaccine and 75% of targeted children for Penta, tetanus-diphtheria, and measles-rubella.

[73] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[74] AAH.
[75] AAH.
[76] WFP et al., "Community Based Management of Acute Malnutrition (CMAM) Programme Coverage Assessment Report," 2022.
[77] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.
[78] ACF Bangladesh and UNICEF Bangladesh, "Infant and Young Child Feeding (IYCF) Survey," 2022.
[79] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.

- **Vitamin A supplementation** in the last six months is low at 8.7% with cards, even though overall coverage with card or maternal confirmation surpasses the UNHCR target of 90%[80]. Similar trends to 2022.[81]
- **BSFP coverage** across camps in 2023 exceeded the SPHERE standards (>90%), indicating almost all children 6-59 months are accessing BSFP services.[82] Similar trend in 2022 coverage assessment[83]
- Access to **mosquito nets** is universal. Following sub-optimal coverage in a 2022 survey, a mass distribution in 2023 improved results. Main reported disadvantages were: 1) large families find it difficult to use a single net due to space constraints, 2) Initial unpleasant smells from new nets caused temporary breathing difficulties for children, 3) Many families may sell their nets due to financial hardship, and some nets are outdated from previous distributions.[84]
- **Nutrition sensitive E-voucher programme** for children 24-59 months in the Mega Camps only with a conditional top-up of 3 USD per month are deemed insufficient by the mothers.
- **Antenatal Care (ANC)** enrolment was higher rates in Registered Camps compared to Mega Camps.[85] The community values prenatal care, especially iron supplementation, which aligns with their nutritional beliefs[86], and uses it to check for complications. Women choose home births if no issues are found, leading to high prenatal attendance but fewer medical facility births[87].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2023 children who received measles vaccination and vitamin A supplementation were less likely to be wasted based on MUAC ($p = 0.04$, $p < 0.01$). Similarly, the logistic regression results of SENS 2021 indicated that children who received deworming treatment in the past six months were less likely to be wasted according to MUAC and/or weight-for-height z-scores ($p = 0.01$)

QUALITATIVE INQUIRY FINDINGS

Curative services

Treatment of recurrent childhood illnesses

Mothers take their children to community hospitals for common illnesses such as fever, cough, diarrhoea, dengue, and skin diseases, viewing facilities as one of the options for treatment. However, traditional healing also plays a significant role in their healthcare decisions mostly due to quality-of-care barriers; additionally, some families consult traditional healers directly often influenced by beliefs in supernatural causes of illness, while others turn to them if a child does not show improvement after a few days (cf. **Childhood illnesses**). This dual approach can lead to delays in seeking medical care, with some caregivers opting for traditional remedies like holy water and amulets or relying on local pharmacies. Many caregivers believe that more medications speed up recovery, especially for diarrhoea here there is reluctance to use saline due to fears that it may cause intestinal swelling in infants. Community volunteers are valued in the community and play an important role in guiding families and creating a supportive environment for effective health-seeking behaviour, despite challenges regarding the quality of care provided at the health centres (**Hyp A**: **Quality of Care Barriers**). Overall, mothers are

[80] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."

[81] UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report."

[82] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."

[83] WFP et al., "Community Based Management of Acute Malnutrition (CMAM) Programme Coverage Assessment Report."

[84] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."

[85] UNHCR, WFP & ACF Bangladesh.

[86] Women consume iron-rich foods, such as pigeon, following childbirth, as these foods are believed to replenish the blood lost during labour. Similarly, iron supplementation is regarded positively by pregnant women for the same reasons..

[87] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."

generally well-informed about how to seek care for common childhood illnesses and are referred to nutrition centres by nutrition volunteers who regularly visit the communities. Mothers also emphasize the importance of proper feeding, hygiene, and emotional care in maintaining their children's health which they learn during the sensitization sessions.

Childbirth

Women typically recognize their pregnancy when they begin to experience symptoms such as nausea, weakness, missed menstruation, dizziness, and loss of appetite. Upon noticing these signs, they seek a check-up at the hospital where they receive pregnancy confirmation. Apart from the rainy season, accessing the hospital is relatively easy for pregnant women. For first-time pregnancies, they are also provided with vaccinations and all women are advised to return monthly for regular check-ups to monitor their progress (cf. **Antenatal care**).

Pregnant women also enrol in nutrition centres, where they are checked monthly for their nutritional status and receive four packets (or six if malnourished) of Wheat Soy Blend (WSB) to enhance their nutritional intake. While some women choose to sell some packets for around 100 BDT to earn extra money (cf. Hyp M **Low Coping Strategies**), they generally appreciate the provided health and nutrition services because they are free and beneficial for their health and the baby. During their pregnancies, women typically refrain from taking medicines or relying on traditional treatments for a normal delivery.

In 2020 and 2021, many women avoided going to health centres for delivery as they relied on traditional practices passed down from previous generations and believed that going to the hospital would lead to unnecessary C-sections. Starting from 2022, however, there has been a notable shift, with most women opting for hospital births, driven largely by the need for birth certificates to enrol their newborns in data systems required for accessing ration support. This new rule was imposed around 2022 by the CIC to reduce home deliveries.

Despite the advantages of hospital deliveries, some women still express reluctance to use these services due to concerns about caesarean deliveries, feelings of shame, and loss of dignity if seen by male medical staff. Some women still prefer home deliveries where they perceive more support from family members, and some are accompanied by Traditional Birth Attendants (TBAs) who are culturally acceptable figures and live in their communities allowing easy access.

The decision regarding where to deliver remains with husbands, whose preferences are influenced by religious beliefs that dictate that women should not be seen by men outside their family and that privacy during delivery should be maintained to uphold their dignity. While many men now favour hospital births due to the availability of free healthcare and support, there are still individuals who prefer TBAs more to maintain their wife's dignity. However, the involvement of religious leaders in sensitising husbands has also increased acceptance of hospital births, decreasing some of the cultural barriers. Delivery at home allows for involvement from female relatives, enhancing the mother's confidence and support during birth, although it may result in complications that later require urgent hospital visits.

Nowadays more women see the benefits of institutional deliveries as their awareness of the benefits of hospital services grows along with the availability of free medical care and kits for mothers and babies. The community's acceptance has been further increased through positive experiences shared by those women who received hospital services.

Post-delivery, women generally feel relief, promptly feeding their newborns colostrum as they learn about its benefits. Women who have caesarean sections require longer recovery compared to those who have normal deliveries. Many now attend health facilities for regular check-ups throughout and after pregnancy, as they continue receiving nutritional support such as WSB packets for the first 6 months after birth.

Women who give birth at home face delays in data card enrolment, which can take six to seven months. As a result, the trend toward hospital deliveries continues to rise also thanks to the acknowledged medical expertise and comprehensive care provided at the hospital. However, some pregnant women reported conflicting advice from family members, particularly mothers-in-law, who still push their traditional beliefs about childbirth, including fears surrounding caesarean sections and the belief that home deliveries are best.

In the study comparing malnourished children with their non-malnourished brothers or sisters, more than half (n=17, 53%) were delivered at home and assisted by a TBA and/or experienced mothers. Nearly half mothers (n=15) experienced complications at birth and 53% (n=17) reported a more difficult birth experience. Five children experienced major complications.

Preventive services

Antenatal and Postnatal care (PNC)

Currently, most women report attending monthly ANC visits from the time they learn they are pregnant despite being more difficult towards the end of the pregnancy (8+ months). A significant shift in ANC service utilization has been observed since 2021. In 2021, ANC services were underutilized due to low awareness among women regarding the importance of these checkups, coupled with a continued reliance on traditional birth attendants. This situation was exacerbated by geographical challenges, including distance to healthcare facilities, particularly for pregnant women in hilly areas, and by the influence of some husbands' religious beliefs that discouraged women from seeking healthcare. However, by 2024, a marked increase in ANC service usage was noted. This increase can be attributed to several factors: increased awareness of ANC benefits through sensitization campaigns and volunteer networks that actively remind women to attend; the added benefit for mothers of being able to check their baby's condition during visits; and the implementation of a policy by the CiC requiring ANC cards to access nutritional supplements (WSB+) at nutrition centres and to obtain birth certificates, which are necessary for registering children on the family ration card. At the same time, TBAs play a crucial role in helping during deliveries, and monitoring both the baby's position and the mother's health throughout pregnancy as well as sometimes bringing women to the hospital. They offer comfort and guidance during pregnancy and, particularly in situations where sudden labour occurs at night and transportation to a hospital may be difficult. After delivery most women reported attending one postnatal visit.

In the study comparing malnourished children with their non-malnourished brothers or sisters, all the women reported having attended antenatal care for their malnourished child, with no difference in frequency for most of them (84%, n=27) when comparing to the pregnancy of their healthy child.

Vaccinations

Newborns typically receive their first vaccination within 2 to 3 days after birth. Although some babies may experience fever following vaccinations, parents want their children to be vaccinated, understanding that unvaccinated children are at a higher risk for diseases. Some mothers may hesitate to take their newborns for vaccinations due to fears that vaccines will cause body pain and fever, leading them to avoid or delay vaccinations. However, to facilitate the enrolment of babies in the data system, an ANC card, birth certificate, and vaccination card are required; without these, the Camp-in-Charge will delay the child's registration.

According to the comparative study, 88% (n=28) of the mothers reported following the recommended vaccination schedule for their malnourished child, while 4 reported doing so less precisely for their malnourished child compared to their healthy child.

C. LOW BIRTH SPACING/EARLY/UNWANTED/REPETITIVE PREGNANCIES

Strength of the association with undernutrition in the *scientific literature*[51]	+++

Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	++
Categorisation by the qualitative team	++
Influence of historical and/or seasonal variations on undernutrition trends	++
Overall interpretation	++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	
Average household size	5.2 (SENS 2023)	5.1 (SENS 2023)	

Risk factors: Birth spacing (<12 months) (WHZ, WAZ)[88], HH size 11+ (HAZ)[89]

Protective factors: HH size: >5 (WHZ)[90], Desired pregnancy (HAZ)[91]

- Most households have family sizes of 1-4 or 5-6 members, with less than a third having 7 or more. The population is very young, with over half under 15 in Mega Camps and 41% in Registered Camps. Male-headed HHs 67.7% in Mega Camps, compared to 36.9% in Registered Camps.
- The community links poor caregiver practices to low birth spacing, as having multiple young children increases women's workloads, particularly tasks like fetching water and washing clothes. Mothers with larger families are often viewed as more 'stressed' and 'careless', leading to irregular mealtimes and less time for tasks like bathing children.[92] Conversely, However, having many grandchildren boosts a woman's social status and grants her a significant role within the family.[93]
- Several people who initially declined admitted to secretly marrying off daughters under 18, but none cited poverty as the reason[94]. Only 3% of households in the FDMN community reported getting their child married.[95] Rohingya men can find a marriage partner at any age, but it is considered optimal for them to be at least two years older than their wives. The ideal age range for marring for women typically being 14 to 18 years, with the average age of marriage for Rohingya women being 16.9 years old.[45]
- Since 2019, camp authorities in Bangladesh require proof of age for marriage licenses, and cohabiting adolescents are separated. Early marriages were previously common, driven by fears of sexual assault and social stigma. Families often married off daughters early to avoid sin, and early marriage has become a taboo topic. Some parents seek husbands due to concerns about skin tone, while young women pressure parents to arrange marriages. The rise in early marriages after moving to Bangladesh was influenced by "love matches" and increased communication among adolescents. However, parental consent remains essential, as arranged marriages are a deeply embedded cultural practice. [96]
- Rohingya men desire for a minimum of 10 to 12 children, while women prefer 6 to 12 linked to men's limited involvement in caregiving responsibilities. Little birth spacing is associated with low birth weight. Women believe a mother needs time to replenish blood after childbirth, initially thought to take a year in Myanmar, but now believed to take up to two years in Bangladesh due to food shortages. Becoming pregnant is considered an

[88] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[89] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[90] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[91] AAH.
[92] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[93] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[94] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[95] FAO, "Resilience Index Measurement and Analysis, Round 1, Cox's Bazar 2022" (FAO, 2022).
[96] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."

instruction from Allah to have children, making any form of contraception against God's will. Two main forms of contraception were reported to be available in the camps: the injection and the oral contraceptive pill, but the injection is preferred due to its privacy. Male form of contraception is rarely used.[97]

- Religious norms are shaping women's reproductive roles and the need to maintain purdah. However, the distinction between religion and tradition often becomes unclear. Gendered interpretations of religion may disadvantage women, while supportive interpretations, like women's entitlement to dowry (Mahr), are less frequently acknowledged[98].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

Household size

The average household size in the community typically ranges from 6 to 8 members, with some families reaching as many as 11 members. A typical household in the community consists of a mother, father, their children, and in-laws, unless they live separately. Most women express a desire to have at least 3 to 4 children; however, the limit imposed by CiC of 3 to 4 children per family has been preventing larger family sizes, as exceeding this cap may affect the number of rations they receive. In fact, once a new baby is born the family is required to visit the CiC to register the child to have them included on the ration card. Additionally, as the camps have become increasingly congested over the years, more women have begun using family planning, however this still does not apply for the most conservative families.

Five years ago, household sizes were generally smaller, but they have expanded over time due to the birth of additional children and the influx of new refugees from Myanmar, who have moved in with relatives and neighbours in the camp. Consequently, this has contributed to a significant increase in household sizes while keeping the same living space.

Birth spacing

Birth spacing attitudes within the community have evolved significantly in the recent 2-3 years. Traditionally, families viewed having many children as a divine blessing, strongly believing that children are gifts from Allah. However, growing awareness of the challenges associated with large families and increasing camp congestion have started to shift this perspective. Around 2023 the Camp in Charge implemented a cap that limits families to 3 to 4 children, making adherence essential for enrolling newborns onto parents' ration cards.

Many women now prefer a birth spacing of at least 2 to 3 years between children. Following sensitization sessions, many mothers express that having fewer children makes it easier to provide proper care, especially given financial constraints and the costs associated with food and education—even though schooling itself may be free, additional expenses for private Burmese studies and religious tuition exist.

Despite this shift, some traditional beliefs persist. Some community members, including religious leaders, still consider birth control to be sinful, while others advise husbands to use birth spacing due to financial constraints or the physical challenges of their wives to give birth to more children. Nevertheless, more conservative individuals continue to maintain traditional beliefs, believing that having more children is essential for increasing the number of followers of Islam. Therefore, families with more children are considered blessed by Allah and do not

[97] AAH.
[98] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."

worry about how they will take care of their children as it is believed that "*God provides for every child he gives*".

Additionally, many families still hold onto the belief that having more children can increase their financial security in old age, as boys are often favoured for their potential to earn money and support their parents. The desire for sons is reinforced by cultural practices, as sons are responsible for carrying their parents in funerals, while daughters require dowries and are seen as a financial burden.

Community discussions reveal that while some couples may actively seek to have more children to enhance social expectations and be good religious followers, while others are recognizing the benefits of smaller families, particularly since the CiC regulations. Additionally, social pressure remains significant, couples who do not conceive within a year of marriage often face scrutiny by other members of the community.

Moreover, frequent conflicts, can inadvertently lead to increased births, as couples reconcile through intimacy. In Myanmar husbands' work commitments have naturally created gaps between pregnancies. However, in Bangladesh, birth spacing tends to be shorter because husbands are often free throughout the day, leading to more frequent sexual activity. However, many mothers find that frequent childbirth limits their ability to give sufficient attention to each child, often focusing on the younger ones while neglecting the needs of the older siblings.

Early pregnancies

Upon their arrival in Bangladesh, early marriages were common, with some girls marrying as young as 13 or 14 years old. Recently, the community has stopped marrying off their daughters before the age of 18, largely due to restrictions imposed by the Camp-in-Charge. Under this regulation, couples cannot apply for rations until the woman is 18. This policy serves as a deterrent against early marriage, as new families do not have access to essential rations if they secretly marry off their daughters.

Nowadays due to the sensitisation activities, many community members believe that a girl is not physically and mentally prepared to become a mother and a wife until she reaches the age of 18. They worry that girls who give birth before this age may suffer health complications and struggle to care for their children adequately. This shift in perception has been possible thanks to the sensitization sessions conducted by NGOs working in the camps.

Parents prefer to select husbands for their daughters, fearing that if young women choose for themselves, they might prioritize physical appearance over more substantial qualities, which could jeopardize their futures.

They consider factors such as family status, religious beliefs, education, and financial stability. Many believe that marriages chosen by parents are more likely to succeed, as those who select their partners face a higher risk of divorce or unhappy marriage.

Some parents, particularly those without formal education believe that girls do not need an education since their primary role is to stay at home. Additionally, concerns about potential love affairs and the risk of daughters running away after being allowed to go outside lead some families to restrict their daughters' access to education after their first menstruation.

Love relationships among adolescents sometimes form already between the ages of 8 and 12 as they are still allowed to move freely. When mothers become aware of their daughters' romantic feelings, they closely monitor their behaviour and impose strict controls to prevent early engagements. Some young women use their parents' mobile phones to discreetly communicate with their boyfriends, keeping their romantic lives hidden from their mothers. Despite these restrictions, many young couples find ways to meet, they pretend to visit health clinics, meet close to the water point, in schools during off days or sneak out in the middle of

the night to see each other. While early marriage was more common in 2019, an increase in awareness and the influence of CiC restrictions have caused significant changes by 2023. Meetings and awareness sessions have played a crucial role in this shift, as the community acknowledges the negative implications of early marriage on health and overall well-being of young girls. However, observations still reveal that several girls under 18 are pregnant or already have children under five.

While early marriages still occur due to these romantic relationships, the trend has been shifting as families increasingly recognize the challenges young brides face in managing a household. Therefore, most of early marriages happen because of couples eloping as they see the elopement as the only means for couples to live together. They usually return to the camps after 2 to 3 months and are accepted back by their families. Mothers typically advise their daughters against interacting with boys and attempt to protect them from early relationships until a suitable husband is chosen.

Marriage, dowry, polygamy and divorce among the Rohingya

In the Rohingya community, most men have only one wife, making polygamy relatively uncommon, however in one of the visited camps a rise in men taking additional wives was reported, a trend fuelled by the congested living conditions that facilitate interaction between men and women.

"*When they were in Myanmar, men couldn't see any woman uncovering her face easily, but now here in the camp because everyone lives very close to each other, men and women see each other more easly, feel attracted and fall in love*."

However, this dynamic often leads to family disputes, as women are expected to endure their husbands' behaviour and potential remarriages, particularly in cases of infertility or health issues. In many instances, if a man has multiple wives, they live in separate camps to prevent conflicts, with the husband visiting them. Community leaders, sometimes have multiple wives mainly because of their status that women feel proud to associate with. Some women perceived extramarital affairs as negatively affecting children under five, because fathers may spend their earnings on the other woman, impacting household finances.

Community members predominantly marry within the Rohingya culture, as intermarriage with the host community is discouraged due to restrictions in terms of integration imposed by the CIC and the community's reluctance to engage with the host community given the possibility of returning to Myanmar. Such unions were more common in 2020, but they have become rare due to the imposed restrictions.

The financial burden of marriage mostly falls on the bride's family, which is expected to provide a big dowry. This becomes particularly difficult when a family has multiple daughters to marry and after marrying one daughter, parents begin saving for the next. Those unable to provide a sufficient dowry often face significant challenges in arranging marriages.

The dowry includes significant gifts such as gold from Myanmar, clothing, watches, and phones for the groom, as well as the costs of the marriage ceremony. In contrast, men are responsible for providing gifts to their wives, and supplying 50% of the gold, resulting in the girl's family needing to return it if the marriage dissolves. Such dowry expectations can lead families into debt and prompting some to seek financial assistance from relatives abroad or loans from community members facilitated by the community leaders. The Majhi[99] usually appeal to all families within the block to contribute this way creating a cooperative effort. Each family typically needs around 300,000 BDT to marry off a daughter, which creates significant financial and mental pressure on parents. Historically, dowries were higher in Myanmar, often including items like furniture and motorbikes, however, in Bangladesh, the amount have decreased but remains considerable.

The marriage process typically begins with the groom's family visiting the bride's home, followed by the presentation of a gold ring as an engagement sign. If the groom resides abroad mostly in countries such as Saudi Arabia or Malasia, the marriage is agreed over the phone and the bride may join him after all the documents are prepared. After engagement, marriages are often postponed for two to three months or even up to a year, depending on familial financial stability; engagement is regarded as a formal agreement, often documented in writing, detailing each family's contributions.

Most girls express a desire for large families after marriage, with parents beginning their search for suitable husbands once daughters reach 15 years and begin saving for the dowry even earlier. They prefer to marry within their community to stay close to their families. Young men typically show interest in a girl by sharing their phone numbers through younger siblings or other children, and start discreet communication initiated by girls using their parents' phones. Although marriages are generally arranged by parents, in some cases girls can select

[99] Name of the local community leader

their partners and inform their mothers. Girls often share details about their boyfriends only with their sisters-in-law. If the parents view the boy as religious, reputable, and financially stable, they typically approve the match, otherwise, they reject it. The wedding involves the bride's family organizing the ceremony and providing gifts while an imam officiates. The groom's family also supplies clothes, makeup, jewellery, shoes, and a wedding umbrella for the bride. Young women are expected to adopt the role of devoted wives and mothers, emphasizing respect for their husbands and care for their families. To be regarded as a good wife, girls believe they must respect their in-laws, care for them, obey their husbands, and nurture their children. They often seek marriage advice from their mothers, sisters-in-law, and friends. Women cannot initiate the process of divorce and are generally told to "forgive and forget" their husbands regardless of the behaviour. If women decide to leave their husbands, they can only return to their parental home. When divorce occur, children typically remain with their mothers, while men may remarry, and often start seeking a new wife especially when their current one is unable to bear more children.

Contraceptive methods

Contraceptive use in the community varies widely, with many women employing different methods while others using none. Common methods include birth control pills, injections, and implants, all available at no cost from local health facilities. However, concerns about side effects such as dizziness, excessive bleeding, vomiting and weight loss often discourage consistent use. Some women may start using contraception after having three or four children, but they often encounter resistance from husbands who encourage them to have more.

According to the comparative study, half of the mothers (n=17)) that had a malnourished child were young mothers that delivered their first child before reaching 18 years of age. All mothers had at least more than 2 births prior their currently malnourished child, with 63% (n=20) who had at least four children prior. The majority (n=20) were married, from a monogamous household, while 13% (n=4) came from polygamous households, and one mother was separated.

D. LOW BIRTH WEIGHT

Strength of the association with undernutrition in the *scientific literature*[51]	+++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	NA
Strength of association with undernutrition based on secondary *data* analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+++
Categorisation by the communities during the qualitative study	NA
Categorisation by the qualitative team	NA
Influence of historical and/or seasonal variations on undernutrition trends	NA
Overall interpretation	+

SECONDARY DATA REVIEW[14]

- Reports of pregnant women experiencing weight loss during extended fasting periods suggest a potential link between fasting and low birth weights in Kutupalong MS; particularly if Ramadan falls during the third trimester [100].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

In the camps low birth weight is perceived as rare. Women try to prioritize nutritious foods during pregnancy and receive nutritional supplements, such as Wheat-soy blend (WSB+) as well as iron supplements, which is believed to reduce the incidence of low-birth-weight babies. Respondents indicated that frequent pregnancies, low income, and inadequate maternal nutrition are significant factors contributing to low birth weight. Malnutrition during pregnancy, often due to the inability to access nutritious and sufficient food, coupled with family stress, heightens the risk of underweight new-borns. This issue is particularly prevalent

[100] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."

among widows, divorced women, and families with low resources who are however a minority in the community.

According to the comparative study, 34% malnourished children were perceived to be born very small or small (n=11) and 41% (n=13) were overall perceived smaller than their non-malnourished sibling. Only 2 children were delivered earlier than expected while most (n=29) were born around the due date. According to the comparative study of malnourished and non-malnourished children, more than half (53%, n=17) were born with a worse health than their sibling.

E. SUB-OPTIMAL NUTRITIONAL STATUS OF MOTHERS

Strength of the association with undernutrition in the *scientific literature*[51]	+++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+++
Categorisation by the communities during the qualitative study	+
Categorisation by the qualitative team	++
Influence of historical and/or seasonal variations on undernutrition trends	+
Overall interpretation	++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC	KTP MC + NYP RC + KTP RC
Pregnant women	9.8% (SENS 2021)			6.9% (SENS 2021)	7.7% (SENS 2021)	
Lactating with a child of <6m	29.1% (SENS 2021)			30.3 % (SENS 2021)	69.7% (SENS 2021)	
Lactating with a child of >6m	74.0% (SENS 2021)			33.0% (SENS 2021)	33.0% (SENS 2021)	
Low MUAC (<210mm) among women of reproductive age	1.8% (SENS 2023) 2.0% (SENS 2022) 1.8% (SENS 2021)	1.3% (SENS 2023)	1.8% (SENS 2023)	1.3% (SENS 2022) 1.1% (SENS 2021)	0.7% (SENS 2022) 0.5% (SENS 2021)	
Low MUAC (<210mm) among PLW with child<6 months	1.8% (SENS 2023) 1.4% (SENS 2022)	0.0% (SENS 2023)	1.8% (SENS 2023)	0% (SENS 2022)	2.6% (SENS 2022)	
Mean women's MUAC (mm)	265.2mm (SENS 2023) 266.9mm (SENS 2022)	282.7mm (SENS 2023)	266.0mm (SENS 2023)	282mm (SENS 2022)	282mm (SENS 2022)	
Total Anemia among non-pregnant WRA (<12.0 g/dL)	24.1% (SENS 2023) 40.3% (SENS 2021)	24.5% (SENS 2023)	24.1% (SENS 2023)		39.3% (SENS 2021)	41.6% (SENS 2021)
Severe Anemia (<7.0 g/dL)	0% (SENS 2023) 0.3% (SENS 2021)	0.6% (SENS 2023)			0% (SENS 2023)	0% (SENS 2023)
Blanket supplementary feeding coverage (pregnant and lactating) Target >90%	85.5% (SENS 2023) 86.3% (SENS 2022) 71.6% (SENS 2021)	96.2% (SENS 2023)	86.0% (SENS 2023)	85.1% (SENS 2022) 88.6% (SENS 2021)	88.5% (SENS 2022) 91.5% (SENS 2021)	

Protective factors: Higher Mother's MUAC (WHZ)[101], Higher Mother's MUAC (WAZ)[102]

- Wasting prevalence among women has significantly decreased since the 2017, this reduction has been sustained in recent years. High anaemia rates persist in both children and women.[103] A recent coverage survey found that only 51% of PLW were screened via MUAC at household level due to children being prioritised and lack of female volunteers at community level for MUAC screening.[104]
- Pregnant and lactating women actively participate in religious fasting, believing it brings a "double blessing" from Allah, despite experiencing discomfort and weakness. Some avoid medications during fasting, leading to complications such as premature delivery. The community believes fasting does not harm prenatal development, but health professionals note it can hinder weight gain and may lead to low birth weights, especially during the third trimester. Additionally, there are food taboos for pregnant women, avoiding items like lamb, duck eggs, coconut and tilapia due to concerns over skin diseases in babies, although younger women may challenge these beliefs.[105] Other foods are believed to cause allergies[106] and discouraged during pregnancy and lactation[107]. Iron-rich foods, such as pigeon, are consumed postpartum to replenish blood lost during childbirth, and iron supplementation is well-regarded. Pregnant and lactating women are discouraged from eating before men. [108]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

According to the community, key contributing factors to maternal malnutrition include early marriage, frequent pregnancies, and inadequate nutritional intake of women of reproductive age. Young mothers often lack knowledge about self-care and child nutrition, making them and their children more susceptible to malnutrition. It is believed that malnourished mothers are likely to give birth to malnourished infants, leading to issues such as wasting particularly due to insufficient milk supply.

Cultural norms that value larger families and make women to prioritize their children and husbands' nutritional needs over their own, result in insufficient dietary intake for themselves. Women usually serve themselves last at mealtimes, feeding their children first and sharing larger portions with their husbands, this way showing love and appreciation for their partners, who work outside the home to earn for the family. Financial constraints further hinder access to nutritious food and while women express a desire to eat beef, chicken, and large fish, they can only afford these options for a few times a month, relying for the majority of time on eggs, small fish, lentils, and rice.

During this time, women's diets become heavily reliant on rice, lentils, and leafy vegetables. In contrast, winter brings increased appetite, improved access to diverse vegetables due to harvest, lower prices, and more job opportunities for men contributing to a greater quantity and diversity of foods within households.

Pregnant women are advised to consume nutritious foods and increase their meals to up to four times a day. However, many struggle with vomiting and nausea, especially during the first trimester, with some reporting prolonged discomfort lasting up to five or six months. Elders in

[101] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[102] AAH; AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[103] UNHCR, WFP & ACF Bangladesh, "2021 Standardized Expanded Nutrition Survey (SENS) Report."
[104] WFP et al., "Community Based Management of Acute Malnutrition (CMAM) Programme Coverage Assessment Report."
[105] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[106] Spinach, vegetables and some fish.
[107] Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector, "GBV Safety Audit for Nutrition Facilities - A Mixed-Method Assessment Report."
[108] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."

the family, such as mothers and mothers-in-law, often advise on dietary choices, encouraging the inclusion of fruits and nutritious foods to increase blood. Unfortunately, this advice is typically only feasible for those with more financial means.

Certain foods are discouraged during pregnancy due to cultural beliefs, including pineapple and tamarind, which are thought to cause miscarriages, while duck, Hilsha and Tilapia fish, goat meat, cassava and banana flowers are linked to allergies for both mother and the baby. Additionally, certain vegetables, such as eggplant and green chili, are discouraged because they cause gas and acidity. Coconut water is also believed to cause blurry eyes in babies.

Postpartum, women are recommended to eat bottle gourd for increasing breast milk, while pigeon meat, climbing perch fish, and stingray catfish are recommended for boosting blood levels and overall health. Additionally, women are advised to consume dry fish curry, as it is believed to aid in faster wound healing. Similarly to pregnancy, women are told to avoid some foods due to concerns about their impact on recovery and breastfeeding. Eggplant and green chili are believed to cause gas and acidity. Pineapple, prawn, tomatoes and certain seeds like Ansigula[109] are thought to contribute to rashes or allergic reactions. Additionally, some types of fish may be avoided for their perceived negative health effects on both the mother and the baby. However, there are no specific dietary restrictions mentioned for children under five.

Pregnant and lactating women receive WSB+ supplements along with iron and calcium throughout their pregnancies and during the first six months of breastfeeding. However, WSB+ supplements are often shared with children or sold to provide additional income to meet other family needs. Women typically prepare WSB by cooking it with salt, sugar, and water to improve its flavour, and all women found WSB++ given to their children tastier.

Fasting during pregnancy is a common practice, as many women perceive it to be spiritually rewarding and believe it will not harm their baby. While fasting may have health implications, culturally, it is embraced, and women feel reassured by their belief that Allah will protect their unborn children. If they encounter challenges while fasting, they may skip a few days and resume afterward.

According to the comparative study, the majority of mothers (n=21, 66%) reported being in a worse health situation when pregnant with their malnourished child. Out of those, 12 suffered with nausea, 10 felt a fatigue, 9 lost appetite, 3 were anaemic, and 15 experienced physical pain, such as headache and backache. More than two in three mothers had health issues during the lactating period of their malnourished child (n= 23) with most experiencing physical pain (n=20) while few others reported cases of anaemia (n=2) and loss of appetite (n=7). 47% (n=15) of the mothers reported having eaten less quality and quantity of foods when pregnant with their malnourished child. 41% (n=13) reported experiencing a change in their eating habits compared to their pregnancy with a healthy sibling, and 88% felt more sick during the lactating period compared to the same period with the healthy sibling.

MENTAL HEALTH AND CARE PRACTICES

F. CAREGIVER WELLBEING

Strength of the association with undernutrition in the *scientific literature*[51]	+++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	+
Categorisation by the qualitative team	++
Influence of historical and/or seasonal variations on undernutrition trends	++
Overall interpretation	++

[109] Local seeds. English correspondent unknown.

SECONDARY DATA REVIEW[14]

Indicator	Across camps (MC + RC)
Women experiencing thoughts of not wanting to continue living	51% (MHPSS NA 2020)
Women reporting little interest/joy in doing things	64% (MHPSS NA 2020)
Women reporting feeling tension/nervousness	52% (MHPSS NA 2020)
Women reporting not being able to control their worries	54% (MHPSS NA 2020)
Women reporting feeling something awful might happen	61% (MHPSS NA 2020)
Women reporting feeling not being able to overcome difficulties	57% (MHPSS NA 2020)
Women reporting having a tendency of quickly continuing with life after a hard event (agree to strongly agree)	51% (MHPSS NA 2020)

- **Mental health**: 68% of households reported having at least one family member who experienced distress or trauma in the past 6 months and of those 61% received mental health support.[110] The main stressors for Rohingya refugees were basic needs and living conditions, education, safety and protection, uncertainty, livelihoods, and poverty.[111] Divorced women and female-headed households face significant challenges compounded by the absence of male guardianship. Girls often sacrifice their needs for family obligations, while boys receive priority in education. Rising child marriage rates are also observed due to the instability.[112]

  Mental health among youth: 42% of young people and adolescents reported knowing someone with significant mental health issues, mostly attributed to drugs, and stressors like displacement, unemployment, and family problems.[113] 80% report high or moderate stress with depression rates higher in females.[114] Main symptoms of stress and anxiety were sleep changes, appetite changes, and somatic complaints. Influencing factors included lack of purpose, citizenship anxiety, food and shelter issues, poor WASH facilities, and boredom. 91% found it difficult to maintain daily activities, and 69% felt humiliated or sub-human**.** Overall, females showed higher levels of tension and stress than males and higher difficulties in controlling worrying.[115]
- **Safety**: 27% of households feel very unsafe or somewhat unsafe. 60% of respondents (and up to 76% in Nayapara RC) reported protection concerns; crime and violence being the predominant issues, followed by worries about individuals joining criminal groups[116]. Insufficient lighting in refugee camps, especially for female refugees, poses a significant safety concern that limits access to services and poses child protection issues.[117]
- **Domestic violence** has increased since relocation and after ration cuts, linked to disagreements over food or family size (pressure from men on their wives to have more children). The men's unemployment contributes to heightened stress and mental health issues, leaving them feeling tense and restless, which exacerbates their trauma from the 2017 displacement[118]. Most Rohingya believe men have justified reasons to beat women, and 86% agree women should tolerate violence for the sake of family. However, women are more aware of where to seek support, with 58% referring GBV survivors to Camps-in-

[110] Health Sector Bangladesh, "Public Health Needs Assessment in Rohingya Camps 2024-25."
[111] Stella Dermosoniadi and Needs and Population Monitoring, "Needs Assessment Report: Mental Health and Psychosocial Support" (Cox's Bazar: IOM and Swedish International Development Cooperation Agency, June 2021).
[112] Dermosoniadi and Needs and Population Monitoring.
[113] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[114] SANEM and UNFPA Bangladesh, "Survey on the Knowledge, Attitudes, and Perceptions on Mental Health and Psychological Issues among Adolescents & Youth in Rohingya Refugee Camps and Host Communities" (Community-Based and Integrated Mental Health and Psychosocial Support Services Project in Cox'z Bazar, UNFPA Bangladesh, and Swiss Agency for Development and Cooperation, n.d.).
[115] Dermosoniadi and Needs and Population Monitoring, "Needs Assessment Report: Mental Health and Psychosocial Support."
[116] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[117] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."
[118] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."

Charge and 54% to Majhis. Despite this, women are less likely than men to consider "recommended" support sources, relying more on less recommended sources for assistance [119].

- Since onset of the **COVID-19** outbreak, reports of gender-based violence (GBV), petty crimes, inter- and intra-communal disputes, human trafficking, abduction, assault, and extortion have surged.[120,121] Containment measures, limited night guards and access to protection services persisted. 68% would not report sensitive issues to NGOs, citing perceived ineffectiveness and misuse of authority within the mahji system, linked to corruption and poor conflict resolution.[122]
- The heightened risk of SGBV puts women and girls at risk of sexually transmitted infections (STIs) and HIV/AIDS[123].
- **Community sensitization** efforts have improved awareness of child marriage and GBV, promoting women's rights and gender equality, resulting in observable behavioural changes. However, many men still exhibit violence, and women, due to limited socio-economic independence, often return to abusive relationships. Protection mostly focus on reporting and case management, with limited access to comprehensive support for women.[124]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

Financial instability is one of the major sources of distress within the community, affecting the mental well-being of all members. The inability to secure adequate resources for basic needs such as food, healthcare, or education, creates feelings of helplessness, worthlessness, and anxiety. This burden weighs heavily on men, who are traditionally seen as the primary providers for their families. When they are unable to meet these expectations, they often experience profound feelings of shame and hopelessness questioning their ability to fulfil their role and experience an increase in levels of stress. This emotional distress can lead to conflict and aggression towards their wives and children, deepening a cycle of worry, frustration and physical violence within the household. Daily arguments often arise when women push their husbands to seek work, yet opportunities remain extremely limited. For this reason, men stated that "*wives are both the source of their happiness and the cause of their distress*". When a man is unable to provide for his family, he faces harsh criticism by community members that sometimes label him as "*Adhgor*" or "*Ahommo*," meaning "useless" or "lazy,".

