Standardised Expanded Nutrition Survey (SENS)

FINAL REPORT

Doro, Gendrassa, Yusuf Batil, and Kaya refugee camps, Upper Nile State, Maban County, South Sudan

Surveys conducted: 4th May – 4th June 2024

UNHCR
The UN Refugee Agency

WFP & RI

WFP

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ACRONYMS AND ABBREVIATIONS

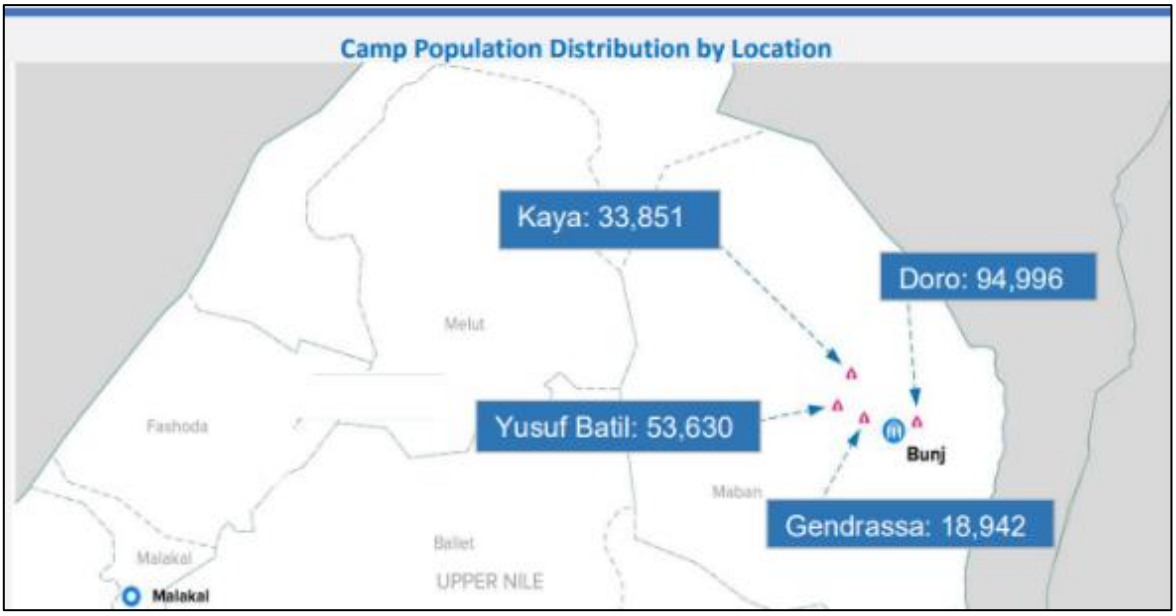
ACTED	***Agency for Technical Cooperation and Development***
AWD	*Acute Water Diarrhea*
BCC	*Behaviour Change and Communication*
BSFP	*Blanket Supplementary Feeding Programme*
CGs	*Care Groups*
CHPs	*Community Health Promoters*
CI	*Confidence Interval*
CMR	*Crude Mortality Rate*
CSB	*Corn-Soya Blend*
DEFF	*Design effect*
ENA	*Emergency Nutrition Assessment*
EPI	*Expanded Programme on Immunization*
Epi Info	*CDC software for epidemiological investigations*
FCS	*Food Consumption Score*
GAM	*Global Acute Malnutrition*
GFD	*General Food Distribution*
HAZ	*Height-for-Age z-score*
HDDS	*Household Dietary Diversity Score*
HIS	*Health Information System*
LLIN	*Long lasting insecticide treated mosquito bed nets*
IYCF	*Infant and Young Child Feeding*
LRTI	*Low Respiratory Tract Infection*
MAM	*Moderate Acute Malnutrition*
MUAC	*Mid-Upper Arm circumference*
ODK	*Open Data Kit*
OPD	*Outpatient Department*
OTP	*Out-patient Therapeutic Programme*
PDM	*Post Distribution Monitoring*
PLW	*Pregnant and Lactating Women*
ProGress	*UNHCR registration database for refugees*
RI	*Relief International*
SAM	*Severe Acute Malnutrition*
SC	*Stabilization Centre*
SD	*Standard Deviation*
SENS	*Standardized Expanded Nutrition Survey (Guidelines)*
SFP	*Supplementary Feeding Programme*
SMART	*Standardized Monitoring & Assessment of Relief & Transitions*
SP	*Samaritan's Purse*
TSFP	*Therapeutic Supplementary Feeding Programme*
UNHCR	*United Nations High Commissioner for Refugees*
UNICEF	*United Nations Children's Fund*
URTI	*Upper Respiratory Tract Infection*
WASH	*Water, Sanitation and Hygiene promotion*
WAZ	*Weight-for-Age z-score*
WHZ	*Weight-for-Height z-score*
WFP	*World Food Programme*
WHO	*World Health Organization*

EXECUTIVE SUMMARY

Maban County is among the thirteen counties of Upper Nile State that is located to the Northeast corner of the Republic of South Sudan. The County shares two international borders i.e., Sudan to the east and Ethiopia in the vincinty of eastward. Domestically, Maban borders four counties i.e., Longechuk (Southeast), Baliet (Southwest), Melut (West), and Renk (North). Administractively, the county is divided into five payams of Khor Al Amer, Jinmagda, Jinkuata, Bunj, and Benashowa.

Maban County hosts Forcibly Displaced and stateless Persons (FDSPs) who fled from Blue Nile State and some parts of Sudan due to political conflicts. The FDSPs are settled in four refugee camps namely Doro (established in November 2011), Gendrassa (established in July 2012), Yusuf Batil (established in May 2012), and Kaya (established in May 2013). As of 31st March 2024, the total population of the FDSPs registered in the four refugee camps was 201,419 with 41,696 households and 40,751 children U5 years. **(Source: UNHCR ProGres).**

Map showing Maban county and the respective camps.



This report summarizes the results of the Standardized Expanded Nutrition Survey (SENS) conducted jointly by UNHCR in collaboration with WFP and RI in the four Maban refugee camps from 4th May to 1st June 2024.

The Overall objective of the survey was to measure the general health, nutrition status, food security, and related indicators among FDSPs in Maban camps and formulate workable recommendations for appropriate nutritional and public health interventions.

Specific and secondary objectives of the survey were as follows.

Specific primary objectives of the survey

a. *To determine the demographic profile of the population.*
b. *To determine the age dependency ratio.*

c. To measure the prevalence of acute malnutrition among children 6-59 months
d. To measure the prevalence of stunting among children 6-59 months
e. To determine the coverage of measles vaccination among children 9-59 months
f. To determine the coverage of vitamin A supplementation in the last six months among children 6-59 months
g. To determine the two-week period prevalence of diarrhoea among children 6-59 months.
h. To measure the prevalence of anaemia among children 6-59 months and women of reproductive aged 15-49 years (non-pregnant).
i. To assess IYCF practices among children 0-23 months.
j. To determine the populations' overall ability to meet their food needs with assistance:
k. To determine the duration of the general in-kind food distribution for recipient households
l. To determine the extent to which negative coping strategies are used by households.
m. To assess household food consumption (quantity and quality).
n. To determine the ownership of mosquito nets (all types and LLINs) in the households in Maban camps.
o. To determine the utilizationof mosquito nets (all types and LLINs) by the total population, children 0-59 months, and pregnant women in Maban camps.
p. To determine the household coverage of Indoor Residual Spraying in the last 6 months.
q. To establish recommendations on actions to be taken to address the situation.

Secondary objectives:

a. To determine the enrolment into the targeted supplementary (TSFP) and therapeutic (OTP/SC) nutrition programmes for children aged 6-59 months.
b. To determine enrollment into the blanket supplementary feeding programme (BSFP) for children aged 6-23 months.
c. To determine the coverage of deworming with mebendazole or albendazole in the last six months among young children (12-59m).
d. To determine enrollment into the blanket supplementary feeding programme (BSFP) for pregnant women and lactating women with an infant less than 6 months aged 15-49 years.
e. To determine enrolment into Antenatal Care clinic and coverage of iron-folic acid supplementation in pregnant women.

Methodology

A cross-sectional survey was conducted in the four refugee camps of Doro, Gendrassa, Yusuf Batil, and Kaya in which a systematic simple random sampling was used to identify the households surveyed. Six modules of **1)** Demography: **2)** Anthropometry and Health; **3)** IYCF; **4)** Infant and Young Child Feeding: **5)** Food Security; and **6)** Mosquito nets coverage was included in the survey.

Smartphone questionnaires using Open Data Kit (ODK) android software for all six modules was used for data collection and entry replacing paper questionnaires. Data quality checks were daily performed by the UNHCR survey coordinator including WFP and RI suprvisors which allowed for daily feedback to the survey teams. Data analysis was conducted using ENA for SMART Jan 11th, 2020, version for anthropometric indices and Epi info version 7.2.4.0 for all other data.

The sample sizes for the four camps were calculated using UNHCR Standardised Expanded Nutrition Survey (SENS) version 3, 2019 guidelines (http://sens.unhcr.org/) and Standardised Monitoring and Assessments of Relief and Transitions (ENA for SMART) version Jan 11th, 2020 software (https://smartmethodology.org/) considering the respective camps upper confidence interval GAM prevalence from the 2022 (for Doro) and 2021 (three camps of Gendrassa, Yusuf Batil, and Kaya) nutrition survey, percentage of children under-5, average household size, children U5 population derived from the UNHCR ProGres database, and a non-response rate of 10%.

The calculated sample sizes for anthropometric indicators were used in all the survey modules to estimate the required number of individuals and households included in the surveys. All eligible children aged 6-59 months from all selected households were included in the Child Anthropometry, Health, and anaemia, children aged 0-23 months included in IYCF module, whilst half of the selected households were selected for the Food Security and Women questionnaire (including anaemia). All households were selected for Demography in all the surveys.

Due to the unique Maban camps' profile following the May 2017 conflict between the two main ethnicities of Uduk in Doro and Ingassana in the three camps (Yusuf Batil, Gendrassa, and Kaya), two separate survey teams were set to conduct the survey. Three sets of trainings one for supervisors and two for enumerators were conducted. Supervisors training was conducted for two days prior to the enumerators training. A total of seven (7) survey teams in Doro and twelve (12) in the three camps of Yusuf Batil, Gendrassa, and Kaya each comprised of four members (anthropometry measurer, anthropometric assistant, HB data collector and team leader/interviewer) were trained for five days and carried out data collection.

During all trainings, emphasis was made on data collection techniques, familiarization with the questionnaires, interviewing skills, teamwork, interpretation of calendar of events and age determination, and data collection using the smartphone. Practical sessions on anthropometric and heamoglobin measurements blood sample taking, including two standardization and pilot test were conducted.

Results summary

Table 1: Summary of Key Findings: SENS May 2024; Refugee camps in Maban, Upper Nile - South Sudan

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
	May 2024		May 2024		May 2024		May 2024		
CHILDREN 6-59 months									
Acute Malnutrition (WHO 2006 Growth Standards)									
Global Acute Malnutrition (GAM)	100/578	17.3 (14.4-20.6)	45/502	9.0 (6.8-11.8)	46/461	10.0 (7.6-13.1)	92/747	12.3 (10.2-14.9)	Very high/critical if ≥ 15% (WHO-UNICEF classification);
Moderate Acute Malnutrition (MAM)	80/578	13.8 (11.3-16.9)	38/502	7.6 (5.6-10.2)	42/461	9.1 (6.8-12.1)	83/747	11.1 (9.1-13.6)	
Severe Acute Malnutrition (SAM)	20/578	3.5 (2.3-5.3)	7/502	1.4 (0.7-2.9)	4/461	0.9 (0.3-2.2)	9/747	1.2 (0.6-2.3)	
Oedema	0/578	0	0/502	0	0/461	0	0/747	0	
Mid Upper Arm Circumference (MUAC)									
MUAC <125mm and/or oedema	43/587	7.3 (5.5-9.7)	18/505	3.6 (2.3-5.6)	10/464	2.2 (1.2-3.9)	37/752	4.9 (3.6-6.7)	
MUAC 115-124 mm	38/587	6.5 (4.8-8.8)	16/505	3.2 (2.0-5.1)	8/464	1.7 (0.9-3.4)	35/752	4.7 (3.4-6.4)	
MUAC <115 mm and/or oedema	5/587	0.9 (0.4-2.0)	2/505	0.4 (0.1-1.4)	2/464	0.4 (0.1-1.6)	2/752	0.3 (0.1-1.0)	

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Classification of public health significance or target (where applicable)**
	May 2024		**May 2024**		**May 2024**		**May 2024**		
Acute malnutrition combined									
Combined GAM	106/581	18.2 (15.3-21.6)	53/503	10.5 (8.1-13.5)	50/463	10.8 (8.3-14.0)	105/748	14.0 (11.7-16.7)	
Combined SAM	21/581	3.6 (2.4-5.5)	9/503	1.8 (0.9-3.4)	6/463	1.3 (0.6-2.8)	9/748	1.5 (0.8-2.6)	
Stunting (WHO 2006 Growth Standards)									
Total Stunting	177/580	30.5 (26.9-34.4)	122/503	24.3 (20.7-28.2)	70/462	15.2 (12.2-18.7)	201/748	26.9 (23.8-30.2)	Critical if ≥ 30% (WHO classification
Severe Stunting	64/580	11.0 (8.7-13.8)	31/503	6.2 (4.4-8.6)	8/462	1.7 (0.9-3.4)	51/748	6.8 (5.2-8.9)	
Programme enrolment/coverage									
Measles vaccination with card or recall (9-59 months)	546/557	98.0 (96.5-98.9)	448/468	95.7 (93.5-97.2)	422/433	97.5 (95.5-98.6)	666/695	95.8 (94.1-97.1)	Target of ≥ 95%
Vitamin A supplementation coverage with card or recall, within past 6 months with card or recall (6-59 months	561/601	93.3 (91.1-95.1)	104/503	20.7 (17.4-24.4)	449/466	96.4 (94.2-97.7)	58/751	7.7 (6.0-9.9)	Target of ≥ 90%
Therapeutic Feeding Program (OTP) (based on all admission criteria WHZ, oedema and MUAC)	3/25	12.0 (2.6-31.2)	1/12	8.3 (0.2-38.5)	1/5	20.0 (0.5-71.6)	1/12	8.3 (0.2-38.5)	Target of ≥ 90%

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
	May 2024		May 2024		May 2024		May 2024		
Targeted Supplementary Feeding Program (TSFP) (based on all admission criteria WHZ and MUAC)	15/96	15.6 (9.0-24.5)	6/47	12.8 (4.8-25.7)	7/45	15.6 (6.5-29.5)	17/100	17.0 (10.2-25.8)	Target of ≥ 90%
Diarrhoea									
Diarrhoea in past 2 weeks	135/598	22.6 (19.4-26.1)	58/500	11.6 (9.1-14.7)	39/463	8.4 (6.2-11.3)	70/747	9.4 (7.5-11.7)	
Deworming coverage within past 6 months (12-59 months)	407/525	77.5 (73.8-80.9)	56/420	13.3 (10.4-16.9)	308/408	75.5 (71.1-79.4)	5/605	0.8 (0.4-1.9)	Target of ≥ 75%
Anaemia (children 6-59 months)									
Total Anaemia (Hb <11 g/dl)	218/591	36.9 (33.1-40.9)	161/502	32.1 (28.1-36.3)	143/436	32.8 (28.6-37.3)	256/750	34.1 (30.8-37.6)	High if ≥ 40%
Mild (Hb 10-10.9)	136/591	23.0 (19.8-26.6)	100/502	19.9 (16.7-23.6)	92/436	21.1 (17.5-25.2)	162/750	21.6 (18.8-24.7)	
Moderate (Hb 7-9.9)	79/591	13.4 (10.9-16.4)	61/502	12.2 (9.6-15.3)	49/436	11.2 (8.6-14.6)	92/750	12.3 (10.1-14.8)	
Severe (Hb <7)	3/591	0.5 (0.2-1.5)	0/502	0.0	2/436	0.5 (0.1-1.7)	2/750	0.3 (0.1-1.0)	
Anaemia (children 6-23 months)									

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
	May 2024		May 2024		May 2024		May 2024		
Total Anaemia (Hb <11 g/dl)	118/216	54.6 (47.7-61.4)	92/183	50.3 (42.8-57.7)	79/146	54.1 (46.7-62.4)	140/254	55.1 (48.8-61.3)	High if ≥ 40%
Mild (Hb 10-10.9)	67/216	31.0 (24.9-37.7)	48/183	26.2 (20.0-33.2)	39/146	26.7 (19.7-34.7)	78/254	30.7 (25.1-36.8)	
Moderate (Hb 7-9.9)	49/216	22.7 (17.3-28.9)	44/183	24.0 (18.1-30.9)	38/146	26.0 (19.1-33.9)	60/254	23.6 (18.5-29.3)	
Severe (Hb <7)	2/216	0.9 (0.1-3.3)	0/183	0.0 (0.0-0.0)	2/146	1.2 (0.2-4.7)	2/254	0.8 (0.1-2.8)	
CHILDREN 0-23 months									
IYCF indicators									
Timely initiation of breastfeeding	236/259	91.1 (87.0-94.3)	218/235	92.8 (88.7-95.7)	207/222	93.2 (89.1-96.2)	325/340	95.6 (92.9-97.3)	
Exclusive breastfeeding under 6 months	23/41	56.1 (39.8-71.5)	50/53	94.3 (84.3-98.8)	55/62	88.7 (78.1-95.3)	83/85	97.7 (91.8-99.7)	
Continued breastfeeding at 1year	55/57	96.5 (87.9-99.6)	40/42	95.2 (83.8-99.4)	39/43	90.7 (77.9-97.4)	69/72	95.8 (88.3-99.1)	
Continued breastfeeding at 2 years.	43/50	86.0 (73.3-94.2)	20/30	66.7 (47.2-82.7)	25/31	80.7 (62.5-92.6)	21/36	58.3 (40.8-74.5)	
Introduction of solid, semi-solid or soft foods	29/44	65.9 (50.1-79.5)	25/35	71.4 (53.7-85.4)	17/33	51.5 (33.5-69.2)	32/56	57.1 (43.2-70.3)	

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
	May 2024		May 2024		May 2024		May 2024		
Consumption of iron-rich or iron-fortified foods	144/212	67.9 (61.2-74.2)	116/180	64.4 (57.0-71.4)	104/155	67.1 (59.1-74.4)	153/251	61.0 (54.6-77.0)	
Bottle feeding	2/259	0.8 (0.1-2.8)	0/235	0.0 (0.0-0.0)	4/222	1.8 (0.5-4.6)	0/340	0.0 (0.0-0.0)	
Proportion of children 6-23 months who received CSB++ in the last 24 hours	91/217	41.9 (35.3-48.8)	60/182	33.0 (26.2-40.3)	56/160	35.0 (27.6-42.9)	57/255	22.4 (17.4-28.0)	
WOMEN 15-49 years									
Anaemia (non-pregnant)									
Total Anaemia (Hb <12 g/dl)	81/270	30.0 (26.4-35.9)	44/271	16.2 (12.1-21.2)	62/296	21.0 (16.5-26.0)	73/375	19.5 (15.8-23.9)	High if ≥ 40%
Mild (Hb 11-11.9)	62/270	23.0 (18.1-28.5)	31/271	11.4 (7.9-15.8)	42/296	14.2 (10.4-18.7)	58/375	15.5 (12.2-19.5)	
Moderate (Hb 8-10.9)	19/270	7.0 (4.3-10.8)	13/271	4.8 (2.6-8.1)	20/296	6.8 (4.2-10.2)	14/375	3.7 (2.2-6.2)	
Severe (Hb <8)	0/270	0.0 (0.0-0.0)	0/271	0.0 (0.0-0.0)	0/296	0.0 (0.0-0.0)	1/375	0.3 (0.1-1.5)	
Programme enrolment/coverage pregnant women									
Pregnant women currently enrolled in the ANC	18/31	58.1 (39.1-75.5)	21/23	91.3 (72.0-98.9)	24/27	88.9 (70.8-97.7)	40/43	93.0 (80.9-98.5)	
Pregnant women currently receiving Iron-folic acid pills	16/32	50.0 (31.9-68.1)	20/23	87.0 (66.4-97.2)	24/27	88.9 (70.8-97.7)	40/43	93.0 (80.9-98.5)	
DEMOGRAPHY % [95% CI]									
Household size and Composition									
Average household size (mean, SD / range)	553	6.0 (2.9) [1-15]	406	6.8 (2.9) [1-21]	436	6.5 (2.7) [1-16]	560	6.9 (3.4) [1-21]	

