

SMART

SMART+ Survey Report Template

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Afder Pastoral Livelihood (AFP) Zone, Ethiopia

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Full Smart

Validated

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2 ACRONYMS

AFP	Afder Pastoral Livelihood Zone
ARI	Acute Respiratory Infection
CDR	Crude Death Rate
CI	Confidence Interval
CSI	Coping Strategy Index
DEFF	Design Effect
DRMB	Disaster Risk Management Bureau
DRMC	Disaster Risk Management Commission
EBF	Exclusive Breastfeeding
ENA	Emergency Nutrition Assessment
FCS	Food Consumption Score
FCS	Food Consumption Score
MDD	Minimum Dietary Diversity
FEWSNET	Famine Early Warning Systems Network
GAM	Global Acute Malnutrition
HH	Household
IYCF	Infant Young Child Feeding
CMAM	Community Management of Acute Malnutrition
LAP	Liban Agropastoral Livelihood Zone
MAD	Minimum Acceptable Diet
MAM	Moderate Acute Malnutrition
MMF	Minimum Meal Frequency
MUAC	Mid/Upper Arm Circumference
ORS	Oral Rehydration Solution
OTP	Outpatient Therapeutic Program
PLW	Pregnant and Lactating Women
PPS	Probability Proportion to Size
PSNP	Productive Safety Net Program
PSU	Primary Sampling Unit
rCSI	Reduced Coping Strategy Index
RENCU	Regional Emergency Nutrition Coordination Unit
SAM	Severe Acute Malnutrition
SMART	Standardized Monitoring and Assessment for Relief and Transitions
SOP	Standard Operating Procedures
TSFP	Targeted Supplementary Feeding Program
U5DR	Under Five Death Rate
UNICEF	United Nations Children's Fund
WHO	World Health Organization

3 SUMMARY

Introduction

REACH Initiative conducted the Standardized Monitoring and Assessment of Relief and Transitions (SMART+) Nutrition Survey including Child Anthropometry, Mortality as a main indicator and, Infant Young Child Feeding (IYCF), Food Security, Health, women anthropometry and, and Water Sanitation and Hygiene (WaSH) as an additional indicators. The survey covered part of three administrative zones in the Afder Pastoral (AFP) livelihood zone the Somali region. The following districts were assessed: Hargelle, Charati, Bare, and Elkare in the Afder zone; Adadle in the Shebele zone; and Gurabakaksa in the Liban zone. The survey was conducted in May, which is considered the Gu (rainy) season, and immediately after the lean season, when it rained, but there was still food insecurity in the surveyed livelihood zone due to the large-scale loss of livestock caused by the historic drought.

The SMART+ nutrition survey's **main objectives** are to determine the nutritional status and morbidity patterns of children aged 6-59 months, care practices in children aged 0-23 months, and household food security, water sanitation, and hygiene situations in six districts of the Somali region's AFP livelihood zone.

Methodology

A cross-sectional household survey was conducted in six districts of the AFP livelihood zone to provide statistically representative nutrition, food security, livelihood, and WASH indicators. To achieve the desired survey results, a two-stage cluster sampling method based on the SMART methodology was used. The required number of clusters was drawn at random in the first stage using sampling with a probability proportional to size (PPS). Using this PPS method, every household had an equal chance of being chosen, regardless of the village's population size. For the most part, the clusters were defined as kebeles and sub-kebeles (villages), and in some cases, a village may contain more than one cluster. The households within the cluster were chosen using a simple random sampling method in the second stage.

The sample size was determined using SMART+ integrated platform, which calculates the sample size based on several parameters, including estimated prevalence, average household size, design effect, desired precision, percentage of children, and non-response rate. The sample was then converted into the number of surveyed households.

For the selected indicators, a total sample size of 795 households was estimated to provide a representative sample (680 children). Using the ENA-SMART software, 67 clusters were chosen at random. Regardless of the number of children interviewed, each selected cluster included 12 households. Finally, 753 households with 1026 children (6-59 months) were surveyed and measured for anthropometric indicators. During analysis a total of 17 children were excluded due to SMART flags and remained with 1009 children for global acute malnutrition (GAM) calculation.

Table 3-1: Summary of Findings

Child Nutritional Status Outcomes			
Indicator	Denominator (N)	Numerator (n)	Result (95% CI)
GAM prevalence among children 6-59 months per WHZ <-2SD*	1,009	221	21.9% (17.7%-26.8%)
SAM prevalence among children 6-59 months per WHZ <-3SD	1,009	20	2.0% (1.1%-3.6%)
GAM prevalence among children 6-59 months per MUAC <125 mm	1,012	49	4.8% (3.5%-6.7%)
SAM prevalence among children 6-59 months per MUAC <115 mm	1,012	10	1.0% (0.5%-2.1%)
Combined GAM prevalence among children 6-59 months per WHZ <-2SD or MUAC <125 mm	1,013	237	23.4% (19.2%-28.2%)
Combined SAM prevalence among children 6-59 months per WHZ <-3SD or MUAC <115 mm	1,013	27	2.7% (1.6%-4.4%)
Stunting among children 6-59 months per HAZ <-2SD	979	142	14.5% (11.8%-17.7%)
Severe stunting among children 6-59 months per HAZ <-3SD	979	35	3.6% (2.6%-5.0%)
Underweight among children 6-59 months per WAZ <-2SD	1,006	217	21.6% (17.9%-25.7%)
Severe Underweight among children 6-59 months per WAZ <-3SD	1,006	45	4.5% (3.1%-6.3%)
Crude Mortality Rate	3,636	19	0.58 (0.32-1.07)
Under 5 Mortality Rate	1,067	8	0.83 (0.37-1.88)
Early initiation of breastfeeding	337	112	33.2%
Children < 6months are being exclusively breastfed	41	8	19.5%
Minimum dietary diversity & Minimum acceptable diet (children 6-23m)	400	72	0.7%
FCS263	400	263	65.7% (5 6.7% - 73.8%)
Improved toilet facilities.	744	8	1.1% (0 .3% - 3.4%)

Child Nutritional Status Outcomes			
Indicator	Denominator (N)	Numerator (n)	Result (95% CI)
Use of protected/treated water for drinking and cooking.	746	54	7.2% (3.0% - 16.3%)

Table 3-2: Recommendations

Summary findings	Proposed recommendations
<p>Nutrition status of children 6-59 months and women of reproductive age</p> <p>U5 children</p> <p>GAM: 21.9% (17.7-26.8 95% CI) 2.1% (1.2-3.7 95% CI)</p> <p>MAM: 19.9(16.2-24.9 95% CI)</p> <p>SAM: 2.1% (1.2-3.7 95% CI)</p> <p>The prevalence of GAM in AFP indicates very high or critical nutrition situation as per the WHO acute malnutrition thresholds.</p> <p>WRA/PLW</p> <p>26.8% of the screened Non-Pregnant, Non-Lactating Women aged 15-49 years had the MUAC < 230mm.</p> <p>30% of the screened Pregnant Women and Lactating Women with an Infant less than 6 Months had the MUAC < 230mm.</p>	<p>Immediate term</p> <ul style="list-style-type: none"> The current nutritional interventions implemented by the partners on the ground should be continued and scaled up to improve coverage. Ensure functionality and quality of care of all nutrition services *full CMAM in health facilities, enlarging the capacity for regular monitoring of discharged children from Outpatient Therapeutic Program (OTP) such as home visits. Routine screenings/active case finding. The partners should consider intensifying their nutrition activities by considering outreach activities/Mobile Health and Nutrition Teams (MHNTs) to reach many of the areas where health and nutrition services are not available as per guidelines. Ensure nutrition supply availability/avoid pipelines breakages at all levels. Family MUAC for early identification of cases at household level and to enhance commitment and participation from households. Distribution of hygiene kits to children and mothers in the nutrition programs. Blanket supplementary feeding program for at risk children and mothers. <p>Intermediate</p> <ul style="list-style-type: none"> Integrate nutrition-sensitive interventions into CMAM programs. This may include promoting optimal infant and young child feeding practices, supporting agriculture and livelihood activities, and advocating for social protection measures that improve household food security and access to nutritious food. Blanket supplementary feeding for mothers and children at risk. <p>Long term</p> <ul style="list-style-type: none"> For development partners investment in infrastructure to avoid isolation from development. Foster multisectoral collaboration. <ul style="list-style-type: none"> Strengthen coordination and collaboration among various sectors such as health, agriculture, water, and sanitation. Facilitate joint planning, resource sharing, and information exchange to address the broader determinants of malnutrition and ensure a comprehensive response.
<p>IYCF</p> <p>Early initiation of breastfeeding is 33.2%</p>	<p>Immediate</p> <ul style="list-style-type: none"> Implement and enhance IYCF programs to engage caregivers to improve the feeding practices including with local food-based solutions. <ul style="list-style-type: none"> Counselling

<p>19.5% of children < 6months are being exclusively breastfed.</p> <p>Minimum dietary diversity & Minimum acceptable diet (children 6-23m) are as low as 0.7%.</p> <p>Egg and/or flesh food consumption is 1%.</p> <p>Zero fruit or vegetable consumption is at 91.6%.</p>	<ul style="list-style-type: none"> ○ Nutrition community approaches ○ IYCF Campaigns ○ Mother to mother support groups ○ Father to father support groups ○ Cooking demos <p>Intermediate</p> <ul style="list-style-type: none"> ● Conduct KAP survey to better understand the actual IYCF care practices to explore the causes behind the IYCF malpractices. ● Conduct barrier analysis to understand the barriers of IYCF. ● Incorporate livelihood interventions (poultry keeping, home gardening, community-based agriculture).
<p>Food security</p> <p>Poor Food Consumption Score (FCS) was 65.7% (56.7% - 73.8%).</p> <p>Households with</p> <ul style="list-style-type: none"> ● Moderate hunger in the household was 76.0% (67.0% - 83.2%) ● Severe hunger in the household 2.2% (0.8% - 6.2%) <p>Reduced Coping Strategy Index (rCSI) was 25.54 (23.43, 27.6).</p> <p>The rCSI score of 25.54 corresponds to IPC Phase 3, indicating a state of 'Crisis' food insecurity.</p>	<p>Immediate</p> <ul style="list-style-type: none"> ● Support livestock-based livelihoods: <ul style="list-style-type: none"> ○ Implement programs that enhance livestock productivity, such as vaccination campaigns, animal health services, and fodder production. ○ Facilitate access to veterinary services, including mobile clinics, to prevent and treat livestock diseases. ● Promote gender-sensitive approaches: <ul style="list-style-type: none"> ○ Ensure the active participation and inclusion of women in decision-making processes related to nutrition, health, and livelihoods. ○ Implement gender-responsive programs that address the specific needs and challenges faced by women in the pastoral community, including access to healthcare, education, and income-generating opportunities. ● Multi purpose cash transfer <p>Intermediate</p> <ul style="list-style-type: none"> ● Enhance food security and resilience: <ul style="list-style-type: none"> ○ Implement programs that promote drought-resistant crops and agro-pastoral systems to diversify livelihoods and improve food security. ○ Support the establishment of community grain banks and other strategies for food storage and preservation during periods of scarcity. ● Strengthen community resilience and capacity building: <ul style="list-style-type: none"> ○ Facilitate community-led initiatives for disaster risk reduction, including training on disaster preparedness, response, and recovery. ○ Provide capacity building and skills training programs for community members, such as entrepreneurship, income diversification, and natural resource management. ○ Foster community-driven development approaches that empower the pastoral community to identify and implement sustainable solutions for their own development.

	<ul style="list-style-type: none"> ○ Promote sustainable grazing management practices to ensure the availability of adequate pasture for livestock. ● Strengthen community-based early warning systems: <ul style="list-style-type: none"> ○ Establish or strengthen community-based early warning systems to enhance preparedness and response to climate-related shocks, such as droughts and floods.
<p>WASH</p> <p>Only 1.1% have improved toilet facilities.</p> <p>7.2% use protected/treated water for drinking and cooking.</p>	<p>Immediate</p> <ul style="list-style-type: none"> ● Strengthen water and sanitation infrastructure: <ul style="list-style-type: none"> ○ Improve access to safe drinking water sources through the construction and rehabilitation of water points, including boreholes, wells, and water harvesting systems. ○ Promote water conservation techniques, such as water storage and management systems, to mitigate the impact of droughts and water scarcity. ○ Implement sanitation and hygiene programs to reduce the risk of waterborne diseases and improve overall community health.
<p>Health</p> <p>Morbidity</p> <p>ARI symptoms 4%</p> <p>Fever 12.8%</p> <p>Diarrhea 10.9%</p> <p>Health seeking behavior.</p> <p>Children with symptoms of ARI 43.9%</p> <p>Children with fever 31.3%</p> <p>Children with diarrhea 46.4%</p>	<p>Immediate</p> <ul style="list-style-type: none"> ● Strengthening community-based healthcare: <ul style="list-style-type: none"> ○ Establish and support community-based healthcare structures, such as MHNTs or outreach programs, to reach pastoral communities with limited access to healthcare facilities. ● Enhance child health interventions: <ul style="list-style-type: none"> ○ Strengthen integrated management of childhood illness programs (IMCI) ○ Conduct community health education sessions on preventive measures, including proper hygiene practices and timely healthcare-seeking behavior.

4 INTRODUCTION

4.1 ORGANIZATION

REACH Initiative was formed in 2010 as a joint initiative of IMPACT Initiatives (IMPACT) (a Geneva-based think-and-do-tank), its sister organization, the INGO Agency for Technical Cooperation and Development (ACTED), and United Nations Operational Satellite Applications Programme (UNOSAT), to promote and facilitate the development of information products that enhance the humanitarian community's decision-making and planning capacity. REACH is responsible for supporting humanitarian coordination mechanisms through non-proprietary information shared across organizations.

BACKGROUND INFORMATION

Somali Region is situated in the eastern part of Ethiopia with an estimated population of 6,500,000¹. The region is divided into 11 administrative zones, 93 districts and 6 administrative towns with Jigjiga as the capital. It is predominantly inhabited by pastoralists (85%). The mainstay of the region is livestock rearing, crop, firewood and charcoal sales and petty trade. The region experiences frequent emergencies such as drought, flash floods, locust infestations, disease outbreaks and intercommunal conflict. Afder zone is one of the 11 administrative zones of Somali region, and it is situated in the southwest of the region. It is bordered by Nogob zone in the north, Shabele zone on the northeast, on the west Oromia region and Somali state in the South. The Afder Pastoral Livelihood Zone (AFP) covers the whole of Afder zone and extends to some districts in Shabele zone and Liban zone. The Afder pastoral livelihood zone extends from Shabelle river in the east to Liben zone in the west. The vegetation coverage of the zone is classified as open shrub, grassland, and thick thorny vegetation.

The AFP located in the southern part of Ethiopia is among the areas facing five consecutive seasons of drought which have immensely eroded the local livelihoods. According to FEWSNET most areas in the Somali region of Ethiopia are currently facing Crisis and Emergency outcomes Liban, Afder, Dawa, and parts of Korahe and Shabelle zones, where hunger is most severe and proxy levels of acute malnutrition are concerningly high at 'Critical' and 'Extremely Critical' levels. If planned food assistance levels significantly decline or if aid is not delivered, then the consequences for acute food insecurity outcomes would most likely be even more dire than currently projected. Ultimately, it is expected that recovery, or even moderate improvement, from the 2020-2023 drought will take multiple favorable seasons, and the continuation of large-scale food assistance².

Millions of people in the southern regions of Ethiopia are heavily relying on food aid to mitigate their food consumption deficits. In Somali region the fifth round of assistance distribution is underway to mitigate food insecurity. The fourth round of assistance was completed in December 2022. An estimated 2.3 million people have received 39,000 metric tons of food which is equivalent to 60% of a household's kilocalorie needs for about 50 days³.

Poor livestock production and productivity have been recorded with high levels of livestock death. Accordingly, 4.5 million livestock have died while another 30 million weakened and emaciated livestock are at risk. Due to below

¹ Ethiopian Statistics Service(web)

² FEWS NET. Ethiopia Food Security Alert, May 30, 2023: The emergency in Ethiopia is far from over, as food aid remains vital to saving lives, 2023.

³ FEWS NET. Ethiopia Food Security Alert, May 30, 2023: The emergency in Ethiopia is far from over, as food aid remains vital to saving lives, 2023.

average rainfall, livestock market value has significantly depreciated⁴. This has had devastating impact on both the nutrition and incomes of these communities that are already less resilient. Somali region has the lowest coverage of improved drinking water sources at 42% which is below the national average of 65%. Open defecation is relatively high at 32% even if it is lower than the national average at 41%⁵. Poor sanitation and hygiene practices are responsible for child undernutrition. Cholera cases have been recorded in the drought affected areas in Oromia and Somali and as of February 2023, more than 1,131 cholera cases including 28 associated deaths had been reported in these areas⁶.

Humanitarian operations and program monitoring faced restricted access in some parts of the Somali's southern zones particularly Afder and Shabelle zones. This was largely attributed to the Al-Shabab invasions in July which waned in late August of 2022. To fill the information gaps in Afder Pastoral Zone, REACH intends to conduct a SMART survey to assess the levels of malnutrition, mortality, and food security in the zone. REACH partnered with Somali RENCU and conducted a SMART+ survey which will be used to provide information management support to the nutrition cluster and partners to support evidence-based decision making.

Table 4-1: Seasonal Calendar-Afder Pastoral (AFP) Livelihood Zone

Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan
	Jilaal/Qorahxeed		Gu			Hagaai			Deyr			

4.1.1 Survey Area

Afder Pastoral Livelihood Zone

The Afder pastoral livelihood zone stretches from the Shabelle River in the east to the Liben zone. The Bakool region of Somalia is to the south; the Liben zone is to the west; the Shabelle river and Shebele zone are to the east; and the Oromia region is to the north. The zone's typical vegetation coverage is divided into open shrub and grassland areas (low-land semi-arid areas) and dense vegetative (thorny) bush areas (highland areas). The zone is traversed by three rivers (the Ganale and Shabelle are permanent, while the Wayb is seasonal). Traditional livestock rearing, or pastoralists, is the mainstay of the Afder zone's economy.

The survey was conducted in six districts within three administrative zones that lie under the AFP Livelihood Zone. Hargelle, Charati, Bare, and Elkare in the Afder zone; Adadle in the Shebele zone; and Gurabakaksa in the Liban zone. The survey was conducted in May, during the Gu (rainy) season, and immediately after the lean season when there was still food insecurity in the surveyed livelihood zone due to the historic drought's large-scale livestock loss.

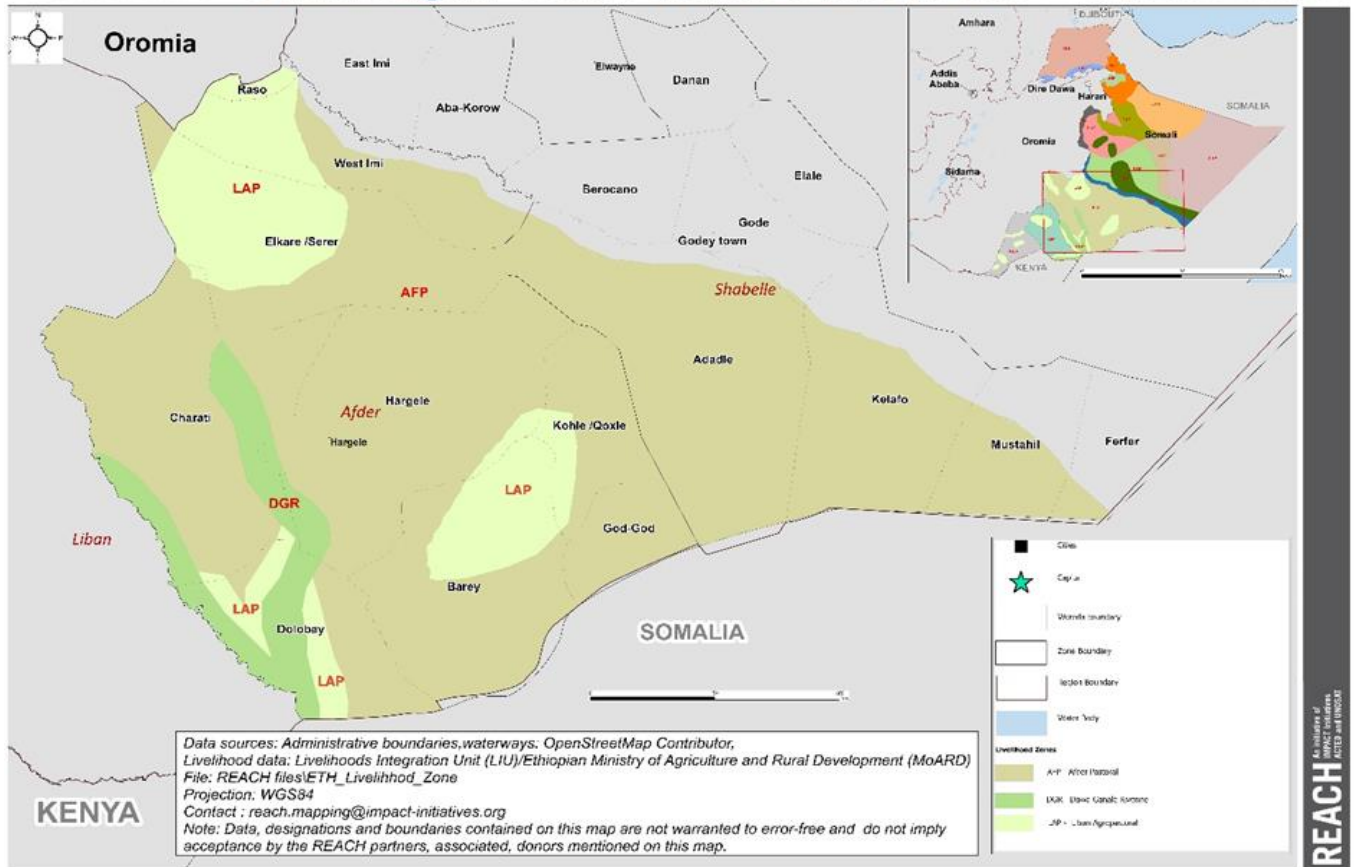
4 FEWS NET. Ethiopia Food Security Alert, May 30, 2023: The emergency in Ethiopia is far from over, as food aid remains vital to saving lives, 2023.

5 Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF. 2021. Ethiopia Mini Demographic and Health Survey 2019: Final Report. Rockville, Maryland, USA: EPHI and ICF

⁶ <https://reports.unocha.org/en/country/ethiopia>

ETHIOPIA - Somali Region - Afder Pastoral Livelihood Zone

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4.1.2 Survey Population

The general population, including drought induced IDPs living in host communities, is the survey's target population. The people who live in the zone are almost entirely ethnic Somali Muslims. Traditional livestock rearing, or pastoralists, is the mainstay of the Afder zone's economy.