Mothers are also mentally impacted by these financial strains, bearing the responsibility of childcare in an increasingly resource-constrained environment. The pressure of managing multiple children increases their frustration and stress, which can result in suboptimal caregiving practices, including potential neglect of older children and the use of physical discipline as a response to overwhelming feelings (Cf. **Hyp I Low-quality interactions**). Mothers struggle to provide appropriate nutrition, exacerbating feelings of guilt and frustration towards their husbands which can escalate to domestic violence. Additionally, mothers often resort to using sugary and salty snacks to calm young children when they feel overwhelmed, creating unhealthy eating habits since early months (Cf. **Hyp H Sub-optimal complementary feeding**). Women are also concerned about their uncertain future, particularly regarding their children's

[119] health facilities, psychosocial service providers, ombudsmen/national human rights institutions, women-friendly spaces, family or relatives, and legal representative
[120] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh"; ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2020 (J-MSNA): Refugee and Host Communities."
[121] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[122] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."
[123] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[124] Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector, "GBV Safety Audit for Nutrition Facilities - A Mixed-Method Assessment Report."

education, well-being and children's future opportunities, water scarcity, and unhygienic and overcrowded living conditions. Families often share small sleeping spaces, which make them uncomfortable and limit privacy, especially for grown daughters and sons that must sleep together. Divorced women were said to have even more distress, often facing social stigma as they struggle to provide for their children's futures.

Parental anxiety has grown in the past 2-3 years due to rising threats of kidnapping and robbery. This has made parents, especially mothers who spend most of the day with their children, more worried and has created a constant fear and vigilance for their children's safety. Kidnappers mostly from the host community, often operate together with Rohingya displaced population or which ransom represents a much-needed source of income (Cf. **Hyp M Low coping strategies**). Therefore, mothers limit their children' movement and when they go out to the hospital they prefer to travel in groups for safety. The geographical layout of some camps contributes to this fear, particularly in camps near the hills where kidnappers are known to hide.

Since 2020, the causes of mental distress have shifted. Initially, following their arrival in Bangladesh, community members experienced significant stress related to leaving behind their assets and previous lives while adjusting to a new environment and living conditions. By 2025, new challenges have emerged, including very limited job opportunities, financial struggles, food shortages, threats of kidnapping and robbery, and uncertainties about the future. Over the past three years, even if more men are able to find work in the host community as they became more familiar with the area, those opportunities remain seasonal and casual, causing constant worry for their families. The issue of domestic violence has remained unchanged since 2020. Ongoing stress and financial difficulties often lead to more conflicts and violence within the home which also affect young children as parents may shout at them, physically punish them when unable to manage their life challenges.

Additionally, the inability to return to their previous lives in Myanmar is a source of deep-rooted anxiety. Some community members express a profound sense of hopelessness regarding their future, compounded by ongoing worries about relatives who remained in Myanmar. The feelings of being stateless add to the perceived uncertainty about the future and exacerbate stress levels. This state of distress affects overall mental health, leading to sleep disturbances and feelings of despair.

Hopes for the future

The Rohingya hold on to hopes for the future, primarily centred around the desire to return to Myanmar. Many men and women express a strong desire to go back, still feeling a deep connection to their motherland where they once had the freedom to move, big houses and space, they could cultivate land and live without the constraints that currently define their lives in the camps. Life in the camps is often described as congested and stressful, with families more and more concerned about the challenges of limited space and resources, particularly as their children grow up. While a minority of community members who, due to the absence of land or property in Myanmar, prefer to remain in the camps for the benefits of free aid, or some others who would like to go abroad with the help of UNHCR to other countries like the United States, Canada, Australia etc. seeking a better life, the majority still hopes to return. Even though the conditions back home are far from ideal due to the ongoing conflict, there is a persistent hope that if the situation in Myanmar will improve and they would rather go back than stay in Bangladesh. Some community members emphasized that while discussions around repatriation take place, such efforts would be futile without support from the Bangladeshi government also highlighting the importance of forming groups for repatriation. They also hope for international support to help them return to their homeland. This desire for repatriation is fuelled by their past memories and a strong desire for stability and freedom.

Many people in the community still have relatives in Myanmar, but they are unable to contact them because of the deteriorating situation there. People without money cannot migrate to Bangladesh, as the journey is costly. To reach Bangladesh, they often have to walk for at least five days to cross the hills and then the Naf River, which takes about 30 minutes. While women are generally allowed to pass freely, men often face obstacles and are frequently stopped and pressured to join armed groups fighting against the government military.

To cope with overwhelming stress, men resort to substances like cigarettes or betel leaf which have become common for both relief and social interaction, although some practices can lead to addiction. Recreational activities, such as having tea in local shops, casual football and Ludo games allow men a brief escape from their worries. Similarly, women confide in their mothers, sisters and neighbours for emotional support, although relationships with mothers-in-law can vary, impacting their level of support. They share most of their joys and sorrows with their husbands, often finding comfort although this can sometimes lead to tension over financial issues, particularly when husbands make poor choices with the received assistance (cf. **Hyp M Low coping strategies**).

"When they feel tense and sad, women wish to return to Myanmar. They share their feelings with their husbands and neighbours and pray more to seek relief. Men share their pain with friends but avoid crying in front of them for fear of being mocked. Instead, they cry alone while praying in mosques, especially when recalling memories from Myanmar."

While community interactions offer some emotional support, they are often inadequate for deeper psychological challenges faced by community members. Some women participate in occasional mental health sessions roughly once a month but there is a recognized desire for more regular and accessible mental health services to enhance their overall well-being.

When comparing malnourished children with their non-malnourished siblings, a vast majority (75%, n=24) felt that their mental health was worse when pregnant with their malnourished child. Of those, 21 felt anxious, 19 felt sad, 12 felt apathetic, 4 felt abandoned, 11 felt difficulty in concentrating and 1 experienced sleeping disorders. 56% of mothers (n=18) reported being in a worse mental health situation with their malnourished child when breastfeeding.

According to study observations, some mothers were observed having difficulty concentrating.

Conflict between men and women intensified by gambling

Conflicts between couples in the Rohingya community are often initiated by financial instability. Arguments primarily arise when there is no food at home, leading women to demand that their husbands seek employment rather than staying at home. In some households, violence is a strong reality, with husbands physically abusing their wives for various reasons, including dissatisfaction with household tasks or unmet demand for timely food. Cultural norms make women stay silent during the episodes, as speaking up is viewed as disrespectful. When financial pressures arise, arguments can intensify, especially in cases where men engage in gambling, and sell their wives' gold or household resources hoping for some luck. As a result, many disputes centre around the husband's inability to provide for basic family needs, leading to further fights and frustration when a wife requests for money that the family cannot afford.
Additionally, conflicts arise when husbands perceive their wives are not covered appropriately, do not follow religious practices, or have interactions with other men. Abuse is often kept private and tacitly accepted in the community. The stress of their situation exacerbates these issues, pushing many men to physically abuse of their wives when they feel inadequate in their roles as providers.
Historically, conflict was less common in Myanmar, because community members had busy lives and stable income. However, since relocating to Bangladesh, the lack of employment opportunities has led to increased household arguments. In 2020, there were better relationships between husbands and wives due to limited technology, lack of gambling activities and less economic hardships due to more support from agencies. Additionally, some women, although still a minority, now work as volunteers in the camps which sometimes complicates household dynamics and leads to further disputes as they experience a degree of financial independence

G. SUB-OPTIMAL BREASTFEEDING PRACTICES

Strength of the association with undernutrition in the *scientific literature*[51]	+++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	++
Categorisation by the technical experts at the initial technical workshop	+++
Categorisation by the communities during the qualitative study	+
Categorisation by the qualitative team	+++
Influence of historical and/or seasonal variations on undernutrition trends	++
Overall interpretation	+++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC	All camps together
Early initiation of breastfeeding (within 1 hour of birth) ***0-23m***	93.2% (SENS 2023) 69.8% (SENS 2021) 100% (IYCF 2022)	94.4% (SENS 2023)	93.3% (SENS 2023)	74.4% (SENS 2021)	84.2% (SENS 2021)	84.9% (IYCF 2022)
Child fed colostrum ***0-23m***	93.2% (SENS 2023)	96.9% (SENS 2023)	93.4% (SENS 2023)			
Child given other liquids than breast milk in the first 2 days after delivery ***0-23m***	26.9% (SENS 2023)	11.7% (SENS 2023)	26.2% (SENS 2023)			
Exclusive breastfeeding ***0-5m***	70.0% (SENS 2023) 65.2% (SENS 2022) 65.2% (SENS 2021) 62.3% (IYCF 2022)	68.1% (SENS 2023)	69.9% (SENS 2023)	69.4% (SENS 2022) 69.4% (SENS 2021)	79.1 % (SENS 2022) 79.1 % (SENS 2021)	
Exclusive breastfeeding in the first 2d after birth						46.9% (IYCF 2022)
No breastfeeding under 12 months ***0-11m***	2.8% (SENS 2021)			2.9% (SENS 2021)	3.9% (SENS 2021)	
Continued breastfeeding at 1 year	97.2% (SENS 2023) 90.9% (SENS 2021)	94.7% (SENS 2023)	97.1% (SENS 2023)	88.5% (SENS 2021)	95.5% (SENS 2021)	78.4% (IYCF 2022)
Continued breastfeeding at 2 years	63.6% (SENS 2023) 50% (SENS 2021)	62.1% (SENS 2023)	63.5% (SENS 2023)	45.8% (SENS 2021)	65.4% (SENS 2021)	
Bottle feeding	4.7% (SENS 2023) 3.7% (SENS 2021)	8.0% (SENS 2023)	4.8% (SENS 2023)	7.5% (SENS 2021)	7.1% (SENS 2021)	6.0% (IYCF 2022)
Mixed feeding + other dairy products						10.1% (IYCF 2022)
Mothers facing breastfeeding problems						26.7% (IYCF 2022)

- **Early initiation of breastfeeding**. Improved trends since 2019 due to nutrition sensitization sessions at facility and community levels.[125] Women who delivered at health facility were more likely to give colostrum.[126]
- **Exclusive breastfeeding** has improved slightly but still falls short of the UNHCR target of 75%, despite mothers reporting having adequate knowledge on exclusive breastfeeding. For the 30 percent who did not exclusively breastfeed, non-breastmilk liquids were introduced in the first two days including sweetened tea, cocoa, and water mixed with honey/sugar/glucose. The main reasons for introducing non-breastmilk liquids were family, cultural, social, and religious beliefs and practices. [127]
- **Mixed feeding**: strong cultural/religious influence on caregivers to provide honey, sweet water or cocoa to their infants within the first two days after birth or even before colostrum.[128] Some mothers perceive colostrum as "dirty" and "useless." Honey is believed to have medicinal properties helping against infections and to help infants "speak sweetly" by stopping them crying[129] . The introduction of other liquids[130] is also believed to enhance lip movement of a child. Mix milk feeding practice with formula and/or animal milk in addition to breast milk is also prevalent. Bottle feeding practices steadily reduced since 2019[131]. Younger women are more willing to follow professional advice on breastfeeding, while older women, particularly mothers-in-law, may encourage traditional practices.
- **Breastfeeding practices**: Misconceptions about breast milk being "stale" and harmful if not secreted within five hours, lead to the belief it should be removed before breastfeeding. Illness in a breastfeeding mother is often attributed to spiritual interference, causing her to stop breastfeeding. Cultural norms discourage public breastfeeding due to fears of the evil eye and perceived immodesty, contributing to stigma. It's also believed infants should be fed 10-20 times per day, causing anxiety in mothers who can't meet this, leading to early introduction of family foods (before 6 months) to prevent perceived undernutrition.[132]
- **Reported difficulties with breastfeeding**: lack of breastmilk is the most commonly reported issue, followed by delays in milk production and maternal health issues. Some caregivers received support from professionals and family members. Around 10% did not receive any support. [133]
- **Continued breastfeeding** among children aged 12-23 months is considered acceptable. but cultural beliefs often lead mothers to stop when pregnant again, fearing breastmilk for the new baby may harm older children.[134]Women also reported limited time for childcare due to the high burden of responsibility for family care, hindering breastfeeding till 2 years and beyond.[135]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2023, children who were breastfed within the first hour and those who were breastfed the day before the survey were less likely to be

[125] ACF Bangladesh and UNICEF Bangladesh, "Infant and Young Child Feeding (IYCF) Survey." ACF Bangladesh and UNICEF Bangladesh.
[126] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh." AAH.
[127] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[128] ACF Bangladesh and UNICEF Bangladesh, "Infant and Young Child Feeding (IYCF) Survey." ACF Bangladesh and UNICEF Bangladesh.
[129] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh." AAH.
[130] Including local herbs, plain water and mastered oil
[131] ACF Bangladesh and UNICEF Bangladesh, "Infant and Young Child Feeding (IYCF) Survey"; UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[132] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[133] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report"; UNHCR, WFP & ACF Bangladesh.
[134] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh." AAH.
[135] ACF Bangladesh and UNICEF Bangladesh, "Infant and Young Child Feeding (IYCF) Survey"; UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report"; Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector, "GBV Safety Audit for Nutrition Facilities - A Mixed-Method Assessment Report."

underweight (p = 0.04, p < 0.01). Additionally, the logistic regression results of SENS 2021 indicated that children who were ever breastfed were less likely to be stunted (p = 0.04).

QUALITATIVE INQUIRY FINDINGS

The initiation of breastfeeding typically begins shortly after birth. Since around 2022, most deliveries happen in the hospital and nurses typically clean the new-born and facilitate breastfeeding within the first hour. Following childbirth, mothers follow traditional rituals that involve offering honey or sugar water and dates to new-borns before introducing the breast. This practice is rooted in cultural beliefs that emphasize the importance of introducing new-borns to the sweetness and bitterness of life. In particular, the introduction of sweet foods is also thought to contribute positively to the child's good character.

"We introduce these foods to our children because we believe they come to this world to experience both the sweetness and bitterness of life. For bitterness, we give them cow's or snake gallbladder, as it is said to also help with allergies, or the juice of bitter gourd leaf [136] *while we use honey and dates for sweetness. We preserve these items at home, and when the cows are slaughtered, we dry the gallbladders for storage. We also purchase dried snake gallbladder from hawkers who come to the camp, but it is quite expensive costing around 500-700 BDT and we believe it boosts the immune system."*

While these traditions persist, there has been an increasing awareness of the health benefits of colostrum in the past few years. Before, it was believed that colostrum could lead to stomach issues, causing diarrhoea and vomiting in young children, and it was perceived as rotten milk because of its intense yellow colour. Other mothers would discard it because of its yellow, sticky, and thick appearance associated with "evil eye" contamination. After discarding it, they would wash their breasts with hot water and then feed their babies based on advice from elder family members. However, increased awareness sessions in the recent years have shifted these perceptions, and many now recognize the health benefits of colostrum for brain development.

Mothers reported that it can take up to three days for their milk supply to fully flow. During this period, some may supplement breastfeeding with sugar-mixed water, packaged milk, or fortified oat-based drink (Energy ++)[137] mixed with water. Most mothers introduce milk and semi-solid foods before the age of six months, reflecting a widely accepted practice of mixed feeding among the Rohingya community. Breast milk production is perceived to decrease when a mother does not have enough quality and quantity of food, a consequence of the financial constraints faced by families in the camps. Women believe that "*if a mother produces thin breast milk, her child will also be thin"*. If a baby cries frequently after breastfeeding, its a sign that the baby is not receiving enough milk. As a result, they may supplement with additional foods such as sweet rice, semolina or sago porridge[138], supplementary blends (WSB), powder milk, or formula, along with soft cakes before the baby is six months old. Some women mentioned issues with low breast milk production being caused by the use of birth control methods.

When mothers have difficulty producing enough milk and have the financial means, they often turn to formula which is easily accessible in local markets and believed to help children become chubby and healthy. However, high prices of formula limit access, forcing many families to rely on more affordable alternatives like oat-based or standard milk powder. Formula is typically introduced around two months of age, a practice carried from Myanmar following advice from mothers-in-law, relatives, and neighbours. Mothers continue to offer it in conjunction with other foods until their child reaches 1.5 to 2 years.

However, some are not able to provide a sufficient supply of formula, which leads them to dilute it to stretch their resources. Mothers reported that there is no season associated with

[136] A vegetable similar to a big cucumber.
[137] This is a powder sold in sachet by vendors in the camp. The brand is called Energy++
[138] Sweet porridge prepared with the starch from the Sago palm tree

lower milk production, however during Ramadan breastfeeding is more challenging as women fast and produce less milk due to the decreased food and water intake. In this period the often supplement with liquid porridge. Additionally, when mothers are unwell, they may be less capable of breastfeeding, resulting in decreased feeding during that time. Another common belief is that children may become thin or develop diarrhoea if a mother cannot breastfeed for several hours, for example when she visits a health facility. During this time the breastmilk stays too long in the breast and becomes unsuitable for feeding the child.

Mothers typically aim to breastfeed for two years as sensitised at the health facilities, but stop if pregnant again, as they believe that milk should be reserved for the new child. Girls are usually breastfed for 2.5 years while boys for up to 2 years, as it is believed to be a sin to breastfeed boys for longer[139]. Prolonged breastfeeding is also associated with the risk of cavities, but there is no difference in types of food or care provided to boys or girls.

Support from family members, particularly in-laws and mothers, greatly influence a woman's decision and their ability to practice exclusive breastfeeding. A nurse reported many mothers lack knowledge about proper breastfeeding techniques, including the appropriate frequency and duration of breastfeeding. Consequently, newborns are frequently given less expensive milk substitutes instead or in combination with breast milk. Despite the ongoing practice of mixed feeding, often justified by food scarcity and consequent reduction in the quality and quantity of breast milk, women report an improvement in their understanding of appropriate feeding practices thanks to the awareness sessions provided by the NGOs. As a result, they are slowly changing certain behaviours and passing this knowledge onto younger generations. However, grandmothers often discourage new mothers from breastfeeding in public and advise avoidance of specific foods thought to cause allergies (Cf. **Hyp E Low Nutritional status of the caregiver**). Many women comply with these traditional beliefs and practices, even if they contradict the current health advice, out of fear that any issues with their child will lead to blame from husbands and mothers in-law.

During the rainy season, mothers have more time to breastfeed their infants as they stay more indoors, have fewer household chores and increased time for bonding (Cf. **Hyp R. Caregiver's workload**).

According to the comparative study, 75% of the mothers initiated breastfeeding with their malnourished children within the first hour of birth and 97% of mothers (n=31) were still breastfeeding their malnourished child. 66% of the mothers reported giving their children other liquids within the first six months while 63% gave solid/semi-solid foods.

H. SUB-OPTIMAL COMPLEMENTARY FEEDING PRACTICES OF CHILDREN 6-23 MONTHS

Strength of the association with undernutrition in the *scientific literature*[51]	+++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	+++
Categorisation by the technical experts at the initial technical workshop	+++
Categorisation by the communities during the qualitative study	+
Categorisation by the qualitative team	++
Influence of historical and/or seasonal variations on undernutrition trends	++
Overall interpretation	+++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC	All camps together
Introduction to solid and	78.9% (SENS 2023)	86.7% (SENS 2023)	79.2% (SENS 2023)	76.9% (SENS 2021)	82.4% (SENS 2021)	74.8% (IYCF 2022)

[139] Women couldn't explain why it is a sin. Probably linked to the interpretation of the religious books.

semi-solid food ***6-8m***	72.4% (SENS 2021)					
Minimum acceptable diet (MAD) ***6-23m***	6.3% (SENS 2023)	20.7% (SENS 2023)	16.5% (SENS 2023)			22.7% (IYCF2022)
Minimum meal frequency (MMF) ***6-23m***	47.3% (SENS 2023)	48.3% (SENS 2023)	47.3% (SENS 2023)			68.6% (IYCF2022)
Minimum diet diversity (MDD) ***6-23m***	26.6% (SENS 2023)	32.8% (SENS 2023)	26.9% (SENS 2023)			28.2% (IYCF 2022)
Consumption of iron rich foods ***6-23m***	89.1% (SENS 2023) 56.8% (SENS 2021)	94.8% (SENS 2023)	89.4% (SENS 2023)	94.9% (SENS 2021)	92.9% (SENS 2021)	
Consumption of eggs and/ or flesh food	51.6% (SENS 2023)	56.0% (SENS 2023)	51.8% (SENS 2023)			57.7% (IYCF 2022)
Consumption of zero vegetables and fruits	44.0% (SENS 2023)	40.5% (SENS 2023)	43.8% (SENS 2023)			47.1% (IYCF 2022)
Unhealthy food consumption	54.3% (SENS 2023)	59.5% (SENS 2023)	54.5% (SENS 2023)			64.8% (IYCF 2022)
Sugar sweetened beverage consumption	29.3% (SENS 2023)	17.2% (SENS 2023)	28.8% (SENS 2023)			34.5% (IYCF 2022)
Average daily number of food groups consumed (out of 8)	3.7 (SENS 2023)	4.0 (SENS 2023)	3.7 (SENS 2023)			
Dietary diversity (average number of food groups consumed per week)	5.7% (REVA7 2023) 5.7% (REVA6 2022) 5.0% (REVA5 2021)		5.1% (REVA4 2020)	5.3% (REVA4 2020)		
Vitamin A Rich Foods consumption (FCS-N 7 days)	4% (RIMA 2022)	15% (REVA-7 2023)				
Protein Rich Foods consumption (FCS-N 7 days)		21% (REVA-7 2023)				
Hem Iron Rich Foods consumption (FCS-N7 days)		3% (REVA-7 2023)				
Hem Iron Rich Foods consumption (FCS-N7 days)		3% (REVA-7 2023)				

Protective factors: IDDS score >4 (WHZ, WAZ), IDDS fruit and veg (WHZ, WAZ) [140]

- **Introduction to semi-solid foods**: However, influence from family members, including in-laws and neighbours, often lead to the early introduction of complementary foods (before six months), particularly when the baby cries or relatives question the adequacy of the mother's milk.[141]
- **Experienced difficulties with complementary feeding**: a) household budget constraints, b) changes in diet since migration: rice remains a staple, there has been a noticeable decrease in the introduction of fruits and vegetables in Bangladesh compared to Myanmar, where families could previously grow gourds and leafy greens but now find them expensive in the camps. Prior to migration, sugary foods like cakes and biscuits were more commonly introduced to infants. Ideal complementary foods are now considered to include fish, meats, and fruits. Parents often feel shame and frustration over their inability to afford these items, especially those with multiple young children. The community views the ideal quantity of food for children as approximately 200-250 grams, three times a day or "as much as the child can eat."[142]
- Commonly offered foods include local semolina, banana, cake, rice with potato and dal, rice with egg, hotchpotch, and rice with spinach soup. Food choices are influenced by elderly family members, community nutrition volunteers, and health education. Families participate actively in feeding, with mothers, fathers, and grandmothers involved in meal preparation, although challenges arise in catering to children's preferences for less spicy and boneless foods. New foods are introduced cautiously, and when children reject certain dishes, parents may resort to force-feeding or offering snacks like crisps, juice, or cakes. While mothers recognize foods like eggs, milk, and vegetables as vital for health, awareness of suitable foods and the risks of commercial items like chips and juice is limited. Mothers provide RUTF and RUSF in addition to traditional dishes, and a variety of food[143] including outside foods are provided when children are sick.

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2023, children who consumed any type of thin porridge or salty foods the day prior to the survey had a reduced risk of becoming wasted based on multiple indices ($p < 0.01$, $p = 0.04$, $p = 0.02$). Those who ate sweet foods or vitamin A-rich fruits were less likely to be stunted or concurrently wasted and stunted ($p = 0.03$, $p = 0.04$). Children who ate any type of thin porridge the day before the survey were also less likely to be underweight ($p < 0.01$) or concurrently wasted and stunted ($p < 0.01$). Additionally, the logistic regression results of SENS 2021 indicated that children who consumed yogurt the day prior to the survey were more likely to be wasted based on weight-for-height and/or MUAC ($p = 0.03$). In contrast, children who ate any type of thin porridge were less likely to be wasted based on weight-for-height, MUAC, and weight-for-height and/or MUAC ($p < 0.01$). Furthermore, children who had tea or coffee with milk the day before the survey were at a higher risk of being underweight ($p < 0.01$), while those who consumed any type of thin porridge had a lower likelihood of being underweight ($p < 0.01$).

According to the linear regression results of SENS 2021, children who consumed fresh meat, fish, seafood, or sweet foods more frequently in the week prior to the survey had a lower risk of being wasted based on weight-for-height. Similarly, those who consumed sweet foods more days in the past week were also at a lower risk of being underweight.

QUALITATIVE INQUIRY FINDINGS

[140] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[141] ACF Bangladesh and UNICEF Bangladesh.
[142] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[143] Juice, cakes, apples, tea, bread, bananas

Mothers typically begin introducing solid foods, such as rice, vegetables, and pulses, to their children around the age of one, as children often show reluctance to eat these foods before that age. In fact, mothers introduce sugary snacks such as sweet buns, biscuits and cakes along with semolina, rice flour, and sago porridge[144] cooked with milk and sugar before six months. They perceive these foods as harmless and believe they can satisfy their children's hunger, as they see their children eating them with appetite.

"When a mother feels that her baby isn't getting enough breastmilk within the first six months, she is usually advised by her mothers-in-law, relatives, or neighbours to feed sweet rice porridge, semolina, sago soup with palm candy, or formula milk."

At six months children also start receiving WSB++ monthly supplements from the nutrition centre, and mothers feed them 2-3 times a day with this porridge. This supplement is usually cooked with sugar and water as children refuse to eat it if not sweet. Some families sell RUTF or WSB with their neighbours (Cf. **Hyp M Low coping strategies**) or purchase them for their children believing that it will make them strong and healthy. Those who can afford it buy RUTF/RUSF in bundles of five packets for 100 BDT (25 BDT for RUTF and 20 BDT for RUSF) and mothers typically divide the portions into two, saving one for the following day. Those with multiple children, RUTF and RUSF packets are split into smaller portions, and a bigger portion is given to the child who cries the most. Mothers believe these products will fill their children's stomachs, improve their health, and help them gain weight, often mixing RUTF or RUSF with rice as a snack.

Before one year of age, children rarely consume savoury foods. At around 12 months mothers start introducing soft foods like eggs, fish, meat, vegetables, and thick pastes made from rice and pumpkin, as well as khichuri that mothers learn during the cooking classes at the nutrition centre. When children are so little rice is limited as mothers believe that it fills up their stomachs quickly and prefer to prioritise protein sources like fish or meat when available. However, children show a strong preference for sweet and salty snacks which are provided by parents even three times a day, and when money is tight, at least once a day.

By 1.5 to 2 years, children eat the same foods as the rest of the family. They are usually given small portions of rice, fish, meat, potatoes, lentils, or leafy vegetable soup for lunch and a similar dish, often made of leftovers, for dinner. There is no difference in the food provided to boys and girls under five.

While children would be happy to eat fruit, their high cost and limited availability within the camps make it difficult for families to afford them. In fact, fruits can only be found in the host community market. In Myanmar, families had access to abundant fruit trees, therefore not needing to buy fresh fruit, while now they have an easier access to snacks. The easy availability of sugary snacks in the camps, often priced between 5 BDT or less, makes them an accessible choice for families despite the limited resources. Children are drawn to the colourful packaging and often ask their parents for these treats. When parents refuse, children start crying, prompting many to buy the snacks to keep them content and avoid further tension. Parents believe these snacks are beneficial because they help to calm their children, maintain their happiness and fill their stomachs. From observations they also give those snacks to young children that are fussy eaters to ensure they eat something. Children that refuse to eat home-cooked food were said to be fed small portions of rice forcefully.

While mothers recognize the importance of giving nutritious food to their children as thought during the sensitisation sessions, they struggle to provide it due to financial limitations. For example, they perceive leafy vegetables, okra, potatoes, pumpkins, apples, oranges, grapes, watermelons, pineapples, dragon fruit, and pomegranates as beneficial for their young children as they make them healthy. Additionally, based on nurses' perceptions in the Rohingya community, mothers frequently face challenges in establishing optimal complementary feeding practices, which makes this moment particularly vulnerable to wasting. When a child

[144] Sweet porridge prepared with the starch from the Sago palm tree

refuses new foods, mothers typically do not try to reintroduce them. Additionally, the introduction of new foods can occasionally result in diarrhoea, which further discourages mothers from offering these foods again. Children aged 6 to 23 months, especially those from families with two or three siblings under five, were said to be particularly vulnerable to wasting.

In the study comparing malnourished children to their non-malnourished siblings' most mothers (81%, n=26) reported feeding all their children with the same type of foods and treating them equally.

I. LOW QUALITY OF INTERACTIONS BETWEEN CHILD AND CAREGIVER

Strength of the association with undernutrition in the *scientific literature*[51]	+
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+
Categorisation by the communities during the qualitative study	+
Categorisation by the qualitative team	+
Influence of historical and/or seasonal variations on undernutrition trends	+
Overall interpretation	+

SECONDARY DATA REVIEW[14]

- Caregiving practices between mothers and their children in the camps are characterised by strong affection and a close bond, rooted in cultural traditions established in Myanmar, where women would always keep their children with them on family farms. Rohingya women often take their children along to paid jobs. The cultural emphasis on holding children close, even as they grow older, reflects concerns for their safety and hygiene as the camp environment is seen as less secure and sanitary than Myanma. Fears of child abduction, informed by historical experiences of kidnapping in Myanmar, particularly of girls, intensify the need for close supervision.[145]
- **Grandmothers** play a limited role in child-rearing activities, primarily contributing advice and engaging in play rather than taking on caregiving responsibilities. Caregiving by **older siblings** is regarded as unusual and occurs only infrequently, as a last resort. **Men** play minimal roles in caring for their children and often overestimate their contributions. Men take responsibility for taking children to the market to buy snacks.[146]
- **Corporal punishment** is common and often premeditated, with stories of misbehaviour leading to taking a child home for beating. In some instances, violence arises impulsively from frustration. This form of punishment contributes to stress for both parents and children.[147]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

While mothers take on most of the caregiving responsibilities, such as feeding and cleaning children, fathers have become more involved in child care due to the lack of jobs and therefore more time spent at home. Fathers spend time playing and taking them for walks around the camp to enjoy some fresh air and buy snacks, accompany them to school while also supporting their wives with some household chores, such as collecting water or keeping the children entertained when they are busy. This reflects a notable shift from their previous work-focused roles in Myanmar. Parents spend quality time with their children, particularly after lunch when the family rests, which was said to enhance bonding. The daily outings are perceived as necessary for their children's mental health because they are usually not allowed to go far from home or play freely outside with other kids due to kidnapping concerns.

[145] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[146] AAH.
[147] AAH.

While interactions between parents and children are generally positive, mothers sometimes struggle to maintain their patience, especially when feeling stressed or while doing household chores, particularly if a child is crying persistently. They sometimes lose their temper, resorting to physical discipline to calm their children. However, they also feel guilt afterwards and try to comfort their children and give them snacks, indicating a cycle of frustration and reconciliation during the day. Parents often give snacks to their children to prevent continuous crying and maintain their peace. This strategy helps them cope with the stress of parenting alongside tensions from external factors, such as financial and living conditions struggles while remembering their life in Myanmar.

With multiple children under five they tend to focus more on the younger child, leading to tension when the elder one cries for attention, potentially with their needs neglected. For example, if a mother gives snacks to the younger child, the older siblings may demand other snacks, creating additional stress.

Women often manage their daily tasks while holding their crying children under-five in their laps. However, those with adequate support receive help from their husbands, older children, and other family members, which can alleviate some of the stress associated with raising multiple children under-five. Mothers often receive advice from their own mothers or mothers-in-law about childcare and not following this advice is seen as a sign of disrespect. However, overall they appreciate the support of their family members, which helps them in their caregiving roles. Generally, mothers demonstrate their love through physical affection, such as hugging and kissing, and spend most of their day caring for their children.

During the rainy season, mothers often have more time to care for their children due to fewer household responsibilities and increased time spent at home. In contrast, winter brings an increase in women's workload, which leads older siblings, particularly sisters, or other family members to step in and support. While young girls generally help their mothers more, brothers often prefer to engage in playing activities. Since 2020 many mothers have become more short-tempered, often resorting to physical discipline due to increased stress from having more children, less resources and more congested living conditions. In Myanmar mothers had more space and less reasons to stress resulting in less physical punishment and irritation toward their children.

According to study observations, childcare was primarily carried out by mothers, along with young and adolescent girls. Occasional caregivers included other adult women, elderly women, and sometimes young boys or adult men. Children were generally kept within visual range, and various individuals, especially girls aged 5-12 years and the elderly, were observed interacting with them. However, interactions with young or adolescent boys were limited. Physical punishments were sometimes observed, particularly from adult men on girls aged 5-12 years.

FOOD, SECURITY AND LIVELIHOODS

J. LOW ACCESS TO QUALITY DIET

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+++
Categorisation by the communities during the qualitative study	+
Categorisation by the qualitative team	++
Influence of historical and/or seasonal variations on undernutrition trends	+++
Overall interpretation	++

SECONDARY DATA REVIEW[14]

Indicator	Total FDMN	FDMN at Coxs Bazar	Unregistered FDMN	Registered FDMN

% pop. in Phase 3+	45% (IPC Feb-Oct 2024) 30% (IPC projection update Oct-Dec 2024)	45% (IPC Feb-Oct 2024) 30% (IPC projection update Oct-Dec 2024)		
HH food consumption score[148] (poor)	3% (REVA-6 2022) 4% (REVA5 2021) 1% (REVA4 2020)	10% (REVA-7 2023) 17% (PDM Nov 2023)	5% (REVA5 2021) 1.4% (REVA4 2020)	1% (REVA5 2021) 0% (REVA4 2020)
HH food consumption score[226] (borderline)	41% (REVA-6 2022) 41% (REVA5 2021) 49% (REVA4 2020)	60% (REVA-7 2023) 73% (PDM Nov 2023)	41% (REVA5 2021) 50% (REVA4 2020)	35% (REVA5 2021) 20% (REVA4 2020)
HH food consumption score[226] (acceptable)	56% (REVA6 2022) 55% (REVA5 2021)	30% (REVA-7 2023) 10% (PDM Nov 2023) 50% (IPC projection update Oct-Dec 2024)	54% (REVA5 2021) 48% (REVA4 2020)	65% (REVA5 2021) 80% (REVA4 2020)

- Food comprises the highest share of monthly expenditure for 68% of Rohingya households in Cox's Bazar, with monthly expenditure on cereals, primarily rice, remaining the main food priority. Faced with ongoing economic challenges, Rohingya households in Cox's Bazar had to make significant cuts in various essential areas, particularly in hygiene, transport and communication, and business/agricultural inputs[149].
- Food assistance coverage is 100% in Cox's Bazar refugee camps, but ration cuts entailed a significant drop in refugees' food intake with Rohingya households experiencing in 2023 their worst dietary conditions since 2017[150,151,,152,153]. The reinstatement of full food rations in August 2024 led to improved food security, with acceptable food consumption scores rising to 50%, a 30% decrease for the population classified on IPC Phase 3 and above, and the population in IPC Phase 4 (Emergency) dropping from 30 percent to none[154].
- While in the 2021, the most commonly reported first priority was obtaining shelter materials/upgrade (63%)[155], in 2023 the first priority for 75% refugee households food[156].
- In 2023, 42% of the households reported that their Liquefied petroleum gas (LPG) refills didn't last until the next one, resorting on buying firewood or collecting firewood[157]. LPG shortages are more frequent in large households, or when LPG is misused for business purposes, particularly in restaurants[158].

[148] Proxy indicator of current food security. It is a composite score based on dietary frequency, food frequency and relative nutrition
[149] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[150] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[151] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[152] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report." WFP.
[153] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh.
[154] "IPC_Bangladesh_Acute_Food_Insecurity_Projection_Update_Oct_Dec2024_Report.Pdf."
[155] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees."
[156] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[157] ISCG CXB et al.
[158] UNHCR, WFP & ACF Bangladesh, "2021 Standardized Expanded Nutrition Survey (SENS) Report."