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Classification of public health significance or target (where applicable)**
	May 2024		**May 2024**		**May 2024**		**May 2024**		
Percent of children U2	279/3304	8.4	238/2759	8.6	226/2846	7.9	347/3857	9.0	
Percent of children U5	696/3304	21.1	568/2775	20.5	543/2830	19.2	854/3857	22.1	
Percent of pregnant women	67/3304	2.0	37/2775	1.3	41/2830	1.4	63/3857	1.6	
Household Head Profile									
Female headed households	315/553	57.0 (52.8-61.0)	203/404	50.3 (45.4-55.1)	227/435	52.2 (47.5-56.8)	273/557	49.0 (44.9-53.2)	
Male headed households	216/553	39.1 (35.1-43.2)	169/404	41.8 (37.1-46.7)	180/435	41.4 (36.9-46.1)	239/557	42.9 (38.9-47.1)	
Children headed households	0/553	0.0 (0.0-0.0)	1/404	0.3 (0.0-1.4)	0/435	0.0 (0.0-0.0)	0/557	0.0 (0.0-0.0)	
Age dependency ratio (mean, SD / range)		1.6 (1.4) [0-inf.]		1.4 (1.2) [0-inf.]		1.5 (1.2) [0-inf.]		1.4 (1.1) [0-inf.]	
FOOD SECURITY									
Proportion of households receiving food assistance (in-kind and/or cash grants and/or food vouchers)	279/280	99.6 (98.0-100.0)	207/207	100.0 (98.2-100.0)	221/221	100.0 (98.3-100.0)	284/284	100.0 (98.7-100.0)	
Average number of days general food ration lasts out of [insert cycle] days (mean, SD / range)	279	8.6 (4.8) [1-21]	207	8.3 (4.6) [1-20]	219	9.0 (4.6) [1-21]	284	7.7 (4.6) [1-30]	
Proportion of households receiving cash grants	279/279	100.0 (98.7-100.0)	207/207	100.0 (98.2-100.0)	221/221	100.0 (98.3-100.0)	283/283	100.0 (98.7-100.0)	
Negative households coping strategies									
Proportion of households reporting using one or more negative coping strategies over the past 4 weeks	185/278	66.6 (60.7-72.1)	165/206	80.1 (74.0-85.3)	170/220	77.3 (71.2-82.6)	224/282	79.4 (74.2-84.0)	

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Number/ total**	**% (95% CI)**	**Classification of public health significance or target (where applicable)**
	May 2024		**May 2024**		**May 2024**		**May 2024**		
Rely on less preferred and/or less expensive foods	276/280	98.6 (96.4-99.6)	205/207	99.0 (96.6-99.9)	216/221	97.7 (94.8-99.3)	275/284	96.8 (94.1-98.5)	
Borrow food, or rely on help from a friend or relative	173/280	61.8 (55.8-67.5)	168/207	81.2 (75.2-86.3)	173/221	78.3 (72.3-83.5)	226/284	79.6 (74.4-84.1)	
Reduce the number of meals eaten in a day	251/280	89.6 (85.5-93.0)	190/207	91.8 (87.2-95.1)	201/221	91.0 (86.4-94.4)	258/285	90.9 (86.9-93.9)	
Limit portion sizes at mealtime	264/280	94.3 (90.9-96.7)	199/207	96.1 (92.5-98.3)	212/221	95.3 (92.4-98.1)	263/284	92.6 (88.9-95.4)	
Reduce consumption by adults so children could eat	192/280	68.6 (62.8-74.0)	140/207	67.6 (60.8-74.0)	163/221	73.8 (67.4-79.4)	188/284	66.2 (60.4-71.7)	
Average rCSI (mean, SD / range)	280	21.6 (11.9) [1-9]	207	18.2 (10.9) [0-9]	221	18.7 (11.2) [0-9]	284	16.6 (9.6) [0-9]	
Food Consumption Score (FCS)									
Average FCS (mean, SD / range)	280	27.8 (14.0) [10-97]	207	28.9 (14.6) [0-9.5]	221	30.1 (16.5) [11-9]	284	25.4 (12.9) [10-9]	
FCS profiles									
Acceptable	71/280	25.4 (20.4-30.8)	73/207	35.3 (28.8-42.2)	67/221	30.3 (24.3-36.8)	55/284	19.4 (14.9-24.5)	
Borderline	93/280	33.2 (27.7-39.1)	62/207	30.0 (23.8-36.7)	65/221	29.4 (23.5-35.9)	106/284	37.3 (31.7-43.2)	
Poor	116/280	41.4 (35.6-47.4)	72/207	34.8 (28.3-41.7)	89/221	40.3 (33.8-47.1)	123/284	43.3 (37.5-49.3)	

	Doro		Yusuf Batil		Gendrassa		Kaya		
	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Number/ total	% (95% CI)	Classification of public health significance or target (where applicable)
	May 2024		May 2024		May 2024		May 2024		
MOSQUITO NET COVERAGE									
Mosquito net ownership									
Proportion of households owning at least one mosquito net of any type	132/273	48.4	86/209	41.1	89/218	40.8	131/284	46.1	
Proportion of households owning at least one LLIN	109/273	39.9	75/209	35.9	72/218	33.0	95/284	33.5	UNHCR Target >80%
Average number of persons per LLIN (Mean)	1484/273	5.4 (2.8) [1-15]	1349/210	6.4 (2.7) [1-14]	1336/217	6.2 (2.7) [0-16]	1838/284	6.5 (3.3) [1-21]	UNHCR target 2 persons per LLIN
Proportion of total population (all ages) Slept under net of any type	563/1484	4.3 (2.3) [0-9]	356/1342	4.2 (2.2) [0-9]	359/1343	4.1 (2.2) [0-9]	480/1838	3.7 (2.0) [1-9]	
Proportion of total population (all ages) Slept under LLIN	460/1484	3.5 (2.6) [0-9]	303/1342	3.5 (2.4) [0-9]	292/1343	3.3 (2.6) [0-9]	327/1838	2.5 (2.3) [0-9]	

Table 2: WHO prevalence thresholds for wasting in children aged 6-59 months (low weight-for-height)

Previous prevalence ranges	Label	New prevalence ranges 2018	Label
-	-	<2.5	Very low
<5%	Acceptable	2.5 - < 5	Low
5 – 9%	Poor	5 - <10	Medium
10 – 14%	Serious	10 - <15	High
≥15%	Critical	≥ 15	Very high

Table 3: WHO prevalence thresholds for stunting in children aged 6-59 months (low height-for-age)

Previous prevalence ranges	Label	New prevalence ranges 2018	Label
-	-	<2.5	Very low
<20%	Acceptable	2.5 - < 10	Low
20 – 30%	Poor	10 - < 20	Medium
30 – 39%	Serious	20 - < 30	High
>40%	Critical	≥ 30	Very high

Table 4: WHO classification of public health significance for the prevalence of Anaemia (children 6- 59month-old and non-pregnant Women 15-49 years old)[2]

Prevalence %	High	Medium	Low
Anaemia	**≥40**	**20-39**	**5-19**

Source: WHO (2000)

Interpretation of results

Global Acute Malnutrition: Based on weight for height (WHZ), the prevalence of acute malnutrition among children 6-59 months showed a deteriorating acute malnutrition situation of very high public health concern in Doro camp (17.3%). Prevalence in Gendrassa (10.0%) and Kaya (12.3%) camps remained of high public health concern while in Yusuf Batil remained of poor public health concern according to WHO classification (10 - <15% = high and 5-<10 = poor). The weighted GAM prevalence (13.7%) across all camps was of high public health concerns.
Compared to previous years surveys, there has been significant rised in GAM prevalence in Doro (from 9.5% in 2022 to 17.3% in 2024) and Kaya (from 10.6% in 2021 to 12.3% in 2024). Though there is decrease in GAM prevalence in Yusuf Batil (from 10.3% to 9.0%) and Gendrassa (from 11.9% to 10.0%) camps as compared to 2021, the prevalence didn't show a significant reduction ($p>0.05$). Overall, the results showed a deteriorating Global Acute Malnutrition (GAM) situation of very high public health concern in the camps.

Combined Acute Malnutrition (cGAM): The overall combined Acute Malnutrition prevalence (cGAM) by weight-for-height Z-score (WHZ) and/or low MUAC and/or edema

was 14.9%. The prevalence of combined GAM was higher than the prevalence of WHZ or and MUAC (13.7%). Although there is no globally accepted threshold for combined GAM and SAM, this is a relevant indicator for caseload planning for nutrition treatment programs.

Moderate Acute Malnutrition (MAM): Results showed MAM prevalences of 13.8% in Doro, 7.6% in Yusuf Batil, 9.1% in Gendrassa, and 11.1% in Kaya. Compared to previous surveys findings, there is an observed increase in MAM prevalence in the camps. It is important to note that MAM cases form the highest caseload of malnutrition in all the camps, therefore attention should be given to lowering the MAM rates.

Severe Acute Malnutrition (SAM): SAM prevalence across the camps ranged between 0.9%-3.5%. Overall weighted SAM prevlence in all camps was 2.3% and this is above the UNHCR target of <2% in camp settings. Respective camps SAM are indicated by 3.5% (Doro), 1.4% (Yusuf Batil), 0.9% (Gendrassa), and 1.2% (Kaya). Compared to previous years findings, the overall prevalence increases from 1.5% in 2021 to 1.8% in 2024.

Stunting (chronic malnutrition): Overall, the prevalence of stunting among children 6-59 months across Maban camps was high (26.8%) based on WHO threshold of 20-<30%. Respective camps prevalences are 15.2% in Gendrassa, 24.3% in Yusuf Batil, 26.9% in Kaya, and 30.5% in Doro. Compared to previous year survey findings, the prevalence showed an increasing trend in the three camps of Yusuf Batil, Gendrassa, and Kaya. While in Doro camp, there is decrease noted. Though all prevalences are below WHO acceptable standard of (40%) across all camp, the situation remains serious.

Diarrhoea prevalence

The survey findings indicated that 22.6% (Doro), 11.6% (Yusuf Batil), 8.4% (Gendrassa), and 9.4% (Kaya) of the surveyed children had diarrhoea (3 or more times loose or watery stools in a day) in the past two weeks preceding the survey. Overall prevalence in all camps was 16.1% and this points to a significant morbidity burden in the camps which calls for interventions to treat and prevent common childhood illnesses including the other illnesses.

Of the surveyed children who had diarrhoea, more than 80% in the camps of Yusuf Batil, Gendrassa, and Kaya were treated using ORS while in Doro camp, only 67.2%. For treatment using Zinc tablet, below are the respective camps rates; Yusuf Batil (65.5%), Doro (75.2%), Gendrassa (83.3%), and Kaya (88.6%).

Health and nutrition program coverage:

Measles vaccination: the proportion of all children aged 9-59 months who had received measles vaccination through either use of EPI cards or recall from the mothers met the recommended Sphere standard of ≥95% (Doro 98.0%, Yusuf Batil 95.7%, Gendrassa 97.5%, and Kaya 95.8%).

Vitamin A supplementation: the survey findings showed children aged 6-59 months were supplemented with Vitamin A in the last six months. Supplementation coverages in Yusuf Batil and Kaya were very low as indicated by 20.7% and 7.7% respectively. Coverages in Doro (93.3%) and Gendrassa (96.4%) met the Sphere recommended standard of ≥90%. Is to be noted that only in Doro and Gendrassa camps that the last campaign conducted was within the six months prior to the survey.

Vitamin A Supplementation is critical, not only for eliminating Vitamin A deficiency as a public health problem, but also plays key role for child survival. This calls for strengthen efforts to ensuring timely provision of Vitamin A supplements to children aged 6-59 months.

Deworming coverage: Survey findings indicated deworming coverage among children aged 12-59 month measured by recall information from the mothers or caretakers within the past six months was below the recommended standard of ≥75%. While in Doro and Gendrassa camps, the coverage was within recommended standard of ≥75%. Respective camps coverages are as shown; Doro 77.5%, Yusuf Batil 13.3%, Gendrassa 75.5%, and Kaya 0.8%. Is to be noted that only in Doro and Gendrassa camps that the last campaign conducted was within the six months prior to the survey.

Selective feeding programmes enrolment coverages: the enrolment coverage results based on both admission criteria in all camps for selective feeding programmes (OTP and TSFP) were below ≥90% SPHERE standard for the camps. Coverages ranged from 12.8% in Yusuf Batil to 17.0% in Kaya for SFP and 8.3% in Yusuf Batil and Kaya to 20.0% in Gendrassa for OTP. Similarly, findings from survey indicated indicated low enrolment coverage in both OTP and TSFP based on admission criteria using MUAC and/or oedema only. This indicates the need to strengthen mass screening, active case findining, and timely referrals to the nutrition sites for treatment.

BSFP enrollment coverages: Survey findings indicated the BSFP enrolment coverage for children aged 6-23 months was within the recommended standard of ≥90% for the camps setting. Respective camps coverages were 92.2% (Doro), 91.2% (Yusuf Batil), 90.0% (Gendrassa), and 93.7% (Kaya).

Programme coverage in women: Survey results indicated coverage for ANC for women of reproductive age was 58.1% (Doro), 91.3% (Yusuf Batil), 88.9% (Gendrassa), and 93.0% (Kaya). Iron Folic acid supplementation coverage was 50% (Doro), 87.0% (Yusuf Batil), 89.0% (Gendrassa), and 93.0% (Kaya). BSFP enrolment coverage; Doro (74.1%), Yusuf Batil (79.6%), Gendrassa (87.5%), and Kaya (80.7%). Overall coverages for ANC and Iron Folic Acid supplementation in Doro camp were low.

Anaemia in Children 6-59 Months and Women

Anaemia in children 6-59 months; Surevy findings indicated 34.8% overall anaemia prevalence among children aged 6 to 59 months in all the refugee camps. These were indicated by respective camps prevalences of 36.9% (Doro), 32.1% (Yusuf Batil), 32.8% (Gendrassa), and 34.1% (Kaya). These prevalences are of medium public health significance. Compared to 2021 survey findings, the prevalence of anaemia showed a decrease however, of note is that children aged 6-23 months compared to 24-59 months were the most affected by anaemia with prevalence of 53.5% above the WHO threshold of 40%.

Despite average consumption of iron rich foods by children as indicated by a range of rate between 61.0% (Kaya) to 67.9% (Doro), consistent implementation of blanket supplementary feeding programme for children aged 6-23 months, strengthened IYCF intervention, and nutrition linkages with livelihoods, the effectiveness of these programs still have minimal impact in reducing the prevalence of anaemia. Therefore, there is need for additional multisectoral efforts towards anaemia prevention and control interventions to address the nutritional, health, and other underlying causes of anaemia among children 6-59 months.

Anaemia in women (15-49 years); Survey findings indicated an overall prevalence of anaemia 23.7% among women of non-pregnant reproductive age (15-49 years). This prevalence is of medium public significance and compared to 2021 survey findings, the results showed an increase in prevalence. Respective camp prevalences were Yusuf Batil (16.2%), Kaya (19.5%), Doro (30.0%), and Gendrassa (21.0%). In Doro and Gendrassa camps, the prevalence is above the expected <20% UNHCR target.

IYCF indicators

When interpreting the IYCF indicators, it is important to be cautious and careful as the survey sample sizes were small and calculated based on previous survey prevalence of GAM for children aged 6-59 months to draw meaningful conclusions. The presented results provide an overview or idea of the situation on IYCF practices among the surveyed children aged 0-23 months and therefore should not be generalized.

Early initiation to breastmilk; Early initiation to breastmilk within one hour of birth reduces the risk of neonatal mortality. Infants with delayed initiation of breastfeeding for more than 24 hours after birth, are 2.4 times more likely to die during the first month of life. Survey results indicated that the early initiation of breastfeeding rate across all camps was above the recommended standard of >90% across all camps. This is indicated by respective camps rates 91.1% in Doro, 92.8% in Yusuf Batil, 93.2% in Gendrassa, and 95.6% in Kaya. Compared to survey findings in 2021, there was an increase. Interventions to ensuring all delivered children receive timely initiation of breastfeeding should be strengthened to ensuring child survival.

Exclusive breastfeeding: Breastmilk alone satisfies the nutritional and fluid requirement of an infant for the first six months in life in all settings and climate. If milk-based fluids or solids are provided to breastfed neonate, the risk of neonatal death is increased. After six-month, infant needs additional foods to meet the energy and other nutrient requirements. The exclusive breastfeeding rate in the three camps of Yusuf Batil (94.3%), Gendrassa (88.7%), and Kaya (97.7%) for the first six months of life met the UNHCR standard of ≥75%. While in Doro camp the rate was 56.1%.

Continued breastfeeding at one year; the continuation of breastfeeding among children aged 12-15 (at 1 year) in all refugee camps were >90% (96.5% in Doro, 95.2% in Yusuf Batil, 90.7% in Gendrassa, and 90.7% in Kaya). Continuation of breastfeeding among children aged 20-23 months (at 2 years) was <90% (86.0% in Doro, 66.7% in Yusuf Batil, 80.7% in Gendrassa, and 58.3% in Kaya). Probable reason for the low rates could be due to either high birth rate or short birth intervals. Key IYCF messages such as continued breastfeeding into the second year and birth spacing need to be strengthened at all contact points to ensuring continuation of breastfeeding at 1 and 2 years.

Introduction of solid/semi-solid/soft foods: after six months of age, the nutrition needs of children 6-23 months increase and therefore, breast milk or fluid alone is not sufficient for them. It is necessary to introduce timely complementary feeding to add on to the breastmilk to meet the energy and other nutrient requirements of the infant. Findings from the survey indicated that the introduction of solid/semi-solid/soft foods rate to infants aged 6-8 months increased compared to the survey findings in 2021. These are indicated by respective camps rate of 65.9% (Doro), 71.4% (Yusuf Batil), 51.5% (Gendrassa), and 57.1% (Kaya). The proportion of children aged 6 -23 months who had consumed iron-rich or iron-fortified foods significantly decreased in 2024 across all camps compared to 2021. The rates were <70% (67.9% in Doro, 64.4% in Yusuf Batil, 67.1% in Gendrassa, and 61.0% in Kaya). Messaging on importance of complementary feeding needs to be strengthened especially across all camps as this has direct impact on stunting outcomes.

Bottle feeding; Bottle feeding places children at high risk of illness (diarrhoeal disease) due to likelihood contamination of the bottle and nipple. Survey findings revealed that bottle feeding rate among children aged 0-23 months were 0.8% (Doro), 0.0% (Yusuf Batil and Kaya), and 1.8% (Gendrassa). Compared to findings in 2021, there is decreased across all camps. At all contact points messaging on importance of early initiation, exclusive

breastfeeding for the first six complete months, and the continuation of breastfeeding into the second year of life need to be strengthened to provide the best chance of survival for infants and young children.

Food security

All surveyed households in the camps had ration cards and received food and cash assistance during the April GFD. The duration of days the general food ration provided last for 8.6 (Doro), 8.3 (Yusuf Batil), 9.1 (Gendrassa), and 7.7 (Kaya) out of 30 days. FCS among refugees in all camps as indicated from the survey findings was 25.4 (Kaya), 30.1 (Gendrassa), 27.8 (Doro) and 28.9 (Yusuf Batil) out of total score of 112 which falls into the borderline category (21.5-35). To fill the gaps, most households in the camps reported using one or more of the negative coping strategies of less expensive foods, borrowing food or relying on help from friend or relative, reducing the number of meals eaten in a day, limiting portion sizes at mealtime, and reducing consumption by adults so children could eat.