4.1.3 Humanitarian Assistance

Productive Safety Net Program (PSNP) is typically distributed between January and June for safety net beneficiaries and year-round for direct support clients. WFP and the government continue to provide food assistance to millions of households across Somali region, with most of food assistance distributed to those in the worst drought-affected areas. In drought-affected pastoral Ethiopia, assistance delivery is ongoing at a large scale, targeting those who are among the worst-affected. In the Somali Region, 2.5 million people, about 40 percent of the regional population, were reached with assistance in early 2023. Assistance is reaching 25 percent or more of the population in most districts of the Somali region⁷. In Afder Zone, the persistent presence of armed groups has rendered some areas difficult to access for humanitarians and the current rains may also hinder access to some kebeles in AFP livelihood zone. Most of the roads are paved approximately halfway. In all kebeles, there are health posts that provide outreach services, including prevention and referral services. The health posts serve as the link between the community and higher-level health facilities. Minor diseases are also treated at the health posts by health extension workers. At the district level, there are health centers that provide comprehensive primary health services both preventive and curative for both in-patient and out-patient services. At the zonal level, one can access the general hospitals to which cases needing surgery or obstetrical care, as well as other specialized treatment are referred to.

4.1.4 Health and Safety Situation Update

In terms of security, there had previously been concerns about Alshabaab activity in the area, but they were no longer present. ACTED conducted a security assessment and determined that the area was secure. Throughout the data collection process, the situation was closely monitored.

4.2 SURVEY TYPE

The survey type used in this survey is a Full SMART survey and used SMART+ Collect for data collection and SMART+ platform for analysis. SMART+ is an integrated digital infrastructure that aims to transform the collection, analysis, and sharing of nutrition data. It is a comprehensive solution that simplifies and consolidates the current fragmented and labor-intensive survey methods into a user-friendly tool. SMART+ encompasses the entire process of conducting nutrition surveys and generating reports, offering a range of tools such as SMART collect, platform, aggregator, and dashboard. These components work together seamlessly to enhance efficiency and effectiveness in gathering and managing nutrition data.

⁷ FEWS NET: Food insecurity emergency in Ethiopia leads to second record-setting year of food assistance needs. Ethiopia food security outlook: February - September 2023.

4.3 SURVEY TIMING

- The survey was conducted from May 08-22, 2023:
 - This indicates the duration of the survey, which started on May 8, 2023, and ended on May 22, 2023. The survey spanned a total of 15 days.
- The survey lasted for 15 days, including training, pretest, and actual data collection days:
 - Enumerators were trained and survey instruments and procedures were tested before data collection began, and the entire process, including data collection, took 15 days.
- This survey was conducted during the Gu Season (rainy season)

4.4 TYPE OF SETTING

This survey took place at AFP livelihood zone in the following districts: Hargelle, Charati, Bare, and Elkare in the Afer zone; Adadle in the Shebele zone; and Gurabakaksa in the Liban zone. Conducting the survey in the three zones provided a more comprehensive outlook of nutrition and livelihood outcomes in the region.

4.5 SURVEY LOCATION

The survey took place in the above-mentioned district at Kebele and sub-kebele level.

4.6 EXCLUDED AREAS

Within the survey location the following areas were excluded from data collection: Kebeles that exist in other livelihood zones within or overlapping the AFP Zone like Liban Agro-pastoral Zone (LAP) and Dawa-Ganale Riverine (DGR).

5 SURVEY GOAL AND OBJECTIVES

5.1 SURVEY GENERAL OBJECTIVE

The overall objective of the Afder Pastoral (AFP) Livelihood Zone SMART Survey is to assess the nutrition situation and retrospective mortality and the possible factors contributing to acute malnutrition in AFP Zone. The results will be used to provide information management support to the nutrition cluster and partners to support evidence-based decision making.

5.2 SPECIFIC SURVEY OBJECTIVES

- To estimate the prevalence of acute malnutrition (Weight for Height and by MUAC), stunting (Height for Age) and underweight (Weight for Age) among children (boys and girls) aged 6 – 59 months in AFP.
- To assess the nutritional status of women of reproductive age (15-49) years by MUAC in AFP zone.
- To estimate retrospective Crude Mortality Rate (CMR) and Under 5 Mortality Rate (U5MR) in AFP.
- To estimate the coverage of Vitamin A supplementation for children 6-59 months in AFP.
- To estimate the coverage of measles vaccination for children 9-59 months in AFP.
- To estimate the coverage of deworming treatment for children 12-59 months in AFP.
- To assess childhood morbidity and health seeking behaviors among children aged 6-59 months two weeks prior to the survey in AFP.
- To assess selected infant and young child feeding indicators among children 0-24 months.
 - Early Initiation of Breastfeeding (EIBF)
 - Exclusive Breastfeeding (EBF),
 - Continued Breastfeeding (CBF),
 - Minimum Dietary Diversity (MDD),
 - Minimum Acceptable Diet (MAD)
- To assess the WASH situation in AFP. (Main water source, distance/time to water source, water treatment status, access to latrine)
- To assess food security and livelihoods situation; Food Consumption Scores (FCS), Household Hunger Scale (HHS), Coping Strategies (LCS)] in AFP.
- To formulate practical interventions and recommendations to inform nutrition programming in AFP.

5.3 SURVEY JUSTIFICATION

Afder Zone, one of the zones in the AFP livelihood zone has all its thirteen districts classified as operational priority 1 and others in the livelihood zone as operational priority 2 based on Somali Region Disaster Risk Management Bureau (DRMB) District Hotspot Classification approved in January 2023. This implies that most of the districts are severely or highly impacted by drought, with very low or low levels of humanitarian response. To fill the information gaps in AFP zone, REACH conducted a SMART+ survey to assess the levels of malnutrition, mortality, and food security in the livelihood zone. REACH partnered with Somali RENCU to collect the data which will be used to provide information management support to the nutrition cluster and partners to support evidence-based decision making.

6 METHODOLOGY

6.1 SURVEY DESIGN

6.1.1 Sample Size

Based on the provided context, the following assumptions were used to calculate the sample size in terms of the number of children, which was then converted into the number of households to be surveyed. All calculations were performed using Emergency Nutrition Assessment (ENA) for SMART software. The sample size calculation takes the proxy indicator anthropometry into account. The parameters for calculating the sample size are detailed in the table below.

Table 6-1: Sample Size Calculation for Anthropometry

Parameters for Anthropometry	Value	Assumption and Source
Estimated prevalence of GAM (%)	28.40%	Estimated prevalence is based on SMART Survey conducted in November 2021 in Hargelle District, Afder Zone 23.4% (19.0 - 28.4 95% C.I). The Upper Confidence level is used because the situation has since deteriorated
Desired precision	±5.00	Based on Standard Operating Procedure (SOP) for SMART Surveys in Ethiopia (Nov 2020). Recommends a desired precision of ±5% for estimated GAM of above 20%
Design effect (DEFF)	2.00	To cater for the expected heterogeneity since several districts are assessed as one stratum. Also, the Afder Pastoral Zone (AFP) has Dawa Ganale Riverine (DGR) overlapping into it and Liban Agropastoral (LAP) existing within it.
Children to be included in the survey	680	
Average household (HH) size	6.60	Government conversion factors all regions. Somali region conversion rate ⁸
% Children 6-59 months	16.00%	According to UNICEF situation analysis of children and women: Somali Region
% Non-response rate	10.00%	Given the pastoralist nature of the community, some clusters may have high absent households while some may refuse to participate in the survey. The ongoing droughts may also result pastoralists to migrate from place to place in search of water and pasture.

⁸ Federal Ministry of Health. 2006. Guidelines for the Enhanced Outreach Strategy (EOS) for Child Survival Interventions. (Revised edition.) Addis Ababa.

Parameters for Anthropometry	Value	Assumption and Source
Households to be included	795	

Table 6-2: Sample Size Calculation for Mortality

Parameters for Mortality	Value	Assumption and Source
Estimated mortality rate/10,000/day	0.54	0.28% (0.14-0.54 95% C.I) Upper Confidence Level of Hargelle District SMART Survey is used because the situation has since deteriorated
Desired precision/10,000/day	±0.40	Based on Ethiopia SOP for SMART Surveys
Design effect	2.00	Based on Ethiopia SOP for SMART Surveys
Recall period in days	90.00	To be adjusted prior to data collection
Population to be included	3137	Population
Average household (HH) size	6.60	Government conversion factors all regions. Somali region conversion rate
% Non-response rate	10.00%	Given the pastoralist nature of the community, some clusters may have high absent households while some may refuse to participate in the survey
Households to be included	528	Households to be included

6.1.2 Sampling Method

This survey applied a two-stage cluster sampling using the SMART methodology with the clusters (primary sampling unit) being selected using the probability proportional to population size (PPS). Stage one sampling involved the sampling of the clusters to be included in the survey while the second stage sampling involved the selection of the households from the sampled cluster. For this assessment, a cluster is defined as the smallest administrative unit in the woreda, which in this case it is a sub-kebele or village.

6.1.3 Sampling Procedure – Cluster Sampling

The survey employed a two-stage cluster sampling procedure, with villages serving as the primary sampling unit. The survey's basic sampling unit was the household since other variables including as IYCF and care practices, household food security and livelihoods, health, WASH, and mortality were collected at the household level. The SMART guideline for cluster selection has been modified to allocate the needed number of clusters for the survey to carry out the survey with the concept of giving each household an equal chance of being selected.

Using the SMART+ platform, 67 clusters were chosen at random based on the Probability to Population Size (PPS). The PPS technique meant that every household in the AFP livelihood zone had a same chance of being chosen, regardless of village size. Reserved clusters were designed to be included only if equal or more than 10% of the clusters could not be surveyed and only less than 80% of the sampled children could be contacted. If individuals or children were absent, the team revisited the houses at the end of the day before they leave the village. A household with an absent family was not replaced as a non-response factored into the sample size calculations.

6.1.4. Second Stage Sampling Method

At second stage, households were selected using the simple random sampling within the cluster. In each area, the households list was updated during data collection in collaboration with kebele leaders. If houses were in proximity, and less than 250 HH in number, the survey team provided a number to each house. The team selected households to be interviewed using random generator number mobile app (RGN) according to the target number of households per cluster. When dealing with a large area or more than 250 households, a segmentation method was employed. This involved treating each cluster as a segment. Since the number of households in each segment varied, a method called Probability Proportional to Size (PPS) with random segment selection was used. The teams randomly selected a number within the range of one to the total number of households, using a random number generator (RGN). This number determined the specific area within the segment that would be surveyed. The survey aimed to include 795 households and 680 children under the age of five. The targeted number of households in each cluster was 12, regardless of the number of children interviewed.

1.1.5. Training, Team Composition, and Supervision

The SMART+ survey was carried out by nine survey teams, each of which included a team leader, a measurer, and assistant measurer. The team leader oversaw day-to-day field supervision, tablet filling, household selection, and assisting with anthropometric measurements. Daily monitoring was carried out to verify the accuracy and consistency of data by regular field visits, cross-checking, and plausibility testing via the SMART+ platform. Three survey managers provided oversight of the field team and overall management of the survey.

The survey team underwent four days of SMART methodology training before the field data collection. The SMART training tools and presentation were tailored to the survey purpose and used during the training. The training covered survey objectives, household selection strategies, anthropometric measurement demonstration and standardization test, data collecting and interview skills with group work, and questionnaire field testing.

6.1.4 Data collection and Analysis

Data was collected via smart phones using the SMART Collect application. Based on plausibility checks, the Survey Manager provided daily feedback to the survey teams on the quality of the data and support on how to enhance the quality of the measures, with assistance from the other two RENCU SMART managers. The SMART+ platform was used to automatically analyze anthropometric data and additional markers. The analysis removed all data that was flagged using SMART flag criteria (observed mean).

7 INDICATORS: DEFINITION, CALCULATIONS, AND INTERPRETATION

7.1 OVERVIEW OF INDICATORS

Table 7-1: Standardized Integrated SMART Indicators

Indicator	Target Population	Definitive criteria
Household Indicators		
Mortality		
Mortality	Total population	All visited households, including those without children aged 6–59 months, were surveyed for retrospective mortality data. A 90-day recall period was employed.
Food Security		
Food Consumption Score (FCS)	Total population	The Food Consumption Score (FCS) used to assess the dietary quality and food security of households. The FCS is based on a list of food groups and their corresponding weights, which are assigned based on their nutritional significance. Commonly considered food groups include cereals, pulses, fruits, vegetables, dairy products, meat, fish, oils, and other foods. A higher score indicates a more diverse and nutritionally balanced diet, while a lower score suggests a poorer dietary quality and potential food insecurity.
Reduced Coping Strategy Index (rCSI)	Total population	The rCSI evaluates the coping strategies employed by households to manage or mitigate the effects of inadequate food access or availability. It considers the various strategies used by households when they experience food shortages or limited resources. A higher rCSI score indicates a greater reliance on negative coping strategies, which implies a higher level of food insecurity and vulnerability. Conversely, a lower rCSI score suggests a more effective and sustainable approach to coping with food insecurity.
Household Hunger Scale (HHS)	Total population	The Household Hunger Scale (HHS) was used to assess the severity and prevalence of hunger at the household level. The HHS score provides a quantitative measure of the household's hunger situation, with higher scores indicating more severe hunger and food insecurity.
WASH		
Access to safe/improved water for drinking and cooking	Total population	To assess access to safe or improved water for drinking and cooking, data was collected on the availability and

Indicator	Target Population	Definitive criteria
		utilization of different types of water sources within a household.
Access to improved sanitation facilities	Total population	To assess access to improved sanitation facilities, data was collected on the availability and utilization of different types of sanitation facilities within a community or household. The indicator considers the type of facility, and whether it is shared or private.
Child Indicators		
Anthropometry	6-59 months	<p>Age: The primary source for this information was the child's birth certificate or birth notification. In the absence of these documents, a local calendar of events was used to estimate the age.</p> <p>Gender/Sex: This was recorded as either 'f' for female or 'm' for male. This was recorded as either 'f' for female or 'm' for male.</p> <p>Weight: A digital weighing scale (SECA) was used to measure children's weight. Children were weighed with minimal, or no clothing and weight recorded to the nearest 0.1kg.</p> <p>Height/Length: This was measured using a standard UNICEF height/length board – taking a standing height for children 24-59 months (or >87 cm) and recumbent length for children 6-23 months (or <87 cm). Both height and length were measured to the nearest 0.1 cm.</p> <p>MUAC: Mid Upper Arm Circumference was measured on the left arm at the middle point between the tip of the elbow and the tip of the shoulder bone while the arm was at right-angle. MUAC was measured to the nearest mm.</p> <p>Bilateral Oedema: This was assessed by the application of moderate thumb pressure for at least 3 seconds on both feet. If a depression formed upon pressure application, the presence of bilateral oedema was confirmed.</p>
Vitamin A supplementation coverage	6-59 months	Assessed by checking if child aged 6-59 months received a vitamin A capsule over the past six months was recorded from the EPI card or health card if available or by asking the caregiver to recall if no card is available.
Deworming coverage	12-59 months	To determine deworming coverage for 12-59 months old children, data was collected on the number of children in this age group who have received deworming tablets over the past 6 months, typically in the form of oral medication.

Indicator	Target Population	Definitive criteria
Measles vaccination coverage	9-59 months	Assessed by checking for measles vaccination on EPI cards or by recall and was only done for eligible children (≥ 9 months)
Episode of ARI, and care-seeking for children with ARI	6-59 months	The mother or caregiver was asked if the child had cough in the past two weeks and if so, they were then asked the type of illness and treatment sought.
Episode of diarrhoea, care-seeking for children with diarrhoea, and use of ORS and Zinc during an episode of diarrhoea	6-59 months	The mother or caregiver was asked if the child had diarrhea in the past two weeks and if so, they were then asked the type of illness and treatment sought.
Episode of fever and care-seeking for children with fever	6-59 months	The mother or caregiver was asked if the child had diarrhea in the past two weeks and if so, they were then asked the type of illness and treatment sought.
IYCF (EvBF, EIBF, EBF2D, EBF, MixMF, CBF, ISSSF, MDD, MMF, MMFF, MAD, EFF, SwB, UFC, ZVF, BoF)	0-24 months	<p>Ever breastfed (EvBF): Percentage of children born in the last 24 months who were ever breastfed.</p> <p>Early initiation of breastfeeding (EIBF): Percentage of children born in the last 23 months who are put to the breast within one hour of birth.</p> <p>Exclusively breastfed for the first two days after birth (EBF2D): Percentage of children born in the last 24 months who were fed exclusively with breast milk for the first two days after birth.</p> <p>Exclusive breastfeeding (EBF): Proportion of infants 0–5 months of age who are fed exclusively with breast milk a day before the survey date.</p> <p>Mixed milk feeding (MixMF): Percentage of infants 0–5 months of age who were fed formula and/or animal milk in addition to breast milk during the previous day.</p> <p>Continued breastfeeding (CBF): Percentage of children 12–23 months of age who were fed breast milk during the previous day.</p> <p>Introduction of solid, semi-solid or soft foods (ISSSF): Percentage of infants 6–8 months of age who consumed solid, semi-solid or soft foods during the previous day.</p> <p>Minimum dietary diversity (MDD): Percentage of children 6–23 months of age who consume foods and beverages from at least five out of eight defined food groups during the previous day.</p> <p>Minimum meal frequency (MMF): Percentage of children 6–23 months of age who consumed solid, semi-solid or soft foods (but also including milk feeds for non-breastfed</p>

Indicator	Target Population	Definitive criteria
		<p>children) the minimum number of times or more during the previous day.</p> <p>Minimum milk feeding frequency for non-breastfed children (MMFF): Percentage of non-breastfed children 6–23 months of age who consumed at least two milk feeds during the previous day.</p> <p>Minimum acceptable diet (MAD): Percentage of children 6–23 months of age who consumed a minimum acceptable diet during the previous day.</p> <p>Egg and/or flesh food consumption (EFF): Percentage of children 6–23 months of age who consumed egg and/or flesh food during the previous day.</p> <p>Sweet beverage consumption (SwB): Percentage of children 6–23 months of age who consumed a sweet beverage during the previous day.</p> <p>Unhealthy food consumption (UFC): Percentage of children 6–23 months of age who consumed selected sentinel unhealthy foods during the previous day.</p> <p>Zero vegetable or fruit consumption (ZVF): Percentage of children 6–23 months of age who did not consume any vegetables or fruits during the previous day.</p> <p>Bottle feeding (BoF): Percentage of children 0–23 months of age who were fed from a bottle with a nipple during the previous day.</p>
Women Indicators		
Anthropometry (MUAC)	15-49 years	The nutritional status of women of reproductive age was assessed by measuring the mid-upper arm circumference.

7.2 ANTHROPOMETRIC INDICATORS

The prevalence of wasting is presented as global acute malnutrition (GAM) and severe acute malnutrition (SAM) using weight-for-height (WFH) Z- scores and MUAC indices, while stunting is presented as height-for-age (HFA) Z scores and underweight is presented as weight-for-age (WFA) Z scores, as defined in the tables below (table 7-2-7-5):

Table 7-2: MUAC cut off points for children 6-59 months.

Nutritional Status	Definition
No malnutrition	125 mm > MUAC
Global Acute Malnutrition (GAM)	125 mm ≤ MUAC
Moderate Acute Malnutrition (MAM)	115 mm ≤ MUAC < 125 mm
Severe Acute Malnutrition (SAM)	MUAC < 115 mm

Table 7-3: Cut off points for the WHZ index expressed in Z-score, WHO Standards

Nutritional Status	Definition
No undernutrition	WHZ ≥ -2 and no oedema
Global Acute Malnutrition (GAM)	WHZ < -2 or bilateral oedema (or both)
Moderate Acute Malnutrition (MAM)	(-3 ≤ WHZ < -2) and absence of bilateral oedema
Severe Acute Malnutrition (SAM)	WHZ < -3 or bilateral oedema (or both)
Overweight	WHZ > 2 and no oedema
Moderate overweight	(2 < WHZ ≤ 3) and no oedema
Severe overweight	WHZ ≥ 3 and no oedema

Table 7-4: Cut off points for the HAZ index expressed in Z-score, WHO Standards

Nutritional Status	Definition
Not stunted	HAZ ≥ -2
Stunted	HAZ < -2
Moderate stunting	-3 ≤ HAZ < -2
Severe stunting	HAZ < -3

Table 7-5: Cut off points for WAZ Index expressed in Z-scores, WHO Standards

Nutritional Status	Definition
Not underweight	WHZ \geq -2
Global underweight	WAZ < -2
Moderate underweight	-3 \leq WAZ < -2
Severe underweight	WAZ < -3

7.3 MORTALITY

All visited households, including those without children aged 6–59 months, were surveyed for retrospective mortality statistics. A 90-day recall period was employed. Using individual mortality questionnaires, the following data were collected:

- Total number of persons residing in the household
- Number of children under the age of five
- Number of people who left the household during the recall period (total and children under the age of five)
- Number of individuals who joined the household during the recall period (total and children under five years)
- Number of births in the household during the recall period
- Number of deaths and reason for death.

8 QUESTIONNAIRE

Included in the SMART+ standard questionnaire were indicators for anthropometry, mortality IYCF, health, Food Security and Livelihoods, and WASH. The survey team pre-tested the questionnaire in the communities to ensure the questions are clear and understandable to the respondents. This helped the questions to be correctly interpreted and led to a more accurate and reliable data.

9 LIMITATIONS

Some selected clusters were dispersed, while others needed lengthy walking distances affecting data quality as it made monitoring a challenge.

10 SURVEY FINDINGS

10.1 SURVEY SAMPLE

The survey sample included a total of 63 clusters, which represents approximately 94% of the planned clusters. Within these surveyed clusters, a total of 753 households were included, which accounts for approximately 95% of the planned number of households. Moreover, the survey covered a significant number of children. The planned number of children was 680, but the survey sample included more children than initially planned, reaching 151% of the planned number. Overall, the survey sample seems to have provided a substantial representation of the intended population. **See table 10-1.**

Table 10-1: Proportion of Household and Child Sample Achieved (Anthropometry Data)

Indicator	Value
Number of clusters planned	67
Number of clusters surveyed	63
% clusters of planned	94%
Number of households planned	795
Number of households surveyed	753
% households of planned	95%
Number of children planned	680
Nonresponse rate	0.4%
Number of children surveyed	1,026
% surveyed of planned	151%

In total, 753 households were included in the survey, with an average household size of 4.84. Within the surveyed households, 568 of them had children under the age of five. This represents approximately 94.7% of the surveyed households, indicating a significant presence of young children within the sample. The mid-interval population size, estimated based on the survey, is approximately 3,636 individuals. This figure provides an estimation of the total population size within the surveyed clusters, considering an average household size and the number of households surveyed.