- **Profile of food insecure households**: households without access to self-reliance activities[159], female headed households[160,161], larger households with a high dependency ratio[162].
- **Dietary diversity**: staples and oil consumed daily, relatively good vegetable consumption but very low consumption of milk or dairy products or fruits. Consumption of micronutrients was alarmingly low in 2023. Minimum Dietary Diversity for Women (MDD-W): more than 80% of women of reproductive age could not access nutritious food, while pregnant and lactating women were not able to afford improved diets[163].
- Due to lack of available land, there is no cultivation of cereal crops like Aman and Boro. **Micro gardening** is well received when it is practiced[164]. Limiting factors include the low average usable space per person and secondly, climate hazards which may lead to the loss of vegetation[165]. The production is too limited to save for the lean period[166].
- Cultural practices affecting food intake by gender: men and boys are more often prioritised to eat first, ahead of women, girls and elderly[167].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No significant associations found through linear and logistic regressions.

QUALITATIVE INQUIRY FINDINGS

Mothers describe a nutritious meal as one consisting of rice with an egg, meat, fish, potatoes, and vegetables, emphasizing that these foods provide essential energy and promote their children's health. They acquired knowledge about nutritious diets through targeted monthly sessions provided at the nutrition centre. Previously, mothers primarily fed their children according to their preferences for eggs, meat, and rice, often excluding pulses and leafy vegetables, but children have since developed a taste for these foods. During cooking demonstrations, mothers learned to prepare WSB and Khichuri, a dish made from pumpkin, pulses, rice, potatoes, and eggs, often cooked for their children.

Families receive rations once a month on designated days for each block. With the provided money[168] they must first purchase essential staples like rice, pulses, sugar, and oil before buying additional ingredients such as onions, garlic, spices (chili powder, turmeric, coriander), flour or eggs. If money permits, they may buy either chicken or fish, but not both simultaneously. Households with children under five (24-59m) receive an additional 350 BDT to spend on proteins like eggs, meat, fish or even some vegetables. Fruits and vegetables are generally restricted for disabled individuals and elderly people over 60, who also receive extra financial assistance. After receiving food rations from the World Food Programme, community members manage better in the first ten days of the month, but as supplies reduce, they often borrow from neighbours or reduce their meal portions and quality of meals mostly eating rice and lentils with some vegetables when available.

Families typically eat three meals a day: one meal consists of either eggs, meat, or fish paired with rice, while the other two meals usually include rice with vegetables, leafy greens, pulses and mashed potatoes. They enjoy tea, although they do without if they run out of tea leaves. Mothers usually feed their children before sitting down to eat with their husbands. However, the portions of food are not equal, wives typically serve their husbands larger portions as they

[159] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees." ISCG CXB et al.
[160] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report." WFP.
[161] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh." AAH.
[162] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh." AAH.
[163] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report." WFP.
[164] Vegetables production include sweet gourd, bottle gourd, cucumber, yard long bean, as well as bitter gourd to a lesser extent
[165] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[166] FAO, "Resilience Index Measurement and Analysis, Round 1, Cox's Bazar 2022."
[167] Data in this paragraph is from the Joint Agency Research Report on Rohingya Refugee Response Gender Analysis. https://drive.google.com/drive/folders/1ScW1kc1t9pu85WJH-1f8YtFW_BpTHjoe?usp=sharing
[168] In 2022 the monthly allowance was 800.00 BDT per person while between 2024-2025 the amount gradually increased to 1,000.00 and 1,200.00 BDT. Now. In February 2025, they receive the highest amount of 1512.00 BDT per person, but the price hikes have strongly decreased their purchasing power.

work to provide for the family (Cf. **Hyp E Suboptimal Nutritional status of mothers**). For instance, if there are five pieces of chicken in a bowl, three are typically given to the husband and two to the wife. When only two pieces are available, the husband receives both. Women said that if their husbands are considerate, they will share the meat, and if not, the wives only have the gravy.

While families manage to consume leafy vegetables, eggs, and pulses often, meat is typically eaten only 3-4 times a month, and fresh or dried fish is consumed 3-4 times a week. Access to meat largely depends on financial resources, with many families affording it primarily around the days of ration distribution. Community members enjoy beef on special occasions, such as religious holidays when it is available. They also enjoy Lappasu, a traditional salad made with rice, beef, and goat; however, their choices are limited in the camps as the World Food Programme (WFP) food market primarily offers chicken and fish.

The community perceived food costs in the WFP market higher than in local markets, prompting some to resell part of their allocation, especially from the children's allowances, to purchase additional necessary items such as fruits and vegetables or snacks (Cf. **Hyp M Low coping strategies**). The first ten days post-rationing are typically the most abundant, allowing families to prepare nutritious meals with fish, meat, vegetables, and pulses. However, as the month progresses, food shortages arise, leading to the last ten days being particularly challenging. During this period, families often borrow staples from neighbours who receive rations later. Parents may skip meals, reduce portions, or sell oil, sugar, and lentils to buy additional food items or snacks for their children from local markets. (Cf. **Hyp M Low coping strategies**)

Financial difficulties significantly impact families' ability to acquire diverse and nutritious foods, particularly in the rainy season. Market prices fluctuate as well as availability of items, creating important access barriers. Parents often express frustration and sadness when their children ask for snacks or fruits that are financially out of reach.

A few community members reported receiving low-quality items at the WFP outlet, regarding eggs or fresh produce while fortified rice was accepted and didn't compromise taste. In addition to food allowances, families receive cooking gas cylinders and pressure cookers. When gas runs out, they must resort to cooking on wooden stoves, either by purchasing wood or collecting it from the roadside, with some burning old cloths which was said to increase the fire hazards in the camps.

Seasonal variations significantly impact on food access and availability in the community. In winter the harvest increases the availability of many vegetables, and food prices tend to decrease, making it easier for families to access a variety of nutritious options. In summer seasonal fruits are more available while vegetables and fish availability decreases as temperatures rise. Instead, the rainy season brings challenges as prices increase and availability of vegetables, fish, and fruits heavily declines. Mothers report that during this season, limited income further restricts the types of food they can afford, leaving them to rely heavily on staples and leafy greens.

Category	Item	Winter season	Summer season	Rainy season
Vegetables	Bamboo shoots	✔		
	Beans	✔		
	Bottle gourd or bitter gourd	✔		
	Cabbage	✔		
	Cucumbers	✔		
	Drumsticks	✔		
	Eggplants	✔		
	Green chillies	✔		
	Leafy greens	✔	✔	✔
	Okra	✔		
	Ridge gourd		✔	
	Snake gourd		✔	

	Sweet potatoes	✔		
	Tomatoes	✔		
Fruit	Mango		✔	
	Jackfruit		✔	
	Plum	✔		
	Watermelon		✔	
Staples	Lentils*[169]	✔	✔	✔
	Potatoes	✔	✔	✔
	Rice*[170]	✔	✔	✔
	Yam	✔		
Protein	Fish (fresh)	✔		
	Fish (dry)	✔	✔	
	Chicken	✔	✔	
	Eggs	✔	✔	

Over the past five years, and especially since 2022-2023, food access has become increasingly difficult due to the persistently rising costs and inflation. Many families have noted that they can no longer purchase fruits, such as oranges and apples or vegetables from the WFP food outlet as they did previously. Despite the increase in monthly funds for food rations, families feel that they can afford less than before leading many to perceive the received assistance as insufficient to meet their needs.

K. LOW ACCESS TO INCOME SOURCES

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	+
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	+++
Categorisation by the qualitative team	+++
Influence of historical and/or seasonal variations on undernutrition trends	+++
Overall interpretation	+++

SECONDARY DATA REVIEW[14]

Indicator	Total FDMN	FDMN at Coxs Bazar	Mega Camps	Nayapara RC	Kutupalong RC
Income deprivation	36% M33/ F46 (REVA6 2022) 45% M53 / F72 (REVA5 2021) 68% (REVA4 2020)	80% M79.0/ F82.8 (REVA7 2023)			
Ownership of at least one type of productive assets	64% (RIMA 2022)				
HH food expenditure (share of monthly expenditure, including value of assistance)	71% (REVA6 2022) 71% (REVA5 2021) 77% (REVA4 2020)	68% (REVA7 2023)			
HH not engaged in any income generating activities	34% (REVA6 2022) 27% (REVA5 2021)	23% (REVA7 2023)			
Average monthly income	BDT 4,442 (US$ 35) (REVA6 2022) BDT 3,962 (USD 45) (REVA5 2021) BDT 3,404	BDT 5,658 (US$ 51) (REVA7 2023)	BDT 3,225 (REVA4 2020)	BDT 6,959 (REVA4 2020)	

[169] Mostly from WFP rations. Community members buy extra from local markets, if finances permit.
[170] Mostly from WFP rations. Community members buy extra from local markets, if finances permit.

	(REVA4 2020)				
MDDI multidimensionally-deprived households[171]	50% (REVA6 2022) 47% (REVA5 2021) 60% (REVA4 2020)	54% (REVA7 2023)			
Proportion of households receiving food assistance	100% (REVA6 2022) 99% (REVA5 2021) 97% (REVA4 2020)	100% (REVA7 2023)	100% (SENS 2021)	100% (SENS 2021)	86.5% (SENS 2021)
Proportion of households receiving e-voucher top-up of US$ 3	25% (REVA6 2022) 24% (REVA5 2021) 14% (REVA4 2020)	33% (REVA7 2023)	23.3% (18.8-27.8) (SENS 2021)	0% SENS 2021)	0% SENS 2021)
Proportion of households receiving cooking fuel assistance	99% (REVA6 2022) 98% (REVA5 2021)	89% (REVA7 2023)	99.4% (98.5-100.0) (SENS 2021)	99.6% (97.5-100.0) (SENS 2021)	66.8% (60.5-72.7) (SENS 2021)

- Low monthly income is attributed to low wage rates and few available workdays[172].
- Main income and cash inflow sources: humanitarian assistance (92%), income from casual labour (48%), and loans or support from family/friends (not including remittances, 48%)[173]. In 2023, 56% of FDMN households reported having some form of income, marking a 10-percentage-point decline from the previous year.
- Primary livelihoods include unskilled day labour, agricultural day labour, and roles as camp volunteers/workers[174]. Fish farming and skilled wage labour receive higher wages, but account for a lower proportion[175]. Being an NGO "volunteer" or teacher is a sought form of paid employment, with intense competition for these posts[176].
- Rohingya population does not have the right to work[177]. Illegal employment outside of the camps is sometimes pursed by younger men, with the risk of violent retribution if they are caught travelling outside for work[178].
- Self-reliance opportunities for refugees are limited by restrictions on income-earning activities and shortage of space in the crowded camps. Additionally, refugees do not have access to external markets, preventing them from selling products outside the camps[179].
- Wealthier community members who have brought money from Myanmar or who have remittances have been able to open shops and other businesses within the camps[180].
- **Assistance** include general food distribution through E-vouchers, and an additional USD 3 voucher for WFP's Fresh Food Corners for vulnerable households (comprising the elderly population, single-headed houses, child-headed households, and persons with disability). Other significant forms of humanitarian assistance received included liquefied petroleum gas (LPG) (89%), hygiene kits (72%), medical health services (33%), and nutrition assistance such as supplementary feeding, super cereal, or an additional USD 2 top-up for nutritious

[171] Indicators used in an MDDI can differ from one survey to the next, depending on the structure of the questions posed and the feasibility of using particular metrics during the data collection phase. Consequently, the MDDIs from different years cannot be directly compared
[172] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[173] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[174] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[175] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."
[176] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[177] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[178] AAH.
[179] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."
[180] AAH.

food (30%)[181,182]. None of the households of the FDMN community receive cash transfers[183].

- The proportion of HH reporting **unmet multisectoral needs** is extremely high[184], with 20% of households reporting extreme unmet needs, and 66% of households reporting severe unmet needs in 2021. Unmet needs were most related to shelter and NFIs (74%), as well as food security and livelihoods (72%), WASH-related needs (56%) and access to education (50%). However, extreme unmet needs most concerned food security and livelihood outcomes, as well as (child) protection and NFIs[185]. Households with persons with disabilities, female-headed households, large households and households without access to self-reliance activities more likely to report gaps or challenges, or have unmet needs, as well as having adopted coping strategies to meet their needs..
- Median income for households with a female head of household was 0 BDT vs 3,500 BDT (32 USD) for male headed households[186].
- Limited livelihood opportunities in the camps and targeted efforts by humanitarian actors to engage women have pushed them to work, often at the expense of their own beliefs and value systems[187]. They are engaged in new and largely unfamiliar roles, such as cash-for-work, casual day labour, and volunteering with NGOs. Men are largely unemployed and primarily depend on humanitarian aid for their livelihood. Some men also participate in household work, in a limited way, and some get occasional work as day labourers in the local informal economy and participate in the limited cash-for-work opportunities in the camp[188]. Men are distressed about their inability to generate an income and feel they are both losing face in society and losing respect from their wives and families[189,190].
- Mostly owned productive assets are Micro gardening kit and machete. Few households have a sewing machine[191].
- The lack of work opportunities is the most commonly reported reason for leaving a camp (80%)[192].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

There are no stable job opportunities, with most men working only some days during the month for the organizations in the camp. Work opportunities available inside the visited camps include cleaning drains, constructing houses, maintaining roads and sanitation facilities, cutting and transporting bamboo and working in small shops. Additionally, some educated men work as religious teachers or instruct in the Burmese language, being paid directly from the community or receiving compensation for their work as volunteers in various programmes managed by the various NGOs. However, these casual job opportunities are limited to specific members, as the number of available workers exceeds the demand.

Therefore, most men illegally engage in agricultural jobs, construction, and fishing (only in one visited camp) within the host community. These activities include land preparation for planting, harvesting, tree or bamboo cutting, fishing and selling small fish, work in salt farms and general

[181] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[182] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[183] FAO, "Resilience Index Measurement and Analysis, Round 1, Cox's Bazar 2022."
[184] FAO.
[185] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees."
[186] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[187] Daun Cheong, "Four Years on: Shifting Gendered Perceptions and Experiences," Comprehensive Gender Analysis within Rohingya and Host Communities in Cox's Bazar, Bangladesh (Cox's Bazar, 2022).
[188] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[189] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[190] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[191] FAO, "Resilience Index Measurement and Analysis, Round 1, Cox's Bazar 2022."
[192] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."

construction activities. Finding work in the host community can be competitive due to the high number of refugees and local labourers. While some men go directly to the nearby villages to look for opportunities door to door, others go to a nearby host community market, standing in a specific point where labourers gather in hopes of finding employment. Most men secure jobs for 1 to 5 days, earning approximately 500 to 600 BDT (around $5) per day. When able to work in the host community for longer (7-10 days), they can earn around 3,000-4,000 BDT, especially during harvesting (November and mid-April to early May) and seeding seasons (June-July and January to early February). During these periods, they stay with the families that hire them till the job is completed.

Rohingya men have a relatively easy access to the host community, although they risk being stopped at checkpoints and detained by guards for questioning. Although aware of the legal risks, many go outside to the host community using internal roads. From 2021 to 2024, strict security measures limited refugees exiting the camp. However, in 2025 despite still being illegal access, going outside is not difficult as the security system became weaker following changes in the Bangladeshi government. Before two persons at a time could not pass the check point, they faced punishment, and their money was taken by security guard but now has become easier.

Community dynamics vary, while some host community people are perceived as supportive, others were said to underpay Rohingya as they know that this is their only opportunity. This situation also creates tension with host community workers, who feel that the Rohingya are taking their jobs by accepting lower wages. Many Rohingya men express a desire to start a shop inside the camp but face restrictions from the CiC. Additionally, several refugees perceive the lack of consistent work as a factor contributing to the deterioration of their skills.

When a husband lacks skills in agriculture and construction, is uneducated, and cannot provide a stable income, it significantly increases the vulnerability of the household. In these situations, women often find themselves responsible for managing the family's limited resources, relying solely on food rations and on borrowing food from their mothers or mothers-in-law, which typically does not need to be returned. However, when they live separately from their in-laws, which complicates this support system.

Nowadays, there is also an increasing fear about going outside due to kidnapping with several males and children already taken from the refugee camp, and some men kidnapped while returning home from work in the host community. The kidnappers come from both the refugee and host communities, with some members of the host community hiring Rohingya individuals to abduct a child or man for 4,000 to 5,000 BDT (Cf. **Hyp M Low coping strategies)**. The kidnappers typically demand a ransom for the victims' release, and those who cannot pay face severe consequences. Additionally, some kidnappings are driven by personal conflicts that originated in Myanmar, as individuals seek revenge.

Some Rohingya receive remittances from family members living abroad. They usually receive money through apps like Bkash which allow them to pay or cash out at shops outside the camp. The host community assists the Rohingya in setting up these apps using their phone numbers, in exchange for a portion of the interest on the funds received. This is because a national ID is required to create a local phone number and set up the Bkash app.

Men indicated food as their top spending priority, followed by home repairs, due to risk of theft and the instability and leaks. Families also allocate resources on their children's education as one of their top expenses, often prioritizing sons over daughters, as girls are generally expected to marry and take on household and childcare responsibilities. Additionally, many families are in debt and when they receive their monthly allowances, a portion is used to repay loans, this way reducing their food allowance.

Women's sources of income

In general, husbands do not permit their wives to work. However, a few women, 2-3 in a block, engage in home-based work, such as sewing clothes, making bamboo baskets, or crafting for the community. In some families' teenage daughters and educated women may be allowed to work as volunteers for the organizations in the camp and contributing to the family income in this way, but this is not common.

Seasonal trends in sources of income

During the winter months, the highest number of jobs becomes available, allowing most men to find work in the host community for around 5 to 7 days a month, with a maximum of 15 days. This uptake in employment is largely due to agricultural jobs tied to the harvesting season, which occurs in November and again from mid-April to early May. Similarly, the seeding season from June to July and January to early February requires more labour for planting activities. Winter also sees an increase in construction and maintenance work, both in the host community and within the camps. In contrast, job opportunities decrease significantly during the summer due to the intense heat, limiting men's ability to work long hours and often resulting in only a few days of employment per month. The rainy season poses an even greater challenge, as job opportunities disappear, leaving men to spend most of their time at home with their families. During Ramadan, families experience a reduction in work opportunities while simultaneously facing increased expenses. The cultural tradition of buying new clothes for Eid and cooking different foods as well as eating beef adds to these costs, placing additional financial strain on households incomes.

Since 2020, the Rohingya community has experienced a significant decline in job opportunities which has impacted their ability to sustain their livelihoods. Before 2020, access to casual work was more consequential as the camps were being constructed, requiring many men for the completion of tasks, such as building latrines, houses, roads and drains. However, with most of these structures now complete and the population having increased, the demand for labour has largely diminished. Additionally, corruption within cash-for-work programmes has intensified, making it increasingly challenging for community members without connections to community leaders or sufficient financial resources for bribing to secure employment. Only those whose names are on the work list can be called for employment. Community leaders usually control this process, and nepotism affects the selection procedures. However, complaints brought to the CiC and the NGO forum have not resulted in any significant changes. Over the past 2-3 years, the rise in kidnappings has further compounded the difficulties, creating an unsafe environment for those attempting to work in the host community. Furthermore, the frequent fluctuations in economic assistance WFP, which the community heavily relies on, have exacerbated their living situation. Received monthly funds are perceived as inconsistent and insufficient to meet basic needs, particularly due to inflation that continuously limits their purchasing power.

L. LIMITED ACCESS TO MARKETS

Strength of the association with undernutrition in the *scientific literature*[51]	+
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+
Strength of association with undernutrition based on on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+
Categorisation by the communities during the qualitative study	NA
Categorisation by the qualitative team	+
Influence of historical and/or seasonal variations on undernutrition trends	+
Overall interpretation	+

SECONDARY DATA REVIEW[14]

- Going to the market to purchase food is a social occasion. Rohingya to Rohingya interactions are characterised by a higher degree of trust than exchanges between Rohingya people and Bangladeshis[193].
- Some vegetables, fruits and beans are more plentiful in the camps markets and for a lower price during the winter months of December, January and February. The supply of fish is viewed to peak in July and August[194].
- Few reported market access issues, though nearby markets sometimes close during the monsoon, increasing travel distance. Market choice is dependent on distance, price and availability, with commute sometimes taking precedence over price and availability[195].
- The FDMN community's production is too little to be sold in the market[196]. Additionally, refugees do not have access to external markets[197].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

Community members primarily obtain their food from the World Food Programme food outlet, and those with financial means also purchase additional items from local markets. Community members noted that prices in the WFP market are generally higher. For example, rice costs 2,700 BDT at the WFP market, compared to 2,300 BDT of the local market. Although markets and stalls selling fruits and vegetables were generally available inside the visited camps or in a close proximity, financial constraints significantly hinder access for the community.

Mobile vendors enhance geographical accessibility by walking through the camps, selling food, household items, and clothing, which helps reach households further from local markets. However, fixed roadside shops are generally tolerated for the Bangladeshi host community but not permitted for the Rohingya by the authorities, who sometimes confiscate products and shout at the sellers but generally overlook roadside stalls unless their road is obstructed. Sellers therefore must remain vigilant, quickly packing their goods and hiding when they hear of CiC approaching.

Community sellers buy produce from host community markets and resell it inside the camps, with many reporting that they must pay rent to host community shop owners, as they do not own the shops themselves. If these shops belong to the host community, the CiC is less likely to intervene, although they retain the power to shut them down. Furthermore, bringing produce into the camps may require vendors to bribe guards to bring produce inside the camps. Fees may not always apply for personal use, but they vary based on the quantity brought in. If a vendor is carrying a bag of food for home, they may pay a fee of 20-50 BDT, while larger quantities intended for sale can incur charges of 200-500 BDT.

While men typically visit markets to buy food and other necessities, women are generally not allowed to go if their husbands are home, as markets can be crowded with men and prone to harassing comments. Husbands and wives usually discuss shopping lists and meal preparations before heading to the market. In cases where husbands are absent or if a woman's husband has passed away, women may go to the market, although societal norms restrict their movement in front of other men.

Seasonal changes greatly affect food availability of foods and prices (Cf. **Hyp J. Low access to quality diet**). In 2020, community members received less money on their data cards, but food items were more affordable. Nowadays it has become increasingly more difficult to manage

[193] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[194] AAH.
[195] AAH.
[196] FAO, "Resilience Index Measurement and Analysis, Round 1, Cox's Bazar 2022."
[197] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."

their rations as the food prices have increased. Additionally, people used to receive more non-food items which were sold to access additional cash for the families.

M. LOW COPING STRATEGIES

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on on secondary data analyses (SENS 2021, 2022 & 2023)	+
Categorisation by the technical experts at the initial technical workshop	+
Categorisation by the communities during the qualitative study	+
Categorisation by the qualitative team	+++
Influence of historical and/or seasonal variations on undernutrition trends	+++
Overall interpretation	++

SECONDARY DATA REVIEW[14]

Indicator	Total FDMN	FDMN at Coxs Bazar	Mega Camps	Nayapara RC	Kutupalong RC
Vulnerability[198] (% highly vulnerable HHs)	83% (REVA6 2022) 82% (REVA5 2021) 86% (REVA4 2020)	86% M headed HH: 87% F headed HH: 85% (REVA-7 2023)	83.5% (REVA6 2022) 74% (REVA5 2021) 87% (REVA4 2020)	68% (REVA6 2022) 55% (REVA5 2021) 61% (REVA4 2020)	
% HH reporting using one or more negative coping strategies over the past 4 weeks			100% (SENS 2021)	98.4% (SENS 2021)	100% (SENS 2021)
% HH relying on less preferred and/or less expensive foods	65% (REVA6 2022) 68% (REVA5 2021) 75% (REVA4 2020)	67% (REVA7 2023)	36.3% (SENS 2021)	19.2% (SENS 2021)	12.7% (SENS 2021)
% HH borrowing food or relying on help from a friend or relative	26% (REVA6 2022) 36% (REVA5 2021) 30% (REVA4 2020)	29% (REVA7 2023)	27.0% (SENS 2021)	34.4% (SENS 2021)	19.3% (SENS 2021)
% HH reducing # of meals eaten in a day	3% (REVA6 2022) 16% (REVA5 2021) 7% (REVA4 2020)	8% (REVA7 2023)	15.5% (SENS 2021)	16.1% (SENS 2021)	7.8% (SENS 2021)
% HH limiting portion sizes at mealtime	15% (REVA6 2022) 18% (REVA5 2021) 11% (REVA4 2020)	15% (REVA7 2023)	12.1% (SENS 2021)	12.1% (SENS 2021)	7.0% (SENS 2021)
% adults reducing consumption so children could eat	8% (REVA6 2022) 11% (REVA5 2021) 7% (REVA4 2020)	9% (REVA7 2023)	14.3% (SENS 2021)	8.9% (SENS 2021)	3.7% (SENS 2021)
% HH applying emergency livelihood-based coping strategy (LCS)	3% (REVA6 2022) 5% (REVA5 2021) 4% (REVA4 2020)	4% (REVA7 2023)		12% (JMSNA 2023)	7% (JMSNA 2023)

[198] Vulnerability is a composite WFP corporate indicator that measures the ability of the household to meet essential needs triangulated with adopted coping strategies and food security status. This vulnerability index discounts humanitarian assistance

% HH applying crisis livelihood-based coping strategy (LCS)	30% (REVA6 2022) 59% (REVA5 2021) 58% (REVA4 2020)	15% (REVA7 2023)		39% (JMSNA 2023)	34% (JMSNA 2023)
% HH selling food assistance	17% (REVA6 2022) 29% (REVA5 2021) 57% (REVA4 2020)	15% (REVA7 2023)		[199]	
Average rCSI (mean, SD/range)			3.8 (SENS 2021)	2.8 (SENS 2021)	1.4 (SENS 2021)
Resilience Capacity Index (RCI)	14.5 (RIMA 2022)				
Economic Capacity to Meet Essential Needs* - Expenditure Based Approach (below)	51% (REVA5 2021) 49% (REVA4 2021)	83% (REVA-7 2023)	51% (REVA5 2021) 50% (REVA4 2020)	38% (REVA5 2021) 23% (REVA4 2020)	

*without assistance

Risk factors: rCSI (WAZ)[200]

Protective factors: Humanitarian assistance (HAZ)[201]

- **Vulnerability** of FDMN refugees is mainly due to limited access to regular income and livelihood opportunities due to the ongoing restrictions[202], as well as high price hikes.
- **Demographic characteristics driving high vulnerability:** households with three or more members with a disability, households with children under five years of age, households with three or more children under 15 years old, households with adolescents, households with five or more members, high crowding index (more than two people per room), and high dependency ratio (greater than 1.5), heads of households with below-primary schooling or no education at all, absence of active working members in a household. Only insignificant differences between male and female-headed households in terms of vulnerability, likely due to WFP's blanket food assistance[203]. Temporary sources of income such as sale of assistance, casual labour and unskilled wage labour have been associated with higher vulnerability whereas high income earning sources are associated with lower vulnerability[204]. Households that received agriculture support are more resilient than those that didn't receive such support, those characterized by a limited access to asset ownership and those not using fertilizer and organic manure in agricultural production[205][206].
- **Resilience capacities:** 63% of HHs have a medium reduced Coping Strategies Index (rCSI), and 10% a high rCSI[207]. Higher per capita income and household size significantly increase resilience scores, whereas higher multidimensional poverty scores and dependence on assistance-based income reduce resilience capacity[208]. Households without access to self-reliance activities may be pushed towards more extreme coping strategies[209].
- **Consumption based coping strategies:** about two-thirds of households in the camps relied on less preferred or less expensive food as their most frequently used coping strategy

[199] Proportion of HH with expenditure below the Minimum Expenditure Basket (MEB)
[200] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[201] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[202] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[203] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[204] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."
[205] FAO, "Resilience Index Measurement and Analysis, Round 1, Cox's Bazar 2022."
[206] FAO.
[207] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[208] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[209] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees."

[210,211]. **Livelihood based coping strategies:** over six in ten Rohingya households rely on asset depletion or livelihood-based coping strategies in 2023, particularly in response to ration cuts. Main livelihood based coping strategies included borrowing money to meet essential needs (50%), buying food on credit (40%). Other strategies included reducing non-food expenses, such as education, health, and clothing. 2% of Rohingya households withdrew children from school. Food needs remained the primary reason for resorting to livelihood coping strategies, followed by health, shelter, and energy needs[212]. 79% of female-headed households reporting having adopted livelihoods-based coping strategies due to a lack of money to meet their basic needs in the 30 days prior to data collection, compared to 68% of male-headed households[213]. **Selling of food assistance:** remained consistent from 2022 to 2023[214]. Among households that sold their food aid, 77% in Cox's Bazar did so to buy preferred items, mainly fresh fish (58%) and vegetables (73%), while 22% sold it to buy medicine and cover treatment costs. Rohingya households with a higher number of children under 5 and dependent members, and few or no active working male members, were more likely to sell part of their assistance to access cash[215].

- Low-earning households, or families with several daughters, have often come to resort to child marriage, polygamy, and human trafficking to absolve debt[216]. One harmful practice that has become increasingly present since the Rohingya community arrived in Bangladesh is **dowry**, which consists of the property, cash, or commodities given to a husband by the bride and her family upon marriage[217]. Dowry, polygamy, and child marriage have been reported to be practiced in increasingly harmful ways due to insecurity, loss of livelihoods, lack of education, and social pressures in the camps, contributing to the rise of domestic violence[218,219,220].
- Persons with disabilities are more likely to resort to coping strategies, including more negative ones than households without persons with disabilities might resort to.[221]
- Social dynamics also contribute to vulnerabilities, such as Rohingya men abandoning their families to marry host community women, which generates resentment and can lead to intimate partner violence (IPV)[222].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2021 children who lived in households with unmet needs had a higher likelihood of being concurrently wasted and stunted (p=0.03)

QUALITATIVE INQUIRY FINDINGS

Over the past five years, the Rohingya community has developed various negative coping strategies to deal with the hardships linked to their economic challenges. When income decreases, parents resort in first instance to reducing their own food portions to feed their

[210] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[211] FAO, "Resilience Index Measurement and Analysis, Round 1, Cox's Bazar 2022."
[212] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[213] Camilla Gray and Umme Tamima, "Deconstructing Dowry: A Call for NGOs to Examine Underlying Social and Economic Factors in the Rohingya Camps," July 2024.
[214] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report."
[215] WFP, "Refugee Influx Emergency Vulnerability Assessment (REVA-7) Report."
[216] Gray and Tamima, "Deconstructing Dowry: A Call for NGOs to Examine Underlying Social and Economic Factors in the Rohingya Camps."
[217] Gray and Tamima, 'Deconstructing Dowry: A Call for NGOs to Examine Underlying Social and Economic Factors in the Rohingya Camps'.
[218] Centre for Peace and Justice, Brac University, and The Asia Foundation, "Perceptions of Rohingya Refugees: Marriage and Social Justice after Cross-Border Displacement."
[219] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[220] Gray and Tamima, "Deconstructing Dowry: A Call for NGOs to Examine Underlying Social and Economic Factors in the Rohingya Camps."
[221] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees."
[222] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."

children, often prioritizing the needs of the younger ones. They also reduce the number of meals from 3 to two especially in the last 10 days of the month.

When families start running out of food, they borrow rice and lentils from neighbouring blocks, as rations are distributed on different days across the blocks of each camp. Sometimes they also borrow small loans from neighbours with more financial resources, although this can lead to feelings of embarrassment and accumulation of debt. This practice is particularly common during religious occasions when families need extra funds for clothes or other needs. Families share resources, often pooling their limited finances to support one another, which creates a strong sense of solidarity within the community.

A negative coping mechanism deployed by community members involves selling food items from rations, such as lentils, sugar, or oil, to purchase other essential food items. Rohingya do not sell directly in the market, but instead some community purchase these items and resell them in the host community market to avoid multiple individuals selling small quantities. By reselling these staples, families not only increase their cash flow but also their food diversity. This practice enables them to purchase additional fruits, vegetables, and snacks, as well as necessary personal and household items, including medicines or even tuition fees for their children. Families with children under five often intentionally reserve surplus food items from their children's rations to manage their limited resources. This strategy becomes crucial during the last ten days of the month, when their food supply runs low, and families are forced to survive on staple-based meals. Moreover, the cost of food in the WFP outlet is generally higher than in the camp or local markets, leading many to use this strategy to save some money buying food items from local markets where the prices are a bit cheaper. Furthermore, in 2020 families received multiple household items such as floor mats, mosquito nets, blankets, soap, cooking pots, and toothbrushes. However, since 2023, these items are no longer distributed, depriving families of the opportunity to sell them and gain extra income as a negative coping mechanism to the limited income opportunities. Similarly, selling RUTF/RUSF and WSB, is a common practice. Community members sell these products openly, even near the Nutrition facilities. Mothers reported sharing and purchasing RUTF and RUSF for their children, believing that these products, designed for malnourished children, will help keep them healthy hence generating demand for it.

Due to the ongoing hardships that have intensified over the past 2-3 years, more community members have increasingly turned to illegal activities. Gambling has become a widespread activity among men and boys, as they seek quick earnings to alleviate their economic burdens. Specifically, the rise of mobile gambling has further complicated the situation, providing easy access to apps as most men now have phones, this way also contributing to increased debts. This trend has heightened conflict within households, as wives become frustrated with their husbands when they witness them losing money or selling rations to cover the incurred debts (Cf. **Hyp F Caregiver wellbeing**). Additionally, a minority of people have been also engaging in the drug dealing of Yaba, drawn by the prospect of high and quick returns. However, this illegal trade often leads to addiction, as those involved become frequent users. Both men and women have been noted to be involved as carriers and/or sellers in this drug trade. Theft and kidnapping have also increased as a result of the increasing financial struggles. Some Rohingya were reported to support kidnappers from the host community by acting as informers and intermediaries, receiving a portion of the ransom in return for their assistance. In fact, some members of the host community believe that the Rohingya still possess a significant amount of gold, because many sold their ornaments to local residents for money when they first arrived in Bangladesh, feeding into this misconception. However, the constant restrictions on income-generating activities depleted their savings, driving more men into desperation that lead them to engage in criminal activities including kidnapping, theft, drug dealing, and gambling to cope with their limited financial resources.

When comparing malnourished children with their non-malnourished brothers or sisters, nearly one in three women (31%, n=10) reported shocks at household level during pregnancy.

The shocks cited included displacements (n=5), loss of income (n=3), insecurity (n=3) and/or a separation with their husband (n=1). A number of women reported shocks during the breastfeeding period (7).