Mosquito net ownership and utilization

The survey findings indicated ownership of Long-Lasting Insecticide Treated Nets (LLINs) was 39.9% (Doro), 35.9% (Yusuf Batil), 33.0% (Gendrassa), and 33.5% (Kaya). All camps coverages were below the UNHCR target of 80% for the mosquito nets to have community level protection against malaria. Neither blanket nor targeted mosquito nets distribution was done in the camps for the old refugee's case load, and this could be contributing factor for the low coverage. Mosquito nets distribution was only conducted for the new arrivals as part of the UNHCR NFI package. On average 23.3% of the surveyed populated slept under an LLIN with higher utilization among at risk population of children U5 (33.2%) and pregnant women (32.1%). More than 2 (three times) persons shared a LLIN compared to the UNHCR standard of 2 persons per LLIN. The IRS coverages wer 1.1%, 14.8%, 51.2%, and 0.7% in the camps of Doro, Yusuf Batil, Gendrassa, and Kaya respectively. All camps coverages were very low because last campaign was conducted in June 2023. However, during the survey, there was an ongoing IRS in Gendrassa that is why the coverage looks higher than other camps.

Conclusion

The prevalence of GAM (13.7%) among children 6-59 months across all Maban camps remained of high public health concern with noted very high situation in Doro camp (17.3%). Stunting also remained high with overall prevalence of 26.8% closed to the threshold or critical level of 30%. Anaemia prevalence among children aged 6-59 months remained a medium public health concern with overall prevalence 34.8%. Children 6-23 months were most affected with anaemia prevalence of 53.5% above WHO threshold of 40% thus indicating a major public health problem. Diarrhoea prevalence remained high at 16.1%. Overall, the survey results indicate a concerning state of malnutrition in the camps, considering aggravating factors such as surges in morbidities (diarrhoeal, malaria and respiratory tract infections) among children 6-59 months, continuous floods during rainy season, reduced food assistance (from 12 to 8 calendar year and targeted food assistance to only vulnerable population). Multisectoral effort should be made and strengthen where existing to mitigate the impact on children.

Interms of health and nutrition programmes coverage, most indicators such as measles vaccination and blanket supplementary feeding coverage among children were good. Vitamin A supplementation, deworming, and selective feeding enrollment coverages remained low. Among women of reproductive age, access to and coverage of antenatal care (ANC) and iron folic acid (IFA) supplementation was good except in Doro camp. Blanket Supplementary Feeding program for pregnant and lactating women was good. Therefore,

there is need for additional multisectoral efforts towards ensuring timely provision of Vitamin A supplements to children aged 6-59 months and Iron Folic Acid supplements to pregnant women, strengthened active case findining and timely referrals to the nutrition sites for treatment.

Ownership of Long-Lasting Insecticide Treated Nets (LLINs) coverage were below the UNHCR target of 80% for the mosquito nets to have community level protection against malaria. Additionally, LLIN mosquito nets continues to be a gap in the operation. No neither blanket nor targeted distribution to the FDSPs. More than 2 (three times) persons shared a LLIN compared to the UNHCR standard of 2 persons per LLIN. Though IRS coverage was low in all camps, partner Mentor Initiative concluded IRS campaign in all camps with coverages more than 90%.

With the reduced GFD calendar months from 12 to 8 in Maban, targeted food assistance to only vulnerable population in the camps, and limited livelihood options, expansion of agriculture and livelihood activities should be prioritized to meet the needs of the persons of concern.

RECOMMENDATIONS AND PRIORITIES

Nutrition related.

1. Strengthen continued implementation of the Community based Management of Acute Malnutrition program to ensure timely treatment of identified and referred cases to the nutrition sites (RI, IRC, UNHCR, and UNICEF).

2. Maintain community and facility screening including active case finding of children U5 in the camps to ensure timely enrollment of malnourished children U5 into treatment programs (RI and UNHCR).

3. Strengthen two-stage screening measurements for children with MUAC at risk at all contact points at facilities. This is to ensure timely identifification and admission of malnourished children into the appropriate programs (RI).

4. Strengthen capacity building of staff on nutrition programming to facilitate quality provision of nutrition services (RI, IRC, UNHCR, WFP, and UNICEF).

5. Advocate for continue implementation of BSFP to children aged 6-23/59 months and pregnant and breastfeeding women to prevent malnutrition and cover nutrient gap (WFP and UNHCR).

6. Scale up investments in nutrition prevention approaches including social behaviour change programmes (health education on optimal childcare, proper sanitation and hygiene including appropriate IYCF and MIYCN practices). This is to help in reducing incidences of malnutrition and diarrhoea among children U5 and promotion of appropriate IYCF practices in the camps (RI and IRC).

7. Strenthen systematic anaemia screening, diagnosis, and treatment among children U5 and PBW and promotion of production and consumption of iron rich foods (RI, and IRC).

8. Maintain routine Expanded Program of Immunization (EPI) and as well as campaigns as per National Ministry of Health schedule (RI, UNICEF, and UNHCR).

9. Strengthen monitoring of the nutrition situation through regular assessments and data analysis to ensure quality of interventions and better health and nutrition outcomes (RI, UNHCR, WFP, UNICEF, and IRC).

Food security

1. Strengthen multisectoral approaches to addressing the major causes of acute malnutrition through improved farming (climate smart Agriculture), storage/food preservation techniques, and promoting the growing of nutrient dense foods (RI, UNHCR, WFP, and FAO).

2. Conduct joint assessments to monitor the food security situation in the camps (WFP, UNHCR, RI, SP, and other partners).

3. Strengthen school feeding programme through diversification of school meals through school agriculture clubs to enhance local food Production (fruits and vegetables) to increases the variety and nutritional quality of the food school meals served (SP,RI, UNHCR, WFP, and FAO).

Health and WASH related.

1. Strengthen management of early childhood diseases among children U5 and reproductive health interventions focusing on healthy timing and spacing of pregnancies for better health outcomes (RI, IRC, UNHCR, and UNICEF).

2. Advocate for blanket distribution of Long-Lasting Insecticide Treated Nets to achieve high net coverage across all camps (UNHCR, UNICEF, MI, and RI).

3. Strengthen hygiene promotion and provision of adequate soap to facilitate the prevention and control of infections like diarrhea and other hygiene related illnesses to be strentened (RI and UNHCR).

1.0.Introduction

This report presents the results of SENS conducted in the four refugee camps from 4th May to 4th June 2024. The below is the division of the report sections:

- *Background*: This section sets out background information related to the food security, health, nutrition, and WASH situation in Maban refugee camps.
- *Methodology*.
- *Results:* presents the findings.
- *Limitations.*
- *Discussion; and*
- *Recommendations*.

1.1. Background

Political conflict in Sudan with good refugee policy in South Sudan has given favourable space for refugees in South Sudan. Maban County is among the thirteen counties of Upper Nile State that is located to the Northeast corner of the Republic of South Sudan (RoSS). It shares two international borders i.e., Sudan to the east and Ethiopia in the vicinity of eastward. Domestically, Maban County borders four counties i.e., Longechuk (Southeast), Baliet (Southwest), Melut (West), and Renk (north). Five Payams of Khor Al Amer, Jinmagda, Jinkuata, Bunj, and Benashowa administratively make the County.

Maban hosts refugees in four refugees' camps of Doro (in Khor Al Amer Payam) and Gendrassa, Kaya, and Yusuf Batil (in Jinkuata Payam) who fled from Blue Nile and other states in Sudan due to conflict. Doro camp was the first established in November 2011 as a spontaneous settlement, followed by Yusuf Batil camp in May 2012, Gendrassa in July 2012, and Kaya refugee camp in May 2013. In the refugee camps, there are two main ethnic groups that comprised of Ingassana who are settled in the three camps of Yusuf Batil, Gendrassa, and Kaya while in Doro refugee camp the ethnic group is Uduk. Religiously, Islam and Christianity are the two religions practiced within these four refugee camps. Islam is dominantly in the three camps of Gendrassa, Yusuf Batil and Kaya while Christianity in Doro camp. As of 31st March 2024, the four refugee camps have an estimated population of 201,419 Forcibly Displaced and Stateless Persons (FDSPs).

Health, nutrition, and livelihoods programmes in Maban camps and host are implemented by partners RI and IRC while the food security component mainly general food distribution is implemented by SP. The support for these programmes is from UNHCR, WFP, UNICEF, government, and other donors. UNHCR coordinates services offered to the refugees through the partners while WFP's main role is to ensure that the refugee's food security is adequately addressed through the provision of the General Food Assistance (GFA) ration and nutrition support mainly TSFP and BSFP for children U5 and PLW including support to PLwHIV/TB monthly. UNICEF in collaboration with UNHCR provides support to the Outpatient Therapeutic nutrition Programme (OTP) and Stabilization Centres (SC).

The main livelihood activities practiced by both host and FDSPs in Maban include small scale agriculture, trading in livestock and farm products (wild vegetables and forest products) sourced locally as well as imported goods sourced from Sudan and Ethiopia. There are two

main markets in Maban county as well as camp specific markets accessible by both host and refugees.

By end of 2023 based on survey data of 2022 for Doro and 2021 for the three camps of Yusuf Batil, Gendrassa, and Kaya, the overall Standardized Expanded Nutrition Survey (SENS) results based on weight for height z scores showed a Global Acute Malnutrition prevalence range of 9.5% in Doro camp to 11.9% in Gendrassa camp among children 6-59 months. This showed an alert/stress to serious/severe label prevalence based on WHO classification indicating a likely deteriorating nutrition situation and is of concern.

Anaemia prevalence among children aged 6 to 59 months across all Maban refugee camps remained of high (≥40%) public health significance (WHO classification). Children aged 6-23 months remained to be the most affected. Among non-pregnant women of reproductive age (15-49 years) the prevalence of anaemia is of low and medium public health significance. However, the prevalence is above the expected <20% UNHCR Target. The persistent anaemia prevalence could be due to likelihood of associated morbidities, low consumption of heame-iron foods and suboptimal IYCF practices.

The average FCS based on 2021 SENS range between 29.7 in Kaya to 34.4 in Gendrassa (for the three camps of Gendrassa, Kaya, and Yusuf Batil) while for Doro camp in 2022 was 32.1. All these lie the borderline category (28.5-42). This suggests communities adopt some negative/stress coping strategies phenomenone.

1.2. Purpose/Rationale of the Survey

Maban county that hosts the four refugee camps like some parts of South Sudan continues to face high levels of acute food insecurity. This has been driven by many devastating factors such as frequent climate related shocks (floods), deteriorating SSP depreciation and high food prices among other factors. Every year Maban county is hit by flooding that destroys infrastructures (houses, roads, and other facilities), water and sanitation facilities, disrupted protection, livelihood, medical activities, and the socio-economic systems in both host and the refugees' communities. In 2023 the political conflict in Sudan has displaced more people, driven more refugees to Maban, and disrupted the main supply route of goods. Impact of these factors is felt in the nutritional status of children U5 in Maban as nutrition, health, and food security interventions are interrupted.

WFP through partner SP provides general food assistance to all registered FDSPs across all Maban refugee camps. The food assistance provided is at 50% ration scale since 2021 and that provides half (1050 kcal/p/d Vs 2100 kcal/p/d) of the daily needed nutrition needs of the FDSPs. In 2024, there is planned further reduction in food assistance approach that will be provided to the FDSPs in Maban refugee camps. This will see general food assistance ration provided still at 50% for period of 8 calendar months for the old refugee's caseloads while 12 calendar months for the new arrivals. A small top up will be provided to the most vulnerable of the vulnerable FDSPs across the four camps. This significant ration cut will have potential to adversely affect food security, nutrition situation, livelihoods, and the dignity of the vulnerable refugee households. Additionally, it may prompt the adoption of

negative coping strategies and generate unfavourable media coverage, potentially leading to population unrest.

According to the Integrated Food Security Phase Classification (IPC) analysis in South Sudan released in November 2023, report showed an estimated 5.83 million people (46.3 percentage of the population) are experiencing high levels of acute food insecurity classified as **IPC Phase 3 or above (Crisis or worse)**. In addition, an estimated 1.65 million children aged between 6-59 months expected to suffer acute malnutrition including 480,000 million to suffer Severe Acute Malnutrition, and 1.16 million to suffer Moderate Acute Malnutrition. 870,000 pregnant and breastfeeding women are expected to suffer acute malnutrition in this period. Five states of South Sudan where Upper Nile State, hosting refugees in Maban is inclusive forms 72% of the acute malnutrition and 56.1% food insecure burden concentration (Sep 2023 to July 2024).

In the refugee camps, SENS haven't been conducted in 2022 and 2023 due to insecurity and the Sudan emergency that shifted all support for the emergency hence interrupted the SENS implementation. Hence no updated nutrition survey data which can be used to inform programmatic decisions. To monitor the nutrition situation and evaluate the impact of initiated and ongoing nutrition interventions to ensure continued provision of optimal health and nutritional care for the FDSPs, a follow up SENS was conducted.

1.3. **Survey Objectives.**

The overall objective of the nutrition survey is to measure the general health, nutrition status, food security, and related indicators among refugees' population in Maban camps and formulate workable recommendations for appropriate nutritional and food security interventions.

1.3.1. Specific primary objectives of the survey

a. To determine the demographic profile of the population in Maban camps.
b. To determine the age dependency ratio in Maban camps.
c. To determine the prevalence of acute malnutrition among children 6-59 months in Maban camps
d. To determine the prevalence of stunting among children 6-59 months in Maban camps
e. To determine the coverage of measles vaccination among children 9-59 months in Maban camps
f. To determine the coverage of vitamin A supplementation in the last six months among children 6-59 months in Maban camps
g. To determine the two-week period prevalence of diarrhoea among children 6-59 months in Maban camps.
h. To assess IYCF practices among children 0-23 months in Maban camps.
i. To measure the prevalence of anaemia in children aged 6-59 months and in women of reproductive age between 15-49 years (non-pregnant) in Maban refugee camps.
j. To determine the populations' overall ability to meet their food needs with assistance:
k. To determine the duration of the general in-kind food distribution for recipient households

l. To determine the extent to which negative coping households use strategies.
m. To assess household food consumption (quantity and quality).
n. To determine the ownership of mosquito nets (all types and LLINs) in households in Maban camps.
o. To determine the utilization of mosquito nets (all types and LLINs) by the total population, children 0-59 months, and pregnant women in Maban camps.
p. To determine the household coverage of indoor residual spraying in the last 6 months/12 months.
q. To establish recommendations on actions to be taken to address the situation.

1.3.2. **Secondary objectives:**

a. To determine the enrolment into the targeted supplementary (TSFP) and therapeutic (OTP/SC) nutrition programmes for children aged 6-59 months in Maban camps.
b. To determine the coverage of the blanket supplementary feeding programme (BSFP) for children aged 6-23 months in Maban camps.
c. To determine the coverage of deworming (soil-transmitted helminth control) with mebendazole or albendazole in the last six months among young children (12-59m/24-59m).
d. To determine the coverage of the blanket supplementary feeding programme (BSFP) for pregnant women and lactating women with an infant less than 6 months aged 15-49 years (if applicable) in Maban camps.
e. To determine enrolment into Antenatal Care clinic and coverage of iron-folic acid supplementation in pregnant women in Maban

Food security situation

In Maban camps, FDSPs are engaged in limited income earning opportunities and as such are largely dependent on general food ration provided by WFP through the monthly General Food Ration (GFR). Majority of the FDSPs drew their income from small scale and rainfed agriculture including sale of forest products. From a joint PDM conducted by UNHCR and WFP as part of profiling analysis to inform planned targeting and prioritization of assistance to refugee's food assistance priorization, some findings showed about one in three refugee households do not engage in productive income earning activities but entirely rely on the consumption or sale of the greatly reduced food assistance transfers or by gathering wild foods. In addition, majority of the refugee's households are food insecure (Doro 63% and the three camps of Yusuf Batil, Gendrassa, and Kaya 57%).

FDSPs in the refugee camps receive 50% rations in various forms, including in-kind with cash for milling and sometimes cereals, pulses, vegetable cooking oil, and salt, based on market availability. From Jan to June 2024, an average coverage of >95% registered refugees in the four camps have been receiving their respective monthly entitlements.

Table 5: Maban Jan-June 2024 GFD trends/coverages

	Doro			Batil			Gendrassa			Kaya		
	Target	Served	%	Target	Served	%	Target	Served	%	Target	Served	%
Jan	89877	88361	**98.3**	52069	51775	**99.4**	18232	17952	**98.5**	29410	28669	**97.5**
Feb	91033	88808	**97.6**	52474	52191	**99.5**	18411	17695	**96.1**	31265	30325	**97.0**
Mar	92371	90732	**98.2**	52860	52597	**99.5**	18592	17931	**96.4**	32696	31103	**95.1**
April	94381	93426	**99.0**	53339	53183	**99.7**	18828	18686	**99.2**	33624	31704	**94.3**
May	96022	95016	**99.0**	53971	53772	**99.6**	19028	18878	**99.2**	33930	31806	**93.7**
June	97520	96326	**98.8**	54363	54232	**99.8**	19238	19052	**99.0**	33778	31854	**94.3**

In Maban camps, trends in general food assistance cut started in Aug 2015 with reduction from 100% to 70% and in April 2021 from 70% to 50% due to funding constraints. In the second half of 2024 there is further change in food assistance provision interms of duration of food assistance provision reduced from 12 calendar months to 8 months for the old refugee caseloads while all new arrivals will continue to receive food assistance monthly for 12 calendar months. For the old case load, a small top up will be provided to the most vulnerable of the vulnerable FDSPs after the 8 calendar months.

Though impact of these cuts is yet to be felt, the food security, nutrition situation, livelihoods, and the dignity of the vulnerable refugee households will be impacted negatively. Additionally, it may prompt the adoption of negative coping strategies and generate unfavourable media coverage, potentially leading to population unrest.

For all new arrivals in Maban camps, UNHCR in coordination with WFP through partners continued to provide hot/cooked meals The food is served twice to individuals until they are relocated to their allocated plots. Upon registration, the new arrivals are enrolled into the monthly food assistance system.

Health situation

UNHCR and other donors through the partners have made significant improvements in terms of expanding the scope of health care services, infrastructures development, staff capacity building, strengthened coordination with various stakeholders to the existing health services in all camps to help cater for the much greater population.

Maban camps have 10 health care facilities that are supported by UNHCR partner Relief International. 4 in Doro camp- 1 PHCC, 1 PHCC+, and 2 PHCUs, 2 in Kaya camp - 1 PHCC and 1 PHCU, 1 in Gendrassa camp - 1 PHCC, and 3 in Yusuf Batil camp- 1 PHCC, 1 PHCC+, and 1 PHCU. The two PHCC+ (each from Doro and Batil) act as referral hospital and support management of cases that cannot be attended to at the respective camps PHCCs and PHCUs. Additionally, there is one secondary referral hospital (Bunj hospital) located in Bunj town where most secondary care services are provided by UNHCR partner IRC.

Health services provision in each of the respective camps PHCCs is 24/7 provided by both technical and incentives staff. Where there is heightened insecurity and disastrous flooding as it occasionally happens in Maban, services are mainly provided by incentives staff from the respective refugee communities with remote technical support from qualified staff where possible. Services provided include treatment of common illnesses, antenatal care

(ANC) and post-natal care (PNC), immunization (EPI), laboratory, pharmacy control program, voluntary counselling and testing, prevention of mother to child transmission, Antiretoviral therapy (ART), referral system, mental heath, community health, nutrition (TSFP, OTP & SC).