The survey also provides insights into demographic characteristics. The data indicates that approximately 29.9% of the population consists of children under the age of five. The birth rate is estimated at 0.52, the in-migration rate (joined) is estimated at 0.70, and the out-migration rate (left) is estimated at 1.68. These rates provide insights into population dynamics, including births and movements in and out of the surveyed clusters. Finally, the data indicates that the female population constitutes approximately 51.9% of the total population. Conversely, the male population represents approximately 48.1% of the total population. **See table 10-2.**

Table 10-2: Demographic Summary (Mortality Data)

Indicator	Values	95% CI
Number of HHs surveyed	752	
Number of clusters surveyed	63	
Number of HHs surveyed with children under five	568	
% of HHs surveyed with children under five	75.5%	
Average household size	4.84	(4.51 - 5.16)
Mid Interval Population Size	3636	(3385.6 - 3886.4)
Percentage of children under five	29.9%	(27.7% - 32.2%)
Birth Rate	0.52	(0.27 - 1.00)
In-migration Rate (Joined)	0.70	(0.43 - 1.14)
Out-migration Rate (Left)	1.68	(1.01 - 2.79)
Female % of the population	51.9%	(50.3% - 53.4%)
Male % of the population	48.1%	(46.6% - 49.7%)

The male to female sex ratio was 0.93 overall. The indents in the demographic pyramid among males aged 20-24 and females aged 20-24 were notable. One possible contributing factor is the survey's greater rate of out-migration. Females make up a larger share of the population (51.9%) than males (48.1%). The proportion of children under the age of five was 29.9%. **See figure 10-1.**

Figure 10-1: Population Age and Sex Pyramid

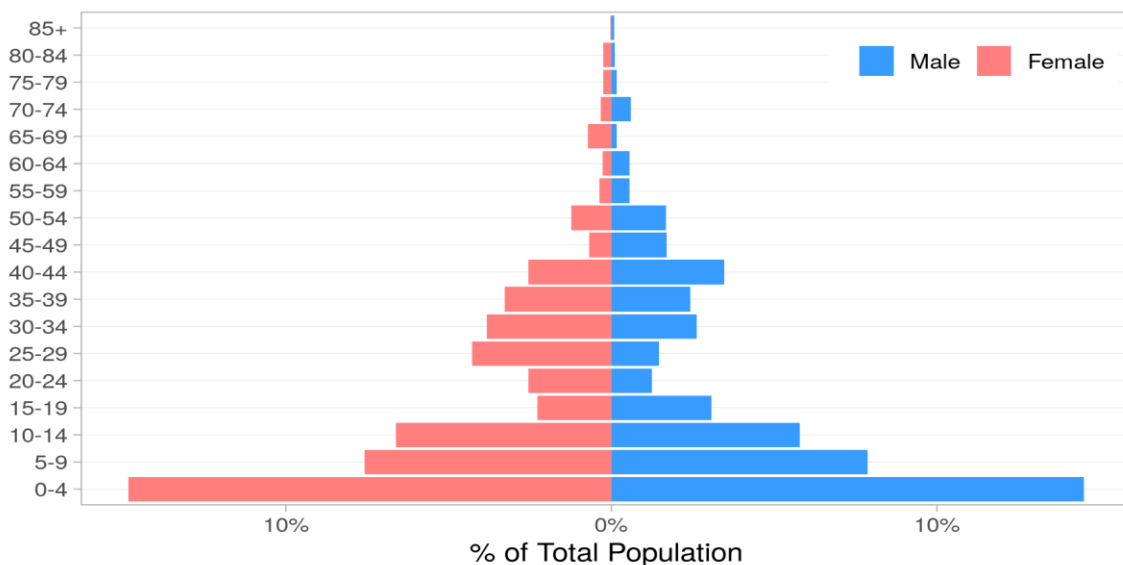


Table 10-3 presents the distribution and percentages of each group within specific age ranges. Boys accounted for approximately 19.1% of the 6 to 17-month-old age group, while girls made up approximately 22%. The male-to-female ratio in this age range was approximately 0.8, indicating a slightly higher proportion of girls compared to boys.

In the age range of 18 to 29 months, boys represented approximately 28.5% of this age group, while girls accounted for approximately 22%. The male-to-female ratio in this age range was approximately 1.3, indicating a higher proportion of boys compared to girls.

In the age range of 30 to 41 months, boys comprised around 26.3% of this age group, while girls constituted approximately 22%. The male-to-female ratio in this age range was approximately 1.2, indicating a higher proportion of boys compared to girls.

Table 10-3: Distribution of age and sex among children 6-59 months (SMART exclusions)

Age (Months)	Boys		Girls		Total		Ratio
	n	%	n	%	n	%	Boy:Girl
6 to 17	96.0	19.1%	113.0	22.0%	209.0	20.6%	0.8
18 to 29	143.0	28.5%	113.0	22.0%	256.0	25.2%	1.3
30 to 41	132.0	26.3%	113.0	22.0%	245.0	24.1%	1.2
42 to 53	91.0	18.1%	124.0	24.2%	215.0	21.2%	0.7
54 to 59	40.0	8.0%	50.0	9.7%	90.0	8.9%	0.8
Total	502.0	100.0%	513.0	100.0%	1,015.0	100.0%	1.0

10.2 DATA QUALITY

Weight-for-Height has a mean z-score of -1.26 and a standard deviation of 0.95. The calculated design effect is 3.07, indicating some level of malnutrition clustering. There are also four cases where the z-scores are unavailable and three cases where the z-scores are out of range. Further analysis of the data revealed that three clusters from various districts contributed most to the inflated DEFF. This could be explained by the fact that there was a cholera outbreak in one of the districts, malaria was endemic in another, and one of the clusters surveyed was a drought induced IDP, ruling out the possibility that all these factors contributed to the heterogeneity. For Weight-for-Age, the mean z-score is -1.3, with a standard deviation of 0.93. The design effect is calculated to be 2.28, indicating a clustering of malnutrition. There are 3 cases where the z-scores are not available and 6 cases where the z-scores

are out of range. The mean z-score for Height-for-Age is -0.79, with a standard deviation of 1.15. Additionally, there are 3 cases where the z-scores are not available and a substantial 33 cases where the z-scores are out of range.

Table 10-4: Mean Z-scores, Design Effects, Missing and Out-of-Range Data of Anthropometric Indicators among Children 6-59 months (SMART exclusions)

Indicator	N	Mean z-scores ± SD	Design effect (z-score < -2)	Z-scores not available*	Z-scores out of range
Weight-for-Height	1,008	-1.26 ±0.95	3.07	4	3
Weight-for-Age	1,006	-1.3 ±0.93	2.28	3	6
Height-for-Age	979	-0.79 ±1.15	1.75	3	33

10.3 PREVALENCE OF ACUTE MALNUTRITION

Overall, approximately 21.9% of children aged 6-59 months experienced global acute malnutrition (GAM), as indicated by z-scores below -2 or the presence of oedema. This suggests a significant burden of acute malnutrition in the population surveyed. The prevalence of global acute malnutrition was slightly higher among boys (24.0%) compared to girls (19.8%). Moderate acute malnutrition affected 19.9% of all children, with slightly higher prevalence observed among boys (21.4%) compared to girls (18.5%). Severe acute malnutrition was observed in 2.0% of all children, with slightly higher prevalence among boys (2.6%) compared to girls (1.4%). These findings indicate that acute malnutrition is a significant public health concern among children in the surveyed population. See **table 10-5**:

Table 10-5: Prevalence of Acute Malnutrition by WHZ (and/or oedema) by Severity and Sex among Children 6-59 months (SMART exclusions), WHO 2006 Reference

Indicators	All (N=1009)	Boys (N=500)	Girls (N=509)
No undernutrition	(788) 78.1% (73.2-82.3)	(380) 76.0% (70.3-80.9)	(408) 80.2% (74.5-84.8)
Prevalence of global acute malnutrition (<-2 z-score and/or oedema)	(221) 21.9% (17.7-26.8)	(120) 24.0% (19.1-29.7)	(101) 19.8% (15.2-25.5)
Prevalence of moderate acute malnutrition (<-2 to ≥-3 z-score)	(201) 19.9% (16.2-24.2)	(107) 21.4% (17.1-26.5)	(94) 18.5% (14.2-23.7)
Prevalence of severe acute malnutrition (<-3 z-score and/or oedema)	(20) 2.0% (1.1-3.6)	(13) 2.6% (1.3-5.0)	(7) 1.4% (0.6-3.1)

Table 10-6 shows the prevalence of acute malnutrition per WHZ and/or oedema by severity and age group. The highest prevalence of wasting is seen in the 54 to 59 months age group (28.9%), followed by the 42 to 53 months age group (28.2%). The lowest prevalence of wasting is observed in the 30 to 41 months age group (17.6%). Similarly, the highest prevalence of moderate wasting is observed in the 54 to 59 months age group (27.8%). The lowest prevalence of moderate wasting is seen in the 6 to 17 months age group (15.5%). The highest prevalence of severe wasting is observed in the 6 to 17 months age group (2.9%). The lowest prevalence of severe wasting is seen in the

30 to 41 months age group (0.8%). Overall, the prevalence of wasting tends to be lower in the younger age groups (6 to 17 months and 30 to 41 months) and higher in the older age groups (30 to 41 months, 42 to 53 months, and 54 to 59 months). These comparisons provide insights into the varying prevalence of wasting across different age groups, which can help inform targeted strategies and interventions to address and reduce wasting in specific age groups where it is more prevalent.

Table 10-6: Prevalence of Acute Malnutrition per WHZ and/or Oedema by Severity and Age Group

Age (Months)	N	No wasting (WHZ ≥ -2)		Wasting (WHZ < -2)		Moderate wasting (WHZ ≥ -3 to < -2)		Severe wasting (WHZ < -3)		Oedema	
		n	%	n	%	n	%	n	%	n	%
6 to 17	206	168	81.6%	38	18.4%	32	15.5%	6	2.9%	0	0.0%
18 to 29	256	202	78.9%	54	21.1%	47	18.4%	7	2.7%	0	0.0%
30 to 41	244	201	82.4%	43	17.6%	41	16.8%	2	0.8%	0	0.0%
42 to 53	213	153	71.8%	60	28.2%	56	26.3%	4	1.9%	0	0.0%
54 to 59	90	64	71.1%	26	28.9%	25	27.8%	1	1.1%	0	0.0%
All	1,009	788	78.1%	221	21.9%	201	19.9%	20	2.0%	0	0.0%

Figure 10-2 shows the distribution of weight-for-height Z-scores in the survey data exhibits a leftward deviation, with a mean of -1.26 and a standard deviation of 0.95. This indicates that the surveyed population has a poorer nutritional status than the WHO reference population. The acceptable range for the standard deviation is between 0.8 and 1.2.

Figure 10-2: Distribution of WHZ Sample Compared to the WHO 2006 WHZ Reference Curve

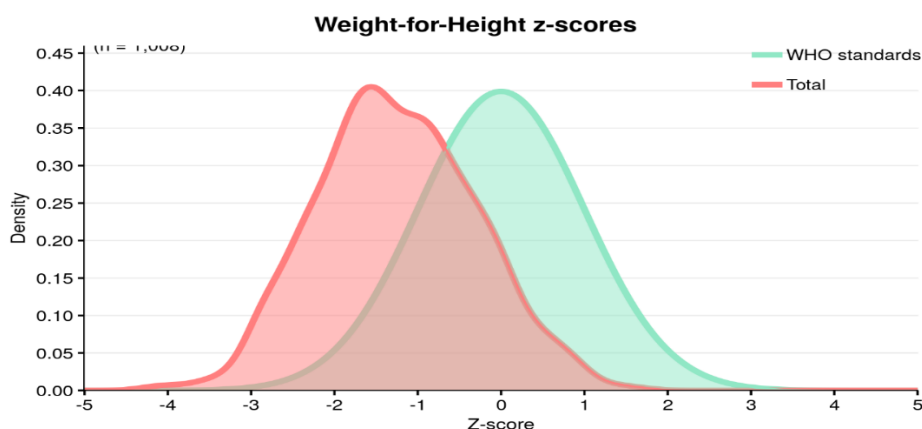


Figure 10-3 depicts the mean z-scores for wasting in each age category. Among the age categories, the lowest mean z-score for wasting is observed in the 54 to 59 months group (-1.526475), indicating a relatively higher prevalence of wasting in this age category. On other hand, the highest mean z-score for wasting is observed in the 6 to 17 months group (-1.082364), suggesting a comparatively lower prevalence of wasting in this age category.

The standard deviation (SD) represents the variability or spread of the data. A higher SD suggests more variability in the prevalence of wasting within that age group. The age category with the lowest SD is 54 to 59 months (± 0.802197), indicating less variability in the prevalence of wasting compared to other age categories. The age category with the highest SD is 18 to 29 months (± 0.99737), suggesting more variability in the prevalence of wasting among children in this age group. These findings can help guide targeted interventions and strategies to address and reduce wasting in specific age groups with a higher prevalence of malnutrition.

Figure 10-3: Mean WHZ by Age Group

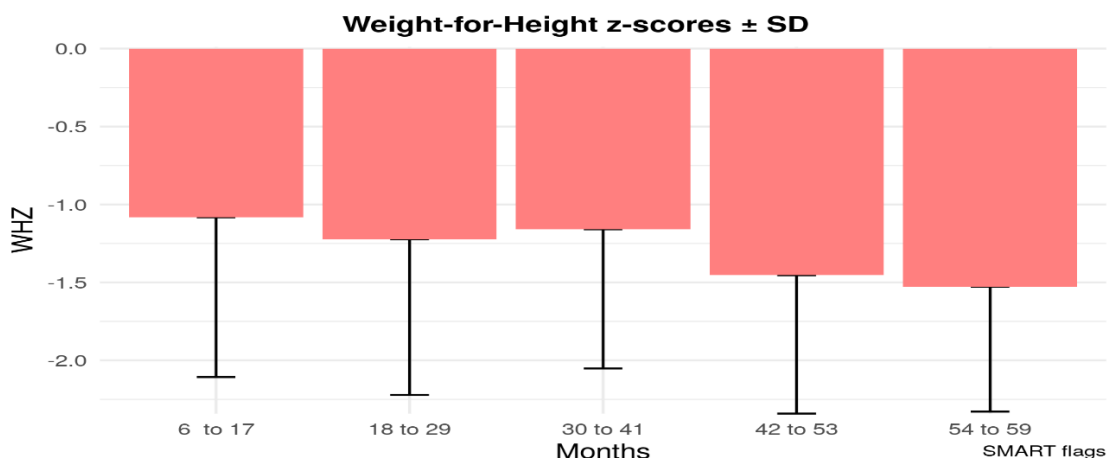


Table 10-7 provides the distribution of severe acute malnutrition based on the presence or absence of edema among children. It indicates that there were no cases of Marasmic Kwashiorkor. However, there was one case (0.099%) of kwashiorkor, there were 19 cases (1.883%) of Marasmus.

Table 10-7: Distribution of Severe Acute Malnutrition per Oedema among Children (SMART exclusions)

	WHZ < -3	WHZ ≥ -3
Presence of Oedema*	Marasmic kwashiorkor 0 (0.000%)	Kwashiorkor 1 (0.099%)
Absence of Oedema	Marasmic 19 (1.883%)	Not severely malnourished 989 (98.018%)

Table 10-8 presents the prevalence of acute malnutrition based on different Mid Upper Arm Circumference (MUAC) cutoffs. The prevalence of global acute malnutrition (MUAC < 125 mm and/or edema) is observed in 4.8% of all children, with slightly higher percentages among girls (5.7%) compared to boys (4.0%). Moderate acute malnutrition (MUAC < 125 mm and ≥ 115 mm, no edema) is present in 3.9% of all children, with girls slightly higher than boys.

Severe acute malnutrition (MUAC < 115 mm and/or edema) is relatively lower, with a prevalence of 1.0% among all children, 0.6% among boys, and 1.4% among girls.

Table 10-8: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex.

Indicators	All (N=1012)	Boys (N=501)	Girls (N=511)
No malnutrition	(963) 95.2% (93.3-96.5)	(481) 96.0% (93.7-97.5)	(482) 94.3% (92.0-96.0)
Prevalence of global acute malnutrition (< 125 mm an/or edema)	(49) 4.8% (3.5-6.7)	(20) 4.0% (2.5-6.3)	(29) 5.7% (4.0-8.0)
Prevalence of moderate acute malnutrition (<125 and ≥ 115 mm, no oedema)	(39) 3.9% (2.7-5.5)	(17) 3.4% (2.0-5.7)	(22) 4.3% (2.9-6.3)
Prevalence of severe acute malnutrition (<115 and/or oedema)	(10) 1.0% (0.5-2.1)	(3) 0.6% (0.2-1.9)	(7) 1.4% (0.6-3.1)

Table 10-9 presents the prevalence of malnutrition among different age groups based on MUAC and/or edema. The prevalence of Global Acute Malnutrition (GAM) is highest in the 6 to 17 months group (12.1%) and gradually decreases in the older age groups. The prevalence of Moderate Acute Malnutrition (MAM) follows a similar trend as GAM, with the highest percentage in the 6 to 17 months group (9.2%) and decreasing in older age groups. The prevalence of Severe Acute Malnutrition (SAM) is relatively low across all.

Table 10-9: Prevalence of Acute Malnutrition per MUAC and/or Oedema by Severity and Age Group

Age (Months)	N	No malnutrition		GAM		MAM		SAM		Oedema	
		n	%	n	%	n	%	n	%	n	%
6 to 17	207	182	87.9%	25	12.1%	19	9.2%	6	2.9%	0	0.0%
18 to 29	256	241	94.1%	15	5.9%	12	4.7%	3	1.2%	0	0.0%
30 to 41	245	238	97.1%	7	2.9%	7	2.9%	0	0.0%	0	0.0%
42 to 53	214	212	99.1%	2	0.9%	1	0.5%	1	0.5%	0	0.0%
54 to 59	90	90	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
All	1,012	963	95.2%	49	4.8%	39	3.9%	10	1.0%	0	0.0%

Table 10-10 presents the prevalence of combined GAM and SAM based on WHZ and MUAC cut offs. The combined GAM prevalence (including WHZ <-2, MUAC < 125 mm, and/or oedema) is 23.4% among all children, with boys having a slightly higher prevalence of 25.1% compared to girls at 21.7%. This indicates a significant proportion of children experiencing global acute malnutrition. The combined SAM prevalence (including WHZ < -3, MUAC < 115 mm, and/or oedema) is 2.7% among all children, with boys at 3.2% and girls at 2.1%.

Table 10-10: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex*

Indicators	All (N=1013)	Boys (N=501)	Girls (N=512)
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(237) 23.4% (19.2-28.2)	(126) 25.1% (20.3-30.8)	(111) 21.7% (17.0-27.2)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema)	(27) 2.7% (1.6-4.4)	(16) 3.2% (1.8-5.7)	(11) 2.1% (1.2-3.9)

*With SMART or WHO flags a missing MUAC/WHZ or not plausible WHZ value is considered as normal when the other value is available

Table 10-11 presents the detailed prevalence for combined GAM and SAM. The overall prevalence of GAM is 23.4%. The highest contribution to GAM comes from cases identified through WHZ measurements, accounting for 18.6% of the children. GAM identified through MUAC measurements represents 1.6% of the children.

Likewise, the overall prevalence of SAM is 2.7%. SAM identified through WHZ measurements accounts for the highest proportion, at 1.7% of the children. SAM identified through MUAC measurements represents 0.7% of the population. SAM identified through the presence of oedema is observed in 0.1% of the children.

Overall, the data highlights the importance of considering multiple indicators to assess and address acute malnutrition. While GAM indicates a substantial burden of acute malnutrition in the population, SAM represents a more severe and critical condition requiring immediate attention and intervention.

Table 10-11: Detailed number for combined GAM and SAM

	GAM (Global Acute Malnutrition)		SAM (Severe Acute Malnutrition)	
	n	%	n	%
Both	32	3.2% (2.1% - 4.7%)	2	0.2% (0.0% - 0.8%)
Edema	1	0.1% (0.0% - 0.7%)	1	0.1% (0.0% - 0.7%)
MUAC	16	1.6% (0.9% - 2.9%)	7	0.7% (0.3% - 1.4%)
WHZ	188	18.6% (14.9% - 22.8%)	17	1.7% (0.9% - 3.2%)
Total	237	23.4% (19.2% - 28.2%)	27	2.7% (1.6% - 4.4%)

Figure 10-4 indicates that GAM is contributed by different indicators. Most cases are identified based on WHZ measurements, followed by cases identified through MUAC. These different indicators help provide a comprehensive understanding of the prevalence and severity of acute malnutrition in the population.

Figure 10-4: Pie Chart of Proportion of Children with GAM by indicator

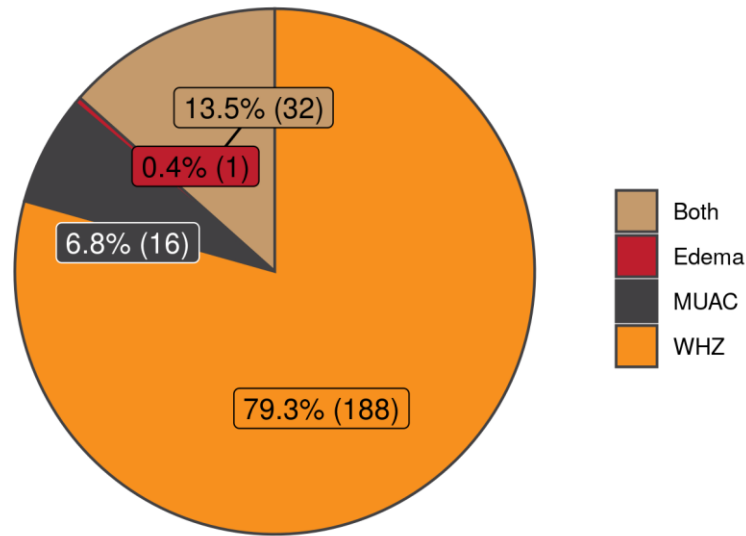
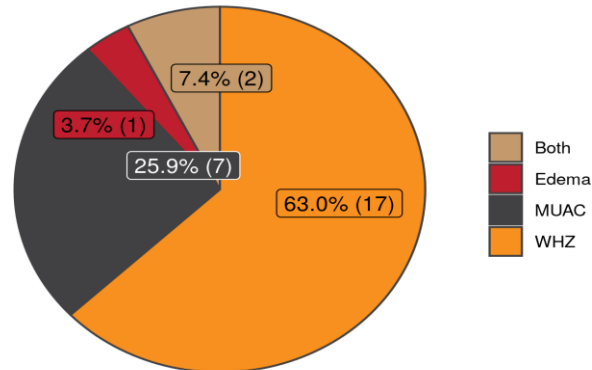


Figure 10-5 illustrates proportion of Children with SAM by indicator. Out of the total cases, 25.9% (7 cases) have been identified as SAM solely based on the Mid-Upper Arm Circumference (MUAC) measurement. Out of the total cases, 17 cases (which accounts for 63.0%) have been identified as SAM solely based on the measurement of Weight-for-Height z-scores (WHZ). In 3.7% of the cases, the presence of oedema indicates the presence of SAM. SAM is identified in 7.4% of the population through the combined use of MUAC and WHZ measurements, resulting in two distinct cases.