WATER, SANITATION AND HYGIENE

N. INADEQUATE ACCESSIBILITTY, AVAILABILITY AND QUALITY OF WATER AT HOUSEHOLD LEVEL

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	++
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	+++
Categorisation by the qualitative team	++
Influence of historical and/or seasonal variations on undernutrition trends	+++
Overall interpretation	+++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC
Access to improved water sources (Target = >95%)	100.0% (SENS 2023) 99.7% (SENS 2022) 100% (SENS 2021)	98.8% (91.2 - 99.9) (SENS 2023)	99.9% (SENS 2023)	Improved drinking water sources 91% (J-MSNA 2023) 100% (SENS 2022) 100% (SENS 2021)	Improved drinking water sources 62% (J-MSNA 2023) 100% (SENS 2022) 100% (SENS 2021)
Primary source of water: public tap			62% (SENS 2023)		
Primary source of water: Handpump / borehole			31% (SENS 2023)		
Primary source of water: piped connection to the HH			6.9% (SENS 2023)		
Average water collected per person/day (protected containers) Target: ≥ 20 L/ person/ day	35.4 L (SENS 2023) 39.9 L (SENS 2022)	46.1 L (SENS 2023)	35.8 L (SENS 2023)	30.9 L (SENS 2022	42.2 L (SENS 2022)
≥ 20 L/ person/ day	60.3% (SENS 2023) 72.6% (SENS 2022) 59.3% (SENS 2021)	67.4% (SENS 2023)	60.6% (SENS 2023)	53.2% (SENS 2022) 40.2% (SENS 2021)	74.4% (SENS 2022) 66.0% (SENS 2021)
15 - <20 L/ person/ day	8.5% (SENS 2023) 9.6% (SENS 2021)	8.8% (SENS 2023)	8.5% (SENS 2023)	13.0% (SENS 2021)	11.1% (SENS 2021)
<15 L/ person/ day	31.2% (SENS 2023) 21.7% (SENS 2022) 31.1%	23.8% (SENS 2023)	30.9% (SENS 2023)	38.6% (SENS 2022) 46.9% (SENS 2021)	15% (SENS 2022) 23.0% (SENS 2021)

	(SENS 2021)				

Risk factors: Water treatment (WHZ)[223]

Protective factors: Water storage covered (WAZ)[224], Water stored on the ground (WAZ)[225]

- **Sources of drinking water:** universal access to protected or treated water sources. Main sources include public taps, hand pumps/boreholes, piped connections to homes or neighbours, and deep tube wells.[226] Access to safe water has steadily improved since 2018, however the prevalence of households using a tap stand as main drinking water source remains below target (75). Households with persons with disabilities are more likely to deploy more negative coping strategies as they experience challenges fetching large amounts of water from distant sources.[227] E-coli levels in household water have been below target (>95% E-coli free) since 2019.
- The community perceives water quality in Kutupalong MS as worse than in Myanmar, as prior to migration, each Rohingya household had access to its own private tube well. Queuing for water can result in long waiting times of 20 minutes and longer, adding to women's workload and causing marital tensions, particularly when mothers leave children with fathers, siblings, or alone during these trips. Maintenance practices vary by camp, with some communities raising funds independently for repairs while NGOs handle maintenance in others; complaints about repair delays are common. Collecting water is predominantly seen as a women's responsibility, with most households fetching water twice daily. During summer and fasting periods like Ramadan, the demand increases, and water may need to be collected up to four times a day[228]. Seasonal variations also impact water availability[229].
- **Household transport and storage of water:** water stored in containers, with many washing their pitchers before collection to maintain cleanliness.[230] WASH partners usually distribute water collection and storage containers with targeted distributions during disease outbreaks. The community understands that safe water should be collected from tap stands and tube wells, stored in covered containers, and kept elevated.[231]
- Key challenges include inadequate availability of storage pots or drums and space constraints in homes for accommodating containers. Additionally, high iron content in the supplied water causes reddish discoloration, giving it a dirty appearance. The rainy season further complicates safe water storage and deteriorates water quality, while accessing distant water sources raises privacy and safety concerns for women.[232]
- **Water consumption:** Concerns regarding inconsistent water supply have led some families to purchase additional water from host community connections to ensure availability. Water is delivered only twice a day for 30 minutes, necessitating multiple trips for households to secure adequate amounts, especially for cooking purposes.[233] In 2022, payments for water access ranged from approximately 300-400 BDT in Kutupalong Mega Camp, 500-600 BDT in Nayapara RC, and around 700 BDT in Kutupalong RC.[234] Since

[223] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[224] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[225] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[226] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings." ISCG CXB et al.
[227] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees."
[228] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.
[229] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees." ISCG CXB et al.
[230] ISCG CXB et al. ISCG CXB et al.
[231] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh.
[232] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh.
[233] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh.
[234] UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh.

2019, the percentage of households reporting sufficient water to meet their needs has consistently fallen below the target of 90%.[235]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2021, children living in households that used a handpump borehole as their main water source had a higher risk of concurrent wasting and stunting (p = 0.03). In contrast, children from households that relied on a public tap standpipe had a lower risk of concurrent wasting and stunting (p = 0.03).

QUALITATIVE INQUIRY FINDINGS

In the camps, water is collected from either tap stands or tube wells. With the exception of one camp, continuous water availability is a significant challenge, with supplies typically restricted to just one hour per day and designated collection times for each block. This restriction complicates the community's ability to meet their daily needs. Fetching water is more time-consuming for those living in hilly areas because they must walk up and down the hills, which prolongs the task and makes it more physically difficult. Additionally, women reported long waiting times as one of the main barriers to water access. Collecting water should take around 15 minutes but distance and long waiting lines often double or triple this duration. Water is collected in pitchers and buckets, as these containers can be easily cleaned and have lids to protect the water from contamination. However, it was observed that most pitchers are left open during collection and transport. The responsibility for collecting water predominantly falls on women and girls, as men are generally responsible for working outside the house. In some instances, boys and men may assist women while at home, especially when the woman is sick, or the tap stand is located near busy road where women could face harassment from passing men. In one camp, some women reported having challenges going to the tap stand for this reason.

In most visited camps, each person reported having access to 10 litres of water per day from the tap stand. However, community members reported that they require at least 20 litres daily to adequately meet their hygiene and cooking needs. Children under five need more water to maintain body cleanliness making the community concerned about an increased risk of childhood diseases, such as diarrhoea. In certain camps, families with more resources can access private water pipelines connected to houses in the host community, but these lines serve only a minority of households and allow them to collect water for an additional 10 minutes each day (2-3 pitchers of 10 litres) for a monthly fee of 500-700 BDT. The quality of water is generally good, with occasional complaints about a strong odour from the chlorine and some people reporting finding worms from the water collected in the tap stands especially after prolonged water shortages.

During the rainy season, access to water increases as the community relies more on rainwater for bathing and cleaning. However, low charges of the solar pumps due to lack of sun reduce water availability, and slippery roads make collection more challenging. Conversely, in summer, water demand increases due to higher temperatures and greater drinking needs. In Teknaf the lack of aquifer make communities fully reliant on surface water stored during rainy season which becomes particularly challenging during the summer months. In 2020, with fewer functioning taps, the community experienced lower water access and availability, but improvements have been made since 2022, due to enhanced maintenance and involvement of various NGOs, leading to better management of water infrastructure. However, despite these improvements, the growing population in the camps has intensified the demand for water, boosted by an increased awareness of hygiene practices. This increased demand exacerbates the ongoing challenges of water availability. Additionally, some camps continue to experience issues with damaged tube wells and unrepaired infrastructure, often having to wait long months for the necessary repairs to be addressed.

[235] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2020 (J-MSNA): Refugee and Host Communities."

According to community observations, all visited locations had functional water points within a short distance, with waiting times typically under 30 minutes. In some cases, rainwater was also collected. Water cans were cleaned with stones rather than soap, and not all communities were seen washing them before a re-fill and were not always covered with a lid. Despite reported as low, signs of open defecation, solid waste and presence of domestic/wild animals were observed around the water fetching points. Instead flies and insects, children playing with water, animal excrement were observed in the household where the water was stored. Additionally, no water treatment practices were observed at the household level.

O. INADEQUATE HOUSEHOLD SANITATION PRACTICES

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on on secondary data analyses (SENS 2021, 2022 & 2023)	+++
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	+++
Categorisation by the qualitative team	++
Influence of historical and/or seasonal variations on undernutrition trends	+++
Overall interpretation	+++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Kutupalong RC	Nayapara RC
Access to improved sanitation facilities	99.0% (95.7 - 99.8) (SENS 2023) 99.4% (98.6 100.2) SENS 2022 99.7% (99.1-100.0) (SENS 2021)	100.0% (100.0 - 100.0) (SENS 2023)	99.0% (SENS 2023)	99.6% (97.6-100) (SENS 2022) 100.0% (98.4-100) (SENS 2021) 62% (JMSNA 2021)	100% (SENS 2022) 100% (98.5-100.0) (SENS 2021) 91% (JMSNA 2021)
Proportion of children under 5 using a latrine/ toilet	29.9% (23.7 - 37.0) (SENS 2023)	34.3% (25.4 - 44.4) (SENS 2023)	30.1% (SENS 2023)		
Proportion of children under 5 using a plastic potty			2.2% (SENS 2023)		
Proportion of children under 5 practicing open defecation			67.7% (SENS 2023)		
Proportion of households practising safe disposal of child faeces	51.7% (41.8-61.7) (SENS 2021)			51.3% (39.8-62.6) (SENS 2021)	53.1% (41.7-64.3) (SENS 2021)

- Toilets are primarily shared twin or single latrines with a slab,[236] with one latrine used by around 20 people or even more[237]. Despite a high coverage, around 40% of households have reported issues related to latrines that affect both male and female members[238], such as long waiting times, cleanliness concerns, distance to facilities, and overcrowding[239].

[236] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report"; ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings."
[237] WASH Sector Cox's Bazar, "WASH Sector –Trend Analysis over the Year from 2018 to 2024." WASH Sector Cox's Bazar. WASH Sector Cox's Bazar. WASH Sector Cox's Bazar.
[238] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2021 (J-MSNA): Rohingya Refugees."
[239] UNHCR, WFP & ACF Bangladesh, "2021 Standardized Expanded Nutrition Survey (SENS) Report."

Additionally, damaged latrines are still in use, and several communities have expressed frustration that the responsible agencies remain unresponsive to their complaints.[240]

- Limited space impacts the location and accessibility of sanitation infrastructure, and scarcity of gender-segregated and disability-friendly latrines. Many facilities lack privacy and sufficient lighting around toilets and pathways, which increases the risk of sexual and gender-based violence, discouraging women and girls from using them [241]. Distance-related concerns about latrines is twice as high among females compared to males, influenced by social norms that restrict women's mobility and stigma surrounding menstruation. As a result, women and girls often find themselves using WASH facilities at night, further heightening their vulnerability to attacks[242].
- Environmental factors such as poor drainage and the absence of cholera surveillance exacerbate the already significant sanitation challenges faced by the community[243].
- **Management of baby/young infant stools:** Children under-five frequently resort to open defecation due to difficulties using toilets located far from home.[244] Other challenges include the caregiver burden of managing multiple children during trips to community toilets, insufficient number of toilets, inadequate lighting that instils fear in children at night, and poor waste management[245]. Mothers recognise the health risks linked to open defecation. Most respondents reported no assistance from organisations, having received only damaged plastic potties for small children in the past. Appropriate disposal of child faeces remains a big challenge across camps[246] which compounded by high population density, contributes to constant faecal contamination. Although the level of contamination is not high enough to trigger a significant outbreak under normal conditions, it represents a chronic risk, particularly during the rainy season.[247]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2022, children using alternative toilet facilities were at a higher risk of wasting based on weight-for-height and weight-for-height z-scores and/or MUAC ($p < 0.01$). Additionally, children whose feces were not disposed of in a latrine also faced a higher risk of wasting based on weight-for-height z-scores ($p = 0.04$). Furthermore, children practicing open defecation were more likely to be stunted ($p = 0.04$).

Based on the logistic regression results of SENS 2021, children using a plastic bag or potty as a toilet were more likely to be wasted according to MUAC ($p < 0.01$).

QUALITATIVE INQUIRY FINDINGS

According to the community access to sanitation facilities is generally limited across most camps with few latrines available for multiple families. This results in long waiting times, sometimes reaching up to 30 minutes, particularly in the morning when demand is the highest. Ongoing maintenance issues exacerbate these challenges, as many latrines remain blocked, and repair services are often delayed. Additionally, space constraints hinder the construction of new toilet facilities, contributing to overcrowding of the existing ones. Several community members express concern over the uncleanliness of toilets. While some camps have employed specific community members to clean the latrines, these efforts are often insufficient. As a result, unhygienic conditions persist, leading to health issues such as diarrhoea and other

[240] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[241] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[242] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."
[243] UNHCR, WFP & ACF Bangladesh, "2021 Standardized Expanded Nutrition Survey (SENS) Report."
[244] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report"; UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report."
[245] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report"; UNHCR, WFP & ACF Bangladesh, "2021 Standardized Expanded Nutrition Survey (SENS) Report"; UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report."
[246] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report"; UNHCR, WFP & ACF Bangladesh, "2021 Standardized Expanded Nutrition Survey (SENS) Report"; UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report."
[247] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh."

infections among children who use and play near latrines. Although adults generally refrain from open defecation, children under-five frequently use drains or similar locations near their homes. Many mothers allow their children to use drains due to limited toilet accessibility and some dispose of their children's faeces in open areas, where children tend to play. Some women report safety challenges when using latrines. They often prefer to go in groups to avoid unwanted comments from men and boys. Access to latrines becomes particularly challenging during the rainy season due to slippery and muddy roads. In some camps, toilets are reported to overflow during this time, particularly affecting homes located downhill. The community perceives that the number of toilets has decreased since 2023, as the population has grown. Although NGOs have demolished damaged toilets and reconstructed most, many remain unrepaired, leading to a further decline in the number of available toilets without the ability to construct new ones and meet the increasing population needs.

According to study observations, latrines were not consistently maintained in a clean condition. Essential handwashing materials, such as water, soap, or alternative items like ashes, soil, or sand, were often not near the latrines as they usually get stolen. While children were observed using the latrines and caregivers disposing of child faeces in them, signs of open defecation around the latrines were also evident. Additionally, the presence of flies and animals around the latrines was noted. In one location, latrines were situated a great distance away from dwellings, posing a security risk.

P. INADEQUATE PERSONAL HYGIENE PRACTICES

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	++
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	++
Categorisation by the qualitative team	+++
Influence of historical and/or seasonal variations on undernutrition trends	++
Overall interpretation	++

SECONDARY DATA REVIEW[14]

Indicator	Mega Camps	Registered Camps	Overall weighted (MC+RC)	Nayapara RC	Kutupalong RC
Hand washing facility				62% (J-MSNA 2023)	77% (J-MSNA 2023)
Number of households with access to soap	95.9% (79.2 - 99.3) (SENS 2023) 98.2% (96.6 -99.8) (SENS 2022) 97.8% (96.3-99.4) (SENS 2021)	93.8% (82.1 - 98.1) (SENS 2023)	95.8% (SENS 2023)	98.3% (95.7-99.5) (SENS 2022) 98.2% (95.5-99.5) (SENS 2021)	100.0% (98.5-100.0) (SENS 2021) 98.3% (95.7-99.5) (SENS 2022)

Protective factors: Soap: presence confirmed (HAZ)[248], Obs child with clean face (HAZ)[249], Obs child with clean clothes (HAZ)[250], Obs child washed recently(HAZ)[251], Positive child WASH practices observed (combined) (WAZ)[252]

- Non-optimal hygiene practices was identified as a major risk factor of malnutrition in the camps.[253]

[248] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[249] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[250] AAH.
[251] AAH.
[252] AAH.
[253] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."

- A significant challenge to hand hygiene is the shortage of soap.[254] In June 2023, the WASH sector reduced the soap supply to one per person per month[255] and hygiene items remain among the top 3 needs[256]. In 2024, only 85% of households were observed having soap, below the 95% target, and one in four households lacked a handwashing place in their dwelling or yard[257].
- Caregivers reported various key times when they wash their hands with soap, however, many mothers were unaware of the critical points for effective handwashing.[258] Overall handwashing practices have improved since COVID-19, with a steady increase in respondents able to identify three critical times for handwashing, peaking at 87% in 2024[259,260].
- Hand and hygiene practices were easier to maintain in Myanmar, where water and soap were more readily available. In the Rohingya culture, cooking with unwashed hands is considered a sin; and when soap is unavailable, it is common for community members to use sand or ash instead. Larger families are particularly affected by soap shortages. Soap prices range from 10 to 45 taka per bar, and many families report that purchasing additional soap means less money available for food.[261]
- Trends show that since 2021, the percentage of women of reproductive age (WRA) accessing menstrual hygiene items has consistently fallen below the 90% target, reaching a peak of 83% in 2023[262], with women expressing concerns regarding the insufficient and irregular distribution and low quality of menstrual hygiene kits[263] Upon arriving in Kutupalong MS in 2017, women used cloths for menstrual waste disposal, but now sanitary napkins are provided for free. While burial was common in Myanmar, space limitations in the camps make it less feasible, though it remains the most common disposal method in the area[264].
- Safety concerns affect women's bathing routines, as facilities are often far from homes. As a result, female refugees often bathe inside their shelters instead of using communal facilities[265].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

According to the logistic regression results of SENS 2023, children living in households where soap was available had a lower risk of wasting based on weight-for-height z-scores, MUAC, and combined indices ($p < 0.04$, $p < 0.01$, $p < 0.04$).

QUALITATIVE INQUIRY FINDINGS

Suboptimal personal hygiene is strongly connected to the unclean camp environment linked to overcrowding, garbage accumulation, unclean drains and instances of open defecation. The limited access to soap and water exacerbate the situation limiting the community's ability to maintain optimal hygiene practices, increasing the risk of hygiene-related childhood diseases.

[254] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh. UNHCR, WFP & ACF Bangladesh. UNHCR, WFP & ACF Bangladesh.
[255] NGO Platform, Cox's Bazar, "Press Release: Decreasing Humanitarian Assistance Threatens the Life of 1 Million Rohingya Refugees in Bangladesh: Food Ration and Soap Cuts."
[256] UNHCR, WFP & ACF Bangladesh, "2022 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh. UNHCR, WFP & ACF Bangladesh. UNHCR, WFP & ACF Bangladesh.
[257] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2023 (J-MSNA): Camp-Level Findings." ISCG CXB et al. ISCG CXB et al. ISCG CXB et al.
[258] UNHCR, WFP & ACF Bangladesh, "2023 Standardized Expanded Nutrition Survey (SENS) Report." UNHCR, WFP & ACF Bangladesh. UNHCR, WFP & ACF Bangladesh. UNHCR, WFP & ACF Bangladesh.
[259] WASH Sector Cox's Bazar, "WASH Sector –Trend Analysis over the Year from 2018 to 2024." WASH Sector Cox's Bazar.
[260] ISCG CXB et al., "Joint Multi Sectoral Needs Assessment 2020 (J-MSNA): Refugee and Host Communities."
[261] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[262] WASH Sector Cox's Bazar, "WASH Sector –Trend Analysis over the Year from 2018 to 2024." WASH Sector Cox's Bazar.
[263] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report." UNHCR, CARE and Action. UNHCR, CARE and Action. UNHCR, CARE and Action.
[264] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[265] UNHCR and WFP, "Joint Assessment Mission Report Cox's Bazar, Bangladesh." UNHCR and WFP. UNHCR and WFP. UNHCR and WFP.

Despite emphasizing the importance of cleanliness, as noted in religious teachings, community members often struggle to wash their hands after using the toilet due to the lack of soap and in most cases only rinse them with water. Organisations provide one soap per family per month for washing their body and one to wash their clothes which is perceived as insufficient. There are no local beliefs against hygiene practices and community members are becoming more aware of the optimal practices thanks to the sensitization sessions provided by the NGOs. Nevertheless, increasing family size, limited availability of water and financial resources to buy soap pose the biggest barriers to maintaining optimal hygiene. Men were said to be perceived to maintain better hygiene due to fewer household responsibilities, while women, burdened with housework and childcare, may struggle to keep clean during the day.

Girls learn about menstruation from their sisters in law, as they do not have open discussions about sensitive topics with their mothers. Some girls mentioned receiving washable pads from organizations twice a year, but the lack private space to wash and dry their pads make them uncomfortable. Occasionally, they purchase pads from mothers that receive them from the hospital post delivery, and when pads are unavailable, they resort to using cloths. During their menstruation, they often miss classes for 2 to 3 days due to discomfort and heavy bleeding.

During the COVID-19 pandemic in 2020, heightened concern about the virus led to improved hygiene practices among community members. However, as the fear of the virus decreased by 2022, there was a noticeable decline in handwashing habits. From 2023, awareness of proper hygiene practices had increased significantly, thanks to enhanced education sessions provided by various NGOs throughout the camps. Despite this progress, the availability of water and soap remains a critical challenge. Seasonal factors also play a crucial role in influencing bathing frequency and children's hygiene needs. In the summer, children are bathed more frequently due to the heat, but this practice is often hindered by limited water supply. Conversely, during the winter, bathing occurs less often due to concerns about children catching colds. During the rainy season, the unclean environment worsens contributing to the generic uncleanliness of children that get wet and muddy as the wander outside to play. Despite this, children are bathed once a day since they spend most of their time indoors.

According to study observations, children are generally seen walking around with dirty and overused clothes and dirty bodies. Children play on the floor outside of their houses, very close to the drains and mostly walk barefoot and half-dressed. Handwashing is more often than not practiced without soap and not consistently performed after key activities such as using the toilet, handling child faeces, cooking, or eating.

Q. INADEQUATE ENVIRONMENTAL AND FOOD HYGIENE PRACTICES

Strength of the association with undernutrition in the *scientific literature*[51]	+++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+++
Strength of association with undernutrition based on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	++
Categorisation by the communities during the qualitative study	++
Categorisation by the qualitative team	+++
Influence of historical and/or seasonal variations on undernutrition trends	++
Overall interpretation	+++

SECONDARY DATA REVIEW[14]

Risk factors: Observation of animal in play area (HAZ)[266], Observation baby crawling in the dirt (HAZ)[267], Observation organic waste within 10 m (HAZ)[268], Food hygiene Observation: Organic waste within 10 m (WAZ)[269]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

The community is facing significant challenges due to limited living space and a continuously growing population that leads to overcrowding and more environmental hygiene challenges. This situation, compounded by poorly ventilated homes, inadequate garbage disposal, and congested drains and latrines which are not cleaned regularly, creates an unhealthy and unhygienic environment, characterized by persistent unpleasant odour which was perceived as very strong in some of the visited camps. Additionally, in one of the visited camps community members reported that drainage systems are inadequately constructed which results in wastewater flooding their homes. Parents reported that young children suffer both mentally and physically due to the lack of adequate space for play, instead having to play near drains adjacent to their homes, increasing their risk of diseases, such as diarrhoea and scabies as well as bad stomach linked to the strong smell. Additionally, parents limit their children's mobility to the immediate vicinity of their homes to prevent incidents of kidnapping this way forcing them to play in the surrounding unclean environment.

Despite efforts to maintain cleanliness in the kitchen area, constraints related to space and resources such as water shortages and the absence of dustbins make it difficult to maintain hygiene. Cooked food is typically stored in pots used for cooking and reheated before consumption. Summer months are more challenging as heat leads to food spoiling more quickly. Chickens, a vital source of animal protein for families, exacerbate the situation as there is no specific area to keep them. They roam freely throughout the camp during the day and are put inside homes at night, often in the same room when children and families sleep, which further compromises hygienic conditions both inside and around the houses.

According to study observations, waste was observed to be generally thrown in a dedicated pit or into a drain. One of the visited camps displayed particularly critical environmental conditions, with overflowing, clogged drains—especially larger ones—creating a persistent unpleasant odour.

GENDER

- **Ideal Rohingya woman:** modest, respectful, and permissive; devout and religious. She should have an eagerness to serve her parents, parents-in-law, and children. There is a strong association between hygiene, cleanliness and Rohingya femininity, which further explains why fetching water is women's responsibility. Washing in Rohingya culture is often connected to spiritual purity: women are required to clean themselves before prayer ("*wudu*"). In contrast to men, women have not experienced an identity crisis that caused by the inability to meet the societal expectations of the 'ideal' Rohingya woman after migration to Bangladesh.
- **Ideal Rohingya man:** Rohingya male identity is intimately linked to work and the ability to provide for the household. The expectation that men will be able to provide money and food for the household is closely related to the Rohingya marriage practices. The wife's family pays the dowry, which signifies that the husband will assume responsibility for all future female economic needs. An ideal man should be pious and devout; he should be

[266] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[267] AAH.
[268] AAH.
[269] AAH.

sober, wealthy, and respected. Male shame is commonly experienced by those unable to fulfil this role. The transition from Myanmar to Bangladesh has fundamentally challenged the self-esteem and confidence of Rohingya men.

- "Outside the home" is considered a male space. Without an occupation external to the household, men have nowhere to go. Due to restrictions on women's movement, the home is seen as being their domain. Wives ask their husbands to leave the family home during the day. When men return to the family home at mealtimes, this often causes marital tension and domestic violence.
- Over the last four years, the humanitarian sector in Cox's Bazar has established strong capacity in gender programming. However, the gender interventions focus strongly on women at the individual level, and do not fully address more multi-dimensional approaches including men and people with diverse genders, or beyond at the societal and institutional level.[270] [271]
- Very limited numbers of gender-focused service providers and only a few larger organisations with gender expertise are allowed to implement activities independently in the camps. Local NGOs, including women's rights organisations (WROs) and women led organizations (WLOs) are systematically excluded.[272]
- Rohingya marriage rules tend to disadvantage women at the expense of ensuring male power. As an example, women are required to pay a new dowry if they want to remarry. For men, on the other hand, a new marriage is profitable because his family receives the payment.[273]

R. CAREGIVER'S HEAVY WORKLOAD

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+
Categorisation by the communities during the qualitative study	NA
Categorisation by the qualitative team	+
Influence of historical and/or seasonal variations on trends in undernutrition	+
Overall interpretation	+

SECONDARY DATA REVIEW[14]

Risk factors: women's workload (HAZ, child-caregiver interactions)[45] Underweight: Women workload scale[274]

- Community members observe shifting gender roles, causing internal mixed feelings and internal conflicts. Among the positive changes, women and girls' education and literacy received the highest amount of support, while women's active engagement in socioeconomic activities was least favoured.[275]
- Rohingya women who had participated in gender activities showed a slightly increased workload in housework and care.[276] 54.2% of women reported a medium to heavy workload[277].
- The workload of women has declined since migration. In Myanmar, a typical Rohingya woman worked at least ten hours daily on household and agricultural tasks, while in Kutupalong MS, they estimate working about four to five hours per day. Their days

[270] Cheong.
[271] Cheong, "Four Years on: Shifting Gendered Perceptions and Experiences."
[272] CARE Bangladesh, They Do Not Consider Us as NGOs: The Current State of Affairs of the Women-led Organizations in Rohingya Humanitarian Response, 2020.
[273] AAH, "Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh."
[274] AAH, "Quantitative Assessment of Risk Factors of Undernutrition Based on the Link NCA Methodology. Nayapara Registered Camp, Cox's Bazar, Bangladesh."
[275] Cheong, "Four Years on: Shifting Gendered Perceptions and Experiences."
[276] Cheong.
[277] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.

typically begin with waking up to pray around 4.30 am, then beginning household chores-washing clothes, preparing breakfast, and sending the child to school. Women typically chat with neighbours and friends and/or rest, before fetching water to prepare lunch. In the afternoon, a woman will send her children to the *maqtab*[278] and then wash dishes and complete other household chores. Older women will again fetch water before preparing the evening dinner. Children are put to bed ~ 20.00, and the woman goes to sleep shortly after[279].

- The reduction in female labour hours is viewed as one of the positive aspects of life in Bangladesh., and women were less likely than men to want to return to Myanmar[280].
- There are some exceptions to this trend, such as women with larger families, particularly with multiple children under five who may still face a substantial workload. Additionally, in some of the camps, problems related to water supply created additional issues for women[281].
- The community believe that as far as possible the movement of women should be restricted to the privacy of the family home. Going to the market, for example, is an activity which is only performed by males. This gendered division of labour is historical and cultural. In Myanmar, each family had its own tube well, so women could collect water for household chores without leaving home. After migration, the tradition of women collecting the water was retained in a new environment. Practices and rules were developed to adapt to the changing circumstances. For example, women under 50 years old could now only fetch the water after sunset so they cannot be seen by men, whereas older women, who are no longer seen as sexually desirable, could go at any time[282].
- Childcare only is limited for Rohingya men in both Kutupalong MS and Myanmar, with daily tasks mainly involving taking children for walks, accompanying them to the market to buy them snacks, or playing with them or keeping them on their lap[283].
- A typical man wakes up at 4.30 am to pray, then returns to sleep until breakfast is prepared for him. An employed man begins work around 8.00 am, while an unemployed man roams the camp, participating in various leisure activities, such as visiting the tea stall, smoking cigarettes, consuming betel leaf (an addictive stimulant), and talking with friends. It is commonly estimated by the community that the prevalence of tobacco consumption for men has increased from around 30% to 80% since migration. After a prayer at the mosque, a man will return home for lunch. He will collect WFP rations once or twice a month. After this, a man again engages in more leisure activities and/or plays with his children before taking an evening shower. Employed men finish work around 6 pm. After dinner and prayer, a man listens to the news with his friends, and then go to sleep shortly after his wife[284].
- Prior to migration, the daily routine of men was built around agriculture, with activities beginning at 6:00 am and finishing at 7 pm. Substantial changes to this daily schedule is accompanied by an increase in the religiosity of Rohingya life. In Myanmar, men prayed five times a day due to agricultural commitments, but with more free time in Bangladesh, they now pray eight times daily, and attend Islamic lectures or learning in the Islamic school[285].

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

[278] Islamic teaching centre.
[279] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.
[280] AAH.
[281] AAH.
[282] AAH.
[283] AAH.
[284] AAH.
[285] AAH.

Ideal woman

The ideal woman in the Rohingya society, is one that takes well care of the family including her husband, children, and in-laws. She actively listens to her husband and respects his authority and that of her in-laws. Her primary responsibility is motherhood, ensuring her children are well cared for, timely fed, and kept clean. She maintains a good relationship with her mother in-law by following her advice on household management and how to care for children. An ideal woman performs daily prayers punctually, recites the holy Quran, and dresses modestly, covering herself in public and maintaining a low profile around men outside her family. She takes pride in maintaining cleanliness within her home and for her children. She respects her husband's role as the main financial provider and decision maker, and she holds an indirect financial responsibility by keeping the household money safe and ensuring cautious spending. Through her actions, she serves as a role model for her daughters, teaching them about the importance of family values, religion, respect for elders, and their role and responsibilities within the household.

Ideal men

The ideal man performs prayers five times a day, is well educated through both school and religious teachings. He avoids negative behaviours such as drug addiction and gambling, staying away from conflict with family and neighbours and wider community. He maintains harmonious relationships with his family and elders. He talks kindly to his wife and has a good relationship with the in-laws. As the main family provider, he is expected to earn for his family, including his wife, children, and relatives and failing to do so is often criticised.

Distribution of household tasks and responsibilities

Women's workload

Women's workload in the community includes household chores, childcare, cooking, and collecting food rations once a month. Going to the is market is restricted to rare occasions when the husband is away for work.

The primary responsibility for childcare falls to mothers, as they stay home and spend most of the day with their children, while fathers work outside, when possible, to provide for the family. They feed, bathe, and care for their children throughout the day, all while handling household tasks. Because men work only casually during the year, they sometimes take on childcare responsibilities, taking the children out for walks while the women manage household tasks. Women find tasks like fetching water, collecting rations, and gas cylinders heavy and prefer to collect rations themselves, as several husbands sell part of the rations en route home to buy drugs, cigarettes, or gamble.

A typical day for women in the camps begins very early, around 5:00 am, when they perform their prayers and prepare breakfast for the family by 8:00 am. Throughout the morning they manage the various household chores, including cleaning, washing clothes, and fetching water while also caring for their children, feeding them and getting them ready for school or religious lessons at the Maktab[286]. After serving lunch at around 1:30 pm, which is a communal mealtime for the family, women usually take a break to rest of 2 to 3 hours, during which they rest and socialize with neighbours until about 4:00 pm. Around 6:00 pm, they begin preparing dinner for their families. In the evening, they participate in night prayers and gather for dinner at around 7:30 pm. By 8:30 to 9:00 pm, families retire for the night.

Most women perceive their workload as manageable and not heavy, finding time easily for all their responsibilities since they no longer engage in agricultural activities like they did in

[286] Religious school for children

Myanmar, where they harvested rice and ground spices daily. Now, they buy spices and food from WFP outlets or local markets which requires less effort.

However, women with multiple young children under-five face greater challenges, as they must balance daily chores with constant supervision of their little ones. Crying infants often require more attention, making tasks like cooking and washing more difficult. Fortunately, older children, especially daughters aged ten and above, assist their mothers by collecting water and caring for younger siblings. Additionally, close family member like mother, sisters but also neighbours at times often offer support, particularly in fetching water or providing childcare.

While a minority of women, typically the educated ones, have jobs with NGOs or engage in tailoring and crafting, most do not have access to job opportunities. During pregnancy, women's workload remains unchanged. After delivery, women can rest for about a month depending on available support; those with more family assistance enjoy more recovery time.

Single or divorced women bear a heavier burden, as they are solely responsible for household duties after returning to their family homes. In cases of widowhood, they also return home to parental support.

Historical and seasonal trends in women's workload

Workload intensity stays the same throughout the year, with slight seasonal variations. In winter, chores increase with the need to boil water for bathing and providing more warm tea during the day. The rainy season sees children staying indoors more, while Ramadan demands additional food preparation and therefore more cooking-time for women. Overall, women report having more workload now compared to five years ago mainly due to an increase in the number of children, especially under-fives.

Men's workload

Men's daily routine starts early at 5:00 am. They begin their days with prayers at the Mosque, followed by breakfast. Those who have jobs leave for work after breakfast, while those without employment often remain at home to assist their families, such as taking care of children or helping their wives with household tasks like collecting water. After the noon prayer, they have lunch and may take a nap, engage in personal activities or take their children for a walk. In the afternoons, unemployed men often gather at shops to socialize, playing games like Ludu, having tea or Bettel leaf and chatting with friends. Evening activities typically involve spending quality time with family and playing with their children. They eat dinner with their wives at around 7:30-8:00 pm and go to bed by 9:00 pm.

The seasons influence their workload and daily routines. In winter months, they have more work due to agricultural needs and more construction work in the host community, often spending several days in the host community to complete the work. Summer is often spent in the shade due to excessive heat with occasional availability of daily jobs. During the rainy season, the work opportunities are very limited due to the heavy rains and, therefore, men spend most of their time at home. Additionally, men go to the market as women are not allowed to go alone.

According to the comparative study, nearly one in three mothers (n=10) reported experiencing a heavier workload during the pregnancy of their malnourished child compared to that of their healthy sibling, and 38% (n=12) reported facing a greater workload during the breastfeeding period.

S. LOW FEMALE AUTONOMY/LOW DECISIONMAKING POWER

Strength of the association with undernutrition in the *scientific literature*[51]	+
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	+++

Strength of association with undernutrition based on on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+
Categorisation by the communities during the qualitative study	++
Categorisation by the qualitative team	+
Influence of historical and/or seasonal variations on undernutrition trends	NA
Overall interpretation	++

SECONDARY DATA REVIEW[14]

Indicator %	Kutupalong MS
Women take decisions on market purchases	10.5% (Link NCA 2019)
Women take health-related decisions	8.5% (Link NCA 2019)
Women take household-related decisions	9.0% (Link NCA 2019)
Women not involved in any surveyed decisions	84.1% (Link NCA 2019)

- In Rohingya Camps, most of the important decisions that affect the lives of women and girls are made by men or at least require male consent, similarly to Myanmar. Women have minimal decision-making power[287] and require permission from a male family member to work, attend community events[288], or access nutrition services[289].
- Men play an important role in purchase of nutritious food as husbands/fathers (90% of responses) and other household leaders (10%) usually purchase food. Husband or male household leader (75%), female family members like wife or mother-in-law (25%) usually decide what to eat.[290] [291]
- Marital life is built on a system patrilocal residence, meaning that men are supported by their mothers in household decision making. Older women often said that they would instruct their sons to leave their wives unless they wanted more children.[292]
- There are multiple barriers to female movement outside their homes. Rohingya women avoid leaving the house during the day to prevent men looking at them. and during at night there are concerns about rape, assault, and kidnapping. These restrictions typically start at puberty. Being unable to move freely in public spaces limits women's income generating powers. Economic inequalities affect gender dynamics in the household. During disagreements, husbands can threaten divorce, leaving women at greater risk of destitution and reliance on aid if separated.[293]
- Nearly 3/4 of WFP ration cards in Kutupalong MS are held by women, who drive the use of food aid as a source of money. The decision to sell is most often made by women and sometimes done so in secret without male knowledge. They either trade unwanted pulses with market stall sellers who visit the house, or use aid as currency, such as sending children to exchange rice for snacks. For the most part, women use the proceeds from the sale of food rations to purchase preferred food items (but some admit to purchasing clothes instead). Making these decisions without their husband's consent risks domestic violence.[294]
- There are initiatives to promote refugee women's participation in various meetings and community processes, but these are not standardised across all camps. The unelected

[287] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.
[288] Cheong.
[289] Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector, "GBV Safety Audit for Nutrition Facilities - A Mixed-Method Assessment Report." Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector.
[290] Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector, "GBV Safety Audit for Nutrition Facilities - A Mixed-Method Assessment Report." Nutrition Sector Cox's Bazar and Cox's Bazar GBV Sub-Sector.
[291] Data in this paragraph is from the Joint Agency Research Report on Rohingya Refugee Response Gender Analysis. https://drive.google.com/drive/folders/1ScW1kc1t9pu85WJH-1f8YtFW_BpTHjoe?usp=sharing
[292] AAH, 'Nutrition Causal Analysis Kutupalong Makeshift Settlements, Cox's Bazar, Bangladesh'.
[293] AAH.
[294] AAH.