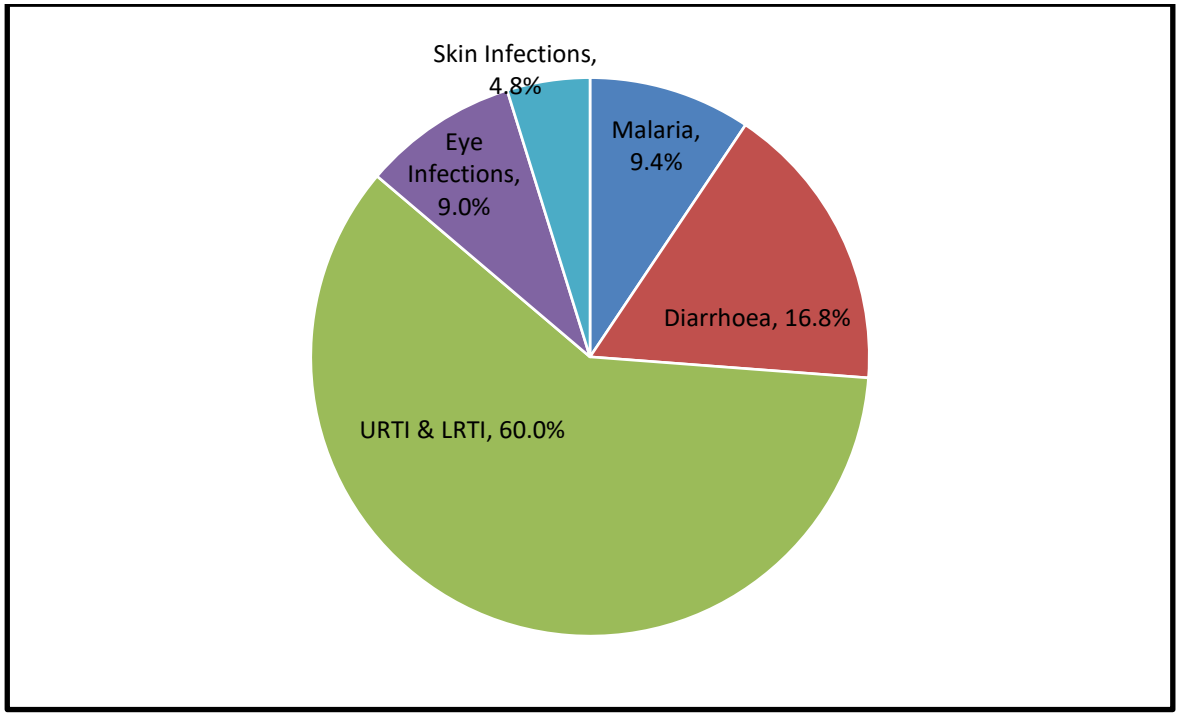
In addition, malaria prevention and control activities are as well conducted by UNHCR operational partner Mentor Initiative. These include vector control, larval source management, and messaging on proper use of mosquito net programmes. No Indoor Residual Spraying was conducted in the refugee camps in the last six months prior to the survey implementation. No blanket distribution of Long-Lasting Insecticide treated mosquito Net (LLIN) was conducted across all camps especially for the old refugee's caseloads. Current ongoing distributions only targets pregnant women during first ANC visit and delivery in the health facilities. However, due to mosquito nets stockout, the targeted distribution was interrupted in 2024. For the new arrival's caseloads, each household have been given nets based on the UNHCR standard NFI guidelines.

At community level, RI runs a Care Group Model that comprises of BCC Officers, Community Health Promoters, lead mothers, and neighbour women. This structure is used for implementation of both health and nutrition activities. Some of these activities include identification of cases of disease and malnutrition, referral of cases to the health facilities and nutrition centers, participatition in different campaigns in the community, house-to-house visits, community sensitization, mass communication and community meetings. The Care Group Model structure works in collaboration with health and nutrition sectorial committees in each camp and these structures form the backborn of the health and nutrition program.

In coordination with the National Ministry of Health, WHO, and UNICEF, one round of Integrated polio, deworming, and Vitamin A supplementation campaign was conducted in Maban county.

Between Jan to June 2024, Upper and Lower Respiratory Tract Infections (60.0%), Diarrhoea (16.8%), Malaria (9.4%), Eye (9.0%) and Skin (4.8%) Infections remained top main causes of morbidities registered for children under five years across the four refugee camps. This places a strenuous disease burden on the children, eventually leading to malnutrition.

Fig 1: Top five causes of morbidity in children under the age of 5 years old-Maban refugee camps.

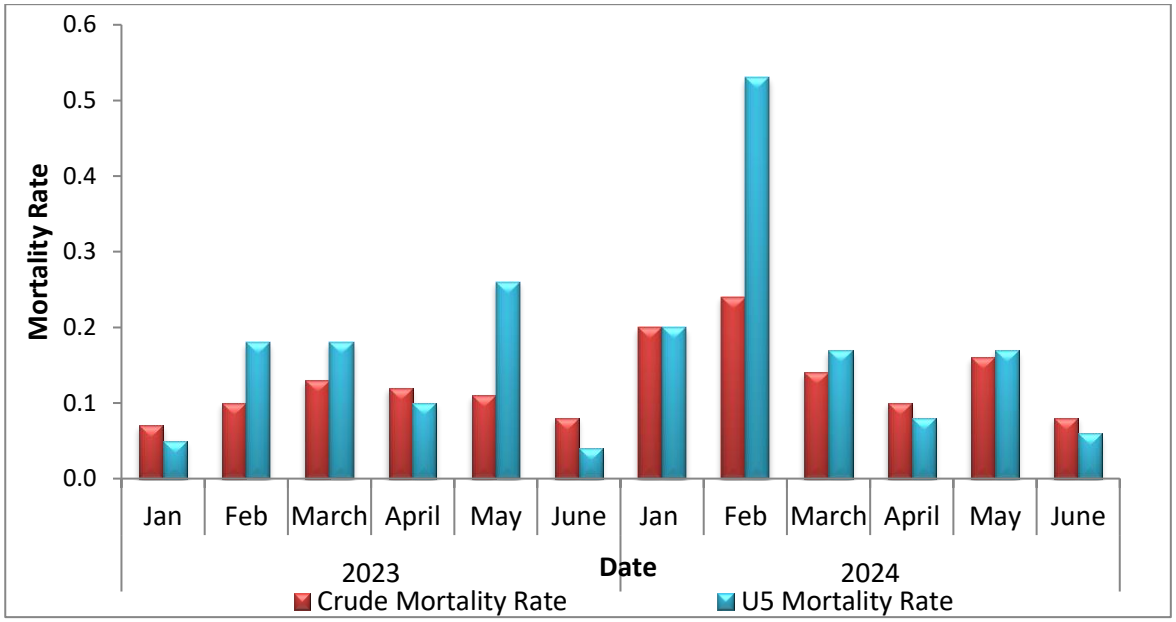


Mortality data is collected weekly by Community Health Promoters of Relief International across the camps. From Jan to June 2024, the average Crude Mortality Rate (CMR) and Under Five Mortality Rate (U5 MR) were indicated by 0.15 and 0.20 respectively. Both the CMR and U5MR were below the WHO emergency thresholds of 0.75/1000/month and 1.5/1000/month respectively. Compared to 2023 the same period, although the mortality rates were below the thresholds, the current levels are observed to be higher.

Table 6: Overall mortality trends for CMR and U5 MR-Maban camp.

	Jan	Feb	March	April	May	June	Overall
2024 CMR	0.2	0.24	0.14	0.1	0.16	0.08	0.15
2023 CMR	0.07	0.1	0.13	0.12	0.11	0.08	0.10
2024 U5MR	0	0.54	0.22	0.07	0.3	0.07	0.20
2023 U5MR	0	0	0.19	0	0.36	0	0.09

Figure 2; Showing Crude and under-5 mortality rates-Maban refugee Camps



Nutrition situation

UNHCR coordinates the implementation of nutrition interventions across the refugee camps through partners Relief International and International Rescue Committee. The camps have 11 nutrition sites (8 OTP & TSFP sites each and 3 SCs) attached to the health facilities. At community level, general health and nutrition services are supported by Care Group members. Nutrition support for people living with TB/HIV/Kalazer is provided through the Nutrition Assessment, Counselling, and Support (NACS) programme in each of the PHCC health facilities.

Nutrition services at the camps facilities are integrated into the Outpatient Department (OPD); Expanded Programme for Immunisation (EPI); Ante Natal Care (ANC), Post-Natal Care (PNC), and Maternity. Nutrition services and activities conducted include preventive and curative interventions which are key elements of UNHCR's global public health nutrition programme.

Preventive interventions

1. Community mobilization and active case finding through regular (routine and quarterly) nutrition screening, detection, and referral at facility and community levels, including quarterly MUAC screening for children U5 and pregnant and lactating women and family MUAC.
2. Follow-up of cured cases from nutrition programmes and provision of nutritional support to avoid relapse also conducted.
3. Nutrition education both at community and facility level
4. Growth monitoring at EPI unit during visits.
5. Maternal/Infant and Young Child nutrition/feeding (MIYCN or IYCF) support and promotion programme provided at both facility and community level by the facility and Care Group staff.
6. Cooking demonstrations to mothers and caretakers of children U5 at facility and community level.

7. Blanket Supplementary Feeding Programme (BSFP) for children aged 6 - 23 months and pregnant and lactating women and two-stage malnutrition screening in place during BSFP.
8. Promotion of kitchen (small-scale homestead) gardening programme at household to mothers and caretakers of children U5.
9. Biannual Vitamin A supplementation and deworming campaign for children U5
10. Screening of children aged 6-59 months and pregnant/lactating women for anaemia in health facilities.

Curative interventions

1. Targeted Supplementary Feeding Programme (TSFP) for moderately malnourished children U5, pregnant/breastfeeding women (PBW), and patients with chronic illnesses such as TB and HIV,
2. Outpatient Therapeutic Feeding Programme (OTP) for management of severely acute malnourished children aged 6-59 months without medical complications.
3. Inpatient Therapeutic Feeding Programme (SC based in certain health facilities) for management of severely acute malnourished children U5 with medical complications.
4. Treatment of individuals with severe anaemia at the health facilities using iron/folic acid tablet/syrup as per recommendations.

Routinely, active case finding is conducted both at community and health facility level at different point of contacts. Identified cases of Moderate Acute Malnutrition among children aged 6-59 months are referred to the Supplementary Feeding Program (SFP) for Plumpy'Sup® provided by WFP every 15 days. Severe Acute Malnutrition (SAM) cases without medical complications are referred to the Outpatient Therapeutic Program (OTP) for treatment using Plumpy'Nut® provided by UNICEF on a weekly basis at the sites. SAM children with medical complications are referred to Stabilization Centres for treatment using F-75/100 and other nutrition supplies/medicines provided by UNICEF and WHO. While identified malnourished PLW and people living with HIV/TB (PLwHIV/TB) are treated at the SFP using Corn Soya Blend plus plus (CSB++) supplied by WFP.

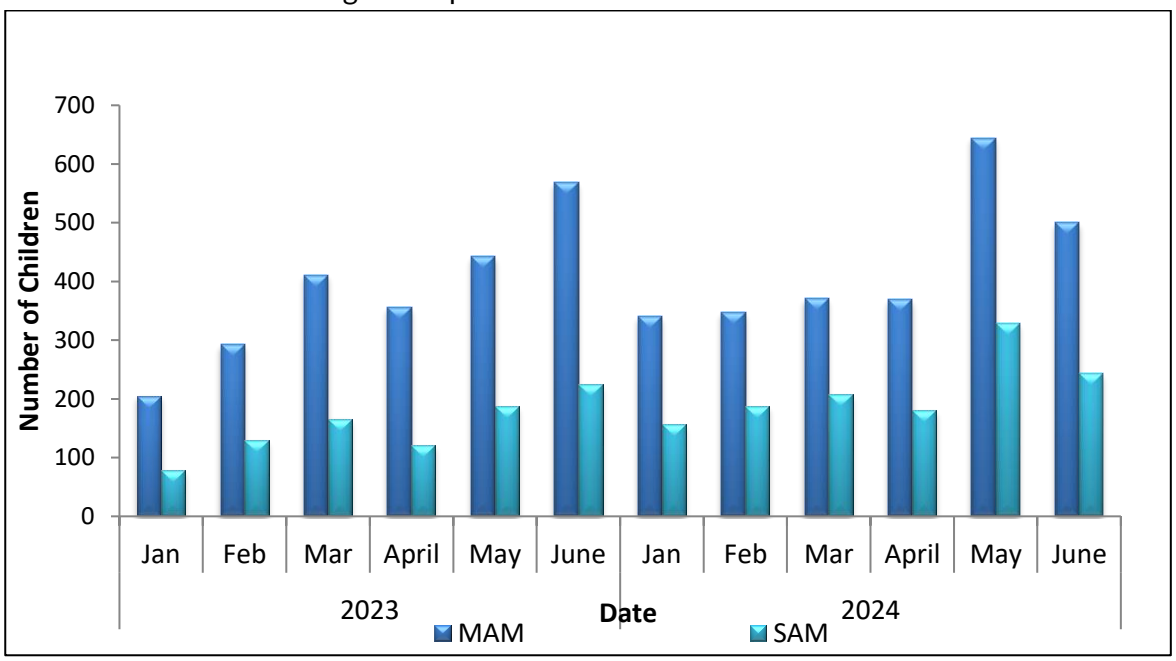
Blanket Supplementary Feeding Programme distribution were conducted by RI from Jan to May 2024 targeting children aged 6-23/59 months and pregnant & breastfeding women. Supplies used include Lipid based Nutrient Supplements (LNS-MQ) for children aged 6-23/59 months and CSB++ for pregnant and breastfeeding women.

A total admission of 2571 and 1303 children U5 were admitted into the TSFP and OTP/SC nutrition programs respectively across the four camps in June. Compared to 2023 same period, thia ahows an increase by 6.1% in TSFP and 18% in OTP/SC in 2024. Many compounding factors contributed to this. However, important to note, there has been an upsurge of malaria and diarrhoea noted within the camps including among new arrivals.

Table 7 : Admission trends for children aged 6-59 months in TSFP and OTP/SC (SAM) programs

	Jan	Feb	March	April	May	June	Total
2024 TSFP	340	347	371	369	644	500	2571
2023 TSFP	205	293	411	356	442	569	2276
2024 SAM	156	187	208	181	328	243	1303
2023 SAM	78	129	166	121	187	225	906

Figure 3: Admissions to Treatment Programmes for MAM and SAM among Children aged 6-59 Months -Maban refugee camps Jan-June 2024



Two rounds of mass Mid-Upper Arm Circumstance (MUAC) screening targeting children aged 6-59 months and Pregnant and Lactating Women (PLW) were conducted in the first half of 2024. The proportion of children U5 that had MUAC <12.5cm is as per below table. Results showed the proportion of acutely malnourished children U5 defined by MUAC an increasing trend from Q1 to Q2 both as average of the four camps.

Table 8 : 2022 Quarterly Mass MUAC and/or Oedema screening trend for U5 ; Maban refugee camps

	Q3 2023	Q1 2024	Q2 2024
Average Maban MUAC <12.5cm and/ or Oedema prevalence	2.8%	2.3%	2.8%

Wash situation.

Supply of water in Maban refugee camps is through the ground. There are two water supply systems that comprised of motorized boreholes (13 in Doro, 10 in Batil, 7 in Gendrassa, and 7 in Kaya camps), India Mark II handpumps (5 in Doro, 5 in Batil, and 13 in Gendrassa camps), and 1284 tap stands (Doro 540, Batil 493, Gendrassa 124, and Kaya 127) in the camps. The motorized submersible pumps (boreholes) are operated using solar power and fuel systems. On average, daily water provision per capita per each of the camp stand at 15 litres per person per day in Doro, 17l/p/d in Gendrassa, 15l/p/d in Batil, and 16l/p/d in Kaya camps.

For quality check, the WASH partner ACTED conduct regular water quality monitoring to check the free residual chlorine (FRC) and turbidity levels. This is to ensure provided water is free from contamination. Routinely the partner also did conduct rehabilitation of the WASH facilities and flushing of water wells.

No data on latrine coverage as the partner conducted KAP survey in May 2024 and report pending. However, in camp the numbers of drop holes (latrines) are as below Doro 1:18, Gendrassa 1:11, Batil 1:15, and Kaya 1:13. Other sanitation and hygiene activities conducted included decommissioning of latrines, support to construction of household and institutional latrines, and hygiene promotion, and routine provision of soap for jerrycan cleaning.

For new arrivals at their designated areas/plots, 330 and 367 shared emergency latrines and shared family bathing shelters respectively have been conducted.

2.0.Methodology

2.1.Study design.

The SENS employed a cross-sectional survey in all Maban refugee camps in which a systematic simple random sampling was used to identify the households surveyed in all camps. Prior to data collecton in all the refugee camps, all houses were physically labeled with specific or unique numbers in each of the respective camps Zones or Blocks. Empty houses were excluded from the sampling frame.

2.2.Sample size.

The Emergency Nutrition Assessment (ENA) software version Jan 11th, 2020, which uses Probability Proportion to Sample Size (PPS) was used to calculate the sample sizes of children and households participating in the survey.

Calculation of the sample size was done using Standardized Monitoring and Assessment of Relief and Transitions (ENA for SMART) software version Jan 11th, 2020 (https://smartmethodology.org/), following UNHCR SENS version 3, 2019 guidelines (http://sens.unhcr.org/). The Upper Confidence Interval (C.I) of GAM prevalence of 2021 nutrition survey was used to calculate the sample size with respective camps estimated GAM prevalence figure of 12.3% in Doro, 13.6% in Yusuf Batil, 15.5% in Gendrassa, and 13.9% in Kaya camps. The Upper C.I was used as there was noted increase in admissions as compared to same period in 2023. In addition, communities across all camps reported high acute malnutrition rates during coordination meetings. The percentage of under-5, average household size, total population surveyed was derived from the UNHCR ProGres database. A non-response rate of 10% was used for both camps as household listing was be done before survey data collection. See tables below for more detail.

2.3.Demography

Table 9: Maban refugee camps population

Camps	Population	HH	<5 children	Average HH size	% of <5 children
Doro	94,996	20,084	19,840	4.7	20.9
Yusuf Batil	53,630	10,031	10,976	5.3	20.5
Gendrassa	18,942	3,721	3,503	5.0	18.5
Kaya	33,851	7,860	6,432	4.3	19.0
Total	**201,419**	**41,696**	**40,751**	**4.8**	**19.7**

Table 10: Parameter used to calculate sample size for the refugee camps.

	Doro	Yusuf Batil	Gendrassa	Kaya
Estimated prevalence (%) (UNHCR SENS 2022 for Doro camp and 2021 for Batil, Kaya, & Gendrassa)	12.3	13.6	15.5	13.9
± Desire precision (%) (UNHCR SENS guidelines)	3.0	3.5	4.0	3.5
Average household size (March 2024 UNHCR ProGres)	4.7	5.3	5.0	4.3

<5 population (%) (March 2024 UNHCR ProGres)	20.9	20.5	18.5	19.0
Nonresponse households (%)	10	10	10	10
Total camp population (As of March 2024 UNHCR ProGres)	94,996	53,630	18,942	33,851
Households to be included for Anthropometry and Health module (ENA for SMART) (Systematic)	584	417	424	579
Children to be included for Anthropometry and Health module (ENA for SMART) (Systematic)	460	368	314	375

Final sample size for all modules (systematic)

	Doro	Yusuf Batil	Gendrassa	Kaya
Households to be included for Anthropometry and Health module (ENA for SMART)	579	419	420	567
Households to be included for children Anaemia module (UNHCR SENS guidelines)	579	419	420	567
Households to be included for IYCF module (UNHCR SENS Guidelines)	579	419	420	567
Households to be included for women Anaemia module (UNHCR SENS guidelines)	290	209	210	284
Households to be included for Food Security and Mosquito Net module (UNHCR SENS Guidelines)	290	209	210	284

In Gendrassa and Kaya camps as the population of children U5 was less than 10,000 and more than 10,000 in Doro and Batil camps, a correction factor was used to calculate the sample size in ENA for SMART software during sample size calculation to account for small size population. The household sample size for anthropometry and health was used for IYCF, children anaemia, and demography modules. Following UNHCR SENS guidelines half the sample size of anthropometry (every other household) was used as the sample size for women anaemia, food security, and mosquito nets coverage modules. See details in above table.

2.4.Sampling Procedure; selecting households and sample subjects.

Systematic random sampling was used to identify the surveyed households across all the camps. Each camp was either divided into zone or blocks and under the zones or Blocks, all households were physically labelled with unique numbers per zone/block household. To reduce the non-response rate and ensure results were representative of people living in the camps at the time of the survey, empty houses were excluded from the sampling frame. Using the list generated from the physical counting and labelled households a sampling interval for each camp was determined by dividing the total number of verified households by the estimated sample. The first household was thereafter determined randomly using the lottery method by drawing a random number within the sampling interval. The interval was applied across the sampling frame to generate a list of households to be surveyed in the field. Each team was provided with a list of households to be surveyed daily.

Using the SENS guidelines, all the eligible children aged 6-59 months from all selected households were included in the child anthropometry and health, anaemia and children aged 0-23 months included for IYCF modules. All households were selected for Demography in all the surveys. Whilst half of the selected households were selected for the Food Security and mosquito net coverage questionnaires including women of reproductive age (15-49 years) questionnaires.

The interview was conducted in most cases with the mother in the household or in her absence with an adult member of the household who was knowledgeable with the everyday running of the household. In the survey a household is defined as the number of (group of) people who regularly stay together and eat from the same pot.