Figure 10-5: Pie Chart of Proportion of Children with SAM by indicator



10.4 PREVALENCE OF CHRONIC MALNUTRITION

Table 10-12 show the prevalence of stunting. The overall prevalence of chronic malnutrition, as indicated by HAZ less than -2 SD, is 14.5% (11.8-17.7). Among boys, the prevalence is 16.3% (12.9-20.3), and among girls, it is 12.8% (9.6-16.8). This shows that a significant proportion of children in the population suffer from chronic malnutrition.

The overall prevalence of moderate chronic malnutrition, defined as HAZ ranging from greater than or equal to -3 to -2 SD, is 10.9% (8.5-13.9). Among boys, the prevalence is 13.0% (10.0-16.6), and among girls, it is 8.9% (6.3-12.5). Likewise, the overall prevalence of severe chronic malnutrition, with HAZ less than -3 SD, is 3.6% (2.6-5.0). Among boys, the prevalence is 3.3% (1.9-5.7), and among girls, it is 3.9% (2.4-6.0). Comparing boys and girls, the results indicate that boys have a slightly higher prevalence of chronic malnutrition. These differences highlight potential variations in nutritional status between boys and girls.

Table 10-12: Prevalence of Chronic Malnutrition by HAZ by Severity and Sex among Children 6-59 months (SMART exclusions)

Indicators	All (N=979)	Boys (N=486)	Girls (N=493)
Not stunted	(837) 85.5% (82.3-88.2)	(407) 83.7% (79.7-87.1)	(430) 87.2% (83.2-90.4)
Prevalence of chronic malnutrition (HAZ < -2 SD)	(142) 14.5% (11.8-17.7)	(79) 16.3% (12.9-20.3)	(63) 12.8% (9.6-16.8)
Prevalence of moderate chronic malnutrition (HAZ ≥ -3 to -2 SD)	(107) 10.9% (8.5-13.9)	(63) 13.0% (10.0-16.6)	(44) 8.9% (6.3-12.5)
Prevalence of severe chronic malnutrition (HAZ < -3 SD)	(35) 3.6% (2.6-5.0)	(16) 3.3% (1.9-5.7)	(19) 3.9% (2.4-6.0)

Table 10-13 presents the prevalence of stunting among different age groups. The highest prevalence of stunting is seen in the 30 to 41 months age group (18.6%), followed by the 18 to 29 months age group (17.1%). The lowest prevalence of stunting is observed in the 54 to 59 months age group (10%). Similarly, the pattern holds for moderate and severe stunting. These findings suggest that stunting levels may change as children grow older, emphasizing the importance of age-specific interventions to address stunting in different age groups.

Table 10-13: Prevalence of Chronic Malnutrition per HAZ by Severity and Age Group

Age (Months)	N	Stunting (HAZ < -2)		Moderate stunting (HAZ ≥ -3 to <-2)		Severe stunting (HAZ < -3)	
		n	%	n	%	n	%
6 to 17	197	23	11.7%	18	9.1%	5	2.5%
18 to 29	246	42	17.1%	31	12.6%	11	4.5%
30 to 41	237	44	18.6%	32	13.5%	12	5.1%
42 to 53	209	24	11.5%	19	9.1%	5	2.4%
54 to 59	90	9	10.0%	7	7.8%	2	2.2%
All	979	142	14.5%	107	10.9%	35	3.6%

Figure 10-6 shows the distribution of height-for-age Z-scores in the survey data exhibits a leftward deviation, with a mean of -0.79 and a standard deviation of 1.15. This indicates that the surveyed population has a poorer nutritional status than the WHO reference population. The acceptable range for the standard deviation is between 0.8 and 1.2.

Figure 10-6: Distribution of HAZ sample compared to the WHO 2006 HAZ reference curve.

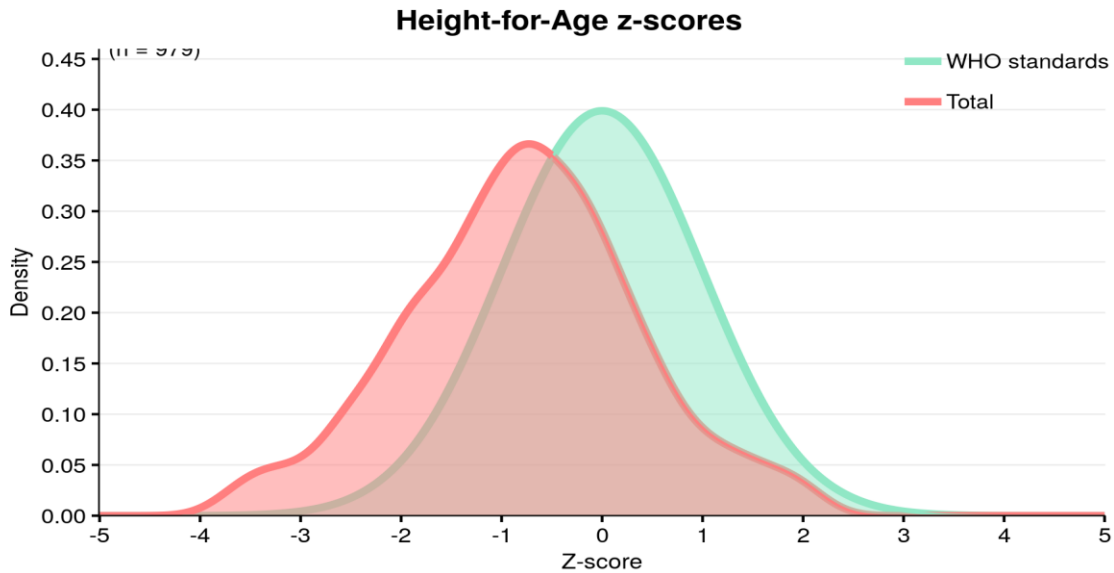
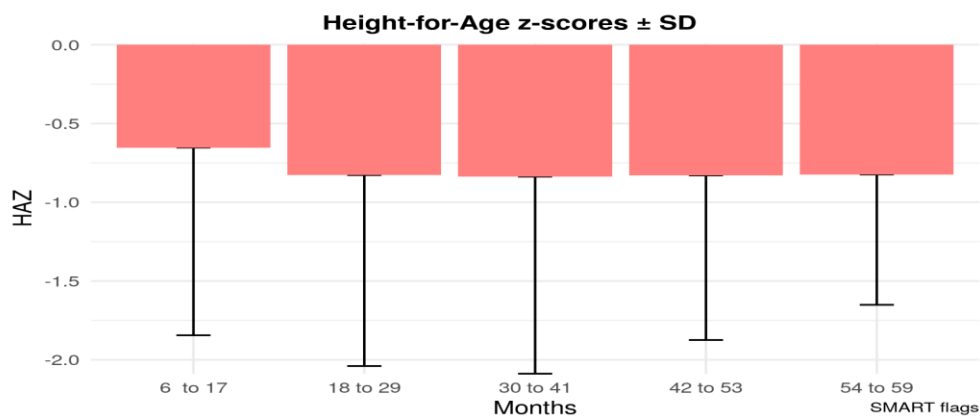


Figure 10-7 depicts the mean z-scores for wasting in each age category. The mean HAZ values are relatively close among all age groups, ranging from -0.652973 to -0.837292. The age group with the highest mean HAZ is 6 to 17 months (-0.652973), suggesting a comparatively lower prevalence of stunting in this age category. On other hand, the age group with the lowest mean HAZ is 30 to 41 months (-0.837292), indicating a relatively higher prevalence of stunting in this age category. The highest SD is seen in the 30 to 41 months age group (± 1.250813), suggesting a relatively larger variation in HAZ within this age group. The age group with the lowest SD is 54 to 59 months (± 0.827067), indicating a relatively smaller variation in HAZ within this age group.

Figure 10-7: Mean HAZ by Age Group



10.5 PREVALENCE OF UNDERWEIGHT

Table 10-14 shows the prevalence of underweight among a sample population, categorized by gender. The prevalence of underweight was 21.6%, indicating a significant portion of the children falling below the expected weight-for-age. There is a slight difference in the prevalence of underweight between boys (22.4%) and girls (20.7%). The prevalence of moderate underweight was 17.1%. Boys had a slightly higher prevalence (18.0%) compared to girls (16.2%). The prevalence of severe underweight was also 4.5% and the prevalence is similar among boys (4.4%) and girls (4.5%).

Table 10-14: Prevalence of Underweight by WAZ by Severity and Sex among Children 6-59 months (SMART exclusions), WHO 2006 Reference

Indicators	All (N=1006)	Boys (N=499)	Girls (N=507)
Not underweight	(789) 78.4% (74.3-82.1)	(387) 77.6% (72.1-82.2)	(402) 79.3% (74.5-83.4)
Prevalence of underweight (WAZ < -2 SD)	(217) 21.6% (17.9-25.7)	(112) 22.4% (17.8-27.9)	(105) 20.7% (16.6-25.5)
Prevalence of moderate underweight (WAZ ≥ -3 to -2 SD)	(172) 17.1% (14.2-20.4)	(90) 18.0% (14.4-22.3)	(82) 16.2% (12.6-20.4)
Prevalence of severe underweight (WAZ < -3 SD)	(45) 4.5% (3.1- 6.3)	(22) 4.4% (2.7- 7.2)	(23) 4.5% (3.1- 6.7)

Table 10-15 presents the prevalence of underweight among different age groups. The prevalence of underweight tends to be higher in the older age groups. Age groups 18 to 29 months (22.5%), 30 to 41 months (22.4%), 42 to 53 months (23.5%), and 54 to 59 months (24.4%) all have higher proportions of underweight individuals compared to the youngest age group 6 to 17 months (16.1%). This suggests that the risk of underweight tends to increase as children grow older. It may be attributed to various factors, such as changes in dietary habits, increased nutritional requirements, or inadequate access to nutritious food. These findings underscore the importance of addressing underweight in early childhood and implementing interventions to ensure proper nutrition and healthy development as children age.

Table 10-15: Prevalence of Underweight per WAZ by Severity and Age Group

Age (Months)	N	Not underweight		Underweight (WAZ < -2)		Moderate Underweight (WAZ ≥ -3 to -2)		Severe Underweight (WAZ < -3)	
		n	%	n	%	n	%	n	%
6 to 17	205	172	83.9%	33	16.1%	25	12.2%	8	3.9%
18 to 29	253	196	77.5%	57	22.5%	40	15.8%	17	6.7%
30 to 41	245	190	77.6%	55	22.4%	42	17.1%	13	5.3%
42 to 53	213	163	76.5%	50	23.5%	44	20.7%	6	2.8%
54 to 59	90	68	75.6%	22	24.4%	21	23.3%	1	1.1%
All	1,006	789	78.4%	217	21.6%	172	17.1%	45	4.5%

Figure 10-8 shows the distribution of weight-for-age Z-scores in the survey data exhibits a leftward deviation, with a mean of -1.3 and a standard deviation of 0.93. This indicates that the surveyed population has a poorer nutritional status than the WHO reference population. The acceptable range for the standard deviation is between 0.8 and 1.2.

Figure 10-8: Distribution of WAZ sample compared to the WHO 2006 WAZ reference curve.

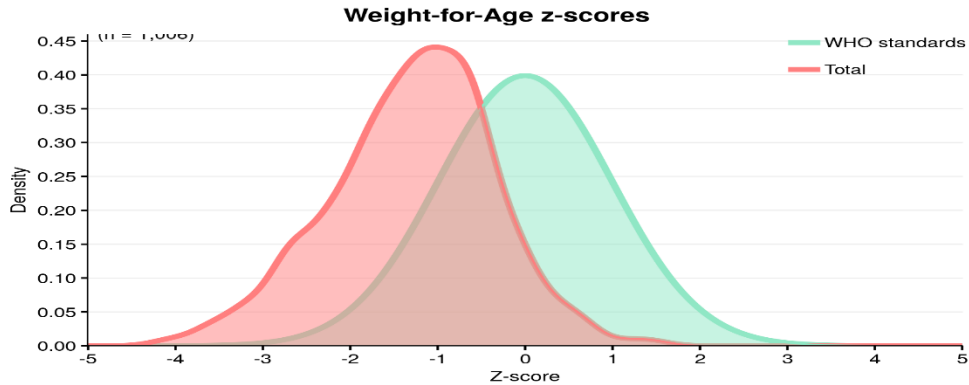
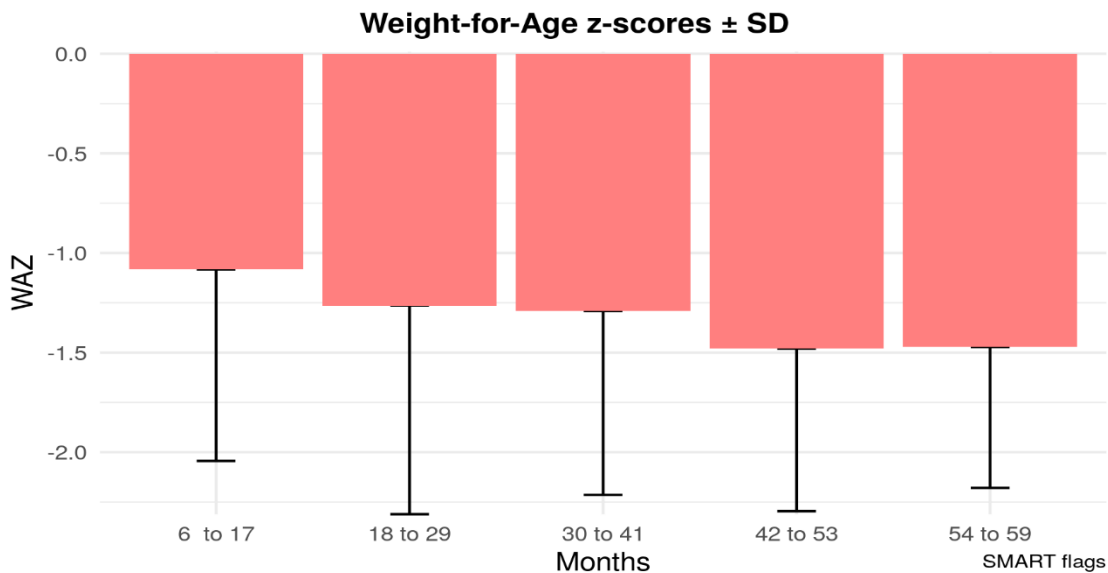


Figure 10-9 depicts the mean z-scores for wasting in each age category. The age group of 6 to 17 months has the highest mean z-score of underweight (-1.083019), indicating a relatively lower underweight prevalence compared to the other age groups. As children grow older, from 18 to 29 months, 30 to 41 months, and 42 to 53 months, there is a gradual decrease in the mean z-scores, indicating a higher prevalence of underweight. The lowest mean z-score is observed in the age group of 54 to 59 months (-1.471899).

Figure 10-9: Mean WAZ by Age Group



10.6 PREVALENCE OF OVERWEIGHT

The prevalence of overweight is reported as 0% for all indicators across all age groups, including the overall population, boys, and girls. This means that none of the individuals in the survey were classified as overweight based on the criteria used ($WHZ > 2 SD$).

10.7 MORTALITY RESULTS

Table 10-16 presents mortality rate data categorized by population, sex, and age groups. The overall mortality rate in the population is reported as 0.58 deaths per 10,000 individuals per day. The mortality rate for males is reported as 0.83 deaths per 10,000 individuals per day while the mortality rate for females is reported as 0.35 deaths per 10,000 individuals per day. The mortality rate for children aged 0 to 4 years is reported as 0.83 deaths per 10,000 individuals per day.

Variations in mortality rates across different population groups, sexes, and age groups was observed. Notably, the mortality rates for males and individuals aged 50 to 64 years and 65 to 120 years are higher compared to the overall mortality rate. Conversely, females have a lower mortality rate compared to the overall rate.

Table 10-16: Mortality Rate by Age and Sex with Reported Design Effect

Population	Mortality Rate (/10,000/Day)	Design Effect
Overall	0.58 (0.32-1.07)	1.81
By Sex		
Male	0.83 (0.43-1.59)	1.43
Female	0.35 (0.13-0.93)	1.53
By Age Group		
0 to 4	0.83 (0.37-1.88)	1.41
5 to 11	0.15 (0.02-0.85)	1.00
12 to 17	0.29 (0.05-1.63)	1.00
18 to 49	0.29 (0.07-1.13)	1.66
50 to 64	2.63 (0.79-8.03)	1.37
65 to 120	2.28 (0.49-8.99)	1.06

Table 10-17 presents two mortality rates: the Crude Mortality Rate (CRM) and the Under-5 Mortality Rate. The Crude Mortality Rate is reported as 0.58 deaths per 10,000 people per day while the rate is reported as 0.83 deaths per 10,000 people per day. Both the CRM and the U5MR were below the WHO emergency thresholds of 1/10,000/day and 2/10,000/day respectively. Most deaths were because of illness (78.95%) while injuries contributed 15.79% of deaths. 5.26 percent of the reported deaths were due to unknown causes. All deaths occurred in the current location.

Table 10-2: CMR and U5MR

Population	Unit	Rate (95% CI)
Crude Mortality Rate	deaths/10,000 people/day	0.58 (0.32-1.07)
U5 Mortality Rate	deaths in children under five/10,000 people/day	0.83 (0.37-1.88)

10.8 OTHER INDICATOR RESULTS

10.8.1.1 Food Security

10.8.1.2 Food Consumption Score (FCS)

Table 10-18 presents the food consumption score (FCS). A total of 8.8% had an Acceptable FCS, indicating that their food consumption was considered adequate. These households are likely having access to a diverse range of food options. The Borderline category represents 25.5% of the sample households, suggesting that their food consumption falls within a moderate range. While they may not be experiencing severe food insecurity, there is room for improvement in terms of diet quality and access to a more varied diet. The largest proportion of the population, 65.7%, falls under the Poor category. This indicates a significant level of food insecurity and inadequate food consumption. Individuals in this category are likely experiencing challenges in accessing sufficient and diverse food on a regular basis. This high percentage highlights the need for interventions and support to improve food security and address underlying factors contributing to this level of food consumption.

Table 10-3: Food Consumption Score by Category

Level	Freq.	Proportion	95% CI
Acceptable (FCS > 35)	35	8.8%	(5.2% - 14.4%)
Borderline (21.5 ≤ FCS ≤ 35)	102	25.5%	(19.4% - 32.7%)
Poor (FCS ≤ 21)	263	65.7%	(56.7% - 73.8%)
Total	400	100.0%	(100% - 100%)

* In countries where households have a high sugar and oil consumption (oil and sugar eaten on a daily basis - ~7 days per week), cut-off points of 28 (poor/borderline) and 42 (borderline/acceptable) are usually recommended.

In **Table 10-19**, the average Food Consumption Score (FCS) is reported as 20.88. FCS score below 21 suggests that the surveyed population's food consumption may be insufficient or lacking in terms of quality and variety.

Table 10-4: Average FCS*

Variable	Mean	95% CI	Obs.	SD	Min	Max
FCS	20.88	(18.89, 22.87)	400	10.37	2.5	98

* Maximum FCS is 112 (129.5 if specialized nutritious foods are included).

10.8.1.3 Household Hunger Scale (HHS)

In **Table 10-20**, the data presents the Household Hunger Score (HHS) categorized into different levels of hunger in the household. The findings show that a significant proportion of households (76.0%) experience moderate hunger, while a smaller proportion experience little to no hunger (21.8%) or severe hunger (2.2%).

Overall, the findings suggest that while some households have little to no hunger, a significant proportion experience moderate hunger, and a smaller but notable proportion face severe hunger. These findings underscore the presence of food insecurity and the need for interventions to address hunger and improve food access in the surveyed population.

Table 10-5: Household Hunger Score by Category

	Freq.	Proportion	95% CI
Little to no hunger in the household	88	21.8%	(14.8% - 30.9%)
0 HHS = 0	22	5.4%	(2.9% - 9.9%)
1 HHS = 1	66	16.3%	(10.3% - 24.9%)
Moderate hunger in the household	307	76.0%	(67.0% - 83.2%)
2 HHS = 2	131	32.4%	(24.3% - 41.8%)
3 HHS = 3	176	43.6%	(33.2% - 54.6%)
Severe hunger in the household	9	2.2%	(0.8% - 6.2%)
4 HHS = 4	9	2.2%	(0.8% - 6.2%)
5 HHS = 5	0	0.0%	(0.0% - 0.0%)
6 HHS = 6	0	0.0%	(0.0% - 0.0%)
Total	404	100.0%	(100.0% - 100.0%)

In **Table 10-21**, the data presents the median Household Hunger Score (HHS). The median HHS is reported as 2. This indicates that half of the surveyed households have an HHS equal to or below 2, while the other half have an HHS equal to or above 2. The interquartile range (IQR) is provided as [2 - 3]. This indicates that the middle 50% of the HHS distribution falls within the range of 2 to 3.

Table 10-6: Median Household Hunger Score

Variable	Median	IQR	Min	Max
Household Hunger Scale	2	[2 - 3]	0	4

10.8.1.4 Reduced Coping Strategy Index (rCSI)

Table 10-22 presents the findings of a survey on negative coping strategies used by a surveyed population over the past 7 days. Overall, the findings indicate that a significant portion of the surveyed population employed negative coping strategies related to food insecurity over the past 7 days. Strategies such as relying on less preferred and/or less expensive foods, borrowing food or seeking help, limiting portion sizes, reducing the number of meals, and adults reducing their consumption so children could eat were prevalent among the surveyed population.

Table 10-7: Negative coping strategies used by the surveyed population over the past 7 days

Level	Freq.	Proportion	95% CI
Rely on less preferred and/or less expensive foods	379	94.5%	(90.9% - 96.8%)
Borrow food, or rely on help from a friend or relative	361	89.8%	(81.8% - 94.5%)
Limit portion sizes at mealtime	373	93.0%	(87.2% - 96.3%)
Reduce the number of meals eaten in a day	376	93.5%	(87.4% - 96.8%)
Reduce consumption by adults so children could eat	305	75.9%	(66.7% - 83.2%)

* The total will be over 100% as households may use several negative coping strategies.