Majhi system lacks female representation and dominates camp governance, limiting opportunities for refugees, especially women, girls, and people with diverse identities, to influence major policy decisions.[295] Leadership in community-based or local organisations and women's formal and political representation are largely neglected.[296]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

Distribution of decision-making power within the household

In the Rohingya community, men are the primary decision-makers within households, being completely in control and leaving women with minimal autonomy. Apart from cooking meals, women must seek permission before participating in any external activities, such as visiting healthcare facilities for themselves or their children or taking decisions regarding use of contraception and child healthcare. Household financial resources are solely managed by men, although women physically hold the money and keep it safe, they cannot spend it without their husbands' approval. Typically, men utilize these funds for clothing, food, personal expenses, and other needs, while women are required to ask for permission to spend for their own necessities. They have slightly more freedom when it comes to purchasing items for their children, such as clothing or snacks, however, they are still required to inform their husbands.

Some husbands permit women to collect rations or visit health centres without any issues, but these movements require prior notification. After marriage and during the early years of motherhood, particularly until women have 2 or 3 children, their mobility is further limited due to concerns about vulnerability to teasing and harassment from men in the camp. Husbands often fear that younger women might fall in love and elope; the presence of children providing a sense of security against such fears, as husbands believe that the responsibilities of parenthood will anchor them and no man will be interested if they have multiple children. Consequently, women are generally prohibited from going outside alone even if wearing a full cover burka. If a husband is unavailable, women must be accompanied by a sister, mother-in-law, or their children. The societal norm "*Women who follow their husband's decisions are believed to be rewarded after death."* reinforces a culture of compliance where failure to inform or seek permission from a husband can cause conflict. Mothers advise their daughters to stay obedient to their husbands, often citing religious beliefs as justification.

They often buy goods such as clothes, shoes, household items or food items from local hawkers. Gender norms prohibit women to engage directly with male sellers so instead, they hand money to their children to finalise transactions. Widows, despite being freer to go out alone, still require permission from their in-laws or other male relatives like a brother or a father. In general, women prefer to stay home and take their children along when they must go out to facilitate communication with males. Some women go out to buy food without permission when their husbands are at work, yet if discovered this can lead to quarrels or physical punishment. Many choose to remain silent during disputes, adhering to cultural beliefs that mandate tolerance of their husbands' behaviours.

The decision of whether to give birth at home or in a hospital stays with the husband (**Cf. Hyp B Childbirth**)

The majority of Rohingya women express contentment with their limited decision-making power, feeling secure in following their husbands' directives and fearing God's punishment in case of disobedience.

[295] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[296] Cheong, "Four Years on: Shifting Gendered Perceptions and Experiences."

"We are happy to follow our husband's decision as women's heaven lies under her husband's feet, so we always have to listen to our husbands and will be rewarded by God."

Widows must seek permission from their in-laws, often remaining with them after their husband's death. While working women experience slightly more freedom, they can be perceived by other community members as deviating from cultural norms which expect women respect their husbands' decisions fully without questioning. Typically, unmarried women can work if they obtain permission from their parents, while the few married women who are employed require their husbands' permission. During the winter months, when many husbands are busy with seeding and harvesting in the host community, women do gain some independence in decision-making, however, they still need to seek their husband's approval before leaving home.

T. LOW SOCIAL SUPPORT FOR WOMEN

Strength of the association with undernutrition in the *scientific literature*[51]	++
Strength of association with undernutrition based on *SECONDARY DATA REVIEW* relevant to the study area[52]	++
Strength of association with undernutrition based on on secondary data analyses (SENS 2021, 2022 & 2023)	NA
Categorisation by the technical experts at the initial technical workshop	+
Categorisation by the communities during the qualitative study	NA
Categorisation by the qualitative team	+
Influence of historical and/or seasonal variations on undernutrition trends	+
Overall interpretation	+

SECONDARY DATA REVIEW[14]

Indicator %	Mega camps	Nayapara RC	Kutupalong RC
Female headed HHs	21.8% (17.7-25.9) (SENS 2021)	45.3% (40.7-49.9) (SENS 2021)	37.3% (33.1-41.6) (SENS 2021)

- Poor literacy coupled with language barriers constrain refugee women's and girls' access to information and capacity building.[297]
- Female headed households are only socially acceptable when there is no male present in the household[45] and may have less economic capacity to meet their needs, reporting challenges with access to food assistance, interacting with humanitarian actors, and accessing clear information on the types of assistance available to them.[298]

SECONDARY DATA ANALYSIS FINDINGS (SENS 2021, 2022, 2023)

No available indicators from SENS survey data.

QUALITATIVE INQUIRY FINDINGS

Family bonds are extremely important among the Rohingya, as many women rely on their mothers, sisters, and mothers-in-law as their main support system, particularly when these relationships are strong. Women without such support face more challenges especially when needing to leave the home for going to the hospital or nutrition centre or collecting rations, as they cannot leave their children to neighbours or in-laws. However, most of women reported having different support streams and feeling adequately supported. Pregnant mothers particularly require mental and nutritional support for healthy pregnancies, but many remain in distress due to their husbands' low incomes and limited work opportunities.

Additionally, tensions can arise if daughters-in-law do not follow their mothers-in-law's directives. After completing household chores, women often take time to rest or chat with

[297] UNHCR, CARE and Action, "An Intersectional Analysis of Gender amongst Rohingya Refugees and Host Communities in Cox's Bazar, Bangladesh. An Inter-Agency Research Report."
[298] Cheong, "Four Years on: Shifting Gendered Perceptions and Experiences."

their neighbours often about their struggles. Women are not engaged in any social groups as they are required to stay at home most of the time taking care of their households.

Post-delivery, mothers that lack support cannot rest much, while those with mothers or sisters can rest up to 40 days. A few female community members reported neighbours offer minimal sympathy and support, while many enjoy familial-like relationships and rely on them for an occasional support. If a pregnant woman has multiple children, her challenges increase.

Men support their families by providing income primarily relying on casual work which lacks consistency throughout the year as they are not allowed to work legally (Cf. **Hyp K Low access to income sources).** Husbands may also assist with childcare when at home and during pregnancy, some husbands accompany their wives to the hospital to provide support and interact with male medical staff. After delivery, they also attend postnatal check-ups and go to collect rations for their wives.

Young girls predominantly turn to their mothers and sisters in law for guidance and support, yet they have limited opportunities for community activities, attending only occasional awareness sessions designed for girls. After the first menstruation most of their time is spent at home, supporting their mothers with household chores and childcare. For those families who can afford it, private tuition is sought to continue their education, but this is not common. Generally, girls remain in the family home until they reach 18 years of age, which is the legal age for marriage. While some dream of becoming teachers, cultural norms restrict their opportunities as most are expected to marry young and become mothers soon after.

According to the comparative study, 25% mothers (n=8) reported having less social support when pregnant with their malnourished child and 31% (n=10) ranked their support low or very low during their pregnancy with the malnourished child. 22% mothers (n=7) said to have had less support while breastfeeding their malnourished child and 31% (n=10) ranked their support low and very low during their lactating period with their malnourished child. Additionally, most mothers (81%, n=26) had no formal education while the rest started primary school.

According to study observations, mothers were generally receiving social support primarily from young or adolescent girls. The post-delivery rest period varied from 0 days to 42 days, with 63% (n=20) of the mothers reporting resting less than 14 days, and half of the mothers (n=16) reporting a shorter rest period for their malnourished child compared to their healthier sibling.

COMMUNITY PERCEPTIONS OF HUMANITARIAN ASSISTANCE

Health and Nutrition

While the community appreciates the benefits of accessing free medical services, concerns were raised about long waiting times and perceived low quality of care (Cf. **Hyp A Limited access to health services**). Health and nutrition education sessions were perceived as valuable, providing accurate, practical, and specific advice to mothers through the use of educational materials. Main issues reported were linked to rations shared or sold (Cf. **Hyp M Low coping strategies**).

Mental health and care practices

Although community members were aware of the existence of mental health and care practice services and Early Childhood Care and Development (ECCD) services, community members did not provide specific comments, apart from noting a low demand for mental health services.

Food security and livelihoods

The food assistance provided by WFP was identified as the most valuable form of support, as it links directly to survival. However, several concerns were raised regarding both the quantity and quality of the food rations. The rice, in particular, was sometimes considered insufficient

and/or of poor quality, with reports of mixed thin and thick grains, the latter being disliked by recipients. The community also expressed regret that fruits previously provided through WFP were no longer available. On a positive note, the policy of replacing substandard food items was appreciated by the community.

When asked about interventions that are no longer provided, community members highlighted certain non-food items—such as mats, mosquito nets, and blankets—as essential. They expressed regret that these items have not been distributed for the past two years, despite an increase in family size during that time. As a result, children are often left to play or sleep directly on the floor, and are not adequately protected with mosquito nets, increasing their risk of illness. Concerns were also raised about the fact that bamboos that were previously distributed every year have not been provided since 2020, while the size of the shelters has also been reduced, representing significant challenges with husbands, wives, and children forced to live in a single small room.

Water, sanitation and hygiene

As to the water availability, the community noted an inadequate number of water points and/ or breakdown of water taps, resulting in long queues and forcing some households to purchase water from the host community. The situation worsens during the summer, when water needs increase. The community also reported challenges in collecting water for households located on the hill, which has led some to construct their own wells using personal funds. With regards to sanitation, the community reported challenges accessing latrines at night due to lack of lighting, causing elderly people to fall and injured themselves, and women to fear for their safety. Other hygiene and sanitation concerns included the limited distribution of soap and the inadequate frequency of drain and latrines cleaning due to budget constraints.

Gender

Community members explained that women are facing restrictions in accessing study opportunities due to limitations on their mobility, stemming from concerns that they might encounter boys outside the home.

Community engagement

The structure used by the community for consultation, decision-making, and project implementation primarily involves the Majhi (community leader). Before implementing any intervention, NGOs typically consult with the Majhi and organise meetings with community members. According to community discussions, community leaders and respected persons like Imams and teachers are engaged in the design and implementation of interventions. The Majhi was mentioned as playing a key role in mobilising the community to support and facilitate the delivery of humanitarian assistance. When issues arise, community members usually report them first to the Majhi and discuss possible solutions, which will be further discussed with elders and respected figures. If necessary, community leaders may escalate concerns by lodging complaints with the CiC or relevant organizations.

The community also highlighted the role of volunteers to provide information on services available through meetings at block level. Community leaders and neighbours were identified as additional sources of information.

Aside from blanket distributions, which were generally perceived as appropriately conducted, community members raised concerns about the fairness of aid distribution—particularly regarding additional food items during Ramadan and non-food items such as warm clothes and blankets during winter. They alleged that Majhis (community leaders) often favour their relatives, withholding a portion of the distributed tokens, and sell donated items. The allocation of labour opportunities was also seen as being unfairly handled by the Majhi. Concerns were further raised about the misuse of targeted assistance intended for widows and persons with disabilities. Community members reported cases where individuals falsely

claimed to be widowed—while their husbands were actually abroad—in order to access benefits. Additionally, some community members expressed concern about site management volunteers engaging in corruption and favouring their relatives, preventing those with damaged shelters to receive the assistance they need.

According to community discussions, there are occasionally some community-led interventions. They described instances where community people collected money and hired some persons for cleaning the drains and latrines, initiatives of repairing broken tube wells, taps and houses or mosques when needed. However, permission to implement community led initiatives has to go through the CiC and is not always granted, such as extending their houses upwards to a second floor.

Community recommendations to improve humanitarian assistance

In order to enhance humanitarian assistance, the community made various suggestions, as detailed in Table 9 below:

Sector	Community recommendations
Health and Nutrition	▪ Ensure the availability of a full range of medicines to meet diverse health needs ▪ Encourage health facilities to treat all patients fairly, rather than prioritizing only specific cases such as pregnancies or fractures
Food, Security and Livelihoods	▪ Increase the quantity of food provided, in particular the rice ▪ Manage aid distributions through the CiC office with a token system rather than through the Mahji ▪ WFP to consult with the community about their food needs ▪ Ensure that WFP products are sold at more affordable prices, ideally matching or undercutting local market rates ▪ Resume the distribution of essential non-food items, such as mosquito nets, mats and blankets
Water, Sanitation and Hygiene	▪ Increase the frequency of drain cleaning to once a month, with designated people assigned to the task ▪ Ensure toilets are cleaned regularly, disinfected after cleaning to prevent unpleasant odours, and properly maintained ▪ Ensure septic tanks are emptied on time
Camp management	▪ Repair internal roads to improve accessibility and safety ▪ Consider community requests for house extensions and the construction of tube wells ▪ Disseminate information about available services through home visits and Majhi communication channels to reach a wider audience

Table 9: Community recommendations to improve humanitarian assistance, Link NCA qualitative study in the FDMN Camps, Cox's Bazar, Southern Province, Bangladesh

V. CONCLUSION AND RECOMMENDATIONS

Causal mechanisms of undernutrition

Statistical associations using logistic and linear regressions between the nutritional status of children under 5 and different risk factors show similarities as well as differences between the causal mechanisms of wasting, stunting and underweight. The causal diagrams presented below are based on the diagram constructed during the community consultations (see **Figure 1**), while the results of the statistical analyses have been added to visually summarise the evidence available for wasting, stunting, underweight as well as a joint pathway for undernutrition. It is important to note that the statistical associations are not systematically valid for all three forms of undernutrition and/or contradictions may arise.

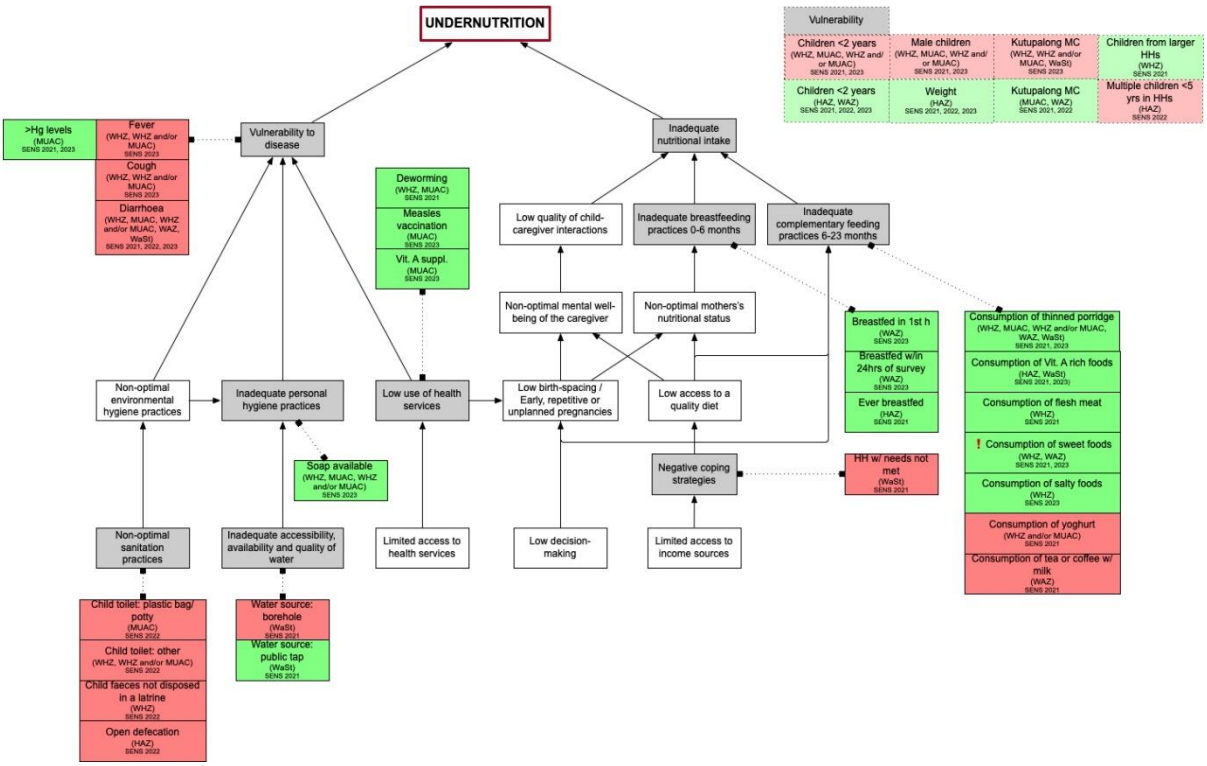
Undernutrition

On the basis of the available evidence, **three causal pathways** built around **seven key risk factors** can explain most cases of undernutrition in the study area.

Firstly, *limited access to income* contributes to *negative coping mechanisms* leading to *low access to quality diet*. This, on one hand, leads to *sub-optimal nutritional status of mothers* hindering *optimal breastfeeding practices*, with caregivers often practicing mixed feeding. On the other hand it causes *sub-optimal complementary feeding practices*, leading to inadequate nutritional intake of children under-five.

Secondly, *limited access to health services* largely linked to quality-of-care barriers reduces use of available health services, with caregivers often resorting to self-medication or alternative medicine practices which increases children's vulnerability to disease.

Lastly, the challenging WASH conditions in the camps, linked to *inadequate availability of water* result in *inadequate personal hygiene practices*. *Non-optimal sanitation practices* hamper *sub-optimal environmental hygiene* making it even more difficult for mothers to keep their children clean through the day, once again increasing children's vulnerability to disease and subsequently undernutrition.



Risk factors: Children living in a household with unmet needs had an increased risk of concurrent wasting and stunting. Children who consumed yogurt the day prior to the survey showed a higher likelihood of wasting, while children who drank tea with milk had an increased risk of being underweight. Children living in households where a borehole was used as the main water source faced a higher risk of concurrent wasting and stunting. Additionally, children who used a plastic bag or another unspecified type of toilet had an increased risk of wasting. Conversely, children whose faeces were not disposed of in a latrine were more likely to be wasted, while those practicing open defecation had a higher risk of stunting. Finally, children who experienced fever or cough had a greater risk of wasting. Vulnerability to wasting was higher among children under 2 years old and male children. Children living in Kutupalong mega camps were more susceptible to wasting and concurrent wasting and stunting according to 2023 data, while those in households with multiple children under-five were more vulnerable to stunting.

Protective factors: Children who consumed any type of thin porridge had a reduced risk of wasting, underweight, and concurrent wasting and stunting. Those who consumed flesh meat had a lower risk of wasting, while children who ate vitamin A-rich foods were less likely to be stunted or experience concurrent wasting and stunting. Additionally, children who consumed salty foods had a lower risk of wasting, and those who ate sweet foods the day before the survey also showed a decreased risk of wasting and underweight. The finding regarding sweet foods appears counterintuitive and should be interpreted with caution. Children who were breastfed within one hour of birth, as well as those breastfed the day before the survey, had a lower risk of being underweight. Children who had ever been breastfed also exhibited a lower risk of stunting. Children who received measles vaccination, deworming treatment, or vitamin A supplementation within the six months prior to the survey showed a decreased risk of wasting. Furthermore, children with higher haemoglobin levels had a lower likelihood of wasting. Children living in households that used a public tap as the main water source had a lower risk of both wasting and stunting occurring concurrently, while those in households with soap available during the survey were less likely to experience wasting. Vulnerability to wasting decreased among children living in Kutupalong mega camps according to 2022 data and those living in large households. Vulnerability to stunting decreased in children under the age of 2 and those with a higher weight, with children under the age of 2 also being less likely to be underweight.

Summary of risk factor categorisation

The analyses conducted during this Link NCA study made it possible to categorise 20 risk factors likely to have an effect on the incidence of undernutrition (wasting and stunting) in the study area. Following a triangulation of data from various sources, **six (6) risk factors were identified as having a major impact**, nine (9) risk factors were classified as having an important impact and five (5) risk factors were considered to have a minor impact. Among the major risk factors, two were identified in the mental health and care practices sector, namely **non-optimal breastfeeding practices** and **non-optimal complementary feeding practices,** one in the food security and livelihoods sector namely **low access to income sources** while three risk factors were identified in the water, hygiene and sanitation sector**,** namely **inadequate accessibility, availability and quality of water at household level, poor sanitation practices** and **poor food and environmental hygiene practices.** However, it's important to note that indicators from SENS[299] data were not available for many risks factors which may have influenced the categorisation of those under the WASH sector.

[299] SENS 2023, 2022 and 2021

Risk factor[300]		Scientific literature	Literature review	Secondary data analyses	Technical experts	Community consultation	Qualitative team	Seasonal/ Historical variations	Final categorisation 2025
A	Limited access to health services	++	++	NA	++	+++	+++	+	++
B	Limited utilization of health services	++	+	+++	++	NA	+	+	++
C	Low birth spacing/ early, repetitive or unwanted pregnancies	+++	++	NA	++	++	++	++	++
D	Low birth weight	+++	NA	NA	+++	NA	NA	NA	+
E	Low nutritional status of women	+++	++	NA	+++	+	++	+	++
F	Caregiver well-being	+++	+++	NA	++	+	++	++	++
G	Non-optimal breastfeeding practices	+++	++	++	+++	+	+++	++	+++
H	Non-optimal complementary feeding practices	+++	++	+++	+++	+	++	++	+++
I	Low quality of interactions between a child and a caregiver	+	+	NA	+	+	+	+	+
J	Low access to quality diet	++	++	NA	+++	+	++	+++	++
K	Low access to income sources	++	+++	+	++	+++	+++	+++	+++
L	Low access to markets	+	+	NA	+	NA	+	+	+
M	Low coping capacities	++	++	+	+	+	+++	+++	++
N	Inadequate accessibility, availability and quality of water at household level	++	+++	++	++	+++	++	+++	+++
O	Poor sanitation practices	++	++	+++	++	+++	++	+++	+++
P	Poor personal hygiene practices	++	+++	++	++	++	+++	++	++
Q	Poor food and environmental hygiene practices	+++	+++	NA	++	++	+++	+++	+++
R	Heavy workload of women	++	++	NA	+	NA	+	+	+
S	Low female autonomy/ decision-making	+	+++	NA	+	++	+	NA	++
T	Low social support for women	++	++	NA	+	NA	+	+	+

Table 10: Summary of risk factor categorisation, Rohingya camps, Cox's Bazar

[300] All data sources were targeting Rohingya Refugee Camps with an exception of scientific literature, which has a global scope.

It is important to note that three out of six of these risk factors belong to the WASH sector highlighting critical issues linked to the water, hygiene and sanitation within the camps. The remaining three major risk factors belong to the Food Security and Livelihoods, as well as the Mental Health and Care Practices sectors. This emphasizes the need for programmatic responses that enhance access to stable income sources within the camps. Consequently, this will enhance the nutritional status of children and mothers, increase dietary diversity of children under-five, and enable mothers to exclusively breastfeed without resorting to mixed feeding due to concerns about the perceived inadequacy of breast milk in terms of quality and quantity. A detailed action plan based on recommendations for the 6 major factors can be found in **Annex D**.

Recommendations

Based on the findings of this link NCA study, the following recommendations are proposed for integration into humanitarian interventions provided by the UN and partners operating in the study area:

Dissemination of key finding

Share the main findings of this study with international and national partners and authorities working in the Rohingya camps in Cox's Bazar.
Ensure that findings information inform programmatic responses, particularly interventions targeting women of reproductive age and children under five.

Non-optimal breastfeeding practices

- Implement community dialogue initiatives (ensuring that minimum standards of social and behaviour change communication are met) to promote optimal breastfeeding practices, with a focus on addressing key challenges such as mixed feeding, cultural beliefs, the consumption of sugary foods and liquids between 0-6 months, and the use of breastmilk substitutes. This can be achieved through:
    - Establishing mother to mother support groups and engaging influential family members such as grandmothers and fathers.
    - Training and identifying champion mothers who can advocate for exclusive breastfeeding as champions.
    - Engagement with the Heath sector to strengthen counselling on exclusive breastfeeding into antenatal care (ANC) and postnatal care (PNC) services.
    - Engagement with local authorities regarding the monitoring of breastmilk substitutes supply.
- Implement systems for early identification of breastfeeding mothers experiencing mental health challenges and timely referral to mental health services.

Non-optimal complementary feeding practices

- Develop and integrate social and behaviour change activities to promote optimal complementary feeding practices through diverse approaches such as community engagement, nutrition education, and media campaigns to reduce the consumption of unhealthy sugary and salty snacks among children under five targeting mothers of children under-five, grandmothers, and fathers. This will include for eg. demonstrations of complementary feeding options by utilizing seasonally available fruits and vegetables.
- Implement innovative community engagement strategies to prevent the diversion of RUTF, RUSF, and WSB supplements.

Low-income sources:

- Collaborate with Livelihood and Food Security Sector partners to enhance income-generating activities within the camps through:
  - Microenterprise skills such as recycling empty sachets, small handcrafts, and soap making.
  - Small-scale farming activities, including pond aquaculture, poultry, gardening, and kitchen gardening and provision of farming inputs to also improve dietary diversity of children under five.
  - Vocational and technical training for youth.
  - Cash-for-work activities involving volunteer engagement to provide immediate income support and sustainable livelihood options.
- Continue advocating with the Bangladesh government to enable the Rohingya population to participate in income-generating activities and to ease existing restrictions, thereby promoting economic self-reliance and improving their livelihoods.

Sub-optimal accessibility and availability of water

- Collaborate with partners to ensure that sector standards are met for adequate daily water supply, providing a total runtime of 4 hours and a minimum of 20 liters per person per day, while continuously monitoring and maintaining water quality across all camps. Additionally, given the water scarcity in Teknaf, explore opportunities for rainwater harvesting and reservoir construction to enhance water availability.
- Advocate for transitioning from mini water networks to larger, integrated water systems to ensure consistent, high-quality water supply across all camps.
- Strengthen social and behaviour change activities to promote the benefits of chlorinated water over tube-well water and to discourage the use of private pipelines sourced from the host community to ensure safer water practices.

Sub-optimal sanitation practices at household level

- Strengthen community engagement through dialogue, sensitization, and mobilization focused on promoting appropriate sanitation practices, using malnutrition as a trigger to motivate action.
- Enhance latrine accessibility by improving privacy, protection, and safety features, making them more inclusive—for example, installing locks, doors, lights, or providing torches.
- Monitor and ensure construction of new toilets and/or timely repairs of current facilities adjusting to the increased population and new arrivals

Inadequate food and environmental hygiene

- Conduct community engagement at household level to promote proper waste management and disposal. This will include regular monitoring and waste collection by community volunteers, alongside community-led waste cleaning and drainage clearance campaigns and collaboration among WASH and site management sectors to establish community led teams responsible for regular environmental cleaning.
- Introduce contextually appropriate solutions for managing household animals within living spaces to reduce pathogen transmission, especially in households with vulnerable groups such as women of reproductive age and children under five. This can be achieved by nvolving community in making animal cages using locally available materials like bamboo or recycled items.

- Encourage community members to consume only freshly cooked food, focusing on WHO 5 keys to safer food.

Other

- Strengthen child's mental wellbeing through implementation of psychosocial stimulation programmes *(including- mother to child integration, actively playing 20-30min daily with children, praising, smiling, giving positive feedback, creating stimulating environment e.g. colorful room environment etc.)*
- Improve mother's motivation, coping mechanisms, and resilience through engagement in psychosocial activities *(including awareness session on mental health, positive parenting skills, stress management, self-care, organize recreational activity to reduce stress, rewarding mother for the progress of child's condition etc.)*
- Provide MHPSS interventions for mother/caregiver with Mental health and psychosocial problems including:
    - Screen all mothers to identify mental health problems at the first contact, refer those in need for psychological/psychosocial counseling and treat those with severe mental health condition.
    - Assess mother's knowledge, perception, and practices about childcare.
    - Establish peer support group for mothers with malnourished children.

ANNEXES

ANNEX A: LOGISTIC REGRESSION TABLES

Table 11: Unadjusted associations between risk factors and the binary classification of wasting, stunting and underweight demonstrated by logistic regression (SOURCE: SENS 2023)

Risk factor *Logistic Regression*				Wasting (W/H) *Children 6-59 months*		Wasting (MUAC) *Children 6-59 months*		Wasting (MUAC and/or W/H) *Children 6-59 months*		Stunting *Children 6-59 months*		Underweight *Children 6-59 months*		WaSt *Children 6-59 months*	
Indicator	**N**	**n**	**Proportion in analyzed sample [95% CI]**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**
SEX	819	399	48.72[45.3-52.14]	1.08[0.72:1.63]	0.698	0.44[0.19:0.94]	**0.042**	0.94[0.63:1.4]	0.756	0.81[0.61:1.07]	0.146	0.76[0.57:1.01]	0.063	1.13[0.69:1.86]	0.636
CHILD_AGE_U2	819	290	35.41[32.13-38.69]	1.65[1.09:2.49]	**0.017**	18[6.29:75.86]	**0.000**	1.94[1.3:2.9]	**0.001**	0.52[0.38:0.7]	**0.000**	0.76[0.56:1.02]	0.074	1.59[0.96:2.62]	0.069
CAMPNAME_KTP_Mega	819	482	58.85[55.48-62.22]	1.76[1.14:2.76]	**0.012**	1.66[0.77:3.86]	0.211	1.61[1.07:2.49]	**0.026**	1.09[0.82:1.45]	0.561	1.41[1.05:1.9]	0.021	1.89[1.11:3.35]	**0.023**
CAMPNAME_KTP_RC	819	170	20.76[17.98-23.54]	0.69[0.39:1.17]	0.185	0.26[0.04:0.89]	0.071	0.73[0.42:1.21]	0.247	0.75[0.53:1.06]	0.110	0.72[0.5:1.03]	0.078	0.48[0.21:0.98]	0.061
CAMPNAME_NYP_RC	819	167	20.39[17.63-23.15]	0.6[0.33:1.04]	0.082	1.2[0.47:2.7]	0.684	0.65[0.36:1.09]	0.120	1.17[0.83:1.65]	0.368	0.83[0.57:1.18]	0.299	0.74[0.36:1.38]	0.369
MEASLES	778	772	97.97[96.99-98.95]	0.64[0.2:2.85]	0.499	0.21[0.05:1.36]	**0.044**	0.68[0.22:3.01]	0.556	1.19[0.44:3.52]	0.743	0.95[0.35:2.83]	0.928	0.63[0.17:4.09]	0.551
VITA	819	752	91.82[89.94-93.7]	0.84[0.43:1.81]	0.638	0.19[0.08:0.44]	**0.000**	0.64[0.35:1.27]	0.179	1.44[0.86:2.49]	0.176	1.15[0.69:1.99]	0.601	0.91[0.41:2.44]	0.840
DEWORM	529	509	96.22[94.59-97.85]	1.11[0.31:7.12]	0.888		0.995	1.11[0.31:7.12]	0.888	0.45[0.17:1.11]	0.092	0.74[0.3:1.87]	0.512	0.66[0.18:4.29]	0.594

DIAR	819	157	19.17[16.47-21.87]	1.9[1.18:2.98]	**0.006**	3.95[1.86:8.3]	**0.000**	1.91[1.21:2.97]	**0.005**	1.11[0.78:1.57]	0.567	1.44[1.01:2.05]	**0.046**	2.02[1.15:3.45]	**0.012**
DIARORS	157	133	84.71[79.08-90.34]	6.7[1.32:122.3]	0.068		0.990	7.29[1.44:132.92]	0.057	4.5[1.6:16.1]	**0.009**	3.32[1.25:10.48]	**0.024**		
DIARZINC	157	95	60.51[52.86-68.16]	0.63[0.29:1.41]	0.260	1.71[0.54:6.46]	0.386	0.73[0.34:1.61]	0.431	1.46[0.76:2.84]	0.255	1.17[0.61:2.26]	0.630	0.55[0.21:1.38]	0.199
COUGHFEVER	818	198	24.21[21.27-27.15]	1.01[0.62:1.6]	0.981	1.14[0.47:2.51]	0.749	0.97[0.6:1.52]	0.889	1.07[0.77:1.48]	0.691	1.12[0.81:1.56]	0.488	1.24[0.69:2.12]	0.453
FEVERNOCOUGH	818	170	20.78[18-23.56]	1.68[1.05:2.63]	**0.026**	1.67[0.71:3.61]	0.209	1.6[1.01:2.49]	**0.040**	1.02[0.73:1.44]	0.889	1.18[0.83:1.66]	0.359	1.42[0.78:2.46]	0.229
INITBF	290	269	92.76[89.78-95.74]	0.48[0.18:1.4]	0.146	0.59[0.18:2.63]	0.420	0.57[0.22:1.67]	0.270	0.56[0.23:1.43]	0.214	0.39[0.16:0.96]	**0.040**	0.47[0.16:1.74]	0.207
ANY_DRINK	290	67	23.1[18.25-27.95]	1.25[0.6:2.48]	0.533	0.95[0.34:2.32]	0.909	1.14[0.56:2.2]	0.708	1.48[0.83:2.61]	0.182	1.27[0.71:2.25]	0.412	1.42[0.59:3.16]	0.409
F2DAYS_MILK	67	6	8.96[2.12-15.8]	0.82[0.04:5.72]	0.859	2.24[0.11:18.16]	0.498	0.74[0.04:5.13]	0.790	0.31[0.02:2.07]	0.296	0.33[0.02:2.22]	0.326	1.32[0.06:9.76]	0.808
F2DAYS_SUGAR	67	11	16.42[7.55-25.29]	1.73[0.33:7.25]	0.474	1.02[0.05:7.29]	0.986	1.53[0.3:6.36]	0.571	0.95[0.23:3.55]	0.943	2.53[0.68:9.88]	0.165	0.6[0.03:3.84]	0.647
F2DAYS_HONEY	67	19	28.36[17.57-39.15]	1.16[0.28:4.16]	0.830	0.48[0.02:3.25]	0.514	1.01[0.25:3.57]	0.984	0.97[0.31:2.89]	0.960	1.06[0.34:3.17]	0.913	2.29[0.51:9.82]	0.259
F2DAYS_COCOA	67	25	37.31[25.73-48.89]	1.06[0.29:3.64]	0.924	1.77[0.31:10.31]	0.505	1.34[0.39:4.45]	0.630	1.57[0.56:4.38]	0.384	0.76[0.26:2.15]	0.615	0.82[0.16:3.44]	0.791
F2DAYS_FORMULA	67	6	8.96[2.12-15.8]	0.82[0.04:5.72]	0.859		0.995	0.74[0.04:5.13]	0.790	1.77[0.31:10.31]	0.505	1.9[0.33:11.09]	0.454	1.32[0.06:9.76]	0.808
COLOSTRUM_FEED_given	290	274	94.48[91.85-97.11]	3.19[0.62:58.29]	0.268	0.7[0.18:4.64]	0.653	1.72[0.46:11.15]	0.483	0.55[0.2:1.58]	0.250	0.76[0.27:2.3]	0.611	1.84[0.35:33.93]	0.560

COLOSTRUM_FEED_squeezed_out	290	12	4.14[1.85-6.43]	0.44[0.02:2.32]	0.431	2.02[0.3:8.24]	0.380	0.83[0.13:3.26]	0.813	1.65[0.48:5.32]	0.404	1.08[0.28:3.52]	0.903	0.75[0.04:4.07]	0.788
YESTBF	290	245	84.48[80.31-88.65]	0.78[0.36:1.84]	0.546	0.79[0.3:2.46]	0.652	0.7[0.34:1.53]	0.344	0.55[0.29:1.06]	0.071	0.42[0.22:0.8]	**0.008**	1.27[0.47:4.46]	0.671
BOTTLE	290	14	4.83[2.36-7.3]	1.36[0.3:4.57]	0.644	0.74[0.04:3.95]	0.776	1.72[0.46:5.38]	0.373	0.6[0.13:1.99]	0.446	2.25[0.75:6.76]	0.141		
WATER	290	281	96.9[94.91-98.89]				0.991		0.985	0.54[0.14:2.24]	0.370	0.93[0.24:4.47]	0.916	5275556.86[0:NA]	0.991
INFORM	290	12	4.14[1.85-6.43]			0.88[0.05:4.81]	0.905	0.37[0.02:1.96]	0.344	0.2[0.01:1.03]	0.122	0.71[0.15:2.44]	0.611		
MILK	290	15	5.17[2.62-7.72]	1.86[0.5:5.71]	0.307	0.68[0.04:3.62]	0.719	2.2[0.66:6.47]	0.167	0.55[0.12:1.78]	0.363	1.47[0.48:4.19]	0.482	0.58[0.03:3.06]	0.609
JUICE	290	30	10.34[6.84-13.84]	1.26[0.45:3.09]	0.633	0.31[0.02:1.55]	0.260	1.05[0.37:2.56]	0.920	0.53[0.19:1.28]	0.186	0.76[0.31:1.72]	0.531	1.33[0.37:3.73]	0.622
BROTH	290	185	63.79[58.26-69.32]	0.88[0.47:1.67]	0.682	0.81[0.36:1.86]	0.607	0.85[0.47:1.56]	0.594	0.82[0.49:1.39]	0.462	0.89[0.54:1.49]	0.657	0.89[0.42:1.96]	0.759
YOGURT_DRINKS	290	16	5.52[2.89-8.15]	1.14[0.25:3.72]	0.839		0.988	0.96[0.22:3.12]	0.953	0.31[0.05:1.13]	0.124	0.7[0.19:2.09]	0.554		
THINPOR	290	213	73.45[68.37-78.53]	0.24[0.12:0.45]	**0.000**	0.12[0.05:0.28]	**0.000**	0.22[0.12:0.4]	**0.000**	0.6[0.35:1.04]	0.068	0.38[0.22:0.65]	**0.000**	0.29[0.13:0.62]	**0.001**
SODAS_ENERGY_DRINKS	290	11	3.79[1.59-5.99]	1.1[0.16:4.43]	0.908	0.97[0.05:5.39]	0.980	0.93[0.14:3.72]	0.923	1.3[0.33:4.44]	0.678	0.8[0.17:2.84]	0.747	1.92[0.28:7.89]	0.420
TEA_COFFEE_HERBAL_DRINKS	290	17	5.86[3.16-8.56]	0.64[0.1:2.37]	0.564	0.59[0.03:3.1]	0.620	0.54[0.08:1.99]	0.423	0.68[0.19:1.99]	0.512	0.65[0.18:1.89]	0.457	1.12[0.17:4.25]	0.883