In the event of the below scenarios.
An absent individual or entire selected household: the teams revisted the household during the day. In unsuccessful attempt, the individual or household was recorded as absent and was not replaced.

Refusal: If an individual or selected household refused to participate it was considered refusal and the individual or household was not replaced with another.

Disabled children: If a selected child was disabled with a physical deformity preventing certain anthropometric measurements, the child was still included in the assessment for other relevant indicators.

Household without children U5 or women: If was determined that a selected household did not have any eligible children, the relevant questionnaires were administered to the household.

2.5.Questionnaire and measurement methods

The questionnaires used during the survey are attached under (**Appendix 3)**. The questionnaires consisted of six standard SENS modules questionnaires designed to provide information on the relevant indicators of the different target groups as indicated in the survey objectives. Mobile phone questionnaires using Open Data Kit (ODK) android software for all the modules was used for data collection. The questionnaires were prepared

in English and administered in local and Arabic language by the enumerators. The questionnaires were pre-tested before the survey. Below are the six module questionnaires covered and the measurements:

Module 1: Demography - this included question on information on demographic profile of the surveyed population

Module 2: Anthropometry and Health – this included questions and measurements of children aged 6-59 months. Information was collected on anthropometric status, oedema, and enrollment in selective feeding programmes, immunization (measles), Vitamin A supplementation, deworming, and morbidity from diarrhoea in past two weeks before the survey and haemoglobin status.

Module 3: Anaemia - this included measurement of levels of haemoglobin in children aged 6 – 59 months and women of childbearing age (15 – 49 years) who are non pregnant. Further information collected from women was pregnancy status, enrolment in ANC, coverage of iron-folic acid pills.

Module 4: IYCF - this included question on infant and young child feeding for children aged 0- 23 months.

Module 5: Food security - this included question on access and use of the GFD ration, negative coping mechanisms used by household members and household dietary diversity.

Module 6: Mosquito Net Coverage - this included question on level of ownership and utilization of mosquito nets among the refugee population.

2.6.Measurement methods

Household-level indicators

Demography: The questionnaire used was from UNHCR's Standardised Expanded Nutrition Survey Guidelines for Refugee Populations Version 3 (2019)

Food security: The questionnaire used was from UNHCR's Standardized Expanded Nutrition Survey (SENS) Guidelines for Refugee Populations Version 3 (2019).

Mosquito Net and Coverage**:** The questionnaire used was from UNHCR's Standardized Expanded Nutrition Survey (SENS) Guidelines for Refugee Population Version 3 (2019).

Individual-level indicators

Sex of children: gender was recorded aseither "m" for male or "f" for female.

*Birth date or age in months for children 0-59 months***:** the primary source for the exact date of birth (day, month, and year) was recorded from either an EPI card, child health card or birth notification if available. In the abscences of these documents, a local calendar of events was used to estimate the age (Appendix 5) and recorded in months. In addition, children whose

age could not be determined by using a local events calendar or by probing, the child's length/height was used for inclusion; the child had to measure between 65 cm and 110 cm.

Age of women 15-49 years: Reported age was recorded in years.

Weight of children 6-59 months: 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 100grams (0.1kg). The double-weighing technique was used to weigh young children unable to stand on their own or unable to understand instructions not to move while on the scale. On daily basis, the teams calibrate the electronic scales using a standard weight to ensure accuracy.

Height/Length of children 6-59 months: children's height or length was measured to the closest millimetre using a standard UNICEF wooden height/length board. Height was used to decide on whether a child should be measured lying down (length) or standing up (height). Children less than 87cm were measured lying down, while those greater than or equal to 87cm were measured standing up.

Oedema in children 6-59 months: bilateral oedema was assessed by applying gentle thumb pressure for at least three seconds on top of both feet of the child. If a depression formed upon pressure application, the presence of bilateral oedema was confirmed.

MUAC of children 6-59 months: MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimetre using a standard tape. MUAC was recorded in millimetres.

Child enrolment in selective feeding programme for children 6-59 months: selective feeding programme coverage was assessed for the outpatient therapeutic programme and for the supplementary feeding programme. This was verified by card or by showing images of the products given at the different programs (e.g., plumpysup, plumpynuts, CSB++)

Measles vaccination in children 6-59 months: measles vaccination was assessed by checking for measles vaccination on the EPI cards if available or by asking the caregiver to recall if no EPI card was available. For ease of data collection, results were recorded on all children but were only analysed for children aged 9-59 months.

Vitamin A supplementation in last 6 months in children 6-59 months: whether the child 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. A vitamin A capsule image was shown to the caregiver when asked to recall.

Deworming in last 6 months in children 12-59 months: whether the child received a deworming tablet over the past six months was recorded by asking the caregiver to recall if

information was not available on the EPI card. A deworming tablet sample was shown to the caregiver when asked to recall.

Haemoglobin concentration in children 6-59 months and women 15-49 years: Hb concentration was taken from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser (HemoCue, Sweden). If severe anaemia was detected, the child or the woman was referred for treatment immediately.

Diarrhoea in last 2 weeks in children 6-59 months: an episode of diarrhoea is defined as three loose stools or more in 24 hours. Caregivers were asked if their child had suffered episodes of diarrhoea in the past two weeks prior to the survey.

ANC enrolment and iron and folic acid pills coverage: if the surveyed woman was pregnant, it was assessed whether she was enrolled in the ANC programme and was receiving iron-folic acid pills. An iron-folic acid pill image was shown to the pregnant woman when asked to recall.

Infant and young child feeding practices in children 0-23 months: infant and young child feeding practices was assessed based on UNHCR Standardized Expanded Nutrition Survey (SENS) Guidelines for Refugee Populations version 2 (2013).

Referrals: Children aged 6-59 months were referred to health centre/post for treatment when MUAC was < 12.5 cm, WHZ <-2 z-score or oedema was present.

2.7.Case definitions and calculations

Household*:* in household surveys, a household is typhically defined as a group of people who live together and routinely eat out of the same pot.

Head of household: The person responsible for making the decisions for the household as a whole.

Age dependency ratio: According to the United Nations Population Division and the World Bank, the age dependency ratio is defined as the 'ratio of dependents (people younger than 15 (aged 0-14 years) or older than 64 (65+ years) to the working-age population (those aged 15-64).

Age dependency Ratio =Number of people aged 0 - 14 years and those aged 65 years and over/Number of people aged 15-64 years

Non-response rate: in sample surveys, the failure to obtain information from a designated individual or household for any reason (e.g. absence, refusal) is called a non-response. The proportion of non-responders (individuals or households) over the planned sample size is the non-response rate.

Malnutrition in children 6-59 months: Acute malnutrition was defined using weight-for-height index values or the presence of oedema and classified as show in the table below. Main results are reported after analysis using the WHO 2006 Growth Standards.

Table 11: Definitions of acute malnutrition using weight-for-height and/or oedema in children 6–59 months

Categories of acute malnutrition	Z-scores (WHO Growth Standards 2006)	Bilateral oedema
Global acute malnutrition	< -2 z-scores	Yes/No
Moderate acute malnutrition	< -2 z-scores and ≥ -3 z-scores	No
Severe acute malnutrition	> -3 z-scores	Yes
	< -3 z-scores	Yes/No

Stunting, also known as chronic malnutrition, was defined using height-for-age index values and was classified as severe or moderate based on the cut-offs shown below. Main results are reported according to the WHO Growth Standards 2006.

Table 12: Definitions of stunting using height-for-age in children 6–59 months

Categories of stunting	Z-scores (WHO Growth Standards 2006)
Stunting	<-2 z-scores
Moderate stunting	<-2 z-score and >=-3 z-score
Severe stunting	<-3 z-scores

Underweight was defined using the weight-for-age index values and was classified as severe or moderate based on the following cut-offs. Main results are reported according to the WHO Growth Standards 2006.

Table 13: Definitions of underweight using weight-for-age in children 6–59 months

Categories of underweight	Z-scores (WHO Growth Standards 2006)
Underweight	<-2 z-scores
Moderate underweight	<-2 z-scores and >=-3 z-scores
Severe underweight	<-3 z-scores

Mid Upper Arm Circumference (MUAC) values were used to define malnutrition according to the following cut-offs in children 6-59 months:

Table 14: MUAC malnutrition cut-offs in children 6-59 months

Categories of MUAC values
<125 mm
≥ 115 mm and <125 mm
< 115 mm

Child enrolment in selective feeding programme for children 6-59 months: Feeding programme coverage is estimated during the nutrition survey using the direct method as follows (reference: Emergency Nutrition Assessment: Guidelines for field workers. (Save the Children 2004):

Enrolment into TSFP programme (%) =

$$100 \times \frac{\text{No. of surveyed children with MAM according to TSFP criteria who reported being registered in TSFP}}{\text{No. of surveyed children with MAM according to TSFP admission criteria}}$$

Enrolment into TFP (OTP/SC) programme (%) =

$$100 \times \frac{\text{No. of surveyed children with SAM according to TFP (OTP/SC) criteria who reported being registered in TFP}}{\text{No. of surveyed children with SAM according to TFP (OTP/SC) admission criteria}}$$

Child enrolment in blanket supplementary feeding programme

Enrolment into BSFP (%) =

$$100 \times \frac{\text{No. of surveyed children in the eligible age range who reported being registered in BSFP}}{\text{No. of surveyed children in the eligible age range}}$$

Woman enrolment in blanket supplementary feeding programme

Enrolment into BSFP (%) =

$$100 \times \frac{\text{No. of surveyed women in the eligible category (e.g. PLW) who reported being registered in BSFP}}{\text{No. of surveyed women in the eligible category (e.g. PLW)}}$$

Infant and young child feeding practices in children 0-23 months: Infant and young child feeding practices were assessed based on the UNHCR SENS IYCF module (Version 2 (2013) that is based on WHO recommendations (WHO, 2007 as follows):

Timely initiation of breastfeeding in children aged 0-23 months: Proportion of children 0-23 months who were put to the breast within one hour of birth

$$\frac{\text{Children 0-23 months who were put to the breast within one hour of birth}}{\text{Children 0-23 months of age}}$$

Exclusive breastfeeding under 6 months: Proportion of infants 0–5 months of age who are fed exclusively with breast milk: (including expressed breast milk or from a wet nurse, ORS, drops or syrups (vitamins, breastfeeding minerals, medicines)

$$\frac{\text{Infants 0–5 months of age who received only breast milk during the previous day}}{\text{Infants 0–5 months of age}}$$

Continued breastfeeding at 1 year: Proportion of children 12–15 months of age who are fed breast milk

$$\frac{\text{Children 12–15 months of age who received breast milk during the previous day}}{\text{Children 12–15 months of age}}$$

Introduction of solid, semi-solid or soft foods: Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods

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

Children ever breastfed: Proportion of children born in the last 24 months who were ever breastfed

Children born in the last 24 months who were ever breastfed
Children born in the last 24 months

Continued breastfeeding at 2 years: Proportion of children 20–23 months of age who are fed breast milk

Children 20–23 months of age who received breast milk during the previous day
Children 20–23 months of age

Consumption of iron rich or iron fortified foods in children aged 6-23 months; Proportion of children 6–23 months of age who receive an iron-rich or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

Children 6–23 months of age who received an iron-rich food or a food that was specially designed for infants and young children and was fortified with iron, or a food that was fortified in the home with a product that included iron during the previous day
Children 6–23 months of age

Bottle feeding: Proportion of children 0-23 months of age who are fed with a bottle

Children 0–23 months of age who were fed with a bottle during the previous day
Children 0–23 months of age

Anaemia in children 6-59 months and women of reproductive age: Anaemia is classified according to the following cut-offs in children 6-59 months and non-pregnant women of reproductive age. Anaemia cut-offs for pregnant women should be adjusted depending on the stage of pregnancy (gestational age). Pregnant women are not included in routine UNHCR nutrition surveys for the assessment of anaemia due sample size issues (usually a small number of pregnant women is found) as well as the difficulties in assessing gestational age in pregnant women.

Table 15: Definition of anaemia (WHO 2000)

Age/Sex groups	Categories of Anaemia (Hb g/dL)			
	Total	Mild	Moderate	Severe
Children 6 - 59 months	<11.0	10.9 - 10.0	9.9 - 7.0	< 7.0
Non-pregnant adult females 15-49 years	<12.0	11.9 - 11.0	10.9 - 8.0	< 8.0

Coping strategies: are behavioural responses to food insecuirty, i.e, behaviours that people adopt when they do not have enough food or money to buy food.

Food assistance: refers to the set of interventions designed to provide vulnerable and food insecure populations with access to food. It includes instruments such as in-kind food, vouchers and cash that assures access to food of a given quantity, quality and value.

Food security: is defined as when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

General Food Ration (GFR): a general food ration is a basket of in-kind food commodities, typically distributed to household with an expected energy requirement of 2,100 kcal per person per day.

Indoor Residual Spraying (IRS): IRS is the application of long-acting chemical insecticides on the walls and roofs of all houses and domestic animal shelters in each area, to kill the adult vector mosquitoes that land and rest on these surfaces.

Long Lasting Insecticide Net (LLIN): WHO defines a long-lasting insecticidal net as a factory-treated mosquito net made with netting material that has insecticide incorporated within or bound around the fibres.

2.8.Classification of public health problems and targets

Anthropometric data: UNHCR's target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region is < 10% and the target for the prevalence of severe acute malnutrition (SAM) is <2%. The table below shows the classification of public health significance of the anthropometric results for children under-5 years of age according to WHO:

Table 16: Classification of public health significance for children under 5 years of age

Classification Prevalence thresholds (%)	Critical situation	Serious situatio n	Poor situatio n	Acceptable situation	
	Very High	High	Medium	Low	Very low
Wasting	≥ 15	10 - < 15	5 - < 10	2 5 - < 5	< 2 5
Stunting	≥ 30	20 - < 30	10 - < 20	2 5 - < 10	< 2 5
Overweight	≥ 15	10 - < 15	5 - < 10	2 5 - < 5	< 2 5
Underweight*	≥ 30	20 - < 30	10 - < 20	< 10%	

Selective feeding programmes:

UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 includes the following indicators. The table below shows the targeted performance indicators for malnutrition treatment programmes according to UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 (same as Sphere Standards).

Table 17: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012) *

	Recovery	Case fatality	Defaulter rate	Coverage		
				Rural areas	Urban areas	Camps
SFP	>75%	<3%	<15%	>50%	>70%	>90%
OTP	>75%	<10%	<15%	>50%	>70%	>90%

* Also meet SPHERE standards for performance

Measles vaccination coverage: UNHCR recommends target coverage of ≥95% (same as Sphere Standards).

Vitamin A supplementation coverage: UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the target for vitamin A supplementation coverage for children aged 6-59 months by camp, country and region should be >90%.

Anaemia data: UNHCR Global Strategy for Public Health (2017-2019) states that the targets for the prevalence of anaemia in children 6-59 months of age and in women 15-49 years of age should be <20%. The severity of the public health situation should be classified according to WHO criteria as shown in the table below.

Table 18: Classification of public health significance (WHO 2000)

Prevalence %	High	Medium	Low
Anaemia	≥40	20-39	5-19

2.9.Coordination, trainings, and supervision

Coordination: During the preparatory stage of the SENS, UNHCR jointly with RI developed the survey protocol and held four meetings with the partners to inform and orient them on the 2024 SENS rationale, objectives, and methodology. Similarly at the camp level, meetings were held with the Camp Executive and Sectorial Committees local to brief them on the survey objectives, methodology and procedures to be followed during the survey.

SENS Trainings: Due to the unique Maban camps' profile following the May 2017 conflict between the two main ethnicities of Uduk in Doro and Ingassana in the three camps (Yusuf Batil, Gendrassa, and Kaya), two separate teams of enumerators and one supervisor team were trained to conduct the survey. Supervisors training was conducted for two days prior to the enumerators training while enumerators trainings each lasting for five days. During the survey, a total of seven (7) survey teams in Doro and twelve (12) in the three camps of Yusuf Batil, Gendrassa, and Kaya each comprised of four members (anthropometry measurer, anthropometric assistant, HB data collector and team leader/interviewer) participated. Training was delivered in English and translated in Arabic by the facilitators.

Prior to the trainings, SENS training topics and other materials were shared with RI key nutrition focal persons. The training focused on the survey objectives, sampling methodology and field procedures, anthropometric measurements, use of the event calendar, administration of the survey questionnaire in a digital format, and interviewing

techniques. This was to ensure high quality information is collected from respondents. Practical sessions on anthropometric measurements were conducted as well.

Standardization test: during the training's practical sessions on anthropometric and heamoglobin measurements blood sample taking, including two standardization tests were conducted. The two standardization tests were used to evaluate the accuracy and precision of the team members in taking anthropometric measurements. A total of 10 children with their mothers/caregivers were recruited. Each child was measured for weight, height, and MUAC. Two series of measurements were done by each team and supervisors each taking turn as main measurer and as assistant measurer. These measurements were then compared with the "gold standard" taken by the supervisor team. Enumerator's measurements were then evaluated for precision and accuracy with feedback shared with all members.

Pilot test: after each team had been assigned with their tasks and duties as main and assistant measurers and the seven survey teams been identified, pilot test was conducted in the nearby community next to the training venue. This was done to pre-test the methods and questionnaires in actual scenario in preparation for the data collection proper. Each team visited five or more households randomly selected and took the required measurements of weight, length/height, and MUAC, identification of bilateral oedema including administering questionnaires on IYCF where necessary, demography, food security and mosquito net coverage. The data collection tools were then reviewed based on the feedback from the field pilottest.

Supervision: At the field level, tclose supportive supervision was conducted by the survey coordinators from UNHCR, WFP, and RI in the camp. The team composed of Senior Nutriton and Food Security Associate from UNHCR, Program Associate (nutrition focal person) from WFP and RI Nutrition Coordinator. This was to ensure that the data collected was of high quality and mistakes that were noted during data collection were corrected and teams given prompt feedback.

2.10. Data collection

Data collection started on 13th May in Doro refugee camp and ended on 1st June 2024 in Kaya camp. The teams work from Monday to Saturday with Sundays taken as break to allow survey teams of enumerators, supervisors, and coordinators to rest. Data collection was conducted using smartphone with pre-installed Open Data Kit facility (ODK) android softwear for all six modules surveyed. Recording on paper especially on data control and household listing sheet for key measurements conducted was made to enable data quality check and back up retention where need be to verify. During the data collection period, the coordinator and supervisors supported the survey teams.

An improvised flat-bottomed metal weighing 6.5kg and a piece of stick with known length was used by all the teams daily for calibration of the equiptments. Daily each team checked the conditions of the equiptments before leaving to the field to ensure they all work properly and get same measurements when measuring the improverised metal and piece of stick. Each team was provided with sufficient MUAC tapes, spare batteries for the weighing scales, and anthropometric calibration form for recording the standard measurements.

After completion of a household, the survey team leader checked the data control sheet and houselisting sheet to verify if all information and data are correctly and rightly filled. before proceeding to the next household,

2.11. Data analysis

During the data collection period, the survey coordinators from UNHCR, WFP and the survey supervisors from RI conduct daily data quality checks every evening. This was to check and ensure each and every questionnaire for completeness, consistency with paper based data controlling sheet on key measurements, and range of data before exporting the data from the smartphones to the server. The following day prior to field visit, feedback is provided to teams in terms of the issues flagged from the daily check. Some data which are unclear are marked and the teams asked to returned to the particular households for correction or confirmation the following day. This feedback enabled the teams to learn the importance of accuracy and being keen in recording the measurements and responses. The ODK exported data were downloaded from the server each evening as csv files. All data files were cleaned before analysis and entries were double checked one after the other with the original questionnaire to ensure there were no data entry errors and duplicate entries.

Anthropometry indices were analysed using the Standardized Monitoring and Assessment of Relief and Transitions (ENA for SMART) version Jan 11th 2020 while Epi Info software version 7.2.4.0 was used to analyse all the other data. The SMART plausibility report was generated for each complete set of survey data to check the quality of the anthropometric data and to identify areas and teams that need more supervision or to be strengthened. Teams that required more supervision were given more attention the following day to improve on any identified weak areas.