Table 10-23 presents the findings related to the Reduced Coping Strategy Index (rCSI). The average rCSI score among the surveyed population is 25.54. These findings suggest that the surveyed population, on average, experiences a moderate level of coping strategy reduction, as indicated by the rCSI score.

Table 10-8: Average rCSI

Variable	Mean	95% CI	Obs.	SD	Min	Max
Reduced Coping Strategy Index (rCSI)	25.54	(23.43, 27.65)	400	10.25	0	56

* Maximum rCSI is 56

10.8.1.5 WASH

10.8.1.6 Access to improved sanitation facilities

Table 10-24 provides information on access to improved sanitation facilities. Access to improved sanitation facilities was 1.1% of the surveyed population. On the other hand, the majority of the surveyed population, 694 households (93.3%), reported having unimproved toilet facilities. Overall, the findings indicate that most of the surveyed population, around 93.3%, reported having unimproved toilet facilities. Access to improved sanitation options, such as improved excreta disposal facilities and communal toilets, was reported by a very small proportion of the population.

Table 10-9: Safe Excreta Disposal (Adapt list to sanitation facilities available in the local setting)

	Freq.	Proportion	95% CI
Improved	8	1.1%	(0.3% - 3.4%)
1 An improved excreta disposal facility	6	0.8%	(0.3% - 2.5%)
2 A shared family toilet	0	0.0%	(0.0% - 0.0%)
3 A communal toilet	2	0.3%	(0.1% - 1.1%)
Unimproved	694	93.3%	(87.2% - 96.6%)

	Freq.	Proportion	95% CI
4 An unimproved toilet	694	93.3%	(87.2% - 96.6%)
Other	42	5.6%	(2.8% - 11.0%)
98 Don't know	42	5.6%	(2.8% - 11.0%)
Total	744	100.0%	(100.0% - 100.0%)

10.8.1.7 Access to safe/improved water for drinking and cooking

Table 10-25 provides information on the water quality and sources available. Only 7.2% of the surveyed population reported having access to protected or treated water. This category includes sources such as public taps/standpipes, protected wells, water sellers/kiosks, piped connections to houses, protected springs, bottled water, and tanker trucks. Most of the surveyed population, 92.8%, reported using un-protected or un-treated water sources. This category includes options such as unprotected hand-dug wells, surface water (lake, pond, dam, river), unprotected springs, and rainwater collection.

Table 10-10: Water Quality (Adapt list to water sources available in the local setting)

	Freq.	Proportion	95% CI
Protected/treated	54	7.2%	(3.0% - 16.3%)
1 Public tap/standpipe	13	1.7%	(0.3% - 10.4%)
2 Handpumps/boreholes	0	0.0%	(0.0% - 0.0%)
3 Protected well	12	1.6%	(0.2% - 11.1%)
4 Water seller/kiosks	23	3.1%	(0.7% - 11.9%)
5 Piped connection to house (or neighbour's house)	1	0.1%	(0.0% - 1.0%)
6 Protected spring	1	0.1%	(0.0% - 1.0%)
7 Bottled water, water sachets	2	0.3%	(0.1% - 1.1%)
8 Tanker trucks	2	0.3%	(0.1% - 1.1%)
Un-protected/un-treated	692	92.8%	(83.7% - 97.0%)
9 Unprotected hand-dug well	142	19.0%	(11.2% - 30.5%)
10 Surface water (lake, pond, dam, river)	271	36.3%	(25.6% - 48.6%)
11 Unprotected spring	30	4.0%	(1.3% - 12.2%)
12 Rainwater collection	249	33.4%	(23.0% - 45.7%)
96 Other	0	0.0%	(0.0% - 0.0%)
Unknown	0	0.0%	(0.0% - 0.0%)
98 Don't know	0	0.0%	(0.0% - 0.0%)

	Freq.	Proportion	95% CI
Total	746	100.0%	(100.0% - 100.0%)

10.8.1.8 Infant and Young Child Feeding (IYCF) Practices

Table 10-26 indicate that breastfeeding practices show relatively positive outcomes, with 83.8% of infants and young children (aged 0-23 months) having ever been breastfed. However, there are areas that require improvement, such as early initiation, where only 33.2% of infants were breastfed within the first one hour after birth. Exclusive breastfeeding under 6 months was observed in only 19.5% of infants aged 0-5 months, indicating a low adherence to the recommended practice. Furthermore, continued breastfeeding rates were moderate, with 48.3% of children aged 12-23 months still breastfeeding. On the other hand, complementary feeding indicators highlighted areas of concern, including low rates of introduction of solid, semi-solid, or soft foods (25.0%) and poor dietary diversity (0.7%). Additionally, most infants (91.6%) did not consume any vegetables or fruits, while unhealthy food consumption and sweet beverage consumption were also prevalent among a small proportion of infants (1.0% and 24.3% respectively).

These findings underscore the importance of promoting and supporting optimal breastfeeding practices and improving the quality and variety of complementary foods offered to infants and young children. Efforts should focus on raising awareness, providing education, and implementing interventions to improve infant and young child feeding practices to ensure their optimal nutrition and growth.

Table 10-11: Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	Freq	Proportion	95% CI
Breastfeeding Indicators				
Ever breastfed	0-23 months	279	83.8%	(75.1% - 89.9%)
Early Initiation	0-23 months	112	33.2%	(23.8% - 44.2%)
Exclusively breastfed for the first 2 days after birth	0-23 months	195	57.9%	(48.1% - 67.1%)
Exclusive breastfeeding under 6 months	0-5 months	8	19.5%	(9.2% - 36.8%)
Mixed milk feeding under 6 months	0-5 months	8	19.5%	(8.1% - 40.0%)
Continued breastfeeding	12-23 months	101	48.3%	(37.4% - 59.4%)
Complementary Feeding Indicators				
Introduction of solid, semi-solid or soft foods	6-8 months	9	25.0%	(11.7% - 45.6%)
Minimum dietary diversity	6-23 months	2	0.7%	(0.2% - 2.7%)
Minimum meal frequency	6-23 months	72	24.3%	(16.8% - 33.8%)
Minimum milk feeding frequency for non-breastfed children	6-23 months	29	22.7%	(14.9% - 32.9%)
Minimum acceptable diet	6-23 months	2	0.7%	(0.2% - 2.7%)

Indicator	Age range	Freq	Proportion	95% CI
Egg and/or flesh food consumption	6-23 months	3	1.0%	(0.3% - 3.1%)
Sweet beverage consumption	6-23 months	72	24.3%	(17.7% - 32.5%)
Unhealthy food consumption	6-23 months	3	1.0%	(0.3% - 3.1%)
Zero vegetable or fruit consumption	6-23 months	271	91.6%	(86.7% - 94.7%)
Other Indicators				
Bottle feeding	0-23 months	45	13.4%	(9.1% - 19.1%)

10.8.1.9 Nutrition and Health

10.8.1.10 Deworming coverage

Table 10-27 presents the findings on deworming coverage for children aged 12-59 months within the past 6 months. Out of a total of 924 children aged 12-59 months, 545 children, accounting for 59.0% of the sample, did not receive deworming treatment within the past 6 months. On the other hand, 379 children, representing 41.0% of the sample, received deworming treatment within the past 6 months. The findings indicate that a significant proportion of children aged 12-59 months have not received deworming treatment within the past 6 months. There is a need to improve deworming coverage to ensure the well-being and health of these children, as deworming plays a crucial role in combating parasitic infections and related health issues.

Table 10-12: Deworming coverage for children aged 12-59 months within the past 6 months*

Level	Freq.	Proportion	95% CI
No	545	59.0%	(47.3% - 69.7%)
Yes	379	41.0%	(30.3% - 52.7%)
Total	924	100.0%	(100% - 100%)

* Note that this refers to large-scale campaigns done with mebendazole and/or albendazole.

10.8.1.11 Measles vaccination coverage

Table 10-28 presents data on measles vaccination coverage for children aged 9-59 months. The findings highlight that the measles vaccination coverage for children aged 9-59 months is relatively high, with 85.2% of children having received the vaccine. However, there is a small proportion of children (14.8%) who have not received the measles vaccination. Among those who received the vaccine, most were identified through recall or caregiver report, suggesting that vaccination cards may not be readily available. This underscores the importance of ensuring that all children receive the measles vaccine to prevent the spread of this highly contagious disease and protect public health.

Table 10-13: Measles vaccination coverage for children aged 9-59 months.

	Freq.	Proportion	95% CI
Yes	842	85.2%	(77.3% - 90.7%)
1 Yes, card	7	0.7%	(0.3% - 1.6%)
2 Yes, recall	835	84.5%	(76.6% - 90.1%)
No	146	14.8%	(9.3% - 22.7%)
3 No or don't know	146	14.8%	(9.3% - 22.7%)
Total	988	100.0%	(100.0% - 100.0%)

Table 10-29 provides data on measles vaccination coverage for children aged 9-23 months. The findings reveal that measles vaccination coverage for children aged 9-23 months is relatively high, with 82.2% of children having received the vaccine. However, there is still a proportion of children (17.8%) within this age group who have not received the measles vaccination. Among those who received the vaccine, most were identified through recall or caregiver report, suggesting that vaccination cards may not be readily available.

Table 10-14: Measles vaccination coverage for children aged 9-23 months.

	Freq.	Proportion	95% CI
Yes	212	82.2%	(73.5% - 88.5%)
1 Yes, card	2	0.8%	(0.2% - 3.0%)
2 Yes, recall	210	81.4%	(72.6% - 87.9%)
No	46	17.8%	(11.5% - 26.5%)
3 No or don't know	46	17.8%	(11.5% - 26.5%)
Total	258	100.0%	(100.0% - 100.0%)

10.8.1.12 Morbidity results and health-seeking behaviour

Table 10-30 provides information on the use of Oral Rehydration Solution (ORS) and zinc during a diarrhoea episode for children aged 6-59 months. The findings indicate that a proportion of children aged 6-59 months who experienced a diarrhoea episode received ORS and zinc as part of their treatment. However, the coverage is relatively low, with only 42.9% of children receiving ORS, 30.4% receiving zinc tablets or syrup, and 23.2% receiving both ORS and zinc. These findings suggest the need to improve the use of ORS and zinc during diarrhoea episodes, as these interventions are effective in preventing dehydration and reducing the severity of diarrhoeal episodes in children. Increased awareness and access to these treatments can contribute to better management and outcomes for children with diarrhoea. Promoting the appropriate use of ORS and zinc, along with other essential nutrition interventions, is crucial in comprehensive efforts to prevent and address severe acute malnutrition in young children.

Table 10-15: ORS and zinc use during diarrhoea episode for children aged 6-59 months.

Level	Freq.	Proportion	95% CI
ORS use during diarrhoea episode	48	42.9%	(28.8% - 58.2%)
Zinc tablet or syrup use during diarrhoea episode	34	30.4%	(17.5% - 47.3%)
ORS and zinc tablet or syrup use during diarrhoea episode	26	23.2%	(11.7% - 40.8%)

Table 10-31 provides information on the prevalence of Acute Respiratory Infection (ARI) symptoms, fever, and diarrhoea in the two weeks preceding the survey for children aged 6-59 months. Out of a total of surveyed children aged 6-59 months, 4.0% of them experienced ARI symptoms in the two weeks preceding the survey. Among the surveyed children, 12.8% had a fever in the two weeks preceding the survey. Similarly, 10.9% of the surveyed children experienced diarrhoea in the two weeks preceding the survey. Implementing comprehensive strategies that focus on preventing and managing respiratory infections, febrile illnesses, and diarrhoea can significantly contribute to reducing the burden of acute malnutrition in young children.

Table 10-16: Prevalence of ARI symptoms, fever and diarrhoea in the two weeks preceding the survey for children aged 6-59 months.

Level	Freq.	Proportion	95% CI
ARI symptoms*	41	4.0%	(2.6% - 6.2%)
Fever	131	12.8%	(9.3% - 17.4%)
Diarrhoea	112	10.9%	(7.6% - 15.6%)

* Cough accompanied by short, rapid breathing which was chest related or with difficulty breathing which was chest related

Table 10-32 presents information on the treatment received for acute respiratory infection (ARI) symptoms, fever, and diarrhoea among children aged 0-59 months. Out of the children exhibiting symptoms of ARI, 43.9% (18 children) sought advice or treatment from a health facility/provider. Among the children with fever, 31.3% (41 children) sought advice or treatment from a health facility/provider. Similarly, 46.4% (52 children) of those with diarrhoea sought advice or treatment from a health facility/provider.

Table 10-17: Treatment for ARI symptoms, fever and diarrhoea for children aged 0-59 months.

Level	Freq.	Proportion	95% CI
Children with symptoms of ARI	18	43.9%	(24.4% - 65.5%)
Children with fever	41	31.3%	(21.4% - 43.3%)
Children with diarrhoea	52	46.4%	(32.9% - 60.5%)

* Prevalence relates to whether advice or treatment was sought from a health facility/provider (excludes pharmacy, shop, and traditional practitioners)

10.8.1.13 Vitamin A Supplementation

Table 10-33 provides information on the coverage of vitamin A supplementation among children aged 6-59 months within the past 6 months. 74.8% (761) of children received vitamin A supplementation within the past 6 months. This indicates a relatively high coverage of vitamin A supplementation among the surveyed children. Only 0.4% (4) of children had documented evidence of receiving vitamin A supplementation through a card.

Table 10-18: Vitamin A supplementation coverage for children aged 6-59 months within the past 6 months.

	Freq.	Proportion	95% CI
Supplementation	765	74.8%	(65.0% - 82.5%)
1 Yes, card	4	0.4%	(0.1% - 1.3%)
2 Yes, recall	761	74.4%	(64.7% - 82.1%)
No supplementation	258	25.2%	(17.5% - 35.0%)
3 No or don't know	258	25.2%	(17.5% - 35.0%)
Total	1,023	100.0%	(100.0% - 100.0%)

10.8.1.14 MUAC in women

In **Table 10-34**, the prevalence of MUAC (Mid-Upper Arm Circumference) malnutrition in non-pregnant, non-lactating women aged 15-49 is presented. The table provides valuable insights into the levels of malnutrition based on two different MUAC cut-off's: MUAC < 210mm and MUAC < 230mm.

For MUAC < 210mm, we observe that out of the total sample, there are 27 cases of MUAC malnutrition, accounting for 5.5% of the population. This suggests that approximately 5.5% of non-pregnant, non-lactating women in this age range have a mid-upper arm circumference below 210mm, which is indicative of malnutrition.

For MUAC < 230mm, we find that the prevalence of malnutrition increases. There are 132 cases of MUAC malnutrition, accounting for a higher proportion of 26.8% among non-pregnant, non-lactating women aged 15-49.

Table 10-19: Prevalence of MUAC Malnutrition in Non-Pregnant, Non-Lactating Women (Aged 15-49)

Level	Freq.	Proportion	95% CI
Prevalence of MUAC < 210mm	27	5.5%	(3.6% - 8.3%)
No malnutrition (MUAC ≥ 210mm)	457	92.9%	(89.8% - 95.1%)
	8	1.6%	(0.8% - 3.4%)
Prevalence of MUAC < 230mm	132	26.8%	(22.1% - 32.2%)
No malnutrition (MUAC ≥ 230mm)	352	71.5%	(66.0% - 76.5%)
	8	1.6%	(0.8% - 3.4%)

Table 10-35 provides data on the prevalence of MUAC malnutrition in two distinct groups: pregnant women and lactating women with an infant less than 6 months old. The table presents information for two levels of malnutrition based on different MUAC thresholds: MUAC < 210mm and MUAC < 230mm. Regarding MUAC <

210mm, the survey data reveals that out of the total sample, there are 9 cases of MUAC malnutrition among pregnant and lactating women, accounting for 6.4% of the population. This indicates that approximately 6.4% of pregnant and lactating women in this group have a mid-upper arm circumference below 210mm, which is indicative of malnutrition. For MUAC < 230mm, we find that the prevalence of malnutrition increases. There are 42 cases of MUAC malnutrition, accounting for a higher proportion of 30.0% among pregnant and lactating women.

Table 10-20: Prevalence of MUAC Malnutrition in Pregnant Women and Lactating Women with an Infant Less Than 6 Months

Level	Freq.	Proportion	95% CI
Prevalence of MUAC < 210mm	9	6.4%	(2.9% - 13.7%)
No malnutrition (MUAC ≥ 210mm)	131	93.6%	(86.3% - 97.1%)
Prevalence of MUAC < 230mm	42	30.0%	(21.9% - 39.6%)
No malnutrition (MUAC ≥ 230mm)	98	70.0%	(60.4% - 78.1%)

10.8.1.15 Physiological Status and Age

Table 10-36 provides an overview of women's age for the entire group of women aged 15-49. The mean age of 30.02 suggests that, on average, women in this age range are around 30 years old. The age range spans from the minimum age of 15 to the maximum age of 49.

Table 10-21: Women's Age (all women aged 15-49)

Variable	Mean	95% CI	Obs.	SD	Min	Max
Age	30.02	(29.15, 30.89)	717	8.06	15	49

In **Table 10-37**, the physiological status of women aged 15-49 is presented, divided into four distinct categories: non-pregnant, non-lactating; pregnant; lactating with an infant less than 6 months old; and lactating with an infant greater than 6 months old. The largest group consists of non-pregnant, non-lactating women, representing 69.6% of the total sample, followed by lactating women with infants greater than 6 months old and less than 6 months old accounting for 50.3% and 49.7% respectively. Pregnant women account 11% of the sample.

Table 10-22: Physiological status for women aged 15-49

Level	Freq.	Proportion	95% CI
Non-pregnant, non-lactating	492	69.6%	(62.7% - 75.7%)
Pregnant	78	11.0%	(8.2% - 14.7%)
Lactating with an infant less than 6 months	75	49.7%	(37.9% - 61.5%)
Lactating with an infant greater than 6 months	76	50.3%	(38.5% - 62.1%)

11 DISCUSSION

11.1 NUTRITIONAL STATUS OF THE AFP LIVELIHOOD ZONE

The overall prevalence of global acute malnutrition, which includes children with WHZ <-2 z-score and/or edema, is 21.9%. Among boys, the prevalence is slightly higher at 24.0%, while among girls, it is slightly lower at 19.8%. Similarly, the prevalence of severe acute malnutrition, indicated by WHZ <-3 z-score and/or edema, is 2.0% in the overall sample. Among boys, the prevalence is 2.6%, and among girls, it is 1.4%. The disparity in malnutrition level between boys and girls could be explained by the fact that boys and girls may have varying nutritional needs and growth patterns. Boys typically require more calories and nutrients for their growth and development⁹. If there is a disparity in meeting these higher nutritional requirements for boys, it can contribute to their higher malnutrition prevalence¹⁰. The specific dynamics and underlying causes of gender disparities in malnutrition can vary across different pastoral communities. A comprehensive understanding of the local context, cultural norms, and socio-economic factors is crucial for designing effective interventions to address these disparities and improve the nutritional status of both boys and girls in pastoral areas.

There is also a concordance between GAM prevalence by WHZ and MUAC. The GAM prevalence by MUAC was found to be 4.8% (3.5-6.7 95% CI). This could be explained by the fact in the pastoral context, children may have different body compositions due to factors such as ethnicity, genetics, and lifestyle. The prevalence of GAM by combining both WHZ and was 23.4%. Combining both indicators can provide a more comprehensive understanding of the malnutrition situation and guide appropriate programmatic responses.

The prevalence of GAM in AFP indicates very high or critical nutrition situation as per the WHO acute malnutrition thresholds. Previous survey in Dolo LHP reported a GAM prevalence of 13%. In comparison, the current sample has a higher prevalence of 21.9%. Similarly, the baseline survey for the National Food and Nutrition Strategy reported a GAM prevalence of 17%. Comparing it to the current sample's prevalence of 21.9%, we can see that the prevalence of acute malnutrition is higher in the current sample than the regional average. Thus, this suggests a relatively higher burden of acute malnutrition in the current sample compared to those previous surveys.

The high prevalence of GAM may be attributed to the high morbidity rate that was observed, poor WASH practices, recurrent droughts and the sub-optimal infant and young child feeding practices identified in this survey. To further compound the situation, there is poor access in several areas of the locality due to poor roads. Therefore, it is important to address these findings through targeted interventions and nutrition programs to improve the nutritional status of the affected children and reduce the prevalence of acute malnutrition in the population.

The prevalence of underweight among the children in AFP was 21.6% (17.9-25.7), with 4.5% (3.1- 6.3) being severely underweight. This is classified as high according to WHO classification. Underweight was higher among males (22.4%) than in girls (20.7%) and the prevalence of underweight tends to be higher in the older age groups and that the risk of underweight tends to increase as children grow older. These findings underscore the importance of addressing

⁹ Thurstans S, Opondo C, Seal A, Wells J, Khara T, Dolan C, Briend A, Myatt M, Garenne M, Sear R, Kerac M. Boys are more likely to be undernourished than girls: a systematic review and meta-analysis of sex differences in undernutrition. *BMJ Glob Health*. 2020 Dec;5(12):e004030. doi: 10.1136/bmjgh-2020-004030. PMID: 33328202; PMCID: PMC7745319.

¹⁰ Thurstans S, Opondo C, Seal A, Wells J, Khara T, Dolan C, Briend A, Myatt M, Garenne M, Sear R, Kerac M. Boys are more likely to be undernourished than girls: a systematic review and meta-analysis of sex differences in undernutrition. *BMJ Glob Health*. 2020 Dec;5(12):e004030. doi: 10.1136/bmjgh-2020-004030. PMID: 33328202; PMCID: PMC7745319.

underweight in early childhood and implementing interventions to ensure proper nutrition and healthy development as children age.

The results also indicate a level of 14.5% (11.8-17.7) according to WHO threshold. Among boys, the prevalence is 16.3% (12.9-20.3), and among girls, it is 12.8% (9.6-16.8). This demonstrates that a significant proportion of children in the population suffer from chronic malnutrition. The highest prevalence of stunting was seen in the 30 to 41 months age group (18.6%), followed by the 18 to 29 months age group (17.1%). The lowest prevalence of stunting is observed in the 54 to 59 months age group (10%). These findings suggest that stunting levels may change as children grow older, emphasizing the significance of age-specific interventions to address stunting in different age groups. This finding is also consistent with prior research, which demonstrates that the risk of stunting increases with age when child nutrition and other care practices deteriorate.