CHOCO	290	13	4.48[2.1-6.86]	0.89[0.13:3.45]	0.882	1.83[0.27:7.33]	0.447	0.75[0.11:2.9]	0.715	1[0.27:3.18]	0.995	0.95[0.25:3.02]	0.940	1.55[0.23:6.16]	0.578
OTHER_LIQUIDS	290	4	1.38[0.04-2.72]	1.65[0.08:13.22]	0.666	3.33[0.16:27.11]	0.305	1.4[0.07:11.17]	0.773	6.98[0.88:142.13]	0.095	6.64[0.84:135.26]	0.103	2.84[0.14:23.02]	0.372
FOOD	290	271	93.45[90.6-96.3]	1.09[0.35:4.82]	0.894	0.52[0.16:2.34]	0.323	0.89[0.31:3.22]	0.842	1.26[0.46:3.99]	0.670	1.8[0.63:6.47]	0.307	0.61[0.19:2.76]	0.461
CEREALS_TUBERS	271	242	89.3[85.62-92.98]	1.87[0.62:8.1]	0.321	0.56[0.19:2.05]	0.328	1.55[0.57:5.43]	0.438	0.84[0.38:1.96]	0.668	0.9[0.41:2.11]	0.807	1.62[0.45:10.43]	0.524
LEGUMES_NUTS	271	61	22.51[17.54-27.48]	0.57[0.22:1.27]	0.198	0.67[0.19:1.85]	0.475	0.57[0.24:1.23]	0.175	0.67[0.34:1.25]	0.221	0.61[0.31:1.15]	0.138	0.54[0.16:1.48]	0.278
DAIRY	271	11	4.06[1.71-6.41]	0.48[0.03:2.59]	0.487	1.03[0.05:5.75]	0.978	0.41[0.02:2.21]	0.400	0.21[0.01:1.14]	0.144	0.45[0.07:1.79]	0.313		
FLESHFD	271	138	50.92[44.97-56.87]	1.63[0.86:3.15]	0.141	0.96[0.41:2.24]	0.925	1.4[0.76:2.6]	0.279	1.17[0.7:1.96]	0.559	1.16[0.7:1.93]	0.570	2.2[0.98:5.29]	0.063
EGGS	271	48	17.71[13.16-22.26]	0.52[0.17:1.28]	0.189	0.4[0.06:1.41]	0.222	0.68[0.26:1.52]	0.374	1.28[0.65:2.44]	0.466	1.17[0.6:2.24]	0.631	0.53[0.12:1.59]	0.313
VITA_REACH_FRUIT	271	137	50.55[44.6-56.5]	0.64[0.33:1.21]	0.171	0.67[0.28:1.57]	0.364	0.66[0.36:1.22]	0.188	0.55[0.33:0.93]	**0.027**	0.6[0.36:1]	0.053	0.43[0.18:0.95]	**0.044**
OTHER_FRUIT	271	63	23.25[18.22-28.28]	0.9[0.4:1.88]	0.791	0.64[0.18:1.77]	0.427	0.86[0.4:1.75]	0.691	1.15[0.62:2.08]	0.647	1.15[0.63:2.08]	0.636	0.89[0.32:2.18]	0.810
SWEET_FOODS	271	153	56.46[50.56-62.36]	0.73[0.39:1.38]	0.334	0.75[0.32:1.76]	0.505	0.8[0.43:1.47]	0.464	0.52[0.31:0.87]	**0.013**	0.78[0.47:1.3]	0.336	0.64[0.29:1.4]	0.261
SALTY_FOOD	271	47	17.34[12.83-21.85]	0.29[0.07:0.84]	**0.044**		0.986	0.24[0.06:0.7]	**0.022**	0.47[0.2:0.98]	0.058	0.51[0.23:1.04]	0.075	0.16[0.01:0.78]	0.074

SOURCE_Hand_Pump_Boreholes	240	69	28.75[23.02-34.48]	1.49[0.69:3.12]	0.292	1.83[0.53:5.94]	0.317	1.36[0.63:2.8]	0.419	0.78[0.43:1.38]	0.402	0.86[0.47:1.53]	0.608	0.96[0.36:2.32]	0.930
SOURCE_Piped_connection_to_house	240	22	9.17[5.52-12.82]				0.991		0.985	1.25[0.51:3.03]	0.614	0.65[0.22:1.64]	0.383		
SOURCE_Public_tap_standpipe	240	146	60.83[54.65-67.01]	1.01[0.49:2.14]	0.971	0.9[0.28:3.11]	0.856	1.12[0.55:2.35]	0.749	1[0.59:1.7]	0.998	1.33[0.77:2.31]	0.310	1.42[0.6:3.61]	0.440
SOURCE_Tanker_truck	240	3	1.25[-0.16-2.66]	2.89[0.13:30.91]	0.392		0.992	2.7[0.12:28.92]	0.422			0.89[0.04:9.47]	0.928	4.44[0.2:48.01]	0.231
TOILET_Household_latrine	240	15	6.25[3.19-9.31]	0.86[0.13:3.32]	0.852		0.993	0.81[0.12:3.09]	0.785	1.75[0.61:5.14]	0.298	1.62[0.55:4.67]	0.370	0.6[0.03:3.18]	0.627
TOILET_Communal_latrine	240	220	91.67[88.17-95.17]	0.68[0.23:2.49]	0.515		0.991	0.73[0.25:2.67]	0.595	0.65[0.26:1.66]	0.364	0.66[0.26:1.7]	0.375	0.63[0.19:2.85]	0.487
TOILET_Open_defecation	240	5	2.08[0.27-3.89]	3.94[0.51:24.63]	0.141		0.993	3.69[0.47:22.99]	0.161	0.98[0.13:6.04]	0.985	1.2[0.16:7.37]	0.845	6.14[0.78:38.95]	0.053
CHILDTOILET_open_defecation	240	173	72.08[66.4-77.76]	0.64[0.3:1.38]	0.237	0.76[0.23:2.94]	0.669	0.7[0.34:1.5]	0.347	0.72[0.4:1.27]	0.251	0.7[0.39:1.26]	0.232	0.66[0.28:1.63]	0.344
CHILDFAECES_disposed_NOTinlatrine	176	60	34.09[27.09-41.09]	0.9[0.35:2.16]	0.812	1.17[0.23:4.93]	0.835	0.96[0.39:2.24]	0.928	0.5[0.25:0.97]	0.045	0.85[0.43:1.63]	0.626	0.72[0.22:2.02]	0.552
SOAP	240	230	95.83[93.3-98.36]	0.24[0.07:0.99]	**0.035**	0.1[0.02:0.49]	**0.002**	0.26[0.07:1.06]	**0.045**	6.45[1.18:119.89]	0.079	2.3[0.56:15.48]	0.299	1.05[0.18:19.75]	0.965

Table 12: Unadjusted associations between risk factors and the binary classification of wasting, stunting and underweight demonstrated by logistic regression (SOURCE: SENS 2022)

Risk factor *Logistic Regression*	**Wasting (W/H)** *Children 6-59 months*	**Wasting (MUAC)** *Children 6-59 months*	**Wasting (MUAC and/or W/H)** *Children 6-59 months*	**Stunting** *Children 6-59 months*	**Underweight** *Children 6-59 months*	**WaSt** *Children 6-59 months*

Indicator	N	n	Proportion in analyzed sample [95% CI]	Odds Ratio [95% CI]	P-value	Odds Ratio [95% CI]	P-value	Odds Ratio [95% CI]	P-value	Odds Ratio [95% CI]	P-value	Odds Ratio [95% CI]	P-value	Odds Ratio [95% CI]	P-value
SEX	1130	578	51.15[48.24-54.06]	1.43[0.99:2.09]	0.060	0.53[0.22:1.19]	0.131	1.27[0.88:1.82]	0.203	1.08[0.85:1.37]	0.547	1.14[0.89:1.45]	0.311	1.37[0.83:2.29]	0.226
CHILD_AGE_U2	1130	388	34.34[31.57-37.11]	1.18[0.8:1.73]	0.384			1.42[0.98:2.04]	0.063	0.76[0.59:0.99]	**0.039**	0.79[0.61:1.03]	0.081	1.39[0.83:2.3]	0.210
CAMPNAME_KTP_Mega	1130	553	48.94[46.03-51.85]	1.37[0.95:1.99]	0.096	1.13[0.51:2.54]	0.757	1.31[0.91:1.88]	0.146	1.21[0.95:1.53]	0.122	1.24[0.97:1.59]	0.088	1.61[0.97:2.71]	0.068
CAMPNAME_KTP_RC	1130	273	24.16[21.66-26.66]	0.75[0.46:1.16]	0.212	0.59[0.17:1.57]	0.341	0.76[0.48:1.17]	0.230	0.86[0.65:1.14]	0.298	0.7[0.52:0.94]	**0.019**	0.55[0.26:1.06]	0.093
CAMPNAME_NYP_RC	1130	304	26.9[24.31-29.49]	0.86[0.56:1.31]	0.502	1.29[0.52:2.92]	0.562	0.9[0.59:1.35]	0.632	0.9[0.69:1.18]	0.460	1.05[0.79:1.38]	0.732	0.88[0.48:1.54]	0.669
MEASLES	1065	902	84.69[82.53-86.85]	1.52[0.86:2.9]	0.173	3.49[0.72:62.85]	0.225	1.48[0.85:2.76]	0.189	1.16[0.83:1.65]	0.395	0.97[0.69:1.39]	0.882	1.73[0.79:4.56]	0.210
VITA	1130	61	5.4[4.08-6.72]	0.85[0.32:1.88]	0.722	2.46[0.57:7.37]	0.153	0.95[0.39:2.01]	0.907	1.18[0.69:1.97]	0.544	1.18[0.68:2]	0.539	1.16[0.34:2.94]	0.781
DEWORM	740	716	96.76[95.48-98.04]					5276357.69[0:NA]	0.985	0.58[0.25:1.32]	0.195	0.77[0.34:1.82]	0.544		
DIAR	1130	120	10.62[8.82-12.42]	0.95[0.5:1.7]	0.882	4.17[1.67:9.61]	**0.001**	1.25[0.7:2.11]	0.429	1.27[0.87:1.86]	0.215	1.18[0.79:1.74]	0.402	0.85[0.32:1.86]	0.708
DIARORS	119	98	82.35[75.5-89.2]	2.79[0.5:52.3]	0.338	1.54[0.25:29.59]	0.695	1.72[0.43:11.47]	0.496	0.86[0.33:2.24]	0.754	1.65[0.61:4.97]	0.339	1.08[0.16:21.19]	0.949
DIARZINC	115	64	55.65[46.57-64.73]	4.01[0.97:27.14]	0.085	1.36[0.32:6.88]	0.687	2.44[0.78:9.27]	0.149	1.34[0.64:2.84]	0.438	1.87[0.86:4.14]	0.116		

SOURCE_Hand_Pump_Boreholes	273	107	39.19[33.4-44.98]	0.71[0.35:1.37]	0.317	0.77[0.16:2.98]	0.715	0.74[0.37:1.4]	0.361	1[0.61:1.63]	0.993	0.93[0.56:1.53]	0.769	0.58[0.22:1.37]	0.234
SOURCE_Piped_connection_to_house	273	5	1.83[0.24-3.42]							0.31[0.02:2.15]	0.302				
SOURCE_Public_tap_standpipe	273	161	58.97[53.14-64.8]	1.54[0.8:3.08]	0.205	1.41[0.36:6.78]	0.635	1.49[0.78:2.93]	0.235	1.08[0.66:1.76]	0.760	1.22[0.74:2.01]	0.437	1.89[0.79:5.01]	0.170
TOILET_Household_latrine	273	21	7.69[4.53-10.85]	0.5[0.08:1.8]	0.359	1.52[0.08:8.93]	0.698	0.47[0.07:1.7]	0.323	1.17[0.47:2.88]	0.725	0.62[0.21:1.58]	0.336	0.48[0.03:2.44]	0.477
TOILET_Communal_latrine	273	249	91.21[87.85-94.57]	2.36[0.66:15.07]	0.256	0.76[0.13:14.48]	0.803	2.49[0.7:15.9]	0.227	0.92[0.4:2.17]	0.846	1.58[0.65:4.2]	0.330	2.45[0.48:44.85]	0.390
CHILDTOILET_latrine	273	72	26.37[21.14-31.6]	0.54[0.22:1.16]	0.134			0.5[0.21:1.08]	0.098	0.82[0.47:1.4]	0.464	0.8[0.45:1.4]	0.448	0.5[0.14:1.38]	0.225
CHILDTOILET_open_defecation	273	159	58.24[52.39-64.09]	1.27[0.67:2.49]	0.470	5.99[1.08:111.86]	0.094	1.24[0.66:2.39]	0.510	1.65[1.01:2.71]	**0.046**	0.99[0.6:1.63]	0.969	1.59[0.68:4.01]	0.303
CHILDTOILET_plastic_bag_or_potty	273	26	9.52[6.04-13]	0.38[0.06:1.36]	0.205	1.19[0.06:6.91]	0.869	0.59[0.13:1.78]	0.400	0.44[0.17:1.03]	0.072	1[0.42:2.27]	1.000	0.37[0.02:1.88]	0.342
CHILDTOILET_other	273	16	5.86[3.07-8.65]	4.35[1.48:12.36]	**0.006**			4.1[1.39:11.62]	**0.008**	0.75[0.25:2.09]	0.593	2.16[0.78:6.21]	0.140	2.47[0.54:8.38]	0.183
CHILDFAECES_disposed_NOTinlatrine	185	119	64.32[57.42-71.22]	2.66[1.09:7.5]	**0.043**	1.12[0.28:5.42]	0.881	2.36[1.01:6.2]	0.061	1.03[0.56:1.89]	0.920	0.85[0.46:1.58]	0.598	2.07[0.71:7.54]	0.218

Table 13: Unadjusted associations between risk factors and the binary classification of wasting, stunting and underweight demonstrated by logistic regression (SOURCE: SENS 2021)

Risk factor *Logistic Regression*				**Wasting (W/H)** *Children 6-59 months*		**Wasting (MUAC)** *Children 6-59 months*		**Wasting (MUAC and/or W/H)** *Children 6-59 months*		**Stunting** *Children 6-59 months*		**Underweight** *Children 6-59 months*		**WaSt** *Children 6-59 months*	
Indicator	**N**	**n**	**Proportion in analyzed sample [95% CI]**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**	**Odds Ratio [95% CI]**	**P-value**

SEX	1002	467	46.61[43.52-49.7]	1.54[1.07:2.23]	**0.020**	0.76[0.35:1.58]	0.466	1.43[1:2.1]	**0.049**	1.29[0.99:1.69]	0.063	1.25[0.96:1.64]	0.098	1.47[0.88:2.47]	0.143
CHILD_AGE_U2	1002	351	35.03[32.08-37.98]	1.67[1.15:2.4]	**0.007**	7.88[3.4:21.44]	**0.000**	1.81[1.26:2.59]	**0.001**	0.58[0.43:0.78]	**0.000**	0.69[0.52:0.92]	**0.012**	1.33[0.78:2.22]	0.285
CAMPNAME_KTP_Mega	1002	475	47.41[44.32-50.5]	1.05[0.73:1.51]	0.784	0.39[0.16:0.86]	**0.026**	0.99[0.69:1.42]	0.965	0.93[0.71:1.22]	0.594	1.05[0.8:1.37]	0.720	1.24[0.74:2.07]	0.415
CAMPNAME_KTP_RC	1002	271	27.05[24.3-29.8]	0.99[0.65:1.48]	0.960	1.83[0.85:3.82]	0.111	1.02[0.68:1.51]	0.910	1.11[0.82:1.5]	0.478	0.96[0.71:1.3]	0.800	0.91[0.49:1.61]	0.761
CAMPNAME_NYP_RC	1002	256	25.55[22.85-28.25]	0.95[0.61:1.43]	0.793	1.47[0.65:3.12]	0.325	0.99[0.65:1.47]	0.948	0.98[0.72:1.33]	0.911	0.98[0.72:1.32]	0.880	0.82[0.43:1.48]	0.532
MEASLES	944	523	55.4[52.23-58.57]	1.06[0.73:1.54]	0.771	4.57[1.73:15.71]	0.006	1.12[0.77:1.62]	0.559	1.03[0.78:1.36]	0.825	0.98[0.75:1.29]	0.891	1.16[0.69:1.96]	0.583
VITA	1002	47	4.69[3.38-6]	0.95[0.35:2.11]	0.900	0.69[0.04:3.36]	0.722	0.88[0.33:1.96]	0.775	0.84[0.42:1.57]	0.598	0.93[0.48:1.73]	0.826	0.65[0.1:2.18]	0.560
DEWORM	647	588	90.88[88.66-93.1]	0.4[0.21:0.81]	0.008	0.5[0.08:9.63]	0.528	0.42[0.22:0.84]	**0.011**	0.66[0.38:1.14]	0.132	0.67[0.39:1.17]	0.157	0.4[0.18:1.03]	0.039
DIAR	1002	112	11.18[9.23-13.13]	1.93[1.16:3.13]	**0.009**	4.26[1.87:9.16]	**0.000**	2.01[1.23:3.22]	**0.004**	1.1[0.72:1.67]	0.645	1.43[0.95:2.14]	0.084	2.21[1.12:4.09]	**0.016**
DIARORS	112	103	91.96[86.92-97]	0.95[0.21:6.68]	0.952			1.06[0.24:7.46]	0.941	4.3[0.75:81.34]	0.177	5.51[0.96:104.12]	0.114		
DIARZINC	110	49	44.55[35.26-53.84]	0.95[0.37:2.38]	0.908	1.99[0.54:8.19]	0.310	1.2[0.49:2.94]	0.693	1.28[0.58:2.85]	0.538	0.82[0.37:1.78]	0.616	1.53[0.47:5.07]	0.475
EVERBF	351	333	94.87[92.56-97.18]	3.74[0.74:67.97]	0.205	1.26[0.24:23.22]	0.825	1.94[0.53:12.47]	0.385	0.37[0.14:1]	**0.043**	0.54[0.21:1.5]	0.216	1.38[0.27:25.37]	0.759

INITBF	333	257	77.18[72.67-81.69]	1.22[0.63:2.54]	0.566	1.44[0.52:5.08]	0.522	1.1[0.58:2.18]	0.783	0.78[0.44:1.43]	0.410	1.69[0.91:3.32]	0.109	1.6[0.59:5.62]	0.402
YESTBF	333	284	85.29[81.49-89.09]	0.72[0.35:1.57]	0.384	1.88[0.53:11.98]	0.406	0.71[0.35:1.5]	0.344	1.03[0.51:2.21]	0.946	0.94[0.48:1.93]	0.861	2.07[0.59:13.17]	0.334
WATER	351	344	98.01[96.55-99.47]	1.27[0.21:24.17]	0.828	1173852.06[0:NA]	0.988	1.42[0.24:27.14]	0.745	1.91[0.32:36.31]	0.552	0.89[0.19:6.26]	0.886	1279671.01[0:NA]	0.988
INFORM	351	15	4.27[2.15-6.39]	0.33[0.02:1.68]	0.287	0.97[0.05:5.18]	0.979	0.64[0.1:2.4]	0.565	0.48[0.07:1.77]	0.336	0.42[0.06:1.56]	0.260		
JUICE	351	61	17.38[13.42-21.34]	0.57[0.23:1.24]	0.185	0.19[0.01:0.95]	0.111	0.5[0.2:1.08]	0.102	1.42[0.75:2.6]	0.263	0.9[0.46:1.68]	0.752	0.6[0.14:1.8]	0.419
BROTH	351	47	13.39[9.83-16.95]	0.66[0.24:1.53]	0.373	0.57[0.09:2.03]	0.457	0.71[0.28:1.58]	0.434	1.6[0.8:3.07]	0.171	0.63[0.28:1.31]	0.240	0.83[0.19:2.52]	0.774
YOGURT	351	4	1.14[0.03-2.25]	4.88[0.58:41.35]	0.117	4.7[0.23:38.35]	0.188	13.27[1.67:270.57]	**0.026**			2.86[0.34:24.08]	0.298		
THINPOR	351	218	62.11[57.03-67.19]	0.25[0.14:0.44]	**0.000**	0.28[0.11:0.65]	**0.004**	0.28[0.16:0.49]	**0.000**	0.71[0.43:1.18]	0.183	0.48[0.29:0.77]	**0.003**	0.16[0.06:0.39]	0.000
WHTEACOF	351	24	6.84[4.2-9.48]	1.27[0.41:3.32]	0.644	0.57[0.03:2.93]	0.596	1.12[0.36:2.92]	0.822	1.65[0.65:3.91]	0.268	3.09[1.32:7.21]	**0.008**	1.15[0.18:4.23]	0.858
WATLQD	351	20	5.7[3.27-8.13]	0.51[0.08:1.84]	0.378	0.7[0.04:3.64]	0.739	0.74[0.17:2.27]	0.633	1.39[0.48:3.59]	0.514	1.96[0.75:4.9]	0.155		
FOOD	351	321	91.45[88.52-94.38]	0.83[0.34:2.32]	0.692	0.43[0.15:1.57]	0.151	0.76[0.32:1.98]	0.537	1.28[0.54:3.57]	0.599	1.18[0.51:3.07]	0.708	1.13[0.31:7.27]	0.871
BOTTLE	351	17	4.84[2.59-7.09]	0.29[0.02:1.44]	0.228	0.85[0.05:4.44]	0.873	0.55[0.09:2.02]	0.437	0.41[0.06:1.49]	0.243	0.36[0.06:1.31]	0.182		
FLESHFD	351	201	57.26[52.08-62.44]	0.62[0.36:1.08]	0.093	0.87[0.38:2.05]	0.751	0.67[0.39:1.14]	0.142	1.37[0.83:2.29]	0.217	0.85[0.53:1.38]	0.510	0.62[0.27:1.38]	0.238

MOSNETS	263	259	98.48[97-99.96]	0.58[0.07:11.89]	0.641			0.58[0.07:11.95]	0.644	1.29[0.16:26.36]	0.825				
SOURCE_Hand_Pump_Boreholes	263	112	42.59[36.61-48.57]	1.51[0.78:2.93]	0.216	0.67[0.03:7.04]	0.742	1.5[0.78:2.91]	0.224	1.28[0.75:2.18]	0.362	1.62[0.96:2.73]	0.071	3.17[1.21:9.29]	**0.024**
SOURCE_Public_tap_standpipe	263	147	55.89[49.89-61.89]	0.64[0.33:1.23]	0.178	1.6[0.15:34.62]	0.704	0.64[0.33:1.24]	0.186	0.85[0.5:1.45]	0.559	0.63[0.38:1.06]	0.085	0.34[0.12:0.88]	**0.033**
TOILET_Household_latrine	263	27	10.27[6.6-13.94]	0.18[0.01:0.87]	0.094	4.48[0.2:48.34]	0.227	0.18[0.01:0.87]	0.093	2.02[0.88:4.53]	0.089	1.05[0.43:2.4]	0.905	0.47[0.03:2.41]	0.466
TOILET_Communal_latrine	263	235	89.35[85.62-93.08]	5.88[1.2:106.25]	0.086	0.23[0.02:5.11]	0.240	5.91[1.2:106.81]	0.085	0.53[0.24:1.21]	0.122	1.01[0.45:2.44]	0.983	2.24[0.43:41.08]	0.441
CHILDTOILET_latrine	263	98	37.26[31.42-43.1]	0.78[0.38:1.54]	0.486			0.79[0.39:1.56]	0.508	0.89[0.51:1.54]	0.689	1.1[0.64:1.87]	0.718	0.43[0.12:1.21]	0.139
CHILDTOILET_open_defecation	263	141	53.61[47.58-59.64]	1.11[0.58:2.17]	0.752	0.43[0.02:4.49]	0.487	1.1[0.57:2.15]	0.774	0.97[0.57:1.66]	0.924	0.96[0.57:1.62]	0.880	1.96[0.75:5.74]	0.186
CHILDTOILET_plastic_bag_or_potty	263	15	5.7[2.9-8.5]	2.76[0.82:8.24]	0.077	37.85[3.42:846.48]	**0.004**	2.75[0.82:8.2]	0.079	2.14[0.73:6.17]	0.156	1.91[0.65:5.5]	0.228	2.09[0.31:8.42]	0.357
CHILDTOILET_other	263	8	3.04[0.97-5.11]							0.77[0.11:3.43]	0.753				
CHILDFAECES_disposed_NOTinlatrine	156	84	53.85[46.03-61.67]	0.38[0.16:0.86]	0.023			0.38[0.16:0.86]	0.023	0.46[0.23:0.92]	0.029	0.63[0.32:1.23]	0.174	0.28[0.07:0.85]	0.035
SELLVOU	263	44	16.73[12.22-21.24]	0.46[0.13:1.23]	0.162			0.46[0.13:1.22]	0.159	0.74[0.34:1.51]	0.426	0.75[0.35:1.51]	0.434	0.26[0.01:1.31]	0.195
NEEDSNOT/FOODB	263	98	37.26[31.42-43.1]	0.69[0.33:1.37]	0.299	0.84[0.04:8.83]	0.884	0.68[0.33:1.36]	0.290	0.83[0.47:1.43]	0.498	1.02[0.6:1.74]	0.929	0.58[0.18:1.57]	0.311
NEEDSNOT/WATERB	263	5	1.9[0.25-3.55]	1.29[0.06:8.96]	0.824			1.28[0.06:8.92]	0.827			0.52[0.03:3.57]	0.559		

NEEDSNOT/HYGIENEB	263	62	23.57[18.44-28.7]	0.83[0.36:1.79]	0.656			0.83[0.35:1.78]	0.645	0.61[0.3:1.16]	0.145	0.67[0.34:1.24]	0.212	1.55[0.52:4.12]	0.397
NEEDSNOT/HEALTHB	263	118	44.87[38.86-50.88]	0.77[0.39:1.49]	0.443	0.61[0.03:6.41]	0.685	0.76[0.39:1.48]	0.428	1.04[0.61:1.77]	0.881	0.65[0.38:1.09]	0.105	0.54[0.19:1.42]	0.233
NEEDSNOT/HOUSEB	263	55	20.91[16-25.82]	0.84[0.34:1.86]	0.684			0.84[0.34:1.85]	0.674	0.51[0.24:1.03]	0.071	0.66[0.33:1.26]	0.223	0.69[0.16:2.18]	0.571
NEEDSNOT/FUELB	263	26	9.89[6.28-13.5]	1.25[0.4:3.28]	0.676			1.24[0.4:3.27]	0.683	0.67[0.24:1.66]	0.417	1.12[0.46:2.58]	0.792	1.08[0.16:4.08]	0.923
NEEDSNOT/LIVELIB	263	22	8.37[5.02-11.72]	1.57[0.49:4.25]	0.402			1.56[0.49:4.23]	0.407	1.69[0.67:4.1]	0.250	1.22[0.47:2.97]	0.672	2.22[0.49:7.44]	0.236
NEEDSNOT/DEBTSB	263	49	18.63[13.92-23.34]	1.19[0.5:2.59]	0.672			1.18[0.5:2.58]	0.682	0.92[0.45:1.79]	0.804	1.14[0.58:2.17]	0.694	1.18[0.32:3.43]	0.779
NEEDSNOT/SAVINGB	263	18	6.84[3.79-9.89]	0.62[0.1:2.3]	0.537			0.62[0.1:2.29]	0.533	1.53[0.54:4.04]	0.399	1.05[0.35:2.81]	0.924	1.68[0.25:6.58]	0.514
NEEDSNOT/EDUCAB	263	25	9.51[5.96-13.06]	0.97[0.27:2.73]	0.960			0.97[0.27:2.71]	0.953	1.35[0.55:3.14]	0.496	0.64[0.22:1.57]	0.353	1.13[0.17:4.29]	0.875
NEEDSNOT/OTHERB	263	6	2.28[0.48-4.08]	2.63[0.36:13.96]	0.273			2.62[0.36:13.9]	0.275	4.85[0.93:35.55]	0.072	4.35[0.83:31.81]	0.094	7.06[0.93:38.97]	**0.030**
NEEDSNOT/NEEDSMET	263	48	18.25[13.58-22.92]	0.85[0.33:1.94]	0.715	2.32[0.11:24.66]	0.497	0.87[0.34:1.99]	0.757	1.51[0.78:2.9]	0.214	1.06[0.53:2.03]	0.868	1.21[0.33:3.53]	0.743
SELLLIV	263	10	3.8[1.49-6.11]							1[0.21:3.69]	0.998	0.89[0.19:3.3]	0.873		
RENTDEBT	263	82	31.18[25.58-36.78]	1.08[0.52:2.14]	0.831			1.07[0.52:2.13]	0.845	0.67[0.36:1.19]	0.180	0.75[0.42:1.31]	0.320	1.02[0.35:2.69]	0.969
LOANBRW	263	130	49.43[43.39-55.47]	0.97[0.5:1.87]	0.932			0.96[0.5:1.86]	0.911	0.55[0.32:0.94]	0.031	0.87[0.52:1.46]	0.595	0.91[0.35:2.35]	0.852
REDUCE	263	60	22.81[17.74-27.88]	0.61[0.24:1.38]	0.268			0.61[0.24:1.37]	0.262	0.72[0.37:1.37]	0.334	0.78[0.41:1.46]	0.453	0.38[0.06:1.37]	0.201

ANNEX B: LINEAR REGRESSION TABLES

Table 14: Unadjusted associations between risk factors and the binary classification of wasting, stunting and underweight demonstrated by linear regression (SOURCE: SENS 2023)

Risk factor *Linear Regression*				**GAM [W/H]** *Children 6-59 months*			**GAM [MUAC]** *Children 6-59 months*			**Stunting [H/A]** *Children 6-59 months*			**Underweight [W/A]** *Children 6-59 months*		
Indicator	**n**	**Mean [95% CI]**	**Standard error**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**
MONTHS	819	32.17[31.13-33.22]	0.53	-0.002	0.002	0.254	0.341	0.023	**0.000**	-0.009	0.002	**0.000**	-0.008	0.002	**0.000**
WEIGHT	819	10.78[10.61-10.95]	0.09	0.126	0.012	**0.000**	3.440	0.111	**0.000**	0.088	0.014	**0.000**	0.132	0.012	**0.000**
HEIGHT	819	85.14[84.42-85.85]	0.36	0.003	0.003	0.245	0.601	0.032	**0.000**	0.014	0.003	**0.000**	0.009	0.003	**0.004**
CHILD HB_GDL	816	11.22[11.14-11.31]	0.04	-0.011	0.025	0.668	1.584	0.322	**0.000**	-0.026	0.028	0.347	-0.031	0.026	0.244
SEMI_SOLID_FREQUENCY	271	2.66[2.55-2.77]	0.03	0.003	0.062	0.956	0.293	0.674	0.664	0.007	0.066	0.918	0.016	0.064	0.800
TOT CHILDREN U5 IN HH	240	1.7[1.61-1.79]	0.02	0.098	0.088	0.265	-0.214	1.081	0.843	0.077	0.097	0.429	0.099	0.090	0.272
NUM NETS IN HH	240	2.16[2.02-2.31]	0.04	-0.081	0.053	0.124	-1.162	0.644	0.073	0.025	0.058	0.669	-0.038	0.054	0.480
HH SIZE	240	5.72[5.45-6]	0.08	0.031	0.028	0.255	0.083	0.340	0.807	0.032	0.031	0.296	0.042	0.028	0.143
POTABLE WATER (L)	240	39.71[35.65-43.78]	1.12	0.002	0.002	0.337	0.027	0.023	0.245	0.001	0.002	0.784	0.002	0.002	0.401
POTABLE AND PROTECTED WATER (L) PP	240	29.02[25.57-32.47]	0.95	0.001	0.002	0.812	0.029	0.027	0.286	0.002	0.002	0.466	0.001	0.002	0.509

Table 15: Unadjusted associations between risk factors and the binary classification of wasting, stunting and underweight demonstrated by linear regression (SOURCE: SENS 2022)

Risk factor *Linear Regression*				**GAM [W/H]** *Children 6-59 months*			**GAM [MUAC]** *Children 6-59 months*			**Stunting [H/A]** *Children 6-59 months*			**Underweight [W/A]** *Children 6-59 months*		
Indicator	**n**	**Mean [95% CI]**	**Standard error**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**

MONTHS	1130	32.48[31.57-33.39]	0.46	-0.007	0.002	**0.000**	0.318	0.019	**0.000**	-0.008	0.002	**0.000**	-0.011	0.002	**0.000**
WEIGHT	1130	10.88[10.74-11.03]	0.07	0.097	0.010	**0.000**	3.307	0.091	**0.000**	0.082	0.011	**0.000**	0.109	0.011	**0.000**
HEIGHT	1130	85.52[84.89-86.14]	0.32	-0.004	0.002	0.083	0.551	0.026	**0.000**	0.012	0.003	**0.000**	0.003	0.003	0.292
TOT CHILDREN U5 IN HH	273	1.76[1.67-1.85]	0.02	-0.078	0.070	0.264	-0.443	0.842	0.599	-0.209	0.075	**0.006**	-0.179	0.072	**0.013**
TOT PW IN HH	273	0.16[0.12-0.21]	0.01	-0.027	0.141	0.846	-1.548	1.684	0.359	-0.147	0.152	0.334	-0.076	0.145	0.603
NUM NETS IN HH	272	2.02[1.89-2.15]	0.03	-0.010	0.048	0.832	-0.530	0.575	0.357	0.058	0.052	0.262	0.014	0.049	0.781
HH SIZE	273	5.64[5.42-5.86]	0.06	0.013	0.028	0.646	-0.232	0.340	0.496	0.031	0.031	0.317	0.028	0.029	0.336
POTABLE WATER (L)	273	43.17[39.98-46.36]	0.80	-0.002	0.002	0.362	0.008	0.024	0.735	-0.001	0.002	0.791	-0.002	0.002	0.391
POTABLE AND PROTECTED WATER (L) PP	273	35.22[32.26-38.19]	0.74	-0.004	0.002	0.063	-0.008	0.026	0.755	-0.001	0.002	0.631	-0.004	0.002	0.106

Table 16: Unadjusted associations between risk factors and the binary classification of wasting, stunting and underweight demonstrated by linear regression (SOURCE: SENS 2021)

Risk factor *Linear Regression*				**GAM [W/H]** *Children 6-59 months*			**GAM [MUAC]** *Children 6-59 months*			**Stunting [H/A]** *Children 6-59 months*			**Underweight [W/A]** *Children 6-59 months*		
Indicator	**n**	**Mean [95% CI]**	**Standard error**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**	**Coeff.**	**SE**	**P-value**
MONTHS	1002	31.9[30.96-32.84]	0.48	-0.003	0.002	0.077	0.305	0.020	**0.000**	-0.016	0.002	**0.000**	-0.012	0.002	**0.000**
WEIGHT	1002	10.82[10.68-10.97]	0.07	0.118	0.011	**0.000**	3.181	0.105	**0.000**	0.034	0.013	**0.008**	0.099	0.012	**0.000**
HEIGHT	1002	85.69[85.06-86.33]	0.32	0.000	0.003	0.921	0.526	0.029	**0.000**	0.001	0.003	0.732	0.000	0.003	0.869
CHILD HB_GDL	997	10.9[10.83-10.97]	0.03	0.004	0.025	0.884	1.742	0.310	**0.000**	-0.002	0.028	0.955	0.001	0.026	0.970
TOT CHILDREN U5 IN HH	263	1.7[1.62-1.79]	0.02	0.089	0.077	0.245	1.105	0.947	0.244	-0.005	0.090	0.955	0.048	0.077	0.537

TOT PW IN HH	263	0.13[0.09-0.17]	0.01	-0.172	0.162	0.290	-1.440	2.001	0.473	-0.339	0.190	0.075	-0.303	0.163	0.064
NUM NETS IN HH	259	2.01[1.9-2.12]	0.03	0.031	0.061	0.610	0.430	0.754	0.569	-0.071	0.072	0.325	-0.016	0.062	0.797
HH SIZE	263	5.74[5.49-5.99]	0.07	0.052	0.026	**0.046**	0.554	0.318	0.083	-0.016	0.031	0.609	0.027	0.026	0.301
POTABLE WATER (L)	263	30.45[28.36-32.53]	0.54	-0.005	0.003	0.112	-0.034	0.039	0.387	0.001	0.004	0.790	-0.003	0.003	0.313
POTABLE AND PROTECTED WATER (L) PP	263	23.41[21.23-25.6]	0.57	-0.005	0.003	0.114	-0.075	0.037	0.043	0.004	0.004	0.283	-0.001	0.003	0.633
GFD LAST	262	27.95[27.63-28.28]	0.08	-0.020	0.020	0.320	-0.216	0.249	0.387	0.009	0.024	0.693	-0.009	0.020	0.644
WORK AWAY	263	0.06[0.03-0.09]	0.01	0.238	0.225	0.291	-0.064	2.776	0.982	-0.336	0.264	0.204	0.006	0.227	0.980
RCSI HH	263	5.02[4.12-5.92]	0.23	-0.004	0.007	0.614	-0.002	0.090	0.986	0.001	0.009	0.884	-0.002	0.007	0.823
PULSES	263	2.84[2.56-3.11]	0.07	0.012	0.024	0.602	0.419	0.294	0.155	-0.028	0.028	0.311	-0.006	0.024	0.802
MILK	263	0.22[0.11-0.34]	0.03	-0.006	0.057	0.914	-0.024	0.698	0.973	-0.075	0.066	0.260	-0.040	0.057	0.485
PROTEIN	263	5.4[5.18-5.61]	0.06	0.033	0.030	0.275	-0.084	0.372	0.821	0.007	0.035	0.846	0.028	0.030	0.361
FLASH MEAT	256	0.51[0.41-0.61]	0.03	0.134	0.064	0.038	0.477	0.793	0.548	-0.053	0.076	0.484	0.059	0.066	0.374
MEAT	256	0.09[0.05-0.12]	0.01	0.064	0.192	0.739	1.928	2.344	0.412	0.159	0.225	0.480	0.128	0.196	0.512
FISH & SEA FOOD	256	4.79[4.58-5.01]	0.06	0.060	0.030	0.049	0.350	0.374	0.350	0.033	0.036	0.355	0.059	0.031	0.058
EGGS	256	1.29[1.08-1.49]	0.05	0.007	0.032	0.835	0.128	0.390	0.743	-0.063	0.037	0.089	-0.027	0.033	0.405
VEGETABLES	263	5.07[4.83-5.31]	0.06	0.029	0.027	0.284	0.527	0.333	0.114	0.040	0.032	0.212	0.045	0.027	0.099
VITA VEGETABLES	260	0.36[0.24-0.49]	0.03	0.066	0.052	0.209	1.063	0.647	0.102	-0.012	0.061	0.842	0.039	0.053	0.469
GREEN VEGETABLES	260	3.06[2.79-3.33]	0.07	-0.002	0.025	0.930	-0.134	0.306	0.661	0.001	0.029	0.982	-0.001	0.025	0.972

FRUIT	263	0.73[0.57-0.88]	0.04	0.062	0.041	0.136	0.875	0.508	0.086	-0.001	0.049	0.979	0.052	0.042	0.208
VITA FRUIT	96	0.21[0.11-0.31]	0.02	0.128	0.181	0.482	2.073	2.256	0.361	0.356	0.218	0.106	0.305	0.192	0.115
FATS	263	6.74[6.63-6.84]	0.03	0.082	0.062	0.188	0.299	0.767	0.697	0.034	0.073	0.643	0.080	0.062	0.200
SWEET FOODS	263	1.6[1.33-1.86]	0.07	0.085	0.024	0.001	0.555	0.302	0.068	0.023	0.029	0.429	0.074	0.024	0.003
SPICE	263	6.92[6.85-7]	0.02	-0.078	0.085	0.364	-1.336	1.049	0.204	-0.040	0.100	0.689	-0.082	0.086	0.342
SPENUTF	263	3.19[2.81-3.56]	0.1	0.015	0.018	0.399	-0.080	0.216	0.711	0.021	0.021	0.305	0.020	0.018	0.258
FCS	263	54.95[53.59-56.31]	0.35	0.008	0.005	0.083	0.082	0.059	0.168	-0.003	0.006	0.576	0.005	0.005	0.330

ANNEX C: QUALITATIVE GUIDE

INFORMATION NOTE[301]

Nutrition causal analysis Link NCA in the FDMN Camps, Cox's Bazar, Southern Province of Bangladesh by UNICEF Bangladesh in collaboration with UNHCR Bangladesh and WFP Bangladesh with technical support of Action Against Hunger UK. The main objective of the study is to identify the drivers of persistently high levels of acute and chronic malnutrition among Rohingya children in the FDMN camps in Cox's Bazar in order to help strengthen the impact of nutritional security programming.