The nutritional indices were cleaned using flexible cleaning criteria from the observed mean (also known as SMART flags in the ENA for SMART software), rather than the reference mean (also known as WHO flags in the ENA for SMART software). This flexible cleaning approach is recommended in the UNHCR SENS Guidelines (Version 3, 2019) in accordance with SMART recommendations. For the weight-for-height index, a cleaning window of +/- 3 SD value contained in the SMART for ENA software was used.

3.0. PRESENTATION OF RESULTS

3.1.Results From Doro Refugee Camp.

Below table shows the anthropometric measurements taken from a total of number of children surveyed in Doro refugee camp verses the targeted children in the survey. The SENS guideline recommends that at least 80% of the targeted children to be surveyed. During the survey, all the children who participated in the survey were considered using either available official age documentation or age estimation from local context calendar of event developed to estimate the age. Of the total surveyed children 6-59 months in the camp, 76% had official age documentation.

Table 19 : Target and actual number captured-Doro refugee camp, South Sudan (May 2024)

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	460	578	125.6%

3.2.Anthropometric results (based on WHO Growth standards 2006)

Table 20 : Distribution of age and sex of sample - Doro refugee camp.

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	65	47.4	72	52.6	137	23.6	0.9
18-29	69	48.3	74	51.7	143	24.6	0.9
30-41	64	51.2	61	48.8	125	21.5	1.0
42-53	66	55.5	53	44.5	119	20.5	1.2
54-59	26	45.6	31	54.4	57	9.8	0.8
Total	290	49.9	291	50.1	581	100.0	1.0

The distribution of the assessed children by age and sex shows an overall sex ratio of boys: girls 1.0 indicating that both sexes were equally represented in the survey.

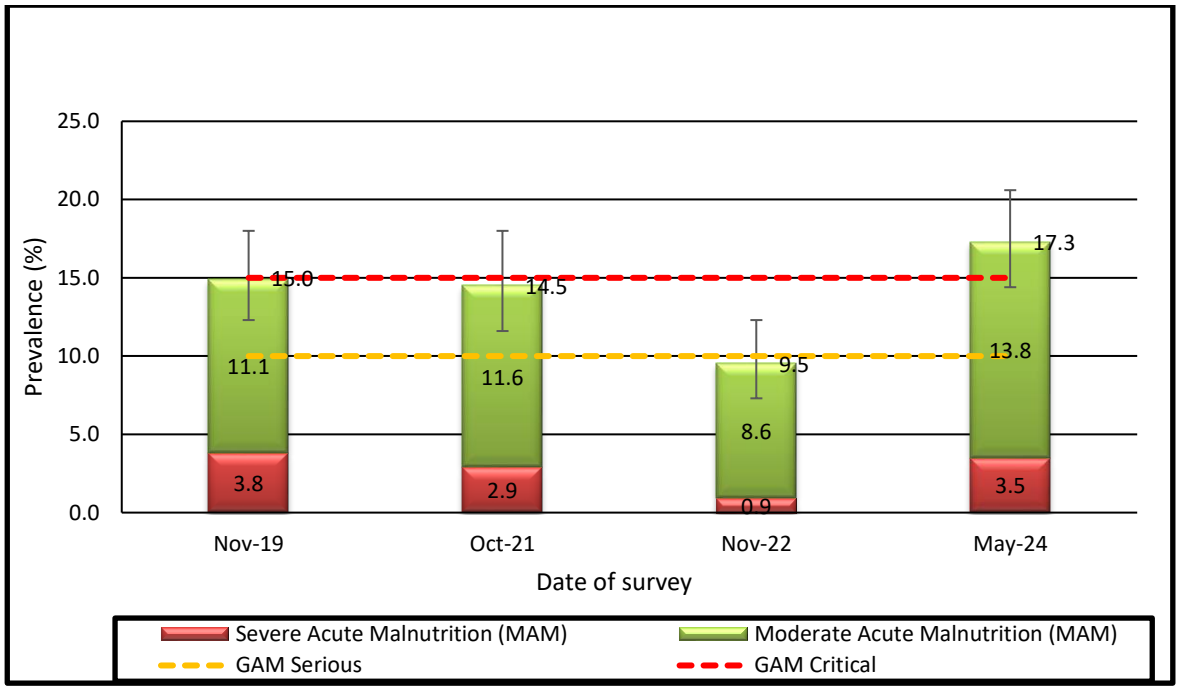
Table 21 : Prevalence of acute malnutrition based on weight-for-height z-scores and/or oedema and by sex - Doro refugee camp.

	All n = 578	Boys n = 289	Girls n = 289
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(100) 17.3 % (14.4 - 20.6 95% C.I.)	(45) 15.6 % (11.8 - 20.2 95% C.I.)	(55) 19.0 % (14.9 - 24.0 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(80) 13.8 % (11.3 - 16.9 95% C.I.)	(37) 12.8 % (9.4 - 17.1 95% C.I.)	(43) 14.9 % (11.2 - 19.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(20) 3.5 % (2.3 - 5.3 95% C.I.)	(8) 2.8 % (1.4 - 5.4 95% C.I.)	(12) 4.2 % (2.4 - 7.1 95% C.I.)

The prevalence of oedema was 0.0% and the data excluded SMART flags. Prevalence of Global Acute Malnutrition based on WFH z-score and/or oedema and by sex, was 17.3% (14.4-20.6 95% C.I.), and the Severe Acute Malnutrition rate was 3.5% (2.3-5.3 95% C.I.) GAM prevalence indicates a very high (critical)situation according to the WHO classification of acute malnutrition. Similarly, the rate of SAM is considered high.

No statistically significant difference based on the CI indicated in the prevalence of acute malnutrition between boys and girls as estimated by Weight for Height Z-score. All were equally wasted.

Figure 4 : Trends in the prevalence of global and severe acute malnutrition based on WHO Growth standards in children 6-59 months from 2019 to 2024 - Doro refugee camp.



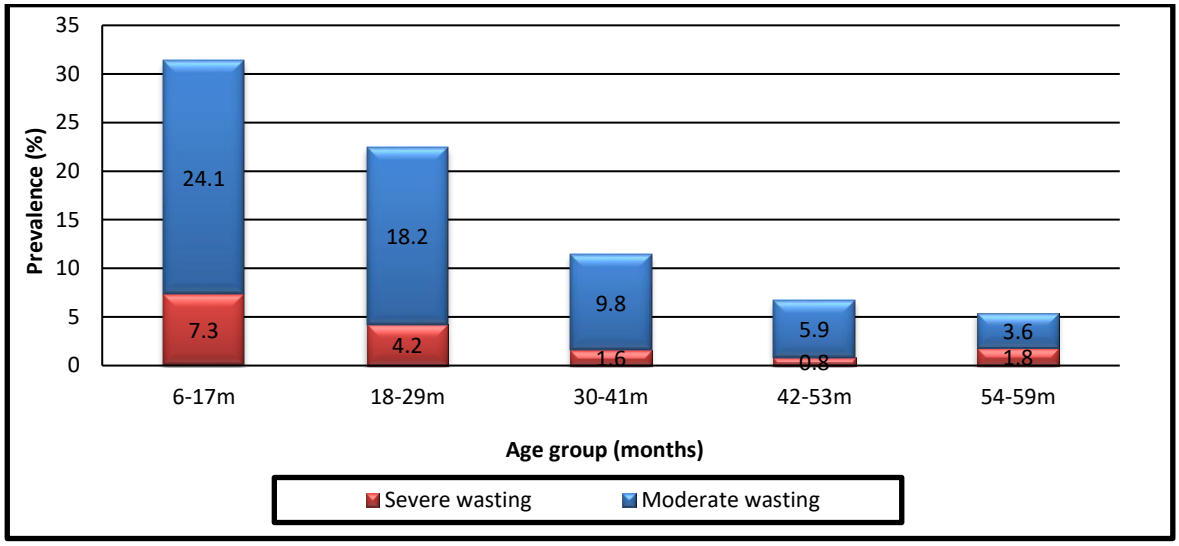
The prevalence of Global and Severe Acute Malnutrition based on WHO **G**rowth standards among children 6-59 month in 2024 significantly increased above the threshold (15%) and as compared to 2022 in Doro refugee camp.

Table 22 : Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Doro refugee camp.

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	137	10	7.3	33	24.1	94	68.6	0	0.0
18-29	143	6	4.2	26	18.2	111	77.6	0	0.0
30-41	123	2	1.6	12	9.8	109	88.6	0	0.0
42-53	119	1	0.8	7	5.9	111	93.3	0	0.0
54-59	56	1	1.8	2	3.6	53	94.6	0	0.0
Total	578	20	3.5	80	13.8	478	82.7	0	0.0

The prevalence of acute malnutrition (WHZ<-2 and/or oedema) by age shows that younger children in the age catergories 6-17 and 18-29 months were the most affected by severe and moderate acute malnutrition.

Figure 5 : Trend in the prevalence of wasting by age in children 6-59 months - Doro refugee camp.



Children 6-17 are the most affected age groups by wasting in Doro refugee camp indicating higher vulnerability of these age category.

Table 23 : Distribution of acute malnutrition and oedema based on weight-for-height z-scores in Doro refugee camp.

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)
Oedema absent	Marasmic No. 22 (3.8 %)	Not severely malnourished. 559 (96.2 %)

During the survey, no case of oedema was identified. However, there were 22 marasmic cases with no oedema as shown in table above.

Figure 6: Distribution of weight-for-height z-scores (based on WHO Growth standards; the reference population is shown in green and the surveyed population in red) of the surveyed population compared to the international WHO Standard population (reference population) of children aged 6-59 months.

The graphical figure shows that the distribution for weight-for-height z-scores for the surveyed sample shifted/deviated to the left. This indicates that the nutrition status of the surveyed population is poor compared to the WHO reference population.

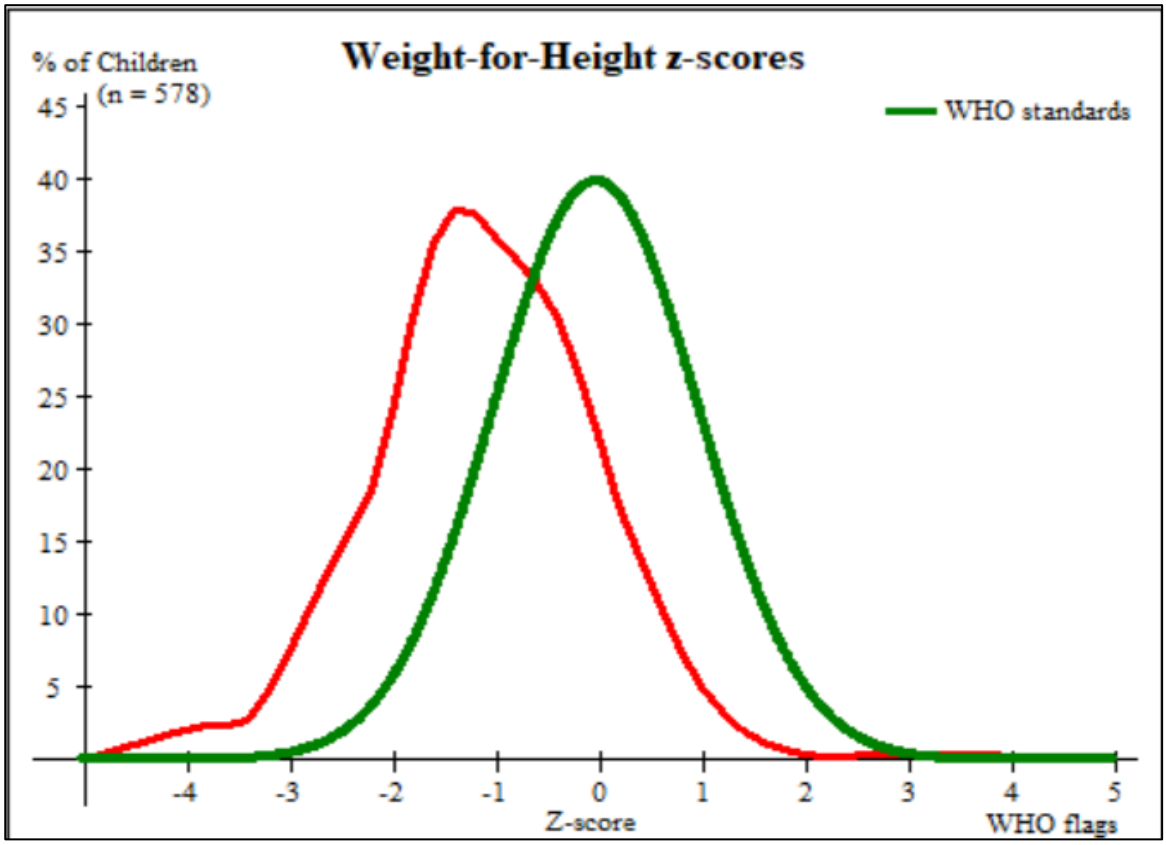


Table 24: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex - Doro refugee camp.

	All n = 587	**Boys** n = 294	**Girls** n = 293
Prevalence of global malnutrition (< 125 mm and/or oedema)	(43) 7.3 % (5.5 - 9.7 95% C.I.)	(17) 5.8 % (3.6 - 9.1 95% C.I.)	(26) 8.9 % (6.1 - 12.7 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(38) 6.5 % (4.8 - 8.8 95% C.I.)	(15) 5.1 % (3.1 - 8.2 95% C.I.)	(23) 7.8 % (5.3 - 11.5 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(5) 0.9 % (0.4 - 2.0 95% C.I.)	(2) 0.7 % (0.2 - 2.4 95% C.I.)	(3) 1.0 % (0.3 - 3.0 95% C.I.)

As indicated in the above table, the prevalence of acute malnutrition using MUAC is significantly lower compared to using Weight for Height Z-scores. Studies on the concordance between estimates of wasting measured by weight-for-height and by MUAC generally indicate great variation between these two measurements mainly because of variations in the body shape, age, and gender among various surveyed populations.

Though MUAC measurements is being used in the community to monitor malnutrition trends and for admissions and discharge in the therapeutic and supplementary feeding nutrition programmes, good indicator of risk of mortality in children under five, and is easy to do, it is therefore recommended that both criteria are used in anthropometric surveys.

Table 25: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema - Doro refugee camp.

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	139	3	2.2	26	18.7	110	79.1	0	0.0
18-29	145	2	1.4	8	5.5	135	93.1	0	0.0
30-41	127	0	0.0	4	3.1	123	96.9	0	0.0
42-53	119	0	0.0	0	0.0	119	100.0	0	0.0
54-59	57	0	0.0	0	0.0	57	100.0	0	0.0
Total	587	5	0.9	38	6.5	544	92.7	0	0.0

Generally, younger children aged 6-17 and 18-29 months were more affected by both severe and moderate acute malnutrition based on MUAC. This may be attributed to inadequate feeding practices among these children.

Table 26: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex*

	All n = 581	Boys n = 290	Girls n = 291
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(106) 18.2 % (15.3 - 21.6 95% C.I.)	(47) 16.2 % (12.4 - 20.9 95% C.I.)	(59) 20.3 % (16.1 - 25.3 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(21) 3.6 % (2.4 - 5.5 95% C.I.)	(8) 2.8 % (1.4 - 5.3 95% C.I.)	(13) 4.5 % (2.6 - 7.5 95% C.I.)

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

The prevalence of combined GAM among children aged 6-59 months in Doro refugee camp was 18.2% (15.3-21.6 95% CI) as indicated in the table above. Although there is no globally accepted threshold for combined GAM and SAM, the observed prevalence of combined GAM was higher than the prevalence of WHZ or and MUAC on their own, implying that the combined GAM and MUAC indicator identified more acutely malnourished children.

Table 27: Detailed numbers for combined GAM and SAM

	GAM		SAM	
	no.	%	no.	%
MUAC	6	1.0	1	0.2
WHZ	66	11.4	17	2.9
Both	34	5.9	3	0.5
Edema	0	0.0	0	0.0
Total	106	18.2	21	3.6

Total population: 581

Table 28 : Prevalence of under-weight based on weight-for-age z-scores by sex - Doro refugee camp.

	All n = 580	Boys n = 289	Girls n = 291
Prevalence of underweight (<-2 z-score)	(183) 31.6 % (27.9 - 35.4 95% C.I.)	(91) 31.5 % (26.4 - 37.1 95% C.I.)	(92) 31.6 % (26.5 - 37.2 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(127) 21.9 % (18.7 - 25.4 95% C.I.)	(65) 22.5 % (18.1 - 27.6 95% C.I.)	(62) 21.3 % (17.0 - 26.4 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(56) 9.7 % (7.5 - 12.3 95% C.I.)	(26) 9.0 % (6.2 - 12.9 95% C.I.)	(30) 10.3 % (7.3 - 14.3 95% C.I.)

The prevalence of underweight among children aged 6-59 months was 31.6% (27.9-35.4 95% C.I.) with 9.7% (7.5-12.3 95% C.I.) being severely underweight. This indicates a high prevalence accorodng to WHO calssification. Both boys and girls were affected by underweight.

Table 29 : Prevalence of underweight by age, based on weight-for-age z-scores - Doro refugee camp.

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	137	18	13.1	34	24.8	85	62.0	0	0.0
18-29	143	16	11.2	31	21.7	96	67.1	0	0.0
30-41	124	12	9.7	29	23.4	83	66.9	0	0.0
42-53	119	5	4.2	27	22.7	87	73.1	0	0.0
54-59	57	5	8.8	6	10.5	46	80.7	0	0.0
Total	580	56	9.7	127	21.9	397	68.4	0	0.0

Prevalence of underweight by age shows children in the age group of 6-17 months were the most affected by both severe and moderate underweight. Generally, younger children aged 6-17 and 18-29 months were more susceptible to both severe and moderate underweight.

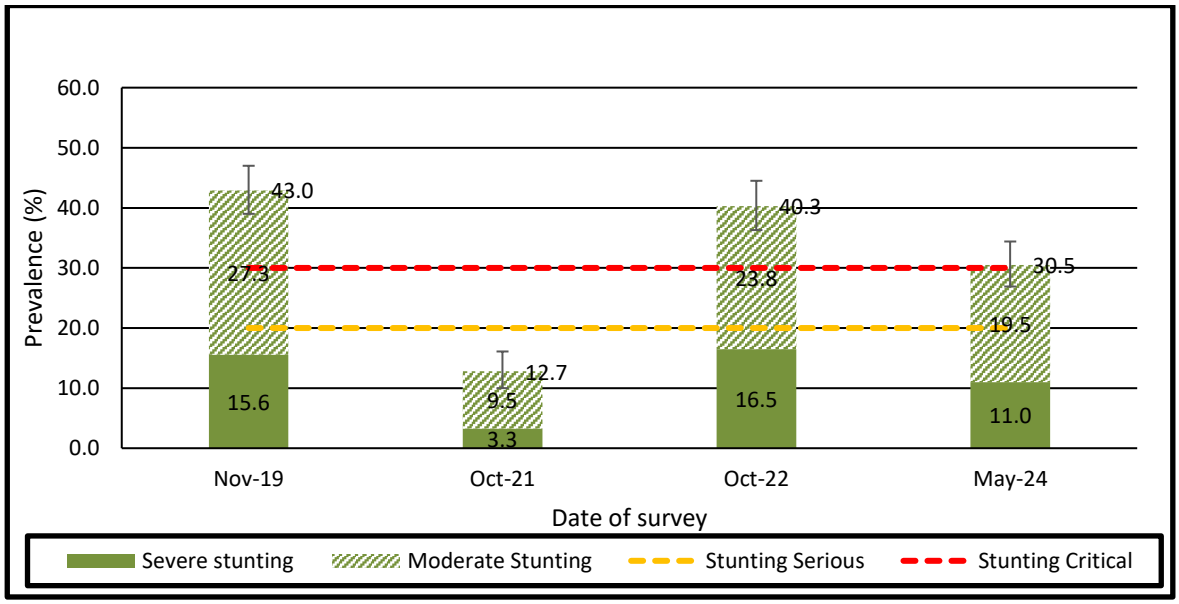
Table 30 : Prevalence of stunting based on height-for-age z-scores and by sex - Doro refugee camp.

	All n = 580	Boys n = 289	Girls n = 291
Prevalence of stunting (<-2 z-score)	(177) 30.5 % (26.9 - 34.4 95% C.I.)	(92) 31.8 % (26.7 - 37.4 95% C.I.)	(85) 29.2 % (24.3 - 34.7 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(113) 19.5 % (16.5 - 22.9 95% C.I.)	(58) 20.1 % (15.9 - 25.1 95% C.I.)	(55) 18.9 % (14.8 - 23.8 95% C.I.)