Table 11-1: Prevalence of GAM by WHZ Comparing the 0-59 Month to the 6-59 Month Sample

Sample	GAM by WHZ		SAM by WHZ	
	%	CI (95%)	%	CI (95%)
Children 0-59 Months	21.9%	(17.7%-26.8%)	2.0%	(1.1%-3.6%)
Children 6-59 Months	21.9%	(17.7%-26.8%)	2.0%	(1.1%-3.6%)

TABLE 11-2: WHO MALNUTRITION THRESHOLDS

Classifications	Low (%)	Medium (%)	High (%)	Very High (%)
Stunting	<20	20–29	30–39	≥40
Underweight	<10	10–19	20–29	≥30
Wasting	<5	5–9	10–14	≥15

11.2 MORTALITY

The crude mortality rate was 0.58 (0.32 - 1.07 95% C.I.) and the under-five mortality rate was 0.83 (0.37-1.88). Both the CMR and the U5MR were below the WHO emergency thresholds of 1/10,000/day and 2/10,000/day respectively. Although the mortality rates were below the emergency thresholds, given the high levels of acute malnutrition and disease outbreaks in some of the districts surveyed, the mortality rate may potentially increase, particularly among children.

11.3 DETERMINANTS OF MALNUTRITION

Based on the survey result, we identified several major determinants of malnutrition. These determinants were categorized into immediate, underlying, and basic causes, as described below:

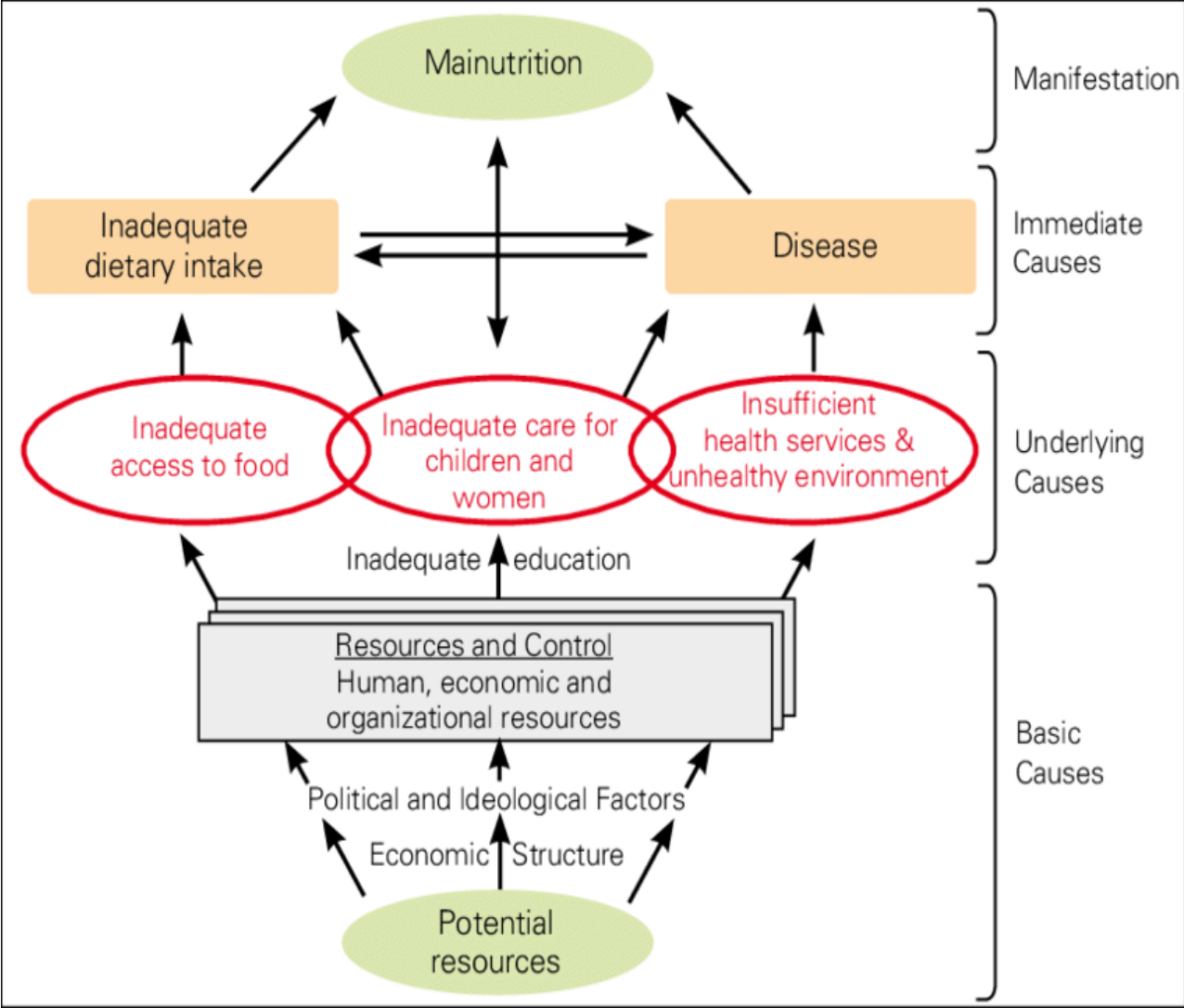


Figure 10-10: UNICEF Conceptual Framework of Malnutrition.

Immediate Causes of Malnutrition and Mortality:

1. Inadequate breastfeeding practices: The prevalence of exclusive breastfeeding under 6 months (19.5%) and early initiation of breastfeeding (33.2%) is relatively low. Inadequate breastfeeding practices can lead to malnutrition and increase the risk of mortality due to lack of essential nutrients and protective factors provided by breast milk.
2. Insufficient complementary feeding: The introduction of solid, semi-solid, or soft foods (25.0%) and minimum dietary diversity (0.7%) indicators indicate suboptimal complementary feeding practices. Inadequate complementary feeding contributes to nutrient deficiencies, stunted growth, and increased vulnerability to infections, potentially leading to malnutrition and mortality.
3. Infection: A total 12.8% surveyed children had a fever in the two weeks preceding the survey. Similarly, 10.9% of the surveyed children experienced diarrhoea in the two weeks preceding the survey. Without preventing and managing infections such as febrile illnesses, and diarrhoea can significantly contribute to the burden of acute malnutrition in young children.

Underlying Causes of Malnutrition and Mortality:

1. Household food insecurity: The prevalence of poor households based on the Household Hunger Score (65.7%) indicates a high proportion of households experiencing food insecurity. Limited access to a diverse and nutritious diet can contribute to chronic malnutrition and increase the susceptibility of children to illnesses, including those leading to mortality.
2. Limited health-seeking behavior: The proportion of children with ARI symptoms, fever, and diarrhea who received appropriate treatment is relatively low (ranging from 31.3% to 46.4%). Limited health-seeking behavior and delayed or inadequate treatment can exacerbate the severity of illnesses, leading to increased morbidity and mortality.
3. Inadequate sanitation facilities: Most households (93.3%) in the pastoral context have unimproved sanitation facilities, including unimproved toilets. This lack of proper sanitation infrastructure increases the risk of fecal contamination, leading to the spread of waterborne diseases and poor hygiene practices, which can contribute to malnutrition.
4. Poor water quality: The findings indicate that a significant proportion of households (92.8%) rely on un-protected or un-treated water sources such as surface water, rainwater collection, and unprotected hand-dug wells. This exposes the community to waterborne diseases and contaminants, affecting the overall health and nutritional status of individuals, particularly children.

Basic Causes of Malnutrition and Mortality:

1. Poverty and socioeconomic factors: The high prevalence of poor households and food insecurity (as indicated by the Household Hunger Score) suggests underlying poverty and socioeconomic factors contributing to malnutrition and mortality. Limited access to resources, education, and healthcare services can hinder optimal child growth and development.
2. Lack of awareness and knowledge: Inadequate knowledge and awareness about optimal breastfeeding practices, complementary feeding, and appropriate treatment of illnesses may contribute to the observed suboptimal practices. Lack of information and understanding among caregivers and communities can hinder the adoption of beneficial behaviors and preventive measures.
3. Limited healthcare infrastructure and services: Inadequate healthcare infrastructure and access to essential services, including nutrition and child healthcare, can impede early detection, prevention, and treatment of malnutrition and illnesses. Insufficient availability and quality of healthcare services can hinder efforts to address the underlying causes of malnutrition and reduce mortality risks.

To effectively address the major acute determinants of malnutrition and reduce mortality, interventions should focus on promoting optimal breastfeeding practices, improving complementary feeding, comprehensive WASH intervention, increasing access to appropriate healthcare services, enhancing food security, and addressing poverty and socioeconomic factors. Additionally, community-based education programs, improved healthcare infrastructure, and strengthening of healthcare systems are crucial to addressing the underlying and basic causes of malnutrition and mortality.

11.4 ADDITIONAL INDICATORS.

Morbidity and health seeking behavior

ARI symptoms affected 4.0% of children, while fever and diarrhea had prevalence rates of 12.8% and 10.9%, respectively. These common health issues contribute to malnutrition among young children. The prevalence rates indicate the burden of these illness in the pastoral context, emphasizing the importance of preventive measures and timely treatment to mitigate the impact on child health and nutrition.

Treatment rates for ARI symptoms, fever, and diarrhea were suboptimal, with only 43.9%, 31.3%, and 46.4% of affected children receiving treatment, respectively. Thus, improving treatment coverage is crucial to prevent complications and address the adverse effects of these conditions on child health and nutritional status. Access to healthcare services and community education are key factors that need to be addressed to ensure timely and appropriate treatment.

Less than half (42.9%) of children used ORS during a diarrhea episode, indicating a gap in appropriate treatment. Zinc tablet or syrup usage was even lower, with only 30.4% of children receiving this intervention. These findings indicate the need to improve the uptake of ORS and zinc during diarrhea episodes. Enhancing awareness, availability, and access to these interventions can play a significant role in preventing dehydration and reducing the severity and duration of diarrhea episodes and consequently preventing malnutrition.

The health-seeking behavior of parents and caregivers in seeking advice or treatment from health facilities/providers is vital for the prevention of malnutrition. By seeking timely and appropriate healthcare, parents can access information and support to address the underlying causes of illness, manage symptoms effectively, and implement proper feeding practices to maintain optimal nutrition. Adequate medical care can also help identify and address any underlying health conditions that may contribute to malnutrition.

To further promote the prevention of malnutrition, it is crucial to raise awareness among parents and caregivers about the importance of seeking healthcare for common childhood illnesses, such as respiratory infections, fever, and diarrhoea. Strengthening healthcare systems, ensuring accessibility to healthcare facilities, and providing education on early recognition and management of these conditions can empower parents to take proactive steps in safeguarding their children's nutritional well-being.

Deworming, measles vaccination, and vitamin A coverage

Only 41.0% of children received deworming treatment within the specified period which is much higher than the national food and nutrition strategy baseline survey that reported only 6% of the children received deworming tablets in the past six months. The low deworming coverage suggests a significant gap in preventing parasitic infections, which can contribute to malnutrition. Improving deworming coverage is crucial to reduce the burden of parasitic infections and potentially improve nutritional outcomes among children.

85.2% of children aged 9-59 months received measles vaccination. While the overall measles vaccination coverage is relatively high, the presence of unvaccinated or children with unknown vaccination status highlights the need to strengthen vaccination programs. Ensuring high vaccination coverage can contribute to reducing the risk of measles-related malnutrition.

74.8% of children aged 6-59 months received vitamin A supplementation in the past six months. This finding is much higher than the national food and nutrition strategy baseline survey that reported only 5% of the children were supplemented with vitamin A. Vitamin A deficiency is a significant contributor to malnutrition and increased vulnerability to infections.

Infant, Young, Child Feeding Practices (IYCF)

The prevalence of exclusive breastfeeding under 6 months in the current survey is 19.5%, while the National Food and Nutrition Strategy Baseline Survey (NSBS)¹¹ found it to be 36% of Somali children were exclusively breastfed. The lower prevalence of exclusive breastfeeding under 6 months in the survey population, indicates a potential risk for increased malnutrition rates among infants. It suggests that a significant proportion of infants may not be receiving adequate nutrition during this critical period.

The prevalence of early initiation in the current survey is 33.2%, while the NSBS reported it to be 58%. Higher rates of early initiation are associated with better breastfeeding practices and reduced risk of malnutrition. The lower prevalence observed in the survey suggests a potential gap in promoting early initiation practices, which could impact the overall nutritional status of infants.

The prevalence of exclusive breastfeeding for the first 2 days after birth in the current survey is 57.9%, while the NSBS reported it to be 69%. Exclusive breastfeeding during the first few days after birth is important as it provides colostrum and establishes breastfeeding patterns. It helps protect against infections and provides essential nutrients. The lower prevalence observed in the survey suggests a potential need for improvement in ensuring exclusive breastfeeding during this critical period.

The prevalence of MDD in the current survey is 0.7%, while the National Food and Nutrition Strategy Baseline Survey reported it to be 2%. MDD indicates the proportion of children aged 6-23 months who receive foods from at least five out of eight food groups which is consistent with the survey findings. A low prevalence of MDD indicates inadequate dietary diversity, which can contribute to nutrient deficiencies and malnutrition. Introducing a variety of nutrient-rich foods is essential for meeting the nutritional needs of young children. The low prevalence rates observed in AFP suggest a need for promoting diverse and balanced diets for infants and young children.

The prevalence of sweet beverage consumption in the current survey is 24.3%, while the National Food and Nutrition Strategy Baseline Survey reported it to be 34%. Sweet beverages include sugary drinks like soda, fruit juices with added sugars, and sweetened tea. High consumption of sweet beverages is associated with increased risk of malnutrition, as it can displace nutrient-rich foods and contribute to excess energy intake.

The prevalence of unhealthy food consumption in the current survey is 1.0%, while the National Food and Nutrition Strategy Baseline Survey reported it to be 9%. Unhealthy foods typically refer to processed foods high in fats, sugars, and salt. High consumption of sweetened beverages can displace the intake of nutrient-rich foods, leading to nutritional imbalances and malnutrition.

Maternal nutrition

The prevalence of MUAC (Mid-Upper Arm Circumference) malnutrition in non-pregnant, non-lactating women aged 15-49 is 26.8%. The findings indicate that a substantial proportion of women in this population experience malnutrition, as evidenced by their mid-upper arm circumference falling below the specified thresholds. These findings underscore the importance of addressing malnutrition and implementing appropriate interventions to improve the health and well-being of women in this demographic group.

Similarly, the prevalence of malnutrition in pregnant women and lactating women with an infant less than 6 months old is 30%. The findings indicate that a notable proportion of women in this group experience malnutrition, as evidenced by their mid-upper arm circumference falling below the specified thresholds. These results underscore the importance of addressing malnutrition and providing appropriate support and interventions to improve the health and well-being of pregnant and lactating women and their infants.

¹¹ National Food and Nutrition Strategy Baseline Survey Report, March 2023.

Malnutrition, as measured by MUAC, is present in both non-pregnant, non-lactating women and pregnant/lactating women with infants under 6 months old. These findings highlight the importance of addressing maternal nutrition, especially during pregnancy and lactation, as inadequate nutrition can have adverse effects on both the mother and the developing infant. Adequate maternal nutrition is crucial for the well-being and health of both the mother and the child, and efforts should be made to improve access to nutritious food, promote breastfeeding, and provide appropriate support and care for pregnant and lactating women to prevent malnutrition.

WASH

The survey findings highlight significant gaps in sanitation facilities and access to safe water sources, which have direct implications for malnutrition prevention. Inadequate sanitation facilities, including the widespread use of unimproved toilets and limited access to improved excreta disposal facilities, contribute to the transmission of diseases that can impair nutrient absorption and lead to malnutrition.

Similarly, relying on unprotected or untreated water sources increases the risk of waterborne diseases, which can further compromise nutritional status. Safe and clean water is essential for maintaining proper hygiene, preparing nutritious meals, and preventing the transmission of diseases that can exacerbate malnutrition.

Food security

The survey was conducted in May, which is considered the Gu (rainy) season in the AFP. Typically, during the Gu season, there is an expectation of better grazing conditions, which can contribute to improved milk production and potentially increase food availability for pastoral communities. However, despite the seasonal improvements, the survey revealed that most of the surveyed population (65.7%) falls into the “Poor” category of food consumption. This indicates that even during the Gu season, when some food sources might be more available, there are persistent challenges in accessing sufficient and nutritious food.

The survey findings indicate that a significant proportion of households (76.0%) experience moderate hunger. While the survey was conducted during the Gu season, when there might be improvements in some food sources like milk, the high prevalence of moderate hunger suggests ongoing food insecurity and vulnerability to malnutrition. It's important to note that the historic drought and the large-scale loss of livestock have likely contributed to the continued food insecurity, even during the rainy season.

The coping strategies reported in the survey reflect the measures taken by households to manage food insecurity. Despite the potential improvements during the Gu season, the reliance on negative coping mechanisms, such as borrowing food and limiting portion sizes, indicates the challenges faced by the surveyed population. The large-scale loss of livestock caused by the historic drought has likely exacerbated the need for these coping strategies.

The rCSI score of 25.54 corresponds to IPC Phase 3, indicating a state of 'Crisis' food insecurity. This score shows the severity of the challenges faced by the assessed population in accessing sufficient and nutritious food, leading to a critical situation. The findings suggest that households in the population are likely experiencing moderate to severe food insecurity, as reflected in the high rCSI score. The impact of the historic drought and large-scale loss of livestock has contributed to the continuation of food insecurity, even when some seasonal improvements in food availability are expected. Consequently, households are resorting to negative coping strategies, such as reducing the number of meals, consuming less diverse and nutritious foods, and borrowing food to meet their basic needs. These coping strategies are likely unsustainable and may exacerbate the risk of malnutrition and overall vulnerability. Given that the rCSI score places the population within the Crisis phase, urgent attention and comprehensive assistance are required to prevent further deterioration and address the immediate and underlying causes of food insecurity in the pastoral context.

Considering the specific administrative zones and districts within the AFP Livelihood Zone where the survey was conducted, it is evident that the surveyed population is facing significant challenges in accessing sufficient and nutritious food. The combination of the historic drought and large-scale livestock loss highlights the complexity of the food security situation in the area.

12 CONCLUSION

In conclusion, the analysis of the current survey data reveals significant malnutrition prevalence among children and PLWs, highlighting the urgent need for interventions. The major acute determinants of malnutrition and potential causes of mortality identified include inadequate breastfeeding practices, insufficient complementary feeding, high prevalence of unimproved sanitation facilities, poor water quality, limited access to protected water sources, inadequate treatment during diarrheal episodes, household food insecurity, limited health-seeking behavior, poverty, lack of awareness and knowledge, and limited healthcare infrastructure and services.

To address these challenges and effectively combat malnutrition, a multi-faceted approach is necessary. This approach should prioritize promoting optimal breastfeeding practices, improving complementary feeding, enhancing access to healthcare services, improved water sources, improving hygiene and sanitation practice, addressing food insecurity, and tackling poverty and socioeconomic factors. Additionally, community-based education programs and the strengthening of healthcare infrastructure are vital components of comprehensive interventions.

By implementing these measures, we can work towards reducing malnutrition prevalence and its associated mortality risks among children. It is crucial to invest in holistic strategies that encompass nutrition interventions, healthcare improvements, poverty alleviation efforts, and community engagement. Such comprehensive approaches hold the potential to improve child well-being, mitigate malnutrition rates, and ultimately save lives.