Name of principal researcher: Patrizia Pajak

INVITATION: We would like you to participate in a study conducted by UNICEF Bangladesh in collaboration with WFP Bangladesh, whose programmes cover health and nutrition, water supply, sanitation and hygiene and basic education.

STUDY OBJETIVES: The objective of this study is to improve our understanding of causes of child undernutrition in the FDMN camps in Cox's Bazar. We hope that this study will help us to identify the risk factors triggering wasting in your community so that together, and with the involvement of local authorities and other partners, we can reduce wasting and stunting in the future. The study will take place from the 2 February 2025 till the 6th March 2025 in four purposively selected communities within the FDMN camps.

PROCEDURE: We would like to spend 6 consecutive days starting today in your community. We will share a detailed plan of our activities in order to facilitate the selection and mobilisation of participants for interviews and focus group discussions. The study will focus primarily on parents of children under 5 years of age, but other key informants may also be requested to participate. Anyone wishing to share their views outside of planned interviews and focus group discussions can contact the study team to do so. The study team would also like to carry out a number of observations and household visits in your community, if possible, so that we can better understand your day-to-day challenges. Focus group discussions will be organised around themes such as health, nutrition, care practices, water, hygiene and sanitation, food security and livelihoods, and gender. 8-12 people should participate in each focus group discussion, as indicated in the shared detailed planning. Please note that we will not be able to accommodate more people at any one time. Participants are asked to arrive on time in order not to delay subsequent focus group discussions. On behalf of your community, do you agree to participate in this study? Do you have any questions? If so, we will need you to appoint a community mobiliser. This person must be known and respected by all members of your community. This person's role will be to mobilise participants for semi-structured interviews and focus group discussions, as outlined in our detailed planning. Preferably, the selection of participants will be coordinated with you. Please note that it is preferable for the selected participants to attend only one group discussion. If they wish to contribute more than once, this is only permitted if it relates to different topics. However, we want to talk to as many members of your community as possible and for this reason it would be preferable if more people from your sector were mobilised to participate. Please note that the participation of a community mobiliser must be entirely voluntary.

Please note that there is no right or wrong answer to our questions, no right or wrong opinion and no right or wrong way of doing things. We are genuinely interested in delving into your daily life and learning more about your beliefs and practices. If you agree to participate, we will ask for about an hour of your time.

CONFIDENTIALITY: We will not ask you for your name and we will not share the content of our discussion with other people in your community. Your name will not appear in our study and no one will be able to identify what you have shared with us.

[301] To be used as an opening to each exchange with key informants, whether it is a semi-structured interview or a group discussion. The sentences in grey are only relevant for an initial meeting with community leaders.

RISKS: Unfortunately, apart from our sincere gratitude, we cannot promise you anything in exchange for your participation in this study. Participation in this study does not guarantee your selection for future UNICEF/UNHCR/WFP activities, nor should it adversely affect your participation in ongoing activities. However, during the focus group discussions, we will share water and snacks with you, which you may choose to take home if you wish.

INFORMED CONSENT: Participation in this study is your choice. You are free to stop the interview or leave the focus group discussion at any time. Your participation is entirely voluntary. If you do not wish to answer a question, you can decline to do so and we will move on to another question. If you have any questions about us or the work we do, you can ask us at any time.

SEASONAL CALENDAR[302]

A seasonal calendar is a diagram of changes over the seasons - usually over a 12-month period. Seasonal calendars are useful for identifying seasonal patterns - for example, changes in the availability of resources, such as food or income, work patterns and migration flows; for exploring relationships between different patterns of change - for example, the relationship between income levels and movements of key populations for work; for identifying when people may be particularly vulnerable; for exploring seasonal patterns of well-being and hardship and how different people are affected; or for identifying when people are particularly vulnerable to infection.

During the qualitative study, the qualitative data collection team will explore seasonal variations for each risk factor. The respective risk factors will be listed on a printed seasonal calendar format, describing twelve months of a universal year. During group discussions, participants will be asked to identify the month in which each risk factor is most significant and the precise causes of these changes.

HISTORICAL CALENDAR

A historical calendar is a diagram that shows changes over a certain period. For the purposes of this study, a period of 5 years (since 2020) will be considered. However, if participants mention key events prior to the 5-year period, these will also be noted. A historical timeline is useful for exploring changes over time in a particular situation and the reasons for this change. This can include changes in behaviour, knowledge and attitudes in a community. It is also useful for exploring the consequences of a particular event or for evaluating the effectiveness (impact) of a community project or initiative.

During the qualitative study, the research team will explore the historical variations for each risk factor. The respective risk factors will be listed on a hand-drawn model of a historical calendar (A2 format), depicting 5 universal years. During the focus group discussions, participants will be asked to define in which year each risk factor was most significant and to specify the causes of these changes. All the major events that have marked life in a community in a positive or negative way, whether political, socio-economic, environmental or other, will be considered as potential triggers. The aim will be to capture trends based on the community's knowledge and possibly identify correlations between various risk factors.

STORYTELLING[303]

Storytelling involves participants discussing "typical" stories of their community. This approach opens up discussions on sensitive issues in a non-threatening way and identifies real-life situations and problems that affect members of their community. It is useful to explore what people think about these situations and what action they would like to take.

During the qualitative study, the research team will introduce real-life stories during group discussions in order to test the participants' point of view on particularly sensitive subjects and/or to test their answers given as part of a classic question-and-answer exchange. The aim of this method will be to draw attention away from them (which may make them uncomfortable) and instead involve them as observers and advisers to others in situations reflecting their everyday reality.

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[302] Participatory Learning and Action (PLA), Tool no. 19 & 20 (https://www.aidsalliance.org/).

[303] Participatory Learning and Action (PLA), Tool no. 58 (https://www.aidsalliance.org/).

DAILY ACTIVITIES

The daily activities chart maps out how people spend their time on a typical day. It is useful for exploring how men and women spend their day, assessing their workload and discussing their different roles and responsibilities or exploring the factors that influence these differences.

During the qualitative study, the research team will present printed images of daily activities in a given community and ask group discussion participants to arrange them chronologically, starting with the usual time they wake up and ending with the usual time they sleep. This will be done separately for men and women. Any other group, such as children or the elderly, or groups with different economic functions (farmers, herders or market vendors) can be introduced, if deemed relevant.

MEAL COMPOSITION

The meal composition table shows what people usually eat in the course of a day. It is useful for exploring the community's perception of good nutrition and how this is reflected in their eating habits now and in situations where money would not be a barrier to buying the desired food. For the purposes of this study, three scenarios will be considered: typical food consumption during a lean period, typical food consumption during a post-harvest period and typical food consumption when money is not an obstacle.

During the qualitative study, the study team will present a hand-drawn graph (A2 format), divided into three columns, representing each scenario. Participants in a group discussion will be asked to say how many meals they eat per day in each scenario and which meals they eat at those times of day.

HOUSEHOLD EXPENSES

Household expenditure is a participatory exercise, the main aim of which is to show how household income is allocated to cover expenses. This can reveal household spending priorities, identify harmful behaviours or decision-making mechanisms within the household.

During the qualitative study, the research team will present a set of printed images representing different types of ordinary expenditure incurred by a household in a given community. These images will be placed in front of the participants. Participants will also be given a set of pebbles representing the amount of money a household has available to cover these expenses. The role of the participants will be to divide the income between different groups of expenses, as they would do in real life.

THERAPEUTIC ITINERARY[304]

This tool allows you to draw the story of a person's journey towards recovery over a given period. The idea is to follow the evolution of the person's health since they fell ill, indicating the different treatment options explored in order to get better. The therapeutic itinerary is a participatory exercise, which opens up a discussion about traditional and non-traditional treatments in a non-threatening way. It also explores people's understanding of recurring illnesses, which essentially influences their choice of treatment. In addition, the tool explores the barriers to accessing biochemical treatment available in state-supported health facilities.

During the qualitative study, the research team will present a blank sheet of paper (A2 format) and ask participants to explain their typical health pathway in the event of recurring illnesses, which will be traced on this sheet of paper. The aim is to identify whether their knowledge of these illnesses triggers the same reaction and/or whether certain differences exist. Particular attention will be paid to understanding and treating undernutrition in children.

INTERVIEW GUIDE: INTRODUCTION TO RISK FACTORS

1. How would you describe a healthy child (size/characteristics/behaviour)? What do you do to keep your child healthy? What type of care is most important? How much effort does it take to do this every day?
2. What challenges do parents in your community face in keeping their children healthy? (Cf. **Hypotheses Flashcards**) What impact do these challenges have on their health? Why? How do these challenges change over the seasons (Cf. **Seasonal Calendar**) How have they changed over the last 5 years (Cf. **Historical Calendar**)?

[304] Participatory Learning and Action (PLA), Tool no. 17 (https://www.aidsalliance.org/).

3. In what type of household/with what type of mother have you observed births of smaller children? (PROBE: age, marital status (single, married, divorced, widowed), type of household (monogamous vs. polygamous), household size, birth spacing, level of education, workload, well-being, economic quintile, etc.) Why? How has the prevalence of low birthweight changed over the last 5 years (Cf. **Historical Calendar**)?
4. What type of woman seems to be more vulnerable to undernutrition? (PROBE: age, religion, marital status (single, married, divorced, widowed, polygamous household) In what type of household have you observed very thin or small children? (PROBE: age, religion, marital status (single, married, divorced, widowed).

INTERVIEW GUIDE: HEALTH

1. What barriers to access (see **Access Barriers Flashcards)** pose the greatest difficulties for you in terms of access to healthcare facilities? Why or why not? How does your access to health facilities change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)
2. Geographical barriers: poor geographical accessibility, inaccessibility of certain health facilities during the rainy season, lack of security.
3. Time barriers: waiting times, short opening times, workload.
4. Financial barriers: opportunity cost, high cost of care, limited free access for certain services
5. Socio-cultural barriers: reliance on traditional medicine (faith healers), proliferation of street medicine, fear of judgement, lack of female doctors/nurses, movement restrictions for women, lack of confidence in modern care and/or discouragement if results are not quick.
6. Barriers to quality of care: lack of specific health services, inadequate infrastructure, equipment and human resources; poor reception, lack of confidentiality, lack of needed medicines, lack of female doctors, overcrowding, readily available medicines in the market.
7. What type of household faces the greatest difficulties in accessing health services? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed), religion, household size, source of income, level of education)
8. What types of services are available in the nearest health centre? Which ones do you use? (PROBE: antenatal/postnatal consultations, childbirth, family planning, treatment of childhood illnesses, vaccinations, deworming, vitamin supplements) Why? Do you feel more comfortable to receive medical treatment from a man or woman? Why? Which health services are not culturally acceptable? Which health services are not available at all, despite community need?
9. Do you think women prefer delivering at a health facility or at home? What factors contribute to their choice? Who provides support for women delivering at home? Do women typically go to the hospital for postpartum check-ups for themselves and their child after a home delivery? Is delivery a free service at health facilities? Do women typically attend antenatal care (ANC) and postnatal care (PNC) visits during and after pregnancy?
10. Do mama's (traditional health care providers) provide health care in your community? What type of services do they provide? For which diseases do you consult them, and for which do you visit a healthcare facility?
11. What do you think of children in the pictures (Cf. **Childhood illnesses Flashcards**) What illnesses are most common in your community? (PROBE: diarrhoea, fever, acute respiratory infections, malaria, scabies) How does the prevalence of these illnesses change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)
12. What are the causes of these illnesses? How are these illnesses treated? (Cf. **Therapeutic itinerary**) (NB: To be plotted for each illness separately.) Which childhood illnesses cannot be treated in health facilities? Why? How have treatment options changed over the last 5 years? How do you decide which treatment to choose? Who advises you?
13. Apart from medication, how do you care for a sick child? (PROBE: breastfeeding/feeding/hygiene practices - do they change compared to time when the child is healthy?)
14. How would you describe the prevalence of anaemia among children U5 in the camps? Does this change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**) what factors are contributing to anaemia among children U5? What practices do you think help in preventing or managing anaemia among children? What challenges do you face related to those prevention practices?

15. What type of child seems to be more vulnerable to health problems? (PROBE: gender, age, child's rank, religion, household composition (size, birth spacing, head of household), mother's characteristics (age, education, workload, well-being), economic resources, breastfeeding/feeding/hygiene practices, etc.).
16. What do you think of the awareness-raising sessions organised by health workers or community mobilisation staff from different NGOs? What do you think of the different subjects they talk about? Did you find them useful/relevant/easily applicable? Why/why not? What behaviours did you particularly struggle with? Why? (Advantages/Disadvantages)

INTERVIEW GUIDE: MALNUTRITION

1. What do you think of children in these photos? (Cf. **Photos of acutely malnourished children (marasmus/kwashiorkor) + children suffering from chronic malnutrition**) What illness are they suffering from? What words do you use to describe such children in your community? Are some words more sensitive than others? Why?
2. What do you think about this illness? How is it similar to or different from other childhood illnesses? Which type is more common in your community?
3. What causes this illness? Why would a child become like this? (Cf. **Hypotheses Flashcards**)
4. How do you treat this disease in your community? (Cf. **Therapeutic Itinerary**) (PROBE: What is the most common treatment?)
5. What type of child seems to be more vulnerable to this disease? (PROBE: gender, age, household type (monogamous vs. polygamous), household size, birth spacing, level of education, economic quintile, head of household F/M), mother's characteristics (age, workload, well-being), breastfeeding/feeding/hygiene practices, etc.).
6. In which season/month do you see more children like this (**check:** Apr-May & Sep-Oct = SAM peaks)? (Cf. **Seasonal Calendar**) How long have children in your community suffered from this disease? (Cf. **Historical Calendar**) Have you seen an increase/decrease in cases in certain years? How would you explain these variations?
7. Do you think your child could become like that? Why/why not? What behaviours/practices can induce/prevent this condition? Do you think you could become like this? Why/why not?
8. **Story-telling**: Amina has a daughter that was born two years ago. She was breastfeeding her during the first year and then started to give her food, which she prepared for the rest of the family. Her daughter started to lose weight and was no longer interested to play with other children. Amina decided to take e her to a mama (traditional healer) to cure her. However, her daughter was not getting any better
   What do you think of this story? What traditional practices are used to treat malnutrition in the community? What would you do if you were Amina?

INTERVIEW GUIDE: NUTRITION

1. How would you describe a nutritious meal (with no limit on financial resources)? (PROBE: composition/quantity/type of cooking/ease of preparation/taste/nutritional value/energy value/ability to satisfy/priority right to eat/frequency of consumption) (Cf. **Food Flashcards**) Why do you think this meal is good for your health? How often do you eat this type of meal? What prevents you from eating it more often? (PROBE: availability/accessibility/acceptability/ease of preparation) (Cf. **Meal Composition**)
2. How would you describe a favourite meal (very popular but not necessarily nutritious)? (Why do you like it? How often do you eat this type of meal? What prevents you from eating it more often? (PROBE: availability/accessibility/cultural habits)
3. How would you describe your usual (frequently eaten) meals? (Cf. **Food Flashcards**) What do you think of these types of meal? (PROBE: composition/quantity/type of cooking/ease of preparation/taste/nutritional value/energy value/satiating capacity/frequency of consumption) How often do you eat this type of meal? Who in the household decides what type of meal is cooked? How do you divide the available meal between all the members of your household? Does the family eat together or in a specific order? Who eats first? Why?
4. **Storytelling:** Lubna has a husband and 5 children. Parents of her husband will with them. Her husband gave her some money to prepare an evening meal. Lubna bought some rice but it will not be enough for the whole family. During the dinner time, she set aside a plate for her husband and

his parents. She gave the rest of the meal to her eldest children, two boys. Lubna and her three little girls went to bed hungry.
What do you think of this story? Do women in your community face the same difficulties? Why/why not? What would you do differently?

5. What changes in your eating habits have you observed over the last 5 years? (Cf. **Historical Calendar**) What changes have you observed in your eating habits over the course of the year? (Cf. **Seasonal Calendar**) (Cf. **Meal composition** in lean season vs. post-harvest season)
6. How do eating habits of children and/or pregnant and breastfeeding women differ from those of other household members? What foods cannot be eaten by children and/or pregnant and breastfeeding women? Why? How does the diet of girls/boys differ?
7. Do all individuals observe fasting? Are there any exceptions, and if so, what are they? Do pregnant women participate in fasting? How about breastfeeding women? Are there any consequences if a woman fasts over pregnancy (PROBE: low birth weight)?
8. **Story-telling**: Rina is 19 years old. She married about three years ago. She is now pregnant with her second child and therefore avoids beef/shellfish/insert food types mentioned above and only drinks hot tea. She is not allowed to leave the home because she is pregnant. However, she noticed she has been feeling weaker and feels sometimes sick throughout the day. When she asked to visit the health centre, her husband refused permission.
What do you think of this story? What would you do if you were Rina?
9. Where do you usually get your food? (PROBE: farm production, purchase, food aid, barter/exchange, gathering/hunting) How does this vary throughout the year? (Cf. **Seasonal Calendar**) How has this changed over the last 5 years? (Cf. **Historical calendar**) What type of household faces the greatest difficulties in accessing food? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed), household size, religion, source of income, level of education)

INTERVIEW GUIDE: CARE PRACTICES

1. What is your daily routine like with a baby under 3 months/6 months/over 6 months? How does your daily routine change in relation to the child's age? (PROBE: breastfeeding/complementary feeding/interactions with the child/daycare/hygiene) How does your routine change over the course of the week? How does your routine change over the course of the year? (Cf. **Seasonal Calendar**) How has your routine changed between the first and successive children you have had? What changes in childcare practices have you observed between you and your parents/grandparents? (Cf. **Historical Calendar**)
2. What challenges do you face when looking after your children? (PROBE: lack of knowledge/resources/time/mental preoccupations, other)
3. Who helps you to look after your children? What do they help you with? How often? How are fathers involved in childcare activities? What do you think of their involvement?
4. Who advises you on how to look after your children? Are you obliged to follow this advice? What kind of childcare decisions can you make on your own?
5. How do care practices differ among households in this community? (PROBE: household type (monogamous vs. polygamous), household size) What consequences have you observed for the growth and development of children living in these households?
6. **Story-telling:** Hasina is 25 years old. She has four children. The last one was born three months ago. She is breastfeeding him when she is at home in the mornings and in the evenings. In between she has lots of activities (fetching water, collecting firewood, preparing food) and she does not bring her baby with her. She leaves the baby with her mother-in-law. Few weeks ago, she went to the health centre and the staff told her to breastfeed her baby on demand in order for the baby to grow well. She is afraid that the baby will grow fat and somebody will give it a bad eye. She prefers her baby to stay the way he is. In addition, she has so many things to do! She can't possibly carry the child around the whole day!
7. What do you think of this story? What is the community approach to breastfeeding? What would you do if you were Hasina?
8. What local beliefs influence childcare practices in your community? What beliefs prevent adoption of "new" practices promoted by health workers? (PROBE: Exclusive breastfeeding: colostrum considered dirty or useless, mixed feeding after birth with honey, sweet water, cocoa etc. breastfeeding going old (sour and stale) after a few hours in the breast).

9. **Story-telling:** Yasmin has a little boy. She gave birth to this little boy 6 months ago. After the birth, she decided against giving the boy colostrum. Her belief is that colostrum is dirty and spiritually damaging to the new-born. Instead she made a sugar solution of water and honey for his first feed. The little by became sick and is still not better.
   What do you think of this story? What do you think about Yasmin's choice? Do you agree with her? Why/why not? What would you do differently?
10. When do you introduce complementary foods to your baby? At what age? What do your baby's meals consist of? How often do you feed them? (Cf. **Meal Composition**) What would you like to do differently? Why? What prevents you from doing so? How do children's eating habits change over the year? (Cf. **Seasonal Calendar**) What type of households/mothers fail to follow the IYCF recommendations? Have these practices changed compared to your parents/grandparents generation? How? Would they encourage you to follow their methods?"
11. How do you interact with your children on a regular basis (physical, vocal, visual, emotional interactions)? What level of contact is considered appropriate in this community? How much time are you able to devote to mental and social development activities (talking, playing, changing, etc.)? How do these practices change over the course of the year (Cf. **Seasonal Calendar**)? How have they evolved over the last 5 years (Cf. **Historical Calendar**)?
12. What role do grandparents play in childcare activities, and how involved are they? Can you rely on their support as needed? hat about the involvement of husbands in childcare? When do they interact mostly with they children? What activities do they do together? How about older siblings, do they care for their younger children (under-five)?
13. How do you usually show your love for your children? How do these demonstrations differ for girls and boys? How do you discipline your children? Do these demonstrations change between mothers and fathers?

INTERVIEW GUIDE: MARRIAGE, PREGNANCY & BIRTH SPACING

1. At what age do young women and men in your community start to become sexually active? At what age do they get married? What changes have you seen in these practices over the last 5 years? (Cf. **Historical Calendar**) What inspired these changes? When are young men/women ready to marry/be parents (physically and emotionally?
2. How do men and women in the community feel about the continuing practice of polygamy, especially in terms of family dynamics?
3. How would you describe married life in your community? How would you describe an exemplary marriage? How do you deal with disagreements during marriage? What are the usual causes of these disagreements? When is the use of force justified? Why? In which type of household do you observe a higher prevalence of gender-based violence (e.g. denial of resources, opportunities or services, physical assault, psychological violence, sexual violence)? Why? How have relations between men and women changed over the last 5 years? (Cf. **Historical Calendar**)
4. Can you describe the perceived role of dowry in your community? In what ways do you think the economic pressures in the camps contribute to the continuation of practices like dowry and child marriage? How has the practice of child marriage changed since the Rohingya community arrived in Bangladesh? (Cf. Resilience strategies)
5. How many children do members of your community usually have? Why? What is the usual birth spacing in your community? Why? What changes in a desired number of children and/or birth spacing have you observed over the last 5 years? Why? How do these practices differ among households in your community? (PROBE: household type (monogamous vs. polygamous), education level, economic quintile)
6. What practices are used to space births (PROBE: traditional/modern contraceptive methods, physical distance from husband, abstinence)? How are these practices perceived/accepted by the community? What type of household is strictly against limiting and/or spacing births (PROBE: age of the couple, type of household (monogamous vs. polygamous), household size, level of education)?
7. Story-telling: Sultana is 28 years old. She married her husband 12 years ago. Since then, she gave birth to a child almost every year. Out of 10 children, 3 died rather young. Sultana's husband wants to replace them. Sultana does not want any more children, she is tired of successive pregnancies. She is afraid to tell her husband that she does not want any more children because he says they are a gift from God.

What do you think of this story? How does the community view the use of modern contraception/birth spacing? What would you do if you were Sultana?

8. What barriers to the use of antenatal consultations pose the greatest difficulties for you? (PROBE: distance, access to transport, finances, time, cultural beliefs, quality and availability of service) Why? How does your use of antenatal consultations change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)
9. What barriers to giving birth in a health facility pose the greatest difficulties for you?(PROBE: Distance, access to transport, quality and availability of service, cultural barriers). What are the reasons for this? How does the use of health facilities for childbirth change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**) What type of women find it more difficult or choose not to use health facilities for childbirth? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed), household size, source of income, level of education)

INTERVIEW GUIDE: WOMEN'S WORKLOAD AND MENTAL WELL-BEING

1. What characterises an ideal woman in this community? What tricks have women developed to get as close as possible to this ideal? What behaviour is difficult to accept (or is not accepted at all) in a woman? Why?
2. What does your daily routine look like? (Cf. **Daily Activities**) How does your routine change over the year? (Cf. **Seasonal Calendar)** What changes in a daily routine have you observed between you and your parents/grandparents? (Cf. **Historical Calendar**) How does your daily routine differ from that of men? What differences in daily routines have you observed between different households?
3. How do you perceive your workload? When is your workload heaviest/when do you feel busiest or most tired? (Cf. **Seasonal Calendar)** What do you do when you feel like this? What type of activities represent a particularly heavy workload? How does your workload change during pregnancy/postpartum? What characterises households with a heavier or lighter workload? What do you do if you are unable to complete all your daily tasks?
4. How do you perceive your mental well-being? When do you feel more preoccupied/stressed? (Cf. **Seasonal Calendar)** What do you do when you feel like this? What are you not able to do when you feel like this? (PROBE: household chores, income-generating activities, breastfeeding, hygiene practices, sexual relations) What feelings do you have during these moments of worry/stress? (PROBE: lack of joy, anxiety, lack of energy, difficulty concentrating, lack of interest in the baby/household, guilt, feelings of abandonment, lack of appetite/too much appetite, sleep disorders, nightmares) What are common causes of your worries/stress (PROBE: marital problems, family problems, heavy workload, lack of financial resources, illness, death, lack of support)?
5. How acceptable is it for a woman to show her emotions/frustrations? What demonstrations of distress are generally tolerated vs. what demonstrations are not tolerated at all? What support mechanisms exist within the household/family/community to offer her the necessary support?
6. How would you describe the state of mind of women after giving birth? What feelings are often associated with this event? What other feelings did women in your community admit to having after giving birth? What type of women are likely to experience these feelings? Why?
7. How would you describe your relationships with other members of your household? Which relationships bring you most joy? Which relationships worry you the most? Why? How comfortable are you telling members of your household that you don't agree with them?
8. What community groups do you belong to? What are the advantages and/or disadvantages of participating in these groups? How often do you attend community gatherings?

INTERVIEW GUIDE: WOMEN'S AUTONOMY

1. How often do you leave your house/sector/camp? Who decides whether you can leave? Where can you go without asking anyone?
2. What activities can women in this community do to generate income? Who controls the generated income? What other activities do you think women in this community should be allowed to do to generate income? What changes in autonomy/decision-making power have you observed between you and your parents/grandparents? (Cf. **Historical Calendar**)
3. For which activities can you make decisions without consulting anyone else? (PROBE: schooling, marriage, household expenses, composition of meals, daily activities, workload, rest after childbirth, medical treatment in the event of illness, family planning) For which activities do you need to consult

another member of your household? For which activities can only one member of your household make decisions? What do you think of this division of decision-making? What would you like to change about this division of decision-making? In what areas would you like to make decisions made differently?

4. For decisions where you need to consult another member of your household, to what extent can you participate in the decision-making process? For decisions where a member of your household makes decisions, how involved can you be in the decision-making process? To what extent do you feel listened to when decisions are made? What can you do when you disagree with a decision? What happens when your opinion has not been considered, but it turns out that it would have been a good decision? How does this change decision-making in the household?
5. To what extent can you access information to make informed decisions? What barriers do you face in accessing information?
6. What rights do the women in this community have to own/inherit land? Who generally decides what to plant?
7. What rights do the women in this community have when it comes to borrowing money? Who decides how the borrowed money is spent? Who is responsible for repaying the money? What advantages/disadvantages does this arrangement bring you? How do you think this arrangement should change?
8. What type of women has less decision-making power than other women in this community? (PROBE: age, age difference between the couple, religion, marital status, type of marriage (monogamous vs. polygamous), religion, level of education, economic quintile, etc.) Why? How does this affect their functioning and/or their health/health of their children?

INTERVIEW GUIDE: MEN'S WORKLOAD AND MENTAL WELL-BEING

1. What characterises an ideal man in this community? What tricks have men developed to get as close as possible to this ideal? What behaviour is difficult to accept (or is not accepted at all) in a man? Why?
2. What is your daily routine like? (Cf. **Daily Activities**) How does your routine change over the year? (Cf. **Seasonal Calendar)** What changes in daily routine have you observed between you and your parents/grandparents? (Cf. **Historical Calendar**) How does your daily routine differ from that of women? What differences in daily routines have you observed between different households?
3. How do you perceive your workload? When is your workload heaviest/when do you feel busiest or most tired? (Cf. **Seasonal Calendar)** What do you do when you feel like this? What type of activities represent a particularly heavy workload? What characterises households with a heavier/lesser workload? What do you do if you can't get all your daily tasks done?
9. How do you perceive your mental well-being? When do you feel more worried/stressed? (Cf. **Seasonal Calendar)** What do you do when you feel like this? What are you not able to do when you feel like this? (PROBE: income-generating activities, hygiene practices, sexual relations) What feelings do you have during these moments of worry/stress? (PROBE: lack of joy, anxiety, lack of energy, difficulty concentrating, lack of interest in work, guilt, feelings of abandonment, appetite problems, sleep disorder, nightmares) What are common causes of your worries/stress (PROBE: marital problems, family problems, heavy workload, lack of financial resources, illness, death, lack of support)?
4. How acceptable is it for a man to demonstrate his emotions/frustrations? What demonstrations of distress are generally tolerated vs. what demonstrations are not tolerated at all? What support mechanisms exist within the household/family/community to offer him the necessary support?
5. How would you describe your relationships with other members of your household? Which relationships bring you most joy? Which relationships worry you the most? Why? How comfortable are you telling members of your household that you don't agree with them?
6. What community groups do you belong to? What are the advantages and/or disadvantages of participating in these groups? How often do you attend community gatherings?

INTERVIEW GUIDE: LIFE PERSPECTIVES (PARENTS)

How has life in your community changed since your parents'/grandparents' generation? What did you used to live/hear that is no longer the reality today? What values have gradually disappeared and what new values are being revered? What effect has this change had on your community?

1. What events (PROBE: drought, flooding, insecurity, conflict, population movement, demographic growth, exploitation of natural resources) have had the greatest impact on life in your community? (Cf. **Historical Calendar**) How have these events gradually changed life in your community?
2. What shocks have the greatest impact on household survival (PROBE: illness, death, departure of a household member, separation/divorce, reduction of food, etc.)?
3. How has access to sources of income /food /healthcare /water /sanitation /electricity /telephones /household appliances changed over the last 5 years? (Cf. **Historical Calendar**) What effect has this change had on life in the community?
4. What community self-help mechanisms were used in the past but have gradually disappeared? What effect did this disappearance have on households' ability to withstand the experienced shocks? What new mechanisms have been created to assist households in difficult times and/or contribute to community development? What type of household does not have an easy access to these mechanisms? Why?
5. How would you describe the way your parents interacted with you and the way you interact with your children? What has changed in the meantime?
6. What subjects did you usually discuss with your parents? What topics do you usually discuss with your children? How have the subjects and/or the time allocated to these discussions changed over the last 0-15 years? (Cf. **Historical Calendar**) Why? What subjects did you avoid with your parents and what subjects do you avoid with your children? Why? Who is supposed to familiarise children with sensitive subjects?
7. Who do you turn to for advice/help when you need it, and who has the most influence over your decisions? Who do your children turn to for advice/help? How do you feel about this choice?
8. What disagreements exist in your community between young people and their parents and/or grandparents? What values do you share with the younger generation? What do you reproach your children for the most?
9. In your opinion, what are the most recurrent problems between women and men? (PROBE: (sources of income and how they are used/ quality of meals /workload /intimate relationships /infidelity /number of children /power of decision) What do you never tolerate in your relationships? How have relationships between men and women changed over the last 5 years? (Cf. **Historical Calendar**)
10. When is the use of force justified? Why? What type of violence (e.g. denial of resources, opportunities or services, physical assault, psychological violence, sexual violence) is most recurrent/normalised/not tolerated at all?
11. What opportunities for work do you have in your community? How do you feel about these opportunities? How do these opportunities influence the way you live in your household/community? What activities do you usually attend with other members of the community? What community groups do you belong to? What are the advantages and/or disadvantages of participating in these groups? Which institutions are of most value to you in your life. How has their role changed over time?
12. How does the feeling of safety/insecurity influence the way you live in the community? when do you feel most insecure? What actions do take in these situations (PROBE: focus on women in particular)

INTERVIEW GUIDE: LIFE PROSPECTS (YOUNG PEOPLE)

1. How has life in your community changed since you arrived to the camps? What did you used to experience/hear that is no longer the reality today? What traditions did your parents insist on that you consider odl-fashioned today? How does your rejection of these traditions influence your relationship with your parents?
2. What disagreements exist in your community between young people and their parents and/or grandparents? What values do you share with them? What do you reproach your parents for most?
3. How would you describe the way your parents interact with you (emotional bond, shared activities, learning)? What subjects do you usually discuss with your parents? What subjects do you avoid? Why? From whom do you seek information on sensitive subjects?
4. Who do you turn to for advice/help when you need it? Who has the most influence in your decisions?
5. In your opinion, what are the most recurrent problems between women and men? (PROBE: (sources of income and how they are used /quality of meals /workload /intimate relationships /infidelity

/number of children/power of decision) How do relationships between men and women differ from the relationships between your parents? (Cf. **Historical Calendar**)

6. When is the use of force justified? Why? What type of violence (e.g. denial of resources, opportunities or services, physical assault, psychological violence, sexual violence) is most recurrent/normalised/not tolerated at all?
7. What opportunities for work do you have in your community? How do you feel about these opportunities? How do these opportunities influence the way you live in your household/community? What activities do you usually attend with other members of the community? What community groups do you belong to? What are advantages and/or disadvantages of participating in these groups? Which institutions are of greatest value to you in your life (PROBE: family/diaspora/school/religion/international aid). How has their role changed over time?
8. How does the feeling of safety/insecurity influence the way you live in the community?