Prevalence of severe stunting (<-3 z-score)	(64) 11.0 % (8.7 - 13.8 95% C.I.)	(34) 11.8 % (8.5 - 16.0 95% C.I.)	(30) 10.3 % (7.3 - 14.3 95% C.I.)

The rate of stunting in Doro camp was 30.5% (26.9-34.4 95% C.I.) and severe stunting was 11.0% (8.7-13.8 95% C.I.). This result is classified as very high (critical situation) according to the WHO classification. Boys had a higher stunting rate 31.8% (26.7-37.4 95% C.I.) than girls 29.2% (24.3-34.7) but the difference in stunting by gender was not statistically significant.

Figure 7 : Trends in the prevalence of global, moderate, and severe stunting based on WHO Growth standards in children aged 6-59 months from 2019 to 2024 - Doro refugee camp.



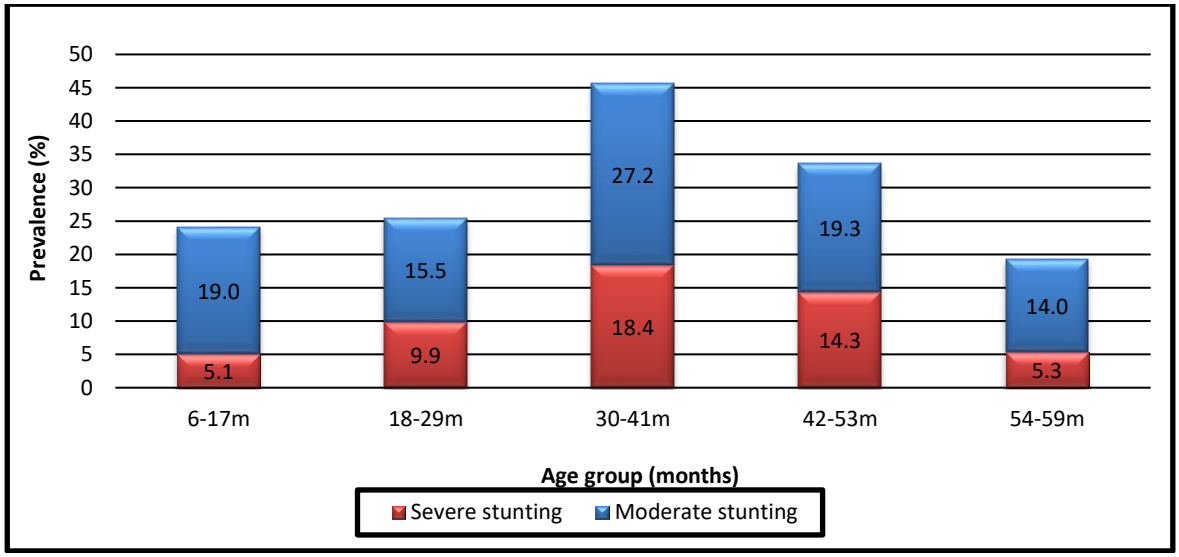
Significant reduction in stunting prevalence was noted in 2024 in Doro refugee camp as compared to 2022.

Table 31 : Prevalence of stunting by age based on height-for-age z-scores - Doro refugee camp.

		Severe stunting (<-3 z-score)		**Moderate stunting (>= -3 and <-2 z-score)**		**Normal (> = -2 z score)**	
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	137	7	5.1	26	19.0	104	75.9
18-29	142	14	9.9	22	15.5	106	74.6
30-41	125	23	18.4	34	27.2	68	54.4
42-53	119	17	14.3	23	19.3	79	66.4
54-59	57	3	5.3	8	14.0	46	80.7
Total	580	64	11.0	113	19.5	403	69.5

Stunting prevalence by age indicates that children in the age category 30-41 months were more affected by both severe and moderate stunting followed by children in the age group 42-53 months.

Figure 8 : Trends in the prevalence of stunting by age in children 6-59 months - Doro refugee camp.



Children aged 30-41 months are the most affected by severe and moderate stunting.

Table 32: Prevalence of overweight based on weight for height cut offs and by sex (no oedma) - Doro refugee camp.

	All n = 578	Boys n = 289	Girls n = 289
Prevalence of overweight (WHZ > 2)	(4) 0.7 % (0.3 - 1.8 95% C.I.)	(2) 0.7 % (0.2 - 2.5 95% C.I.)	(2) 0.7 % (0.2 - 2.5 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(2) 0.3 % (0.1 - 1.3 95% C.I.)	(0) 0.0 % (0.0 - 1.3 95% C.I.)	(2) 0.7 % (0.2 - 2.5 95% C.I.)

The overweight proportion was the same for boys and girls. However, girls are severely overweight than boys.

Table 33: Prevalence of overweight by age, based on weight for height (no oedema) - Doro refugee camp.

		Overweight (WHZ > 2)		Severe Overweight (WHZ > 3)	
Age (mo)	Total no.	No.	%	No.	%
6-17	137	1	0.7	1	0.7
18-29	143	1	0.7	1	0.7
30-41	123	0	0.0	0	0.0
42-53	119	1	0.8	0	0.0
54-59	56	1	1.8	0	0.0
Total	578	4	0.7	2	0.3

Table 34 : Mean z-scores, Design Effects and excluded subjects – Doro refugee camp

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range

Weight-for-Height	578	-1.09±1.11	1.00	0	3
Weight-for-Age	580	-1.61±1.06	1.00	0	1
Height-for-Age	580	-1.51±1.21	1.00	0	1

* contains for WHZ and WAZ the children with edema.

The mean Z scores for wasting (WHZ), underweight (WAZ) and stunting (HAZ) were -1.09±1.11, -1.61±1.06, and -1.51±1.21 respectively. All indicate a poorer nutrition situation compared to WHO reference population. The standard deviations for all the three nutrition indicators including WHZ, WAZ, and HAZ were within the acceptable range of 0.8-1.2 which indicates that the survey data was of high quality.

3.3.Feeding Programme Enrollment Coverage

Selective feeding programme

Table 35 : Programme enrollment for Acutely Malnourished Children Based on all admission criteria (MUAC, WHZ and/or oedema) - Doro refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	3/25	12.0% (2.6-31.2)
Supplementary feeding programme (TSFP) enrolment	15/96	15.6% (9.0-24.5)

Table 36 : Programme enrollment for acutely malnourished children based on MUAC and/or oedema only - Doro refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	2/7	28.6% (3.7-71.0)
Supplementary feeding programme (TSFP) enrolment	3/25	12.0% (2.6-31.2)

Enrolment coverage based on both all admission criteria and using MUAC and Oedema only for both OTP and TSFP in Doro refugee camp was below the recommended standard of ≥90%.

Table 37 : BSFP enrollment coverage for children 6-59 months - Doro refugee camps

	Number/total	% (95% CI)
Blanket feeding programme enrolment	200/217	92.2% (87.8-95.4)
Product name	Lipid based Nutrient Supplements-MQ	
Target age group	6-23 months	

The BSFP enrolment coverage for children aged 6-23 months in Doro refugee camp was 92.2%.

3.4.Measles vaccination coverage results

Table 38 : Measles vaccination coverage for children aged 9-59 months (N=557) - Doro refugee camp.

	Number/total	**% (95% CI)**
Measles vaccination with card	327/557	58.7% (54.6-62.7)

Measles vaccination with confirmation from mother	219/557	39.3% (35.4-43.4)
Measles vaccination with card or confirmation from mother	546/557	98.0% (96.5-98.9)

The survey findings indicated that the proportion of all children aged 9-59 months who had received measles vaccination was 98.0% (96.5-98.9). This meets the recommended standard of ≥ 95%.

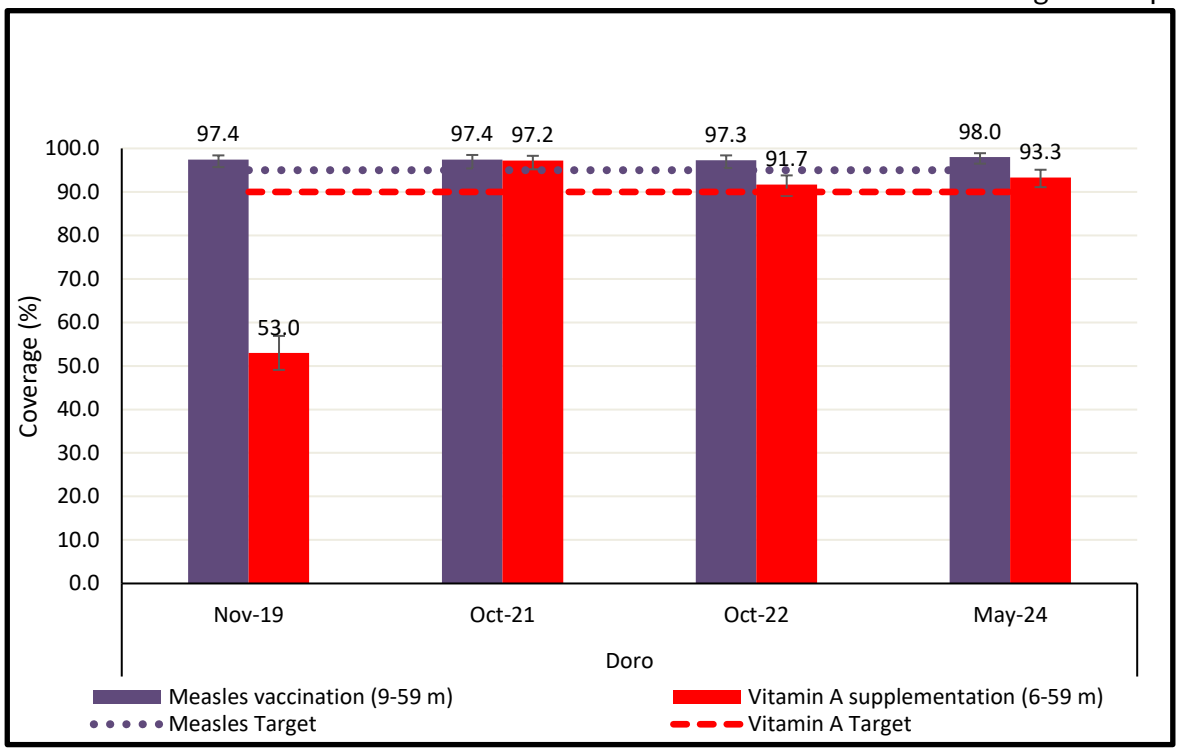
3.5.Vitamin A supplementation coverage results

Table 39 : Vitamin A supplementation for children aged 6-59 months within past 6 months (N=601) - Doro refugee camp.

	Number/total	**% (95% CI)**
Vitamin A supplementation in the last 6 months with card	175/601	29.1% (25.6-32.9)
Vitamin A supplementation in the last 6 months with confirmation from mother	386/601	64.2% (60.3-68.0)
Vitamin A supplementation in the last 6 months with card or confirmation from mother	561/601	93.3% (91.1-95.1)

The survey findings indicated that the proportion of all children aged 6-59 months who had received Vitamin A in the last 6 months was 93.3% (91.1-95.1). This meets the recommended standard of ≥ 90%.

Figure 9 : Trends in the coverage of measles vaccination and vitamin A supplementation in last 6 months in children 6-59 months from 2019 to 2024 - Doro refugee camp.



3.6.Diarrhoea Results

Table 40 : Period prevalence of diarrhea - Doro refugee camp.

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	135/598	22.6% (19.4-26.1)

The survey findings indicated that 22.6% (19.4-26.1) of the surveyed children had diarrhoea (3 or more times loose or watery stools in a day) in the past two weeks preceding the survey.

Table 41: Table showing use of ORS and Zinc during diarrhoea episode – Doro refugee camp.

	Number/total	% (95% CI)
ORS use during diarrhoea episode	90/134	67.2% (58.5-75.0)
Zinc tablet or syrup use during diarrhoea episode	102/134	76.1% (68.0-83.1)

Of the surveyed children who reported having diarrhoea, 67.2% received treatment with ORS while 76.1% received treatment with Zinc.

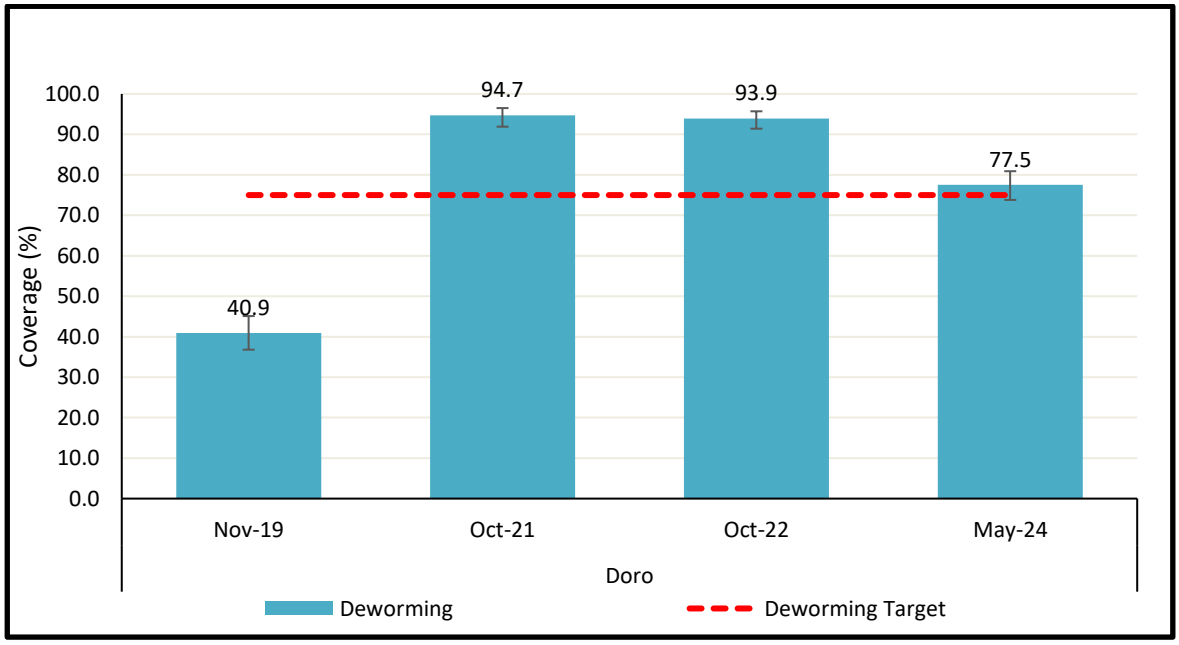
3.7.Deworming

Table 42: Deworming coverage - Doro refugee camp.

	Number/total	% (95% CI)
Children who received deworming tablet within the past 6 months	407/525	77.5% (73.8-80.9)

The survey findings indicated that 77.5% of children aged 12-59 months received deworming tablet in the last 6 months prior to the survey. The coverage meets the recommended standard of (≥75%).

Figure 10 : Trends in the coverage of deworming in last 6 months in children 12-59 months from 2019 to 2024 - Doro refugee camp.



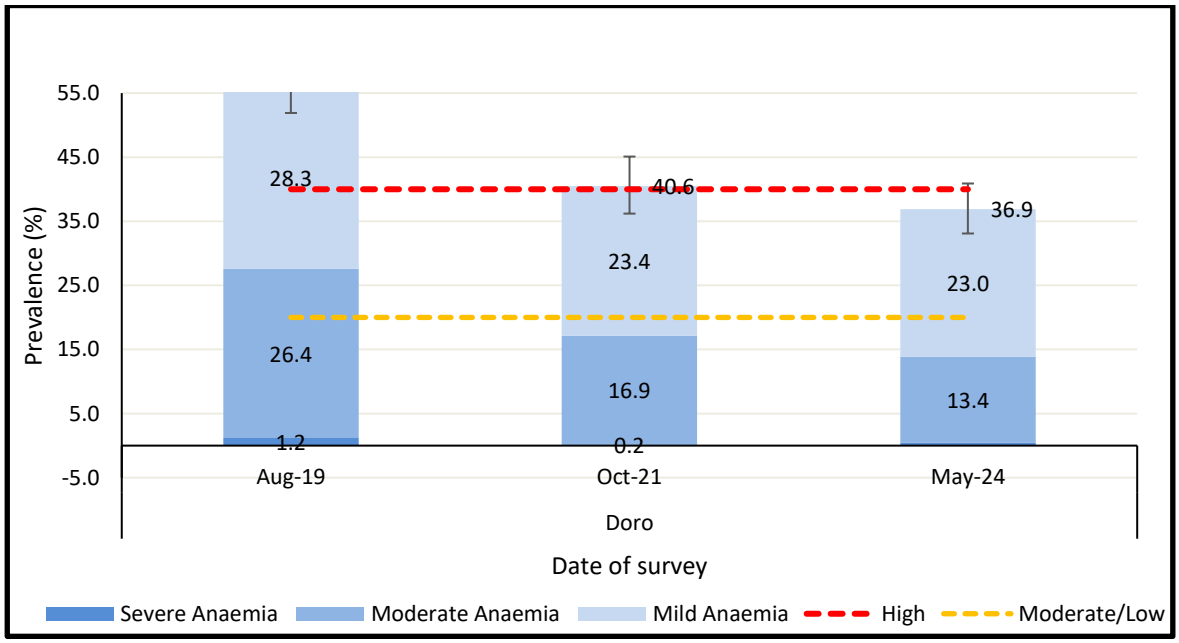
3.8.Anaemia Children 6 - 59 months

The overall anaemia prevalence among the surveyed children 6 to 59 months was 36.9% which is of medium public health significance and is near to the threshold of 40%. Children 6 to 23 months were the most affected with prevalence of 54.6% above WHO threshold of 40% compared to the 24-59 months age group (26.7%).

Table 43: Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group – Doro refugee camp.

	6-59 months n = 591	6-23 months n=216	24-59 months n=375
Total Anaemia (Hb<11.0 g/dL)	(218) 36.9% (33.1-40.9, 95% CI)	(118) 54.6% (47.7-61.4, 95% CI)	(100) 26.7% (22.4-31.4, 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(136) 23.0% (19.8-26.6, 95% CI)	(67) 31.0% (24.9-37.7, 95% CI)	(69) 18.4% (14.8-22.6, 95% CI)
Moderate Anaemia (7.0-9.9 g/dL)	(79) 13.4% (10.9-16.4, 95% CI)	(49) 22.7% (17.3-28.9, 95% CI)	(30) 8.0% (5.7-11.2, 95% CI)
Severe Anaemia (<7.0 g/dL)	(3) 0.5% (0.2-1.5, 95% CI)	(2) 0.9% (0.1-3.3)	(1) 0.3% (0.1-1.5)
Mean Hb (g/dL) [SD/range]	11.2 (1.2) [6.0-14.1]	10.8 (1.2) [6.0-13.1]	11.5 (11.1) [6.3-14.1]

Figure 11: Trends in Anaemia Categories in Children 6-59 Months from 2019 to 2024 - Doro refugee camp.



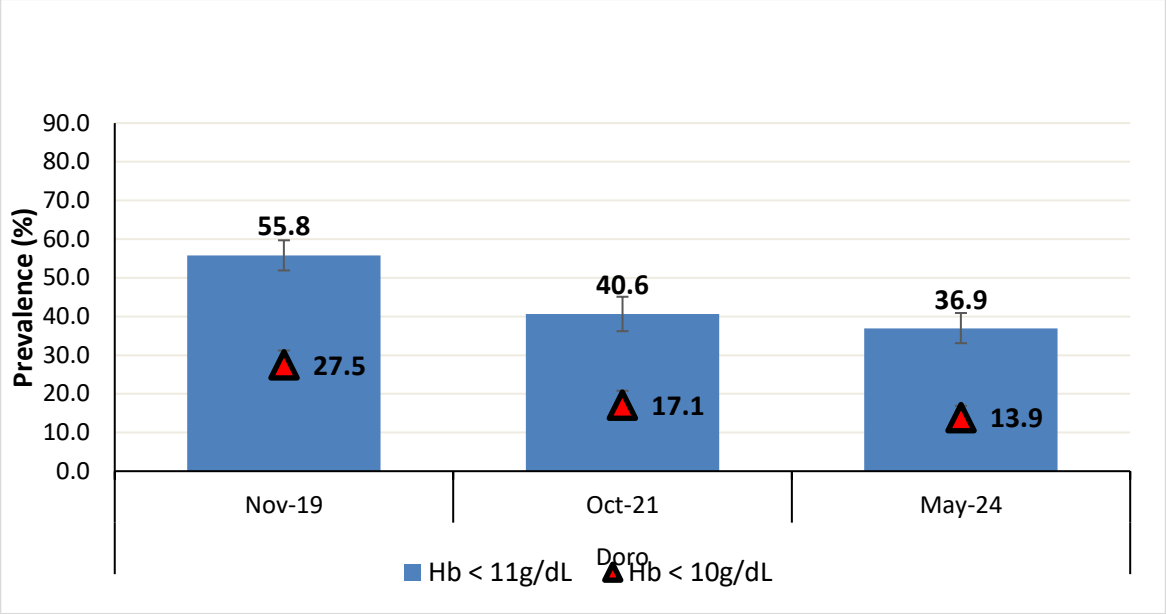
The proportion of both moderate, mild, and severe anaemia indicated a decreasing trend in 2024 compared to 2021 in Doro refugee camp. However, the decrease is not significant.