ANNEXES

Annex 1 - CLUSTER SELECTION

Geographical Unit	Population Size	Cluster
Farburo(IDP)	3,300	1
01Kebele	2,772	RC
02Kebele	3,696	
03Kebele	4,092	2
Harus	1,782	RC
Gubadad	1,782	
Balaf	792	
Higlo	1,650	RC
Wardid	1,584	
Garablow	3,432	3
Dabafayd	3,531	
Kakaley	1,221	4
Jerry	4,752	5
Liban	3,102	
Hilogududo	4,059	6
Kayane	1,518	7
Biyolow	4,290	8
Digino	1,848	
Sigole	3,630	9
Folmarodi	462	
Bursaredo	3,894	10
Bunshoweyn	1,650	
Dirri	2,508	11
Gabal	1,650	

Geographical Unit	Population Size	Cluster
Kurtun	1,320	
Malkasalah	2,772	12
Birlays	1,122	
udhi	1,584	RC
Hodon	1,188	
Harsog	1,782	
Hargelle01	1,980	13
Hargelle02	1,980	
Hargelle03	3,762	14
Hargelle04	1,386	
IDP	462	
Gudcusbo01	3,300	15
sarmaan	396	
warmacaan	198	
Xabaaltiiri	462	
Cawsleey	462	
Qaboobe	462	
Seel	495	16
Ooman1	957	
alan	396	
boodhleey	198	
Baargeele1	1,056	
libaaxjiifaa	726	
dhuunkunuug	462	
qoodhleey	330	
biyomadoobe	363	17
Afcade01	990	

Geographical Unit	Population Size	Cluster
Afcade02	891	
gabriile	231	
1garboxamudh	1,122	
CeelMuran01	792	
sariiro	495	
JanoGaab1	594	18
afyaraado	726	
cabdiwayd	297	
anqalaal	297	
yaxni	330	
Jinbac01	891	
farqori	429	
gumer	363	
Malkadhuur01	858	19
afbilaabe	429	
abaana	363	
galgalincade	132	
Qardag01	627	
iidooreey	231	
Labawaran01	1,320	
baabuureed	528	
Yooco01	528	
madooyo	462	20
ceeldhuub	363	
gabriile	264	
Dhirindhir01	1,188	

Geographical Unit	Population Size	Cluster
Dhirindhir02	990	
sarmaan	495	
dabdheere	594	
buuloqalooc	528	21
gumar	396	
Ban	330	
Dawacaale01	1,188	
dhafdhafeey	660	
hargab	132	
Sogsog01	1,320	
boholcaruus	528	22
sursurkuuyo	1,386	
Xayir01	1,643	
raareey	561	
koot	495	
ciddheere	858	23
Qarari	2,970	
Darusalam	1,188	24
Qolow	1,518	
Dangi	990	
Xiirxiir	1,320	
Bolkod	1,584	25
Wadajad	1,518	
Hilaabshir	3,432	26
Qiyaamo	1,584	
Galayax	2,508	27
Gibino	1,617	

Geographical Unit	Population Size	Cluster
Yaxenbar	2,178	28
Sonqotor	2,494	
Dhawacdhigh	891	
Jaleefan	1,188	29
Cabdileharare	1,716	
Masagabadan	4,620	30
Ceelamod	1,518	
Sabulacad	1,518	31
Muqdhare	2,310	
Lanqudhac	2,376	32
Xayir	1,518	
Qordiir	4,620	33
Janaale	4,488	34
Dhugasho	1,320	
Bardumay	3,960	35
Mideeye	1,980	36
Caliyeey	528	
Hararbo	3,696	
Buttaa	2,838	37
Iligdheere	990	
Calan	3,564	38
Dukanle	2,560	39
Beerijabo	2,541	
Hamaburburis	844	
Gurro	4,917	40
xagar-moqor	4,323	41
baalawareen	3,597	42

Geographical Unit	Population Size	Cluster
dhebiley	3,009	43
ciid-boqon	2,871	
hoofi	3,630	44
xabalcalan	3,682	45
harauna	2,831	46
uraabuldhi	1,960	
cashacad	4,138	47
baqaqsaa	3,240	48
dhadajow	2,356	
wardhankeyr	2,910	49
biyo-badan	4,144	50
calan	2,686	
kurkey	2,567	51
suun-qano	3,161	52
Wadkaal	5,841	53
dhabilay	3,227	54
canadadis	2,626	
cadib	2,547	55
afcaro	3,009	
golhyaan	2,277	56
xisala	5,049	57
shibira	1,452	
guduudo	792	58
qoribaal	660	
goracad	1,221	
masalaadun	5,874	59
candhore	2,244	60

Geographical Unit	Population Size	Cluster
qarsoon	1,914	
dhiigle	1,188	
shanle	2,970	RC
qanyare	3,432	61
Kabaatiro	5,148	62
guleeddhare	2,376	
dhanow	2,508	63
boholdhere	1,894	
Masle	2,200	RC
Ceelwaaq	1,100	
Dhanadacar	880	
Lahelow	1,000	64
Garoon	1,300	
Shanboob	750	
Unko	3,550	65
Malkaugaas	1,000	
Buursayid	700	
Nuunay	580	
Dhuure	650	
Darkadhowr	765	66
Laasmaroodi	678	
Hadood	750	
Cantalaa	880	
Yooco	1,110	
Gooni	585	
Dabanaag	505	67
Xaskul	750	

Geographical Unit	Population Size	Cluster
Tawley	3,300	
Inabiixi	755	RC
Quracle	800	
Boholdheere	900	
Warwaabey	1,000	

Annex 2 - STANDARDIZATION TEST RESULTS

Table 12-1: Bias and Technical Error of Measurement (TEM) Results for Weight

	Subjects	TEM	Bias	Bias Relative To	TEM Outcome	Bias Outcome
Intra-TEM						
Supervisor 1	10	0.00	0.00	Median	TEM good	Bias good
Observer 1	10	0.02	0.01	Supervisor	TEM good	Bias good
Observer 2	10	0.04	0.00	Supervisor	TEM acceptable	Bias good
Observer 3	10	0.03	-0.01	Supervisor	TEM good	Bias good
Observer 4	10	0.03	-0.01	Supervisor	TEM good	Bias good
Observer 5	10	0.05	-0.03	Supervisor	TEM acceptable	Bias good
Observer 6	10	0.04	-0.01	Supervisor	TEM acceptable	Bias good
Observer 7	10	0.04	0.00	Supervisor	TEM acceptable	Bias good
Observer 8	10	0.05	-0.01	Supervisor	TEM acceptable	Bias good
Observer 9	10	0.03	-0.01	Supervisor	TEM good	Bias good
Inter-TEM						
enum inter 1st	9x10	0.04			TEM good	
enum inter 2nd	9x10	0.04			TEM good	

Table 12-2: Bias and Technical Error of Measurement (TEM) Results for Height

	Subjects	TEM	Bias	Bias Relative To	TEM Outcome	Bias Outcome
Intra-TEM						
Supervisor 1	10	0.09	0.19	Median	TEM good	Bias good
Observer 1	10	0.38	-0.37	Supervisor	TEM good	Bias good
Observer 2	10	0.40	-0.09	Supervisor	TEM acceptable	Bias good
Observer 3	10	0.52	-0.13	Supervisor	TEM acceptable	Bias good
Observer 4	10	0.28	-0.15	Supervisor	TEM good	Bias good
Observer 5	10	0.32	-0.14	Supervisor	TEM good	Bias good
Observer 6	10	0.40	-0.03	Supervisor	TEM acceptable	Bias good
Observer 7	10	1.34	0.01	Supervisor	TEM reject	Bias good
Observer 8	10	0.23	-0.15	Supervisor	TEM good	Bias good
Observer 9	10	0.04	-0.72	Supervisor	TEM good	Bias acceptable
Inter-TEM						
enum inter 1st	9x10	0.75			TEM acceptable	
enum inter 2nd	9x10	0.43			TEM good	

Table 12-3: Bias and Technical Error of Measurement (TEM) Results for MUAC

	Subjects	TEM	Bias	Bias Relative To	TEM Outcome	Bias Outcome
Intra-TEM						
Supervisor 1	10	0.71	1.30	Median	TEM good	Bias acceptable
Observer 1	10	0.92	-0.15	Supervisor	TEM good	Bias good
Observer 2	10	0.67	-2.95	Supervisor	TEM good	Bias poor
Observer 3	10	1.92	0.00	Supervisor	TEM good	Bias good
Observer 4	10	1.26	-2.20	Supervisor	TEM good	Bias poor
Observer 5	10	1.60	2.95	Supervisor	TEM good	Bias poor
Observer 6	10	3.67	-0.20	Supervisor	TEM reject	Bias good
Observer 7	10	3.67	0.30	Supervisor	TEM reject	Bias good

	Subjects	TEM	Bias	Bias Relative To	TEM Outcome	Bias Outcome
Observer 8	10	1.63	-7.15	Supervisor	TEM good	Bias reject
Observer 9	10	0.50	-6.35	Supervisor	TEM good	Bias reject
Inter-TEM						
enum inter 1st	9x10	3.85			TEM reject	
enum inter 2nd	9x10	4.33			TEM reject	

Annex 3 - PLAUSIBILITY CHECK

Table 12-4: Anthropometry Data Quality Snapshot

Component	Value	Score	Outcome
Flagged data	0.3%	0	Excellent
Overall Sex ratio	p=0.730	0	Excellent
Age ratio(6-29 vs 30-59)	p=0.932	0	Excellent
Dig pref score - weight	3	0	Excellent
Dig pref score - height	6	0	Excellent
Dig pref score - MUAC	3	0	Excellent
Standard Dev WHZ	0.95	0	Excellent
Skewness WHZ	0.09	0	Excellent
Kurtosis WHZ	-0.20	0	Excellent
Poisson dist WHZ-2	p<0.001	5	Problematic
OVERALL SCORE WHZ =		5	Excellent

Annex 4 - INTEGRATED QUESTIONNAIRE

CONSENT

HELLO MY NAME IS _____. I AM WITH _____ [ORGANIZATION/GOVERNMENTAL AGENCY]. PLEASE LET ME INTRODUCE YOU TO THE OTHER TEAM MEMBERS: _____ AND _____. WE ARE HERE TODAY TO GATHER HOUSEHOLD INFORMATION RELATED TO NUTRITION AND _____. IF THERE ARE ANY CHILDREN UNDER 5 IN THE HOUSEHOLD, WE WOULD LIKE TO TAKE SOME MEASUREMENTS (WEIGHT, HEIGHT, MUAC, OEDEMA / EXPLAIN) TO HELP DETERMINE THE OVERALL UNDER 5 NUTRITION STATUS IN YOUR DISTRICT. PLEASE NOTE THAT IT IS NOT CURRENTLY KNOWN WHAT ACTIONS (IF ANY) WILL BE TAKEN AFTER THE RESULTS OF THE SURVEY ARE FINALIZED. ALL INFORMATION WILL BE KEPT COMPLETELY CONFIDENTIAL. DO YOU HAVE ANY QUESTIONS? MAY I BEGIN?

CONSENT REFUSED: PLEASE ENSURE THAT TEAM LEADER HAS CLEARLY EXPLAINED THE OBJECTIVES OF THE SURVEY. IF THE HEAD OF HOUSEHOLD /RESPONDENT STILL REFUSES, GO TO END OF QUESTIONNAIRE.

CURRENT HOUSEHOLD MEMBERS: PLEASE COMPLETE THE FOLLOWING QUESTIONS FOR EACH HOUSEHOLD MEMBER WHO LIVES IN THE HOUSEHOLD.

MORTALITY QUESTIONNAIRE

1. PLEASE ENTER AN AGE IN COMPLETE YEARS FOR EVERY HOUSEHOLD MEMBER. YOU DO NOT NEED TO SEE PROOF OF AGE. IF THE AGE IS LESS THAN 1 YEAR, RECORD 0.

2. SEX/GENDER OF THE MEMBERS OF THE HHS

A. MALE

B. FEMALE

3. DID THE HOUSEHOLD MEMBER JOINED THE HOUSEHOLD DURING THE RECALL PERIOD?

A. YES

B. NO

4. WAS THE HOUSEHOLD MEMBER BORN DURING THE RECALL PERIOD?

A. YES

B. NO

5. WAS THE HOUSEHOLD MEMBER PREGNANT AT THE START OF THE RECALL PERIOD?

A. YES

B. NO

6. WHAT IS THE TOTAL NUMBER OF HOUSEHOLD MEMBERS LEFT THIS HOUSEHOLD DURING THE RECALL PERIOD?

A. FIRST NAME _____

B. GENDER _____

C. AGE _____

7. DID THE HOUSEHOLD MEMBER THAT LEFT JOIN THE HOUSEHOLD DURING THE RECALL PERIOD?

A. YES

B. NO

8. WAS THE HOUSEHOLD MEMBER THAT LEFT BORN DURING THE RECALL PERIOD?

A. YES

B. NO

9. WHAT IS THE TOTAL NUMBER OF HOUSEHOLD MEMBERS THAT DIED DURING THE RECALL PERIOD?

A. FIRST NAME _____

B. GENDER _____

C. AGE _____

10. DID THE HOUSEHOLD THAT DIED JOIN THE HOUSEHOLD DURING THE RECALL PERIOD

A. YES

B. NO

11. WAS THE HOUSEHOLD MEMBER THAT DIED BORN DURING THE RECALL PERIOD?

A. YES

B. NO

12. WHAT WAS THE CAUSE OF THE DEATH? _____

13. IN WHICH LOCATION DID THE HOUSEHOLD MEMBER DIED? _____

HOUSEHOLD QUESTIONNAIRE

HOUSEHOLD FOOD SECURITY

HOUSEHOLD DIETARY DIVERSITY SCORE

NOW I WOULD LIKE TO ASK YOU ABOUT THE TYPES OF FOODS THAT YOU OR ANYONE ELSE IN YOUR HOUSEHOLD ATE YESTERDAY DURING THE DAY AND AT NIGHT. I WOULD LIKE YOU TO RECALL FOOD ITEMS WHETHER YOU OR ANYONE ELSE IN YOUR HOUSEHOLD HAD THE ITEM EVEN IF IT WAS COMBINED. I AM INTERESTED IN KNOWING ABOUT MEALS, BEVERAGES AND SNACKS EATEN OR DRANK INSIDE OR OUTSIDE THE HOME.

READ THE LIST OF FOODS AND DO NOT PROBE.

A. ANY CEREALS SUCH AS WHEAT, CORN/MAIZE, CORN SOY BLEND, BARLEY, BUCKWHEAT, MILLET, OATS, RICE, RYE, SORGHUM, TEFF, OR ANY FOODS MADE FROM THESE SUCH AS BREAD, PORRIDGE, NOODLES, UGALI, NSHIMA, PASTE?

B. ANY WHITE ROOTS AND TUBERS SUCH AS GREEN BANANAS, LOTUS ROOT, PARSNIP, TARO, PLANTAINS, WHITE POTATOES, WHITE YAM, WHITE CASSAVA, WHITE SWEET POTATOES, OR ANY FOODS MADE FROM ROOTS AND TUBERS?

- C. ANY VITAMIN A RICH VEGETABLES AND TUBERS SUCH AS CARROT, PUMPKIN, SQUASH, RED SWEET PEPPER, OR SWEET POTATOES THAT ARE ORANGE INSIDE?
- D. ANY DARK GREEN LEAFY VEGETABLES SUCH AS SPINACH, AMARANTH, ARUGULA, CASSAVA LEAVES, KALE?
- E. ANY OTHER VEGETABLES SUCH AS CABBAGE, GREEN PEPPER, TOMATO, ONION, EGGPLANT, ZUCCHINI, OR CAULIFLOWER?
- F. ANY VITAMIN A RICH FRUITS SUCH AS MANGO, RIPE PAPAYA OR CANTALOUPE MELON, APRICOT (FRESH AND DRIED), PASSION FRUIT, PEACH AND 100% FRUIT JUICE MADE FROM THESE FRUITS?
- G. ANY OTHER FRUITS SUCH AS APPLE, BANANA, AVOCADOS, COCONUT FLESH, LEMON, ORANGE, DATES AND 100% FRUIT JUICE MADE FROM THESE FRUITS?
- H. ANY ORGAN MEAT OR BLOOD-BASED FOODS SUCH AS LIVER, KIDNEY, HEART?
- I. ANY FLESH MEAT SUCH AS BEEF, GOAT, LAMB, MUTTON, PORK, RABBIT, CHICKEN, DUCK, CANE RAT, GUINEA PIG, RAT, AGOUTI, FROGS, SNAKE, INSECTS?
- J. ANY EGGS (EGGS FROM CHICKEN, DUCK, GUINEA FOWL)?
- K. ANY FRESH, FROZEN, DRIED, OR CANNED FISH OR SHELLFISH SUCH AS ANCHOVIES, TUNA, SARDINES, SHARK, WHALE, ROE/FISH EGGS, CLAM, CRAB, LOBSTER, CRAYFISH, MUSSELS, SHRIMP, OCTOPUS, SQUID, SEA SNAILS?
- L. ANY LEGUMES, NUTS, AND SEEDS SUCH AS DRIED PEAS, DRIED BEANS, LENTILS, PEANUTS, ALMONDS, SESAME, SUNFLOWER OR ANY FOODS MADE FROM THESE SUCH AS HUMMUS, PEANUT BUTTER?
- M. ANY MILK AND MILK PRODUCTS SUCH AS MILK, INFANT FORMULA, CHEESE, YOGURT?
- N. ANY OILS AND FATS ADDED TO FOOD OR USED FOR COOKING E.G., VEGETABLE OIL, GHEE, OR BUTTER?
- O. ANY SWEETS, SWEETENED SODA OR JUICE DRINKS AND SUGARY FOOD SUCH AS SUGAR, HONEY, SODA DRINKS, CHOCOLATES, CANDIES, COOKIES, SWEET BISCUITS, AND CAKES?
- P. ANY SPICES, CONDIMENTS, AND BEVERAGES SUCH AS BLACK PEPPER, SALT, CHILIES, SOY SAUCE, HOT SAUCE, FISH POWDER, FISH SAUCE, GINGER, HERBS, MAGI CUBES, KETCHUP, MUSTARD, COFFEE, TEA, BEER, ALCOHOLIC BEVERAGES LIKE WINE, HARD SPIRITS?

COPING STRATEGIES

EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.

- A. IN THE PAST 7 DAYS, HOW MANY DAYS DID YOUR HOUSEHOLD RELY ON LESS PREFERRED AND/OR LESS EXPENSIVE FOOD DUE TO LACK OF FOOD OR MONEY TO BUY FOOD?
- B. IN THE PAST 7 DAYS, HOW MANY DAYS DID YOUR HOUSEHOLD BORROW FOOD OR RELY ON HELP FROM A FRIEND OR RELATIVE DUE TO LACK OF FOOD OR MONEY TO BUY FOOD?
- C. IN THE PAST 7 DAYS, HOW MANY DAYS DID YOUR HOUSEHOLD REDUCE THE NUMBER OF MEALS EATEN IN A DAY DUE TO LACK OF FOOD OR MONEY TO BUY FOOD?
- D. IN THE PAST 7 DAYS, HOW MANY DAYS DID YOUR HOUSEHOLD LIMIT PORTION SIZES AT MEALTIME DUE TO LACK OF FOOD OR MONEY TO BUY FOOD?

E. IN THE PAST 7 DAYS, HOW MANY DAYS DID YOUR HOUSEHOLD REDUCE CONSUMPTION BY ADULTS SO CHILDREN COULD EAT, DUE TO LACK OF FOOD OR MONEY TO BUY FOOD?

HOUSEHOLD HUNGER SCALE

EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.

A. IN THE PAST 4 WEEKS, WAS THERE EVER NO FOOD TO EAT OF ANY KIND IN YOUR HOUSE BECAUSE OF LACK OF RESOURCES TO GET FOOD?

I. YES II. NO

B. HOW OFTEN DID THIS HAPPEN IN THE PAST 4 WEEKS?

I. RARELY (1-2 TIMES)

II. SOMETIMES (3-10 TIMES)

III. OFTEN (MORE THAN 10 TIMES)

C. IN THE PAST 4 WEEKS, DID YOU OR ANY HOUSEHOLD MEMBER GO TO SLEEP AT NIGHT HUNGRY BECAUSE THERE WAS NOT ENOUGH FOOD?

I. YES II. NO

D. HOW OFTEN DID THIS HAPPEN IN THE PAST 4 WEEKS?

I. RARELY (1-2 TIMES)

II. SOMETIMES (3-10 TIMES)

III. OFTEN (MORE THAN 10 TIMES)

E. IN THE PAST 4 WEEKS, DID YOU OR ANY HOUSEHOLD MEMBER GO A WHOLE DAY AND NIGHT WITHOUT EATING ANYTHING AT ALL BECAUSE THERE WAS NOT ENOUGH FOOD?

I. YES II. NO

F. HOW OFTEN DID THIS HAPPEN IN THE PAST 4 WEEKS?

I. RARELY (1-2 TIMES)

II. SOMETIMES (3-10 TIMES)

III. OFTEN (MORE THAN 10 TIMES)

FOOD INSECURE EXPERIENCE SCALE

NOW I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT FOOD.

EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.

A. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN, YOU OR OTHERS IN YOUR HOUSEHOLD WORRIED ABOUT NOT HAVING ENOUGH FOOD TO EAT BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?

I. YES II. NO

B. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN YOU OR OTHERS IN YOUR HOUSEHOLD WERE UNABLE TO EAT HEALTHY AND NUTRITIOUS FOOD BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?

I. YES II. NO

C. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN YOU OR OTHERS IN YOUR HOUSEHOLD ATE ONLY A FEW KINDS OF FOODS BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?

I. YES II. NO III. DON'T KNOW.

D. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN YOU OR OTHERS IN YOUR HOUSEHOLD HAD TO SKIP A MEAL BECAUSE THERE WAS NOT ENOUGH MONEY OR OTHER RESOURCES TO GET FOOD?

I. YES II. NO III. DON'T KNOW.

E. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN YOU OR OTHERS IN YOUR HOUSEHOLD ATE LESS THAN YOU THOUGHT YOU SHOULD BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?

I. YES II. NO III. DON'T KNOW.

F. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN YOUR HOUSEHOLD RAN OUT OF FOOD BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?

I. YES II. NO III. DON'T KNOW.

G. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN YOU OR OTHERS IN YOUR HOUSEHOLD WERE HUNGRY BUT DID NOT EAT BECAUSE THERE WAS NOT ENOUGH MONEY OR OTHER RESOURCES FOR FOOD?

I. YES II. NO III. DON'T KNOW.

H. DURING THE LAST 30 DAYS, WAS THERE A TIME WHEN YOU OR OTHERS IN YOUR HOUSEHOLD WENT WITHOUT EATING FOR A WHOLE DAY BECAUSE OF A LACK OF MONEY OR OTHER RESOURCES?

I. YES II. NO III. DON'T KNOW.

WATER, SANITATION AND HYGIENE (WASH)

1. WHAT IS THE MAIN SOURCE OF WATER USED BY YOUR HOUSEHOLD FOR DRINKING AND COOKING?

SELECT ONE BUT DO NOT PROMPT WITH RESPONSES. CONSIDER DRINKING AND COOKING WATER ONLY.

A. PUBLIC TAP/STANDPIPE

B. HANDPUMPS/BOREHOLES

- C. PROTECTED WELL.
 - D. WATER SELLER/KIOSKS
 - E. PIPED CONNECTION TO HOUSE (OR NEIGHBOR'S HOUSE)
 - F. PROTECTED SPRING.
 - G. BOTTLED WATER, WATER SACHET
 - H. TANKER TRUCKS
 - I. UNPROTECTED HAND-DUG WELL
 - J. SURFACE WATER (LAKE, POND, DAM, RIVER
 - K. UNPROTECTED SPRING
 - L. RAINWATER COLLECTION</VALUE>
 - M. OTHE
-

N. DON'T KNOW.

2. DOES YOUR HOUSEHOLD TREAT THE WATER IN ANY WAY TO MAKE IT SAFER TO DRINK?

- A. YES, ALWAYS TREAT IT BEFORE DRINKING.
 - B. YES, SOMETIMES TREAT IT BEFORE DRINKING.
 - C. NO, NEVER TREAT IT BEFORE DRINKING.
 - D. DON'T KNOW.
-

3. WHAT KIND OF TOILET/LATRINE DOES YOUR HOUSEHOLD USUALLY USE?

DO NOT READ THE ANSWERS. SELECT ONE ONLY.

- A. FLUSH OR POUR/FLUSH TOILET.
 - B. PIT LATRINE WITH A SLAB OR PLATFORM
 - C. PIT VIP LATRINE
 - D. HANGING TOILET/LATRINE.
 - E. PIT LATRINE WITHOUT A SLAB OR PLATFORM
 - F. OPEN HOLE
 - G. BUCKET TOILET
 - H. NO FACILITY, FIELD, BUSH, PLASTIC BAG
-

4. DO YOU SHARE THIS TOILET/LATRINE WITH OTHER HOUSEHOLDS

- A. YES

B. No

CHILD QUESTIONNAIRE

CHILD SECTION

NOW ENTERING DATA FOR CHILD WITH AGE IN YEARS

1. DO YOU HAVE AN OFFICIAL AGE DOCUMENTATION FOR YOUR CHILD

A. YES

B. No

THE EXACT DATE OF BIRTH (DAY, MONTH, YEAR) IS RECORDED FROM EITHER A BIRTH REGISTRATION, CHILD HEALTH CARD OR EPI CARD IF AVAILABLE. THE EXACT BIRTH DATE SHOULD ONLY BE TAKEN FROM AN AGE DOCUMENTATION SHOWING DAY, MONTH AND YEAR OF BIRTH.