INTERVIEW GUIDE: SOURCES OF INCOME & RESILIENCE STRATEGIES

1. What are main sources of income in your community? Do they vary over the course of a year? (Cf. **Seasonal Calendar**) Have they changed over the last 5 years? (Cf. **Historical Calendar**) What has caused this change?
2. How do the restrictions on employment and movement affect your daily life and future prospects in the camps? What challenges do you face in seeking income sources? How common is seeking illegal employment outside the camps? How do these employment restrictions affect the opportunities for the younger generations within the community?
3. How the limited space in the crowded camps impact on your livelihood opportunities (esp. farming activities)? Has this changed in the past 5 years? (Cf. **Historical Calendar**) A part from food vouchers, what other type of aid assistance do you receive?
4. What activities can women in this community do to generate income? Who controls the generated income? What other activities do you think women in this community should be allowed to do to generate income?
5. How the lack of income-generating opportunities has impacted men's roles and their sense of identity in the community? What is the mental health impact on men regarding their inability to provide for their families? How have women-targeted livelihood initiatives affected men within the community? Has this changed in the past 5 years? (Cf. **Historical Calendar**)
6. What coping strategies are you using to compensate for any lack of food/income? (Cf. **Coping strategies**)?
7. What food access challenges have you faced with the ration cuts? Have you and your household employed any coping strategies due to the recent ration cuts? How did you prioritise your family's needs when faced with reduced food assistance? How would you describe the current situation regarding food rations? Have there been improvements since August 2024, or do you still experience cuts?
8. Which households in your community are more vulnerable to food insecurity? (PROBE: larger households, female-headed households, households with a large number of U5, households with disabilities) What criteria are used to categorise households as better off?
9. What support or resources would you find most beneficial in enhancing self-reliance within the camp environment?

INTERVIEW GUIDE: MARKET ACCESS AND USE OF RESOURCES

How do you access food in this community? Do you receive e-Vouchers or food aid? Does how you access food vary throughout the year? (Cf. **Seasonal calendar**) Has this changed over the last 5 years? (Cf. **Historical Calendar**)

How have the recent ration cuts affected your daily food intake and overall health? What foods did you buy less of during the ration cuts? Why? When have the rations been restored? How has the restoration of normal rations affected the quality and quantity of food in the household?

How would you describe your access to the market? What barriers to access do you face (PROBE: distance, lack of transport, transport costs, insecurity) How does your access to market change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)

What types of products are regularly available on the market? During what period of the year are products less available and/or unavailable? (Cf. **Seasonal Calendar**) Which products are not available

at all, despite the community's need for them? What are you doing to alleviate this problem? Has the availability of products changed over the last 5 years? (Cf. **Historical Calendar**)

What types of foods do you buy to resell? Why? Do the food types that you resell vary throughout the year? Have these changed in the last 5 years (Cf. **Historical Calendar**).

How do product prices fluctuate over the year? (Cf. **Seasonal Calendar**) How have they changed over the last 5 years? (Cf. **Historical Calendar**)

Which other services do you access at the market?

How do you use your household income? (Cf. **Household expenditure**) Which expenses are prioritised? Which expenses have gradually disappeared under the weight of your economic situation? What effect do you see this having on your children's health? Do men and women spend resources differently? If so, how? Why?

How/how much/why do members of your community tend to save resources?

How do members of your community access credit? From whom/on what terms? How much debt do members of your community tend to accumulate?

For what type of expenditure can women make decisions without consulting anyone? (PROBE: schooling, marriage, household expenses, composition of meals, daily activities, workload, rest after childbirth, medical treatment in the event of illness, family planning) For what types of expenditure do they need to consult their husbands/other family members? For what types of expenditure can only you make decisions? What do you think of this division of decision-making? What should change in this respect? Does the decision-making process change in husband's absence?

For decisions which require women to consult their husbands, to what extent do you allow them to participate in the decision-making process? For decisions that you mainly take alone, to what extent do you allow women to express their opinion? To what extent do you listen to women when making decisions? What happens when your wife's opinion has not been considered, but it turns out that it would have been a good decision? How does this change decision-making in the household?

What can women sell at the market without consulting you? What can they buy at the market without consulting you?

Do women receive a weekly/monthly allowance? If so, how much and what for?

What rights do women in this community have to lend or borrow money? Who decides how borrowed money is spent? Who is responsible for repaying the money? What advantages/disadvantages does this arrangement bring you?

INTERVIEW GUIDE: WATER, SANITATION & HYGIENE

1. How would you describe the importance of water in the life of your community? How does this perception influence water use? What use of water is prioritised in the event of an emergency? (PROBE: drinking, cooking, bathing, washing, animal consumption/agriculture)
2. How would you describe your access to water? What barriers to access do you face (PROBE: distance, availability, quality, price, workload, lack/expense of transport, waiting time) How does your access to water change over the seasons (Cf. **Seasonal Calendar**) How has it changed over the last 5 years (Cf. **Historical Calendar**)?
3. What type of household faces the greatest difficulties in accessing water? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed), household size, source of income, level of education)
4. Who is responsible for fetching water for the household? How much water is usually fetched/used in a day? How does this change throughout the year? (Cf. **Seasonal Calendar**) How has this changed over the last 5 years? (Cf. **Historical Calendar**) Why? What are the consequences of these changes? How long does it take to get water? How far away is the water point? (NB: time to water point, queuing, time back from water point). Does it change throughout the year? (Cf. **Seasonal calendar**)
5. How do members of your community treat/store water? What challenges do they face in this respect (PROBE: workload, security)?
6. How would you describe cleanliness? How does the definition of cleanliness differ for girls/boys/women/men? How does this perception influence sanitation/hygiene in your community? When do you wash your hands? Why? How has your approach to sanitation changed over the last 5 years? (Cf. **Historical Calendar**) Why?
7. How would you describe your access to sanitation facilities? What barriers to access do you face (PROBE: availability, sustainability, acceptability, price, workload) Has this changed over the last 5

years? (Cf. **Historical Calendar**) Do adults/children defecate in the open spaces of this community? If so, what are the consequences? how do you disposed of children faeces?

8. What type of household faces the greatest difficulties in accessing sanitation facilities and/or their sanitation/environmental hygiene practices differ substantially from other households in this community? (PROBE: Head of household M/F, religion, marital status (single, married monogamous/polygamous, separated, divorced, widowed), household size, source of income, level of education).
9. What local beliefs/positions influence optimal hygiene and sanitation practices in this community? What beliefs prevent the adoption of "new" practices promoted by health workers? What practices have you heard of but do not consider it risky not to apply them?
10. What practices are in place to ensure proper hygiene when preparing and serving food? How is food stored, and what measures are taken to prevent spoilage or contamination? Where do you store pot and pans? How often do you wash them? What measures are taken to ensure that play areas are free from waste? Are there any challenges faced in maintaining hygiene of the household or kitchen environment? Are there specific resources or support provided to keep environmental health and hygiene in the camps?

INTERVIEW GUIDE: PERCEPTIONS OF MALNUTRITION + RISK FACTORS (HEALTH STAFF)

1. What types of services do you offer? (PROBE: antenatal care, childbirth, postnatal care, vaccination) What fees do you charge for these services?
2. How does the community perceive the services offered in this health facility? Which services do they tend to use most often? Which services do they not use at all? Why or why not?
3. Which barriers to access (Cf. **Access Barriers Flashcards)** pose the greatest difficulties for the community in terms of access to health facilities? Why? How does their access to health facilities change over the seasons? (Cf. **Seasonal calendar**) How has it changed over the last 5 years? (Cf. **Historical calendar**)
   Geographical barriers: poor geographical accessibility, inaccessibility of certain health facilities during the rainy season, lack of security.
   Time barriers: waiting times, short opening times, workload.
   Financial barriers: opportunity cost, high cost of care, limited free access for certain services
   Socio-cultural barriers: reliance on traditional medicine (faith healers), proliferation of street medicine, fear of judgement, lack of female doctors/nurses, movement restrictions for women, lack of confidence in modern care and/or discouragement if results are not quick.
   Barriers to quality of care: lack of specific health services, inadequate infrastructure, equipment and human resources; poor reception, lack of confidentiality, lack of needed medicines, lack of female doctors, overcrowding, readily available medicines in the market.
4. What type of household faces the greatest difficulties in accessing health services? (PROBE: Head of household M/F, religion, marital status (single, married monogamous/polygamous, separated, divorced, widowed), household size, source of income, level of education)
5. What are the most common childhood illnesses in this community? (PROBE: diarrhoea, fever, acute respiratory infections, malaria, skin disease like scabies) What are main causes of these illnesses? In which months are they most common? (Cf. **Seasonal Calendar**) How has the prevalence of these illnesses changed over the last 5 years? (Cf. **Historical Calendar**) What is the preferred treatment option in this community for these childhood illnesses?
6. What is the perception of wasting in the community? What are its main causes in this community? (Cf. **Hypotheses Flashcards**) Does the community understand these causes differently? If so, how? Why?
9. What type of child seems to be more vulnerable to wasting? (PROBE: gender, age, type of household (monogamous vs. polygamous), household size, birth spacing, level of education, economic quintile, head of household F/M), mother's characteristics (age, workload, well-being), breastfeeding/feeding/hygiene practices, etc.).
10. What type of woman seems to be more vulnerable to undernutrition (PROBE: age, religion, marital status (single, married, divorced, widowed), household type (monogamous vs. polygamous), household size, birth spacing, level of education, workload, well-being, economic quintile, etc.)?
14. What local beliefs influence childcare practices in your community? What beliefs prevent adoption of "new" practices promoted by health workers? (PROBE: Exclusive breastfeeding: colostrum

considered dirty or useless, mixed feeding after birth with honey, sweet water, cocoa etc. breastfeeding going old (sour and stale) after a few hours in the breast).

15. What barriers to use of antenatal consultations pose the greatest difficulties for this community? PROBE: (distance, access to transport, cost, time, quality and availability of services any cultural beliefs) Why? How has their access to antenatal care changed over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)
11. What barriers to child birth in a health facility pose the greatest difficulties for this community? (PROBE: Distance, access to transport, financial costs, preference for giving birth at home with the assistance of a traditional birth attendant, any other cultural beliefs). Why? How does their access to health facilities for childbirth change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**) What type of women find it more difficult or choose not to access health facilities for childbirth? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed), religion, household size, source of income, level of education).

INTERVIEW GUIDE: PERCEPTIONS OF MALNUTRITION + RISK FACTORS (COMMUNITY HEALTH WORKERS)

1. How does the community perceive the services offered in health facilities? Which services do they tend to use most often? Which services do they not use at all? Why?
2. Which barriers to access (Cf. **Access Barriers Flashcards)** pose the greatest difficulties for the community in terms of access to health facilities? Why? How does their access to health facilities change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)
   Geographical barriers: poor geographical accessibility, inaccessibility of certain health facilities during the rainy season, lack of security.
   Time barriers: waiting times, short opening times, workload.
   Financial barriers: opportunity cost, high cost of care, limited free access for certain services
   Socio-cultural barriers: reliance on traditional medicine (faith healers), proliferation of street medicine, fear of judgement, lack of female doctors/nurses, movement restrictions for women, lack of confidence in modern care and/or discouragement if results are not quick.
   Barriers to quality of care: lack of specific health services, inadequate infrastructure, equipment and human resources; poor reception, lack of confidentiality, lack of needed medicines, lack of female doctors, overcrowding, readily available medicines in the market.
3. What type of household faces the greatest difficulties in accessing health services? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed), religion, household size, source of income, level of education)
4. What are most common childhood illnesses in this community? (PROBE: diarrhoea, fever, acute respiratory infections, malaria) What are main causes of these illnesses? In which months are they most common? (Cf. **Seasonal Calendar**) How has the prevalence of these illnesses changed over the last 5 years? (Cf. **Historical Calendar**) What is the preferred treatment option for these childhood illnesses in this community?
5. What is the perception of wasting in the community? What are its main causes in this community? (Cf. **Hypotheses Flashcards**) Does the community understand these causes differently? If so, how? Why?
6. What type of child seems to be more vulnerable to wasting? (PROBE: gender, age type of household (monogamous vs. polygamous), household size, birth spacing, level of education, economic quintile, head of household F/M), mother's characteristics (age, workload, well-being), breastfeeding/feeding/hygiene practices, etc.).
7. What type of woman seems to be more vulnerable to undernutrition (PROBE: marital status (single, married, divorced, widowed), household type (monogamous vs. polygamous), household size, birth spacing, level of education, workload, well-being, economic quintile, etc.)?
8. What local beliefs influence childcare practices in your community? What beliefs prevent adoption of "new" practices promoted by health workers? (PROBE: Exclusive breastfeeding: colostrum considered dirty or useless, mixed feeding after birth with honey, sweet water, cocoa etc. breastfeeding going old (sour and stale) after a few hours in the breast).
9. What barriers to the of antenatal care pose the greatest difficulties for this community? PROBE: (distance, access to transport, cost, time, quality and availability of services any cultural beliefs)

Why? How does their access to antenatal care change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)

10. What barriers to childbirth in a health facility pose the greatest difficulties for this community? (PROBE: High financial costs, preference for giving birth with the assistance of a traditional birth attendant, any other cultural beliefs) Why? How does their access to child birth in health facilities change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**) What type of women find it more difficult or choose not to access health facilities for childbirth? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed),religion, household size, source of income, level of education).

INTERVIEW GUIDE: HEALTH + RISK FACTORS (TRADITIONAL HEALERS / TRADITIONAL BIRTH ATTENDANTS)

1. How does the community perceive the services offered in health facilities? Which services do they tend to seek here instead? Why? What type of household uses your care most often?
2. Which barriers to access (Cf. **Access Barriers Flashcards)** pose the greatest difficulties for the community in terms of access to health facilities? Why?
   Geographical barriers: poor geographical accessibility, inaccessibility of certain health facilities during the rainy season, lack of security.
   Time barriers: waiting times, short opening times, workload.
   Financial barriers: opportunity cost, high cost of care, limited free access for certain services
   Socio-cultural barriers: reliance on traditional medicine (faith healers), proliferation of street medicine, fear of judgement, lack of female doctors/nurses, movement restrictions for women, lack of confidence in modern care and/or discouragement if results are not quick.
   Barriers to quality of care: lack of specific health services, inadequate infrastructure, equipment and human resources; poor reception, lack of confidentiality, lack of needed medicines, lack of female doctors, overcrowding, readily available medicines in the market.
3. How are you able to overcome these problems? How does their access to care change over the seasons? (Cf. **Seasonal Calendar**) How has it changed over the last 5 years? (Cf. **Historical Calendar**)
4. What barriers to use of antenatal care pose the greatest difficulties for this community? PROBE: (distance, access to transport, cost, time, quality and availability of services any cultural beliefs) Why?
5. What barriers to child birth in a health facility pose the greatest difficulties for this community? (PROBE: Distance, access to transport, financial costs, preference for giving birth at home with the assistance of a traditional birth attendant, any other cultural beliefs) Why? What type of woman has more difficulty accessing or chooses not to access health facilities for childbirth? (PROBE: Head of household M/F, marital status (single, married monogamous/polygamous, separated, divorced, widowed), household size, religion, source of income, level of education).
6. Looking at images, what are main challenges parents face in keeping their children healthy? (Cf. **Hypotheses flashcards**)
7. What do you think of children in these photos? (Cf. **Photos of acutely malnourished children (marasmus/kwashiorkor) + children suffering from chronic malnutrition**) What illnesses do they suffer from? What words do you use to describe such children in your community? Which words are more sensitive than others? What do you think about this illness? How is it similar to or different from other childhood illnesses? Which type is more common in your community?
8. What causes this disease? How do you treat this disease in your community? What is the most common treatment?

INTERVIEW GUIDE: PERCEPTIONS OF MALNUTRITION + RISK FACTORS (COMMUNITY LEADERS)

1. What do you think of children in these photos? (Cf. **Photos of acutely malnourished children (marasmus/kwashiorkor) + children suffering from chronic malnutrition**) What illnesses do they suffer from? What words do you use to describe such children in your community? Which words are more sensitive than others? What do you think about this illness? How is it similar to or different from other childhood illnesses? Which type is more common in your community?
2. What causes this illness? Looking at images, what are other main challenges parents face in keeping their children healthy? (Cf. **Hypotheses Flashcards**) What local beliefs are linked to these challenges?

3. How do you treat this disease in your community? (Cf. **Therapeutic itinerary**) What is the most common treatment?
4. What type of child seems to be more vulnerable to this disease? (PROBE: gender, age, type of household (monogamous vs. polygamous), household size, birth spacing, level of education, economic quintile, head of household F/M), mother's characteristics (age, workload, well-being), breastfeeding/feeding/hygiene practices, etc.).
5. What type of woman seems to be more vulnerable to undernutrition? (PROBE: age, religion, marital status (single, married, divorced, widowed), household type (monogamous vs. polygamous), household size, birth spacing, level of education, workload, well-being, etc.).
6. What local beliefs influence childcare practices in your community? What beliefs prevent adoption of "new" practices promoted by health workers? (PROBE: Exclusive breastfeeding: colostrum considered dirty or useless, mixed feeding after birth with honey, sweet water, cocoa etc. breastfeeding going old (sour and stale) after a few hours in the breast).

INTERVIEW GUIDE: CASE STUDY (ETHNICITY/RELIGION/SOCIAL STATUS)

1. What are main values that govern the way your group functions? How do these values differ from values of other groups in your community? How do these differences influence communal life? How have these values changed over the last 5 years? (Cf. **Historical Calendar**) To what extent have these values changed under the weight of cohabitation with other groups in your community? How do you perceive this change?
2. What are roles of men/women/children/young people/older people in your group? Who is primarily responsible for a child's care/health? What changes in these roles have you observed over the last 5 years? (Cf. **Historical Calendar**) What effect have these changes had on life in your group?
3. How would you describe the relationships between women and men (life as a couple) in your group? How do these relationships differ from other groups in your community? To what extent are marriages between different groups accepted/tolerated? Which groups are never allowed to marry? What changes have you observed in this respect over the last 5 years? (Cf. **Historical Calendar**)
4. What beliefs do members of your group hold? How do these beliefs influence childcare practices (breastfeeding, infant and young child feeding, interactions with children)? What beliefs have gradually disappeared under the weight of modernisation/cohabitation with other groups? How does this influence children's health today?
5. What are daily routines of men/women/children in your group? How do they differ from the routines of other groups in your community? What advantages/disadvantages might these routines have on the health of women/children in your community? How have these routines changed over the last 5 years (Cf. **Historical Calendar**)?
6. Which of the practices recommended by healthcare staff do you find most difficult to adopt and/or implement? Why or why not? How relevant do you consider these practices to be for your life?
7. Looking at images, what are main challenges parents in your group face in keeping their children healthy? (Cf. **Hypotheses Flashcards**) Why?
8. How does your group's access to water/sources of income/health services, etc. differ from other groups in your community? Why? How has your access changed over the last 5 years? (Cf. **Historical Calendar**)?

PERCEPTIONS AND OPPORTUNITIES OF CURRENT HUMANITARIAN REPONSE

Quali team: ***prepare a flipchart and divide interventions per sector: 1.H&N, 2.MHCP, 3.FSL, 4.WASH, 5.GENDER.***

1. What interventions of current humanitarian response are you aware of? How did you learn about these interventions? How appropriate was/is the manner the information about these interventions was shared? What would you suggest to improve the communication about these interventions?
2. What interventions of current humanitarian response are you benefitting from? What eligibility criteria do you need to fulfil to benefit from these interventions? If not benefitting, why? How appropriate was/is the manner that the households/individuals are selected to benefit from these interventions? What would you suggest to improve the eligibility criteria?
3. What do you think about interventions of current humanitarian response? How helpful are they for you and/or your household? What are the strengths and weaknesses of these interventions? What would you suggest to improve the quality of these interventions? Which interventions do you consider most critical for your survival and/or health of you and/or your household? Why?

4. What interventions of current humanitarian response exist but are considered redundant/obsolete? Why? How would you adapt them and/or what would you replace them with? Why?
5. What interventions of humanitarian response existed in the past but are no longer operational? From among these interventions, which ones are you particularly missing? Why? (How does it impact you and/or your household?)
6. How are you and/or your household and/or your community leaders engaged in the design, implementation and evaluation of interventions of current humanitarian response? How appropriate is this manner of engagement? What barriers do you encounter on an individual/household/community level to engage in the design, implementation and evaluation of interventions? What would you suggest to improve the community engagement in the project cycle?
7. What interventions of humanitarian response have you previously requested from operational partners? What challenge were they supposed to address? What response (and justification) have you received with regards to your request? What requests were translated into an operational response? To which extent those interventions met your expectations? What would you suggest to improve those interventions?
8. With regards to challenges you are experiencing, what **community projects** (through self-help and not NGO led) have you considered implementing to address these challenges? What projects have you managed to implement? What facilitated their implementation? To which extent have they met your expectations? What projects have you not managed to implement? Why? How have you envisioned them? What would you need to implement them? What effect do you expect from them?
9. What community structures do you use for community consultation, decision making and project implementation? What are their strengths and weaknesses that you are aware of? How would you strengthen those structures?
10. With regards to child undernutrition, what do you think needs to happen to decrease a number of children affected by this condition? What adaptations of current humanitarian response would you recommend to reverse the trend? Why? How do you think do you need to be engaged in those interventions for them to be successful?

INTERVIEW GUIDE: MALNUTRITION (COMPARATIVE STUDY)

Practices	Malnourished child	Other child
General information		
Gender		
Age		
Mother's age at the time of pregnancy		
Family situation at the time of pregnancy		

Practices	Malnourished child	Other child
Pregnancy		
General state of health		
Difficulties during pregnancy		
Mental well-being		
Workload		
Support available		
Prenatal consultations		
Eating habits: quantity		

Eating habits: quality		
Financial resources		
Special events		

Practices	Malnourished child	Other child
Childbirth & postnatal care		
Location		
Assistance		
Complications during childbirth		
Birth weight		
Child's general state of health		
Mother's general state of health		
Rest		
Postnatal consultations		
Vaccination		
Special events		

Practices	Malnourished child	Other child
Breastfeeding		
Initiating breastfeeding		
Duration of breastfeeding		
Frequency of breastfeeding		
Exclusive breastfeeding?		
Other liquids?		
Eating habits: quantity		
Eating habits: quality		
Workload		
Mental well-being		
Support available		
Interactions with infants		
Personal hygiene		
Environmental hygiene		
Infections		
Financial resources		

Special events		

Practices	Malnourished child	Other child
Supplementary foods		
Initiation (months)		
Complementary breastfeeding?		
Additional breastfeeding time		
No. of meals per day		
Type of meal		
Mother's workload		
Mental well-being		
Support available		
Interaction with the child		
Personal hygiene		
Environmental hygiene		
Infections		
Financial resources		
Special events		

COMMUNITY/HOUSEHOLD OBSERVATION GUIDE

	Comments
Sanitation	
Presence of latrines	
Type of latrine	
Clean latrines	
Water/soap point available nearby?	
Managing children's faeces	

	Comments
Water	
Presence of water sources	
Type of water source	
Cleanliness of water source	
Cleanliness around water source	
Use of water source	
Distance to water source	
Waiting time	
Fetched by whom?	
Cleanliness of cans	
Washing cans before filling?	
Non-optimal practices observed / Sources of water contamination	
Water transport	
Water storage at home	
Water treatment	

	Comments
Hygiene	
Washing hands after toilet use /defecation	
Washing hands after handling child's faeces	
Washing hands before cooking food	
Wash hands before eating	
Washing breasts before breastfeeding	
Cleanliness of the child's body	

Cleanliness of the child's clothes	
Children's nappies observed?	
Children's play area	
Cleanliness of the courtyard	
Animals in the yard	
Animals in the house	
Animal excrements in the yard	
Animal excrements in the house	
Interactions between children and pets	
Cleanliness of the kitchen	
Waste management	

	Comments
Type	
Women's workload	
Women's mental well-being	
Women's autonomy	
Social support	

	Comments
Other	
Childcare	
Interaction with the child	

SUMMARY OF CONCLUSIONS, CATEGORISATION OF RISK FACTORS AND FINAL RECOMMENDATIONS

The purpose of this exercise is to involve community members in categorising risk factors according to their perceived impact on the prevalence of undernutrition in their community. In other words, community members will be encouraged to categorise identified risk factors from most to least problematic, according to their perceived link with undernutrition. In addition, they will be encouraged to identify risk factors that they think are likely to change first, if properly addressed.

Before the categorisation exercise, the research team will summarise their findings, which they will have been able to gather during the first five days in the community, using flashcards. Once all the identified risk factors have been presented, community members will be asked to validate the results and the team's interpretation of the community's main challenges in terms of undernutrition. If certain elements are deemed not to be representative of the community, the research team will modify the interpretation, if necessary.

Participants will then be asked to categorise identified risk factors, from most to least problematic, according to their perceived link with undernutrition. Using pebbles, they will be asked to give three

pebbles to factors that have a major impact on undernutrition and two pebbles to factors that have an important impact on undernutrition. No pebbles will be used for factors that have a minor impact on undernutrition in their community. Photos of malnourished children, which were previously used during group discussions, will visually help them to focus more on this health problem than on the other main problems they face in their community.

All exchanges between participants in relation to this categorisation exercise and/or their rationale for categorisation will be duly noted. All participants will be encouraged to contribute and any disagreements will be duly addressed. The aim of this exercise will be to categorise the risk factors into three groups, on which all participants will agree.

Alternatively, if consensus on three risk categories proves difficult, the study team will give three pebbles to each participant and ask them to assign one pebble to each risk they consider to be the most important in relation to undernutrition in their community. Once all the pebbles have been counted, the risk factors will be divided into three categories. The study team will ask participants to validate them and reach a consensus on 4 or 5 factors that have a major impact on undernutrition in their community.

Once this stage will have been completed, participants will be asked to contribute their ideas on solutions to meet identified challenges. Their recommendations will be duly noted and integrated into global recommendations of the study.

A set of visual aids (flashcards) is available in a separate file.

ANNEX D : ACTION PLAN

NON-OPTIMAL BREASTFEEDING PRACTICES Recommendation	Activities	Short/Mid term	By whom	By when[305]
Implement community dialogue initiatives (ensuring that minimum standards of social and behaviour change communication are met) to promote optimal breastfeeding practices, with a focus on addressing key challenges such as mixed feeding, cultural beliefs, the consumption of sugary foods and liquids between 0-6 months, and the use of breastmilk substitutes.	1. Incorporate and focus mixed feeding, consumption of sugary foods and liquids between 0-5 months and BMS usage in existing package. 2.Develop Community Dialogue packages including all the issues like sugary foods, promotion of IYCF practices etc. 3. To identify champion lead mothers at community level & trained them on community dialogue packages & provide performance-based incentive like cash, prize, etc. 4. Engagement with local authority about BMS supply monitoring	1. Short Term 2. Mid Term 3. Mid Term 4. Short Term	Lead by UNICEF with Nutrition Sector & Partners, IYCF TWGs, UN, UNICEF, WFP, UNHCR, Health sector	1. By Sep 2025 2. By Dec 2025/June 2026 3. By Dec 2025/June 2026 4. By Sep 2025
Implement systems for early identification of breastfeeding mothers experiencing mental health challenges and timely referral to mental health services.	1. Incorporate rapid assessments for BF mothers suffering from mental health in IYCF package at INF, IYCF counsellor will do the rapid assessment & refer them to MH services. 2. Capacity building of mental health service providers on optimal breastfeeding practices, more focused on the breastfeeding mothers.	1. Short Term 2. Short Term	Lead by UNICEF with Nutrition Sector & Partners, IYCF TWGs, UN, UNICEF, WFP, UNHCR, Health sector	1. By Sep 2025 2. By Sep 2025
NON-OPTIMAL COMPLEMENTARY FEEDING PRACTICES **Recommendation**	**Activities**	**Short/Mid term**	**By whom**	**By when[305]**
Develop and integrate social and behaviour change activities to promote optimal	1.Reviewing the existing SBC materials on complementary feeding for inclusion and harmonization of	1. Short-term 2. Mid-term 3. Mid-term	Led by UNICEF with Nutrition Sector and Partners, IYCF	1. By Sep 2025 2. By Dec 2025 3. By Dec 2025 4. By Dec 2025

[305] Subject to funding availability

complementary feeding practices through diverse approaches such as community engagement, nutrition education, and media campaigns to reduce the consumption of unhealthy sugary and salty snacks among children under five targeting mothers of children under-five, grandmothers, and fathers.	the messages on unhealthy sugary and salty snacks. 2. Conduct community awareness sessions for mothers, fathers, grandmothers, mother-in law and others. 3. Community dialogues for Majhi, Imam and other influential groups. 4. Reviewing all ongoing SBC activities based formative research for effective community awareness and dialogues.	4. Mid-term	TWG, UN Agencies, SBC units from each organization	
Implement innovative community engagement strategies to prevent the diversion of RUTF, RUSF, and WSB supplements.	1.Instead of monthly, bi-weekly distribution can be implemented considering the caseload and crowd. 2. Cutting the packets of WSB and giving it in the containers during the bi-weekly distribution. 3. Periodic market monitoring and mobile court implementation through law enforcement agencies to check supply of the aids in the market. 4. Community awareness and dialogues with different target groups (mothers, fathers, grandmothers, mother-in-law, Majhi, Imam and other influential groups) on aid diversion.	1. Short-term 2. Short-term 3. Short-term 4. Mid Term	Led by WFP with CMAM TWG, Nutrition Sector and Partners, Camp Authorities	1. By Sep 2025 2. By Sep 2025 3. By Sep 2025 4. By Dec 2025
LOW ACCESS TO INCOME SOURCES **Recommendation**	**Activities**	**Short/Mid term**	**By whom**	**By when[305]**
Collaborate with Livelihood and Food Security Sector partners to enhance income-generating activities within the camps.	1. Strengthening the engagement of community workfare/cash-for-work programs engaging refugee volunteers in activities in support of environment such as reforestation, maintenance of roads, drainage and canals, slope protection/stabilization and other similar work to increase their income 2. Joint advocacy with government and other relevant stakeholder including donors to increase income generating activities to support most vulnerable household based on targeting criteria.	1. Short term 2. Mid term	Led by the FSL sector with the Nutrition sector, camp authorities and community leaders (Majhis).	1. By Sep 2025 2. By Dec 2025
Continue advocating with the Bangladesh government to enable the Rohingya population to participate in income-generating activities and to ease existing restrictions, thereby promoting economic self-reliance and improving their livelihoods.	1. Develop short policy briefs highlighting how enabling IGAs can reduce reliance on food aid and improve nutrition outcomes supported by evidence from the Nutrition Causal Analysis on the impact of economic constraints on malnutrition. 2. Conduct joint advocacy at national level with the Government of Bangladesh alongside FSL Sector and UN partners to promote policy changes enabling legal IGAs for Rohingya refugees and easing movement restrictions.	1. Short term 2. Mid term	Led by the Nutrition sector	1. By Sep 2025 2. By Dec 2025
SUB-OPTIMAL ACCESSIBILITY AND AVAILABILITY AND QUALITY OF WATER **Recommendation**	**Activities**	**Short/Mid term**	**By whom**	**By when[305]**

Collaborate with partners to ensure that sector standards are met for adequate daily water supply, providing a total runtime of 4 hours and a minimum of 20 liters per person per day, while continuously monitoring and maintaining water quality across all camps. Additionally, given the water scarcity in Teknaf, explore opportunities for rainwater harvesting and reservoir construction to enhance water availability.	1. Facilitate equitable distribution of appropriate quality and quantity of drinking water in line with sector standard (20L/person/day) across all camps considering optimizing surface water options, particularly during dry season and also rationing during scarcity. 2. Optimize surface and rainwater harvesting/capturing in ponds and reservoirs, particularly in Teknaf area.	1.Short term 2.Mid term	1.Led by DPHE with WASH sector and partners 2.Led by DPHE with WB-ADB Funding	1. By Sep 2025 2. By Jun 2026-Dec 2026
Advocate for transitioning from mini water networks to larger, integrated water systems to ensure consistent, high-quality water supply across all camps.	1. Develop sector guidelines for big water networks and adopt as sector standard. 2. Advocate for the conversion/Upgrade all existing mini-water networks (where feasible) to big water distribution networks	1.Short term 2.Short term	Led by DPHE with WASH sector	1. By Sep 2025 2. By Sep 2025
SUB-OPTIMAL SANITATION PRACTICES AT HOUSEHOLD LEVEL				
Recommendation	**Activities**	**Short/Mid term**	**By who**	**By when[305]**
Strengthen community engagement through dialogue, sensitization, and mobilization focused on promoting appropriate sanitation practices, using malnutrition as a trigger to motivate action.	1. Facilitate community led cleaning activities, monitoring and reporting of the state of infrastructure to ensure timely maintenance 2. Mobilize caregiver and mothers (including teacher in learning centres) to conduct practical demonstration and education (using IEC materials) for children (3 years and above) on the usage of latrines. 3. Sensitize mothers and caregivers on the immediate disposal of under 3 children's faeces in the latrines. 4. Operationalize the sector policy on private WASH facilities to discourage community members from using private latrines inside the houses	1.Short term 2.Short term 3.Short term 4.Short term	Led by working groups from WASH and SBC sectors from UNICEF	1. By Sep 2025 2. By Sep 2025 3. By Sep 2025 4. By Sep 2025
Enhance latrine accessibility by improving privacy, protection, and safety features, making them more inclusive—for example, installing locks, doors, lights, or providing torches.	1. Engage with sector partners to ensure all latrines are provided with adaptive features to grant privacy, protection, and safety making them more inclusive e.g., ensuring the presence of locks, doors, lights/providing torches), 2. Engaging with the communities to implement cost free measure to enhance inclusive access to WASH facilities.	1.Short term 2.Short term	1.Led by DPHE with WASH sectors 2. Led by working groups from WASH and SBC sectors from UNICEF	1. By Sep 2025 2. By Sep 2025
INADEQUATE FOOD AND ENVIRONMENT HYGIENE PRACTICES				
Recommendation	**Activities**	**Short/Mid term**	**By who**	**By when[305]**
Conduct community engagement at household level to promote proper waste management and disposal. This will include regular monitoring and waste collection by community volunteers, alongside community-led waste cleaning and drainage	1. Strengthening of Community-led youth groups to manage and dispose of waste correctly ensuring regular waste monitoring collection. 2. Integrate and dissemination messaging on manage and dispose waste correctly at the household level through community volunteers.	1.Short term 2.Short term 3.Short term	1.Led by WASH sector SBC group with Nutrition sector and partners and UN agencies	1. By Sep 2025 2. By Sep 2025 3. By Sep 2025

clearance campaigns and collaboration among WASH and site management sectors to establish community led teams responsible for regular environmental cleaning.	3. Community mobilization and awareness raising for increased participation during the campaign.			