IT IS IMPORTANT TO ESTIMATE THE AGE VERY CAREFULLY. SINCE NO AGE DOCUMENTATION IS AVAILABLE, ESTIMATE MONTH AND YEAR OF BIRTH USING A LOCAL EVENTS CALENDAR. REMEMBER, IF THEY ARE OLDER THAN 59 MONTHS; THEY ARE NOT ELIGIBLE FOR INCLUSION AND YOU SHOULD STOP HERE IF ELIGIBLE CHILD IS ABSENT, TEAM SHOULD REVISIT THE HOUSEHOLD ONCE BEFORE LEAVING THE VILLAGE TO CONDUCT THE INTERVIEW AND/OR MEASURE THE CHILD.

IF YES CHILD'S DATE OF BIRTH _____

IF NO CHILD'S MONTH AND YEAR OF BIRTH _____

2. HAS YOUR CHILD RECEIVED A VITAMIN A CAPSULE IN THE PAST 6 MONTHS?

CHECK VACCINATION/HEALTH CARD AND SHOW CAPSULE

A. YES, CARD

B. YES, RECALL

C. NO OR DON'T KNOW.

3. WAS YOUR CHILD GIVEN ANY DRUG FOR INTESTINAL WORMS IN THE LAST 6 MONTHS? SHOW TABLET

A. YES

B. NO

C. DON'T KNOW.

4. HAS YOUR CHILD HAD DIARRHEA IN THE PAST 2 WEEKS?

CASE DEFINITION: THREE OR MORE LOOSE OR LIQUID STOOLS FOR 24 HOURS (INCLUDING BLOODY STOOLS)

A. YES

B. NO

C. DON'T KNOW.

5. DID YOU SEEK ANY ADVICE OR TREATMENT FOR THE DIARRHEA FROM ANY SOURCE?

A. YES

B. NO

C. DON'T KNOW.

6. WHERE DID YOU SEEK ADVICE OR TREATMENT?

IF SEVERAL ANSWERS ARE MENTIONED, RECORD THE FIRST PLACE WHERE THE CAREGIVER SEEK ADVICE OR TREATMENT

A. PUBLIC SECTOR: GOVERNMENT HOSPITAL

B. PUBLIC SECTOR: GOVERNMENT HEALTH CENTER

C. PUBLIC SECTOR: GOVERNMENT HEALTH POST

D. PUBLIC SECTOR: MOBILE CLINIC

E. PUBLIC SECTOR: FIELDWORKER

F. OTHER PUBLIC SECTOR

G. PRIVATE MEDICAL SECTOR: PRIVATE HOSPITAL / CLINIC

H. PRIVATE MEDICAL SECTOR: PHARMACY

I. PRIVATE MEDICAL SECTOR: PRIVATE DOCTOR

J. PRIVATE MEDICAL SECTOR: MOBILE CLINIC

K. PRIVATE MEDICAL SECTOR: FIELDWORKER

L. OTHER PRIVATE MEDICAL SECTOR

M. OTHER SOURCE: SHOP

N. OTHER SOURCE: TRADITIONAL PRACTITIONER

O. OTHER SOURCE: MARKET

P. OTHER SOURCE: ITINERANT DRUG SELLER

7. DID YOU GIVE ORS TO YOUR CHILD WHEN S/HE HAD DIARRHEA?

SHOW ORS SACHET

A. YES

B. NO

C. DON'T KNOW.

8. DID YOU GIVE ZINC TABLETS OR SYRUP TO YOUR CHILD WHEN S/HE HAD DIARRHEA? SHOW ZINC TABLET OR SYRUP

- A. YES
 - B. NO
 - C. DON'T KNOW.
-

9. HAS YOUR CHILD BEEN ILL WITH A FEVER IN THE PAST 2 WEEKS?

- A. YES
 - B. NO
 - C. DON'T KNOW.
-

10. DID YOU SEEK ANY ADVICE OR TREATMENT FOR THE FEVER FROM ANY SOURCE?

- A. YES
 - B. NO
 - C. DON'T KNOW.
-

11. WHERE DID YOU SEEK ADVICE OR TREATMENT?

IF SEVERAL ANSWERS ARE MENTIONED, RECORD THE FIRST PLACE WHERE THE CAREGIVER SEEK ADVICE OR TREATMENT

- A. PUBLIC SECTOR: GOVERNMENT HOSPITAL
- B. PUBLIC SECTOR: GOVERNMENT HEALTH CENTER
- C. PUBLIC SECTOR: GOVERNMENT HEALTH POST
- D. PUBLIC SECTOR: MOBILE CLINIC
- E. PUBLIC SECTOR: FIELDWORKER
- F. OTHER PUBLIC SECTOR
- G. PRIVATE MEDICAL SECTOR: PRIVATE HOSPITAL / CLINIC
- H. PRIVATE MEDICAL SECTOR: PHARMACY
- I. PRIVATE MEDICAL SECTOR: PRIVATE DOCTOR
- J. PRIVATE MEDICAL SECTOR: MOBILE CLINIC
- K. PRIVATE MEDICAL SECTOR: FIELDWORKER
- L. OTHER PRIVATE MEDICAL SECTOR
- M. OTHER SOURCE: SHOP

N. OTHER SOURCE: TRADITIONAL PRACTITIONER

O. OTHER SOURCE: MARKET

P. OTHER SOURCE: ITINERANT DRUG SELLER

12. HAS YOUR CHILD HAD AN ILLNESS WITH A COUGH IN THE PAST 2 WEEKS?

A. YES

B. NO

C. DON'T KNOW.

13. HAS YOUR CHILD HAD FAST, SHORT, RAPID BREATHS OR DIFFICULTY BREATHING IN THE PAST 2 WEEKS?

A. YES

B. NO

C. DON'T KNOW.

14. WAS THE FAST OR DIFFICULT BREATHING DUE TO A PROBLEM IN THE CHEST OR A BLOCKED OR RUNNY NOSE?

A. PROBLEM IN CHEST ONLY

B. BLOCKED OR RUNNY NOSE ONLY.

C. BOTH

D. OTHER

E. DON'T KNOW.

15. DID YOU SEEK ANY ADVICE OR TREATMENT FOR THE ILLNESS FROM ANY SOURCE?

A. YES

B. NO

C. DON'T KNOW.

16. WHERE DID YOU SEEK ADVICE OR TREATMENT?

IF SEVERAL ANSWERS ARE MENTIONED, RECORD THE FIRST PLACE WHERE THE CAREGIVER SEEK ADVICE OR TREATMENT

A. PUBLIC SECTOR: GOVERNMENT HOSPITAL

B. PUBLIC SECTOR: GOVERNMENT HEALTH CENTER

C. PUBLIC SECTOR: GOVERNMENT HEALTH POST

D. PUBLIC SECTOR: MOBILE CLINIC

E. PUBLIC SECTOR: FIELDWORKER

- F. OTHER PUBLIC SECTOR
 - G. PRIVATE MEDICAL SECTOR: PRIVATE HOSPITAL / CLINIC
 - H. PRIVATE MEDICAL SECTOR: PHARMACY
 - I. PRIVATE MEDICAL SECTOR: PRIVATE DOCTOR
 - J. PRIVATE MEDICAL SECTOR: MOBILE CLINIC
 - K. PRIVATE MEDICAL SECTOR: FIELDWORKER
 - L. OTHER PRIVATE MEDICAL SECTOR
 - M. OTHER SOURCE: SHOP
 - N. OTHER SOURCE: TRADITIONAL PRACTITIONER
 - O. OTHER SOURCE: MARKET
 - P. OTHER SOURCE: ITINERANT DRUG SELLER
-

17. WAS YOUR CHILD EVER BREASTFED?

- A. YES
 - B. NO
-

18. HOW LONG AFTER BIRTH WAS YOUR FIRST PUT TO THE BREAST?

- A. LESS THAN 1 HR
- B. BETWEEN 1 HR AND 23 HRS
- C. 24 HRS AND MORE

19. IN THE FIRST TWO DAYS AFTER DELIVERY, WAS YOUR CHILD GIVEN ANYTHING OTHER THAN BREAST MILK TO EAT OR DRINK - ANYTHING AT ALL LIKE WATER, INFANT FORMULA OR RITUAL FEEDS?

- A. YES
 - B. NO
-

20. WAS YOUR CHILD BREASTFED YESTERDAY DURING THE DAY OR AT NIGHT?

- A. YES
 - B. NO
 - C. DON'T KNOW
-

21. DID YOUR CHILD DRINK ANYTHING FROM A BOTTLE WITH A NIPPLE YESTERDAY DURING THE DAY OR AT NIGHT?

- A. YES
 - B. NO
 - C. DON'T KNOW
-

22. NOW I WOULD LIKE TO ASK YOU ABOUT LIQUIDS THAT YOUR CHILD HAD YESTERDAY DURING THE DAY OR AT NIGHT. PLEASE TELL ME ABOUT ALL DRINKS, WHETHER YOUR CHILD HAD THEM AT HOME, OR SOMEWHERE ELSE. YESTERDAY, DURING THE DAY OR AT NIGHT, DID YOUR CHILD RECEIVE ANY OF THE FOLLOWING?

ASK ABOUT EVERY LIQUID. EVERY QUESTION MUST HAVE AN ANSWER. IF ITEM WAS GIVEN, SELECT 'YES'. IF ITEM WAS NOT GIVEN, SELECT 'NO'. IF CAREGIVER DOES NOT KNOW, SELECT 'DON'T KNOW'.

A. PLAIN WATER

I. YES

II. NO

III. DON'T KNOW

B. INFANT FORMULA

I. YES

II. NO

III. DON'T KNOW

C. HOW MANY TIMES DID YOUR CHILD DRINK FORMULA?

IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'.

D. MILK FROM ANIMALS SUCH AS FRESH, TINNED OR POWDERED MILK

I. YES

II. NO

III. DON'T KNOW

E. HOW MANY TIMES DID YOUR CHILD DRINK FRESH, TINNED OR POWDERED MILK?

IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'

F. WAS THE MILK OR WERE ANY OF THE MILK DRINKS A SWEET OR FLAVOURED TYPE OF MILK?

I. YES

II. NO

III. DON'T KNOW

G. YOGURT DRINKS (ANIMAL MILK-BASED YOGURT DRINK OR DRINKABLE FERMENTED MILKS SUCH AS BUTTERMILK OR KEFIR)

I. YES

II. NO

III. DON'T KNOW

H. HOW MANY TIMES DID YOUR CHILD DRINK YOGURT?

IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'

I. WAS THE YOGURT OR WERE ANY OF THE YOGURT DRINKS A SWEET OR FLAVOURED TYPE OF YOGURT DRINK?

I. YES

II. NO

III. DON'T KNOW

J. CHOCOLATE-FLAVOURED DRINKS INCLUDING THOSE MADE FROM SYRUPS OR POWDERS

I. YES

II. NO

III. DON'T KNOW

K. FRUIT JUICE OR FRUIT-FLAVOURED DRINKS, INCLUDING THOSE MADE FROM SYRUPS OR POWDERS

I. YES

II. NO

III. DON'T KNOW

L. SODAS, MALT DRINKS, SPORTS DRINKS

I. YES

II. NO

III. DON'T KNOW OR ENERGY DRINKS

M. TEA, COFFEE, HERBAL DRINKS OR INFUSION, INCLUDING THOSE GIVEN AS TRADITIONAL MEDICINE

I. YES

II. NO

III. DON'T KNOW

N. WAS THE DRINK OR WERE ANY OF THESE DRINKS SWEETENED?

I. YES

II. NO

III. DON'T KNOW

O. CLEAR BROTH OR CLEAR SOUP

I. YES

II. NO

III. DON'T KNOW

 P. ANY OTHER LIQUID OF ANY TYPE (E.G. WATER WITH ADDED SUGAR, VEGETABLE JUICES, COCONUT WATER, SOY MILK OR NUT MILK)

- I. YES
 - II. NO
 - III. DON'T KNOW
-

Q. WAS THE DRINK OR WERE ANY OF THESE DRINKS SWEETENED?

- I. YES
 - II. NO
 - III. DON'T KNOW
-

23. NOW I WOULD LIKE TO ASK YOU ABOUT FOODS THAT <OUTPUT VALUE="/DATA/SELECTED/CHILD/CHILD_NAME"/> HAD YESTERDAY DURING THE DAY OR THE NIGHT. I AM INTERESTED IN FOODS ATE WHETHER AT HOME OR SOMEWHERE ELSE. PLEASE THINK ABOUT SNACKS AND SMALL MEALS AS WELL AS MAIN MEALS. I WILL ASK YOU ABOUT DIFFERENT TYPES OF FOODS, AND I WOULD LIKE TO KNOW WHETHER YOUR CHILD ATE THE FOOD EVEN IF IT WAS COMBINED WITH OTHER FOODS IN A MIXED DISH. PLEASE DO NOT ANSWER "YES" FOR ANY FOOD OR INGREDIENT USED IN A SMALL AMOUNT TO ADD FLAVOUR TO A DISH. YESTERDAY, DURING THE DAY OR AT NIGHT, DID YOUR EAT:

ASK ABOUT EVERY FOOD GROUP. EVERY QUESTION MUST HAVE AN ANSWER. ITEM WAS GIVEN, SELECT 'YES'. IF ITEM WAS NOT GIVEN, SELECT 'NO'. IF CAREGIVER DOES NOT KNOW, SELECT 'DON'T KNOW'.

A. ANY YOGURT, OTHER THAN YOGURT DRINKS?

- I. YES
 - II. NO
 - III. DON'T KNOW
-

B. HOW MANY TIMES DID YOUR CHILD EAT YOGURT?

IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'

C. ANY CEREALS SUCH AS WHEAT, CORN/MAIZE, CORN SOY BLEND, BARLEY, BUCKWHEAT, MILLET, OATS, RICE, RYE, SORGHUM, TEFF, OR ANY FOODS MADE FROM THESE SUCH AS BREAD, PORRIDGE, NOODLES, UGALI, NSHIMA, PASTE?

- I. YES
 - II. NO
 - III. DON'T KNOW
-

D. ANY VITAMIN A RICH VEGETABLES AND TUBERS SUCH AS CARROT, PUMPKIN, SQUASH, RED SWEET PEPPER OR SWEET POTATOES THAT ARE ORANGE INSIDE?

- I. YES
 - II. NO
 - III. DON'T KNOW
-

E. ANY WHITE ROOTS AND TUBERS SUCH AS LOTUS ROOT, PARSNIP, TARO, PLANTAINS, WHITE POTATOES, WHITE YAM, WHITE CASSAVA, WHITE SWEET POTATOES, GREEN BANANAS, OR ANY FOODS MADE FROM ROOTS AND TUBERS?

- I. YES

II. NO

III. DON'T KNOW

F. ANY DARK GREEN LEAFY VEGETABLES SUCH AS SPINACH, AMARANTH, ARUGULA, CASSAVA LEAVES, KALE?

I. YES

II. NO

III. DON'T KNOW

G. ANY OTHER VEGETABLES SUCH AS CABBAGE, GREEN PEPPER, TOMATO, ONION, EGGPLANT, ZUCCHINI, AVOCADO, CUCUMBER, LETTUCE, OLIVES OR CAULIFLOWER?

I. YES

II. NO

III. DON'T KNOW

H. ANY VITAMIN A RICH FRUITS SUCH AS MANGO, RIPE PAPAYA OR CANTALOUPE MELON, APRICOT (FRESH AND DRIED), PASSION FRUIT, PEACH, RED PALM FRUIT, RED PALM PULP?

I. YES

II. NO

III. DON'T KNOW

I. ANY OTHER FRUITS SUCH AS APPLE, BANANA, COCONUT FLESH, LEMON, ORANGE, DATES, ETC.?

I. YES

II. NO

III. DON'T KNOW

J. ANY ORGAN MEAT OR BLOOD-BASED FOODS SUCH AS LIVER, KIDNEY, HEART?

I. YES

II. NO

III. DON'T KNOW

K. ANY SAUSAGES, HOT DOGS, HAM, BACON, SALAMI, CORNED BEEF, CANNED MEAT?

I. YES

II. NO

III. DON'T KNOW

M. ANY FLESH MEAT SUCH AS BEEF, GOAT, LAMB, MUTTON, PORK, RABBIT, CHICKEN, DUCK, CANE RAT, GUINEA PIG, RAT, AGOUTI, FROGS, SNAKE, INSECTS?

I. YES

II. NO

III. DON'T KNOW

N. ANY EGGS (EGGS FROM CHICKEN, DUCK, GUINEA FOWL)?

I. YES

II. NO

III. DON'T KNOW

O. ANY FRESH, FROZEN, DRIED, OR CANNED FISH OR SHELLFISH SUCH AS ANCHOVIES, TUNA, SARDINES, SHARK, WHALE, ROE/FISH EGGS, CLAM, CRAB, LOBSTER, CRAYFISH, MUSSELS, SHRIMP, OCTOPUS, SQUID, SEA SNAILS?

I. YES

II. NO

III. DON'T KNOW

P. ANY LEGUMES, NUTS AND SEEDS SUCH AS DRIED PEAS, DRIED BEANS, LENTILS, PEANUTS, ALMONDS, SESAME, SUNFLOWER OR ANY FOODS MADE FROM THESE SUCH AS HUMMUS, PEANUT BUTTER?

I. YES

II. NO

III. DON'T KNOW

Q. HARD OR SOFT CHEESE

I. YES

II. NO

III. DON'T KNOW

R. ANY SWEET FOODS SUCH AS CHOCOLATES, CANDIES, PASTRIES, CAKES, BISCUITS, OR ICE CREAM?

I. YES

II. NO

III. DON'T KNOW

S. ANY CHIPS, CRISPS, PUFFS, FRENCH FRIES, FRIED DOUGH, INSTANT NOODLES, ETC.?

I. YES

II. NO

III. DON'T KNOW

T. ANY OTHER SOLID, SEMI-SOLID OR SOFT FOOD?

I. YES

II. NO

III. DON'T KNOW

24. DID YOUR CHLD EAT ANY SOLID, SEMI-SOLID OR SOF FOOD YESTERDAY DURING THE DAY OR AT NIGHT?

IF 'YES', GO BACK TO PREVIOUS ENTRIES AND RECORD FOOD ITEM(S)

I. YES

II. NO

25. IF YES, PROBE: WHAT KIND OF SOLID, SEMI-SOLID OR SOFT FOOD DID YOUR CHILDEAT?, AND MARK FOOD GROUP.

26. HOW MANY TIMES DID YOUR CHILD EAT ANY SOLID, SEMI-SOLID, OR SOFT FOODS YESTERDAY DURING THE DAY OR NIGHT? IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'.

WOMEN QUESTIONNAIRE

1. AGE IN YEARS _____

2. ARE YOU PREGNANT

I. YES

II. NO

III. DON'T KNOW

3. ARE YOU CURRENTLY BREASTFEEDING?

I. YES

II. NO

III. DON'T KNOW

4. IS THE CHILD YOU ARE BREASTFEEDING YOUNGER THAN 6 MONTHS OLD?

I. YES

II. NO

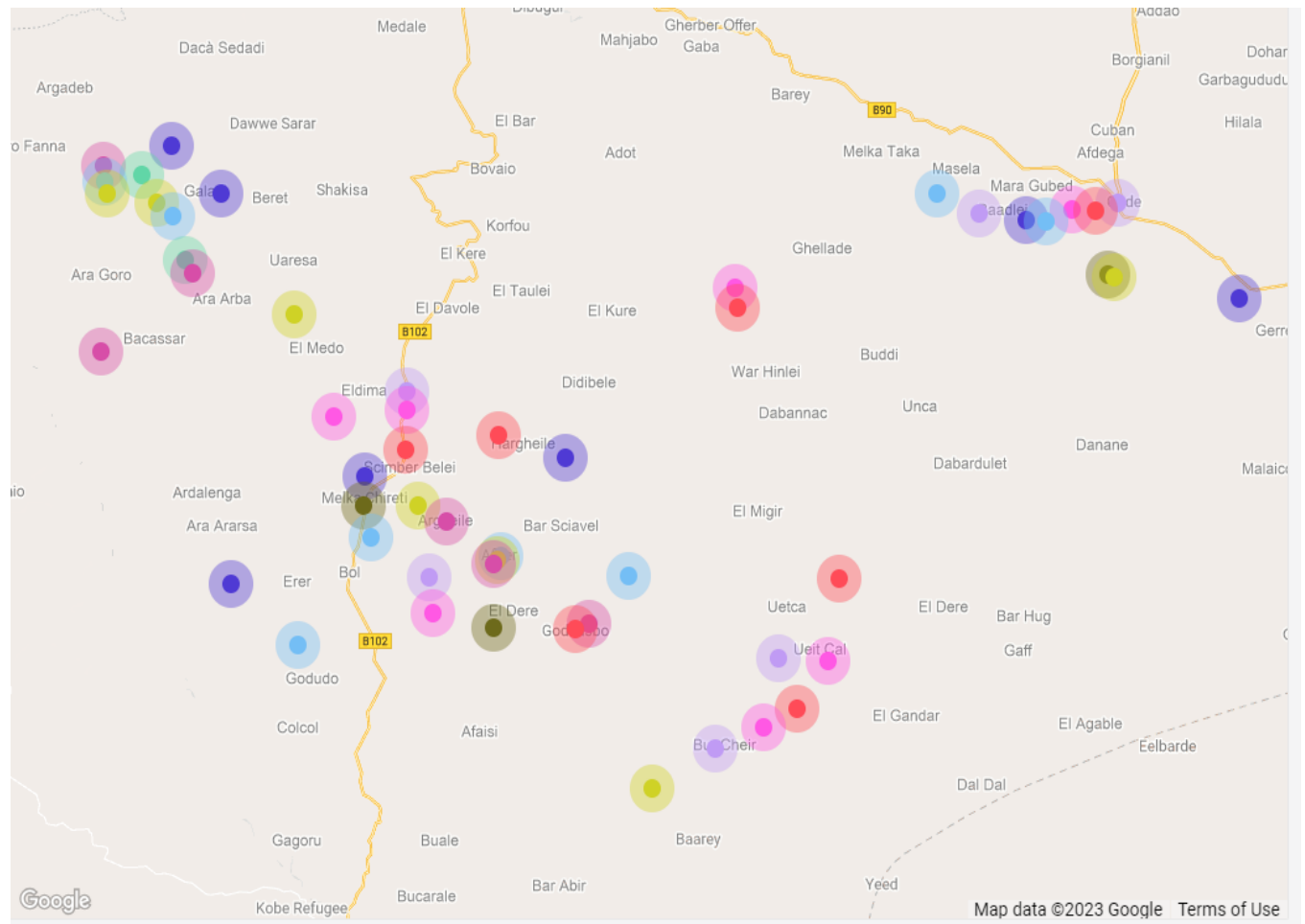
III. DON'T KNOW

5. MUAC IN MM _____

6. PLEASE TAKE A GPS READING _____

Annex 5 - MAP OF AREA

Figure 12-10: Survey area



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