Table 44 : Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group - Doro refugee camp.

	6-59 months	**6-23 months**	**24-59 months**

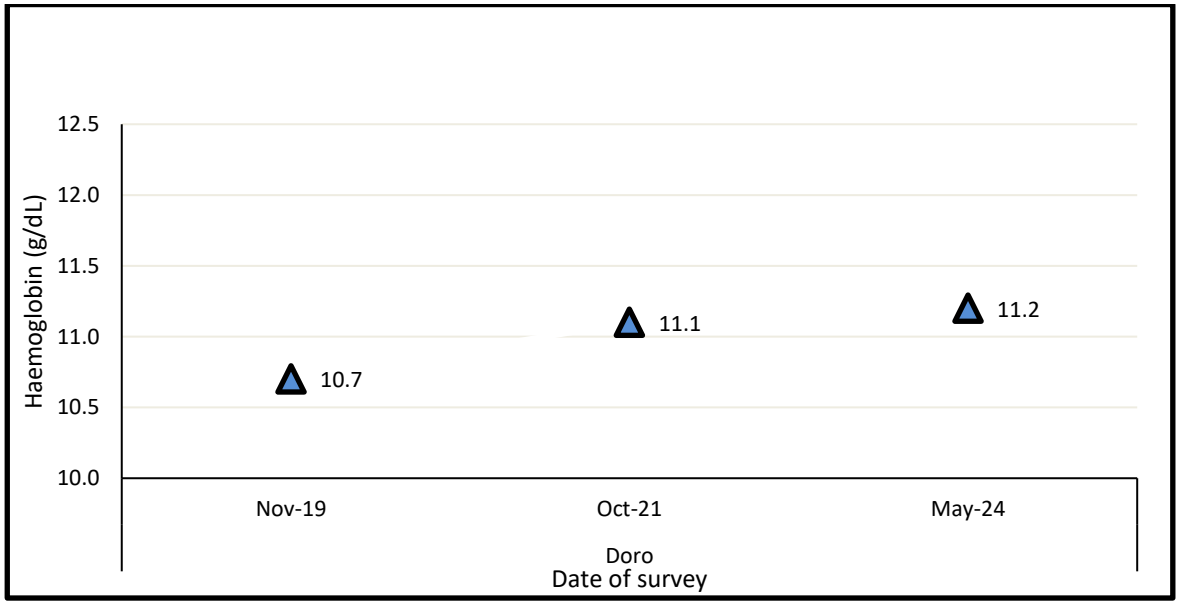
	n = 591	n= 216	n= 375
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(82) 13.9% (11.3-16.9)	(51) 23.6% (18.1-29.9)	(31) 8.3% (5.9-11.5)

Figure 12 : Trend of total anaemia (<11 g/dl) and moderate and severe anaemia (<10 g/dl) among children aged 6-59 months from 2019 to 2024 - Doro refugee camp.



There is a slight decrease in total and moderate and severe anaemia among children aged 6-59 months noted in 2024 compared to 2021.

Figure 13: Trend in mean haemoglobin concentration in children 6-59 months from 2019 to 2024 – Doro refugee camp.

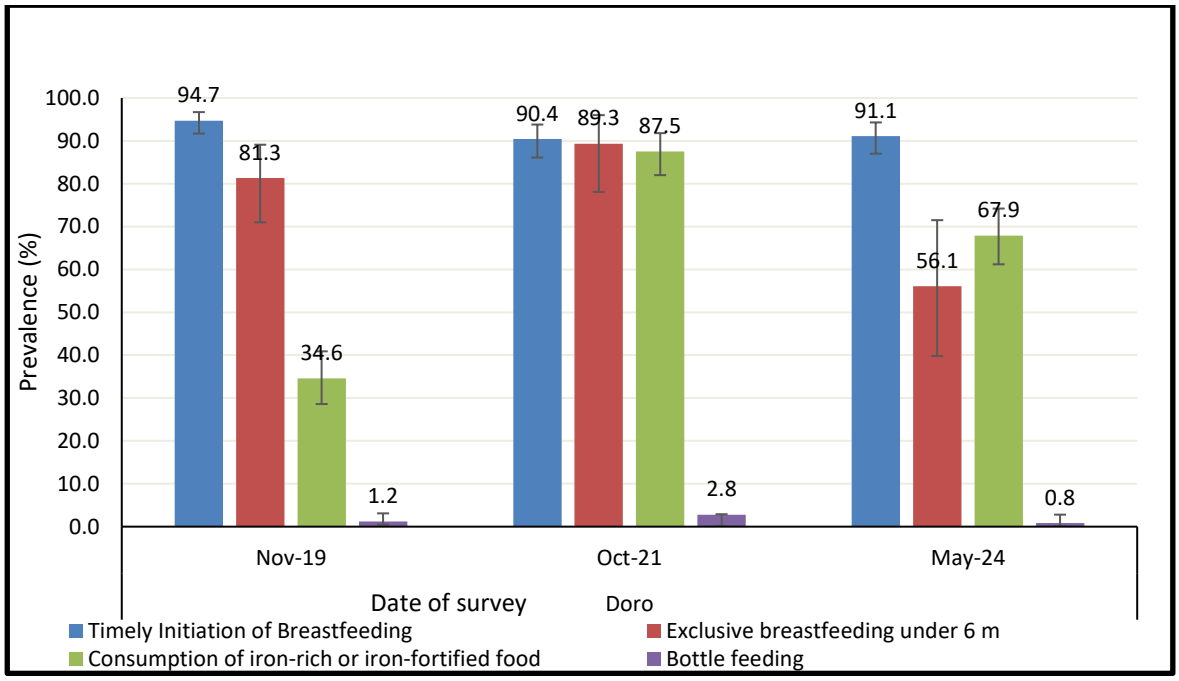


3.9.IYCF Children 0-23 Months in Doro refugee camp

Table 45 : Prevalence of Infant and Young Child Feeding Practices Indicators in Doro refugee camp.

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	236/259	91.1	(87.0-94.3)
Exclusive breastfeeding under 6 months	0-5 months	23/41	56.1	(39.8-71.5)
Continued breastfeeding at 1 year	12-15 months	55/57	96.5	(87.9-99.6)
Continued breastfeeding at 2 years	20-23 months	43/50	86.0	(73.3-94.2)
Introduction of solid, semi-solid or soft foods	6-8 months	29/44	65.9	(50.1-79.5)
Consumption of iron-rich or iron-fortified foods	6-23 months	144/212	67.9	(61.2-74.2)
Bottle feeding	0-23 months	2/259	0.8	(0.1-2.8)

Figure 14: Key IYCF indicators from 2019 to 2024 - Doro refugee camp.



The timely initiation of breastfeeding rate was 91.1% (87.0-94.3) and comparatively higher than in 2021 which was 90.4%. 56.1% (39.8-71.5) children under six months had exclusively been breastfed and compared to 2021, there is decrease. Similarly, consumption of iron rich foods showed decreased in 2024 (67.9%) compared to 2021 (87.5%). Bottle feeding rate reduced in 2024 (0.8%) compared to 2021 (2.8%).

3.10. Prevalence of Intake

3.11. Infant Formula

Table 46 : Infant formula intake in children aged 0-23 months – Doro refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	1/258	0.4% (0.0-2.1)

Table 47: Fortified Blended Foods (CSB+) intake in children aged 6-23 months – Doro refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	1/214	0.5% (0.0-2.6)

Table 48 : Fortified blended foods (CSB++) intake in children aged 6-23 months – Doro refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	91/217	41.9% (35.3-48.8)

Table 49: Lipid based Nutrient Supplements intake in children aged 6-23 months – Doro refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive LNS	64/217	29.5% (23.5-36.0)

Table 50: Micronutrient powder intake in children aged 6-23 months – Doro refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive MNP	0/215	0.0% (0.0-0.0)

3.12. Anaemia Women 15-49 Years Results

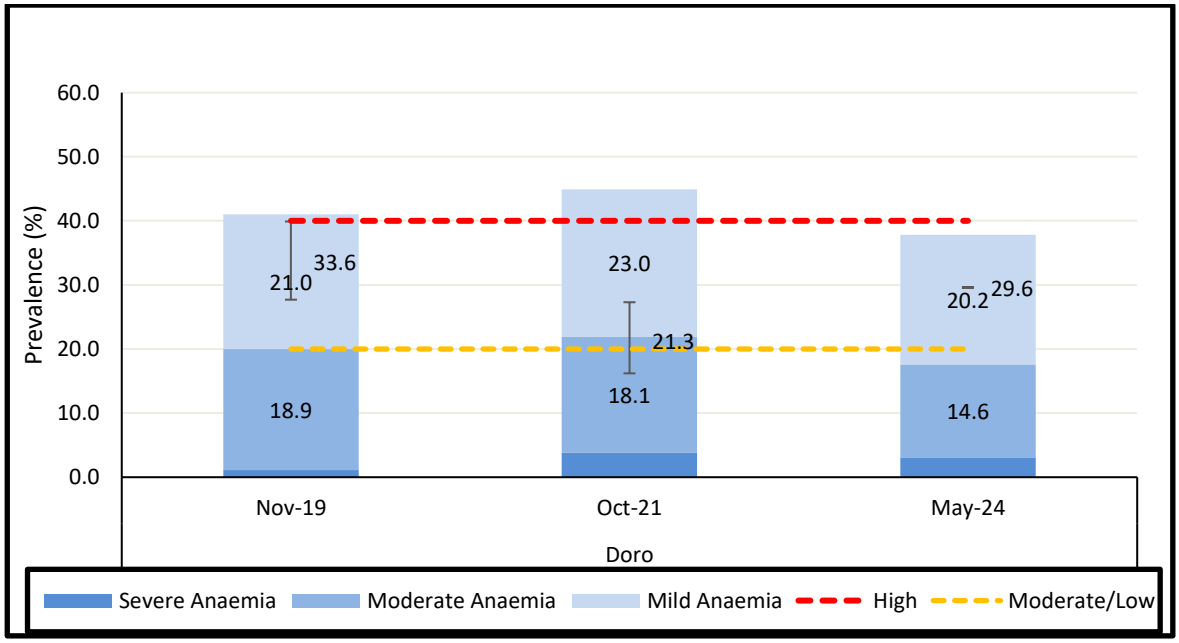
Table 51: Women Physiological Status and Age - Doro refugee camp.

Physiological status	Number/total	% of sample
Non-pregnant	274/306	89.5% (85.6-92.5, 95% CI)
Pregnant	32/306	10.5% (7.5-14.4, 95% CI)
Mean age (SD, range)	28.9 years (9.9) [15.0-49.0]	

Table 52 : Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Doro refugee camp.

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 270
Total Anaemia (<12.0 g/dL)	(81) 30.0% (24.6-35.9)
Mild Anaemia (11.0-11.9 g/dL)	(62) 23.0% (18.1-28.5)
Moderate Anaemia (8.0-10.9 g/dL)	(19) 7.0% (4.3-10.8)
Severe Anaemia (<8.0 g/dL)	(0) 0.0% (0.0-0.0)
Mean Hb (g/dL) [range]	12.5 (1.2) [8.9-15.5]

Figure 15 : Trends in anaemia categories in women of reproductive age (non-pregnant) from 2019 to 2024 - Doro refugee camp.



The proportion of both mild and moderate anaemia among non pregnant women of reproductive age indicated an increasing trend in 2024 as compared to 2021.

Table 53: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years) - Doro refugee camp.

	Number /total	% (95% CI)
Currently enrolled in ANC programme	18/31	58.1% (39.1-75.5)
Currently receiving iron-folic acid pills	16/31	50.0% (31.9-68.1)

Table 54: BSFP enrollment coverage among pregnant and lactating women (15-49 years) – Doro refugee camp

	Number /total	% (95% CI)
Currently enrolled in BSFP	40/54	74.1% (60.4-85.0)

3.13. Demography

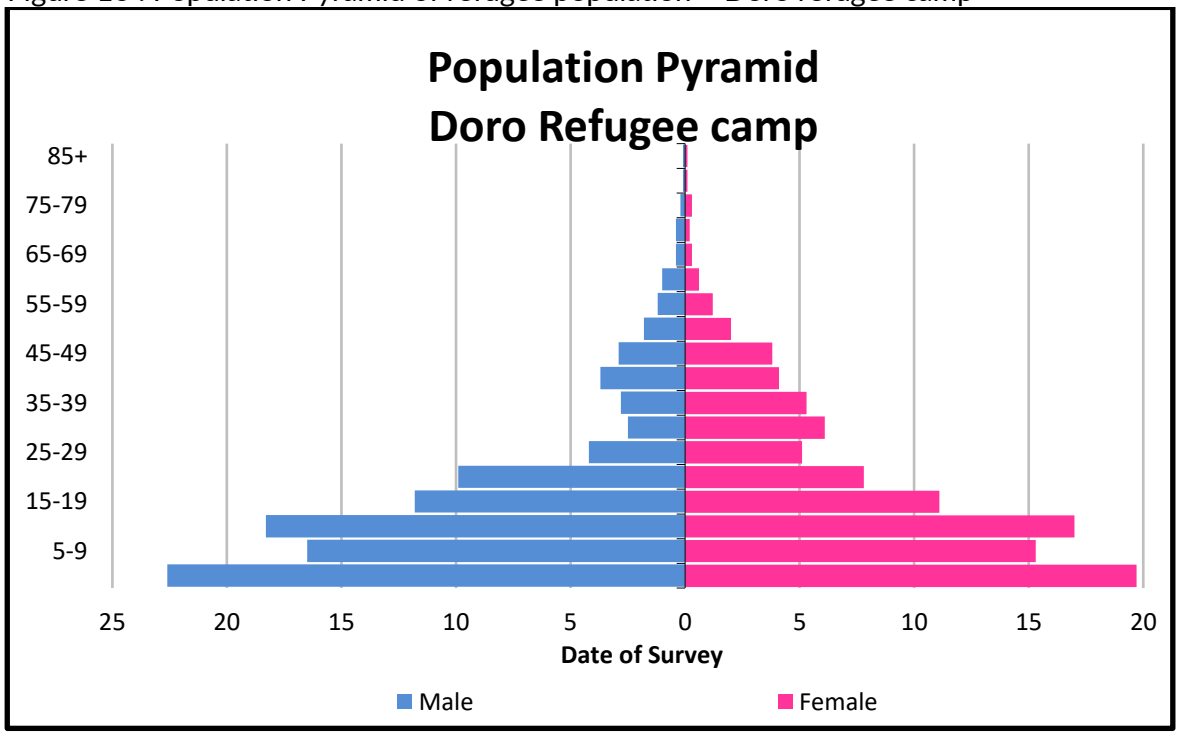
3.14. Household size and composition

Table 55. Demographic characteristics, household size and composition of the surveyed population – Doro refugee camp

Household size and composition		Results
Population size – Total persons (ProGres 31st March 2024)		94,996
Total households surveyed		553
Total population surveyed		3304
Total U2 in surveyed households		279
Total U5 in surveyed households		696
Average household size		6.0
Household size categories	1-4 person(s)	31.5%
	5-6 persons	28.0%
	7-9 persons	27.9%
	≥ 10 persons	12.7%
Household composition	Children under two	0.5
	Children under five	1.3
	Children aged 5-14 years	2.0
	Members aged 15-64 years	2.7
	Members aged 65 years and above	0.1
Percent of children U2	%	8.4%
Percent of children U5	%	21.1%
Percent pregnant women (15-49 years)	%	2.0%
Percent of elders (65 years and above)	%	1.0%
Sex ratio	Male/Female	0.92

Overall, male to female sex ratio was 0.92. This implies the higher proportion of the population is female than male. The percentage of children under five was 21.1%, elders (65 years and above) was 2.0%, and and the average household size is 6.0.

Figure 16 : Population Pyramid of refugee population – Doro refugee camp



The population pyramid is strongly lean to children between 0 months to 19 years. Among children and teenages up to 19 years old, males (69.2%) are more than females (63.1%). However, among aged between 20 to 59 years old, there were more females (35.4%) than males (29.0%). One probable contributing factor could be the higher rate of out migration in search for livelihood opportunities. The dependency ratio in Doro refugee camp is 22.1%. This suggests there is a lesser burden on the family economic situation as there are more working members of the households.

3.15. Household head profile

Table 56. Household head profile – Doro refugee camp

	Number/total	% (95% CI)
Female headed households (working age 15-64 years)	315/553	57.0 (52.8-61.0)
Male headed households (working age 15-64 years)	216/553	39.1 (35.1-43.2)
Children headed households (under 15 years)	0/553	0.0 (0.0-0.0)
Elderly headed households (65 years and above)	22/553	4.0 (2.6-6.0)
Mean age of household head in years (SD) [range]	40.1 (12.3) [18.0-79.0]	

A higher proportion of the households are headed by females (57.0%) than males (39.1%).

3.16. Food security

3.17. Access to food assistance in Doro refugee camp.

Table 57. Food assistance ration card and cash coverage – Doro refugee camp

	Number/total	% (95% CI)
Proportion of households with a ration card	279/280	99.4% (98.0-100)
Proportion of households receiving cash grants & inkind	279/279	100.0% (98.7-100.0)

99.4% of the surveyed households had ration cards and all received food assistance (cash grants and in-kind food assistance) for the month (April) prior to the survey.

Table 58: Reported duration of general food ration

	Number/total	% (95% CI)
Average number of days general food ration lasts out days (mean, S.D/range)	278	8.6 (4.8) [1-21]

The food and cash received from GFD in the month prior to the survey was reported to last 8.6 days out of the distribution cycle of 30 days.

Table 59. Description of utilisation of cash assistance – Doro refugee camp

Proportion of households that use cash grants for:	Number/total	% (95% CI)
Food	275/279	98.6% (96.4-99.6)
Water	0/279	0.0% (0.0-0.0)
Hygiene items, clothes, shoes	135/279	48.4% (42.4-54.4)
Health costs (including medicines)	1/279	0.4% (0.0-2.0)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	2/279	0.7% (0.1-2.6)
Firewood / fuel for cooking or heating	29/279	10.4% (7.1-14.6)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	3/279	1.1% (0.2-3.1)
Debts repayment	46/279	16.5% (12.3-21.4)
Saved some money, gave some to other family members, relatives, friends	3/279	1.1% (0.2-3.1)
Education (e.g. school fees, uniform, books)	3/279	1.1% (0.2-3.1)
Other	0/279	0.0% (0.0-0.0)

Most families reported spending the received money on food (98.6%), followed by hygiene items (48.4%), and then debts repayment (16.5%).

3.18. Coverage of basic needs

Table 60. Description of basic needs not met by the households – Doro refugee camp.

Basic needs not met by the households:	Number/total	% (95% CI)
Food	193/280	68.9% (63.2-74.3)
Water	0/280	0.0% (0.0-0.0)
Hygiene items, clothes, shoes	190/280	67.9% (62.0-73.3)
Health costs (including medicines)	55/280	19.6% (15.2-22.7)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	83/280	29.6% (24.4-35.4)
Firewood / fuel for cooking or heating	14/280	5.0% (2.8-8.3)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	63/280	22.5% (17.7-27.9)
Debts repayment	14/280	5.0% (2.8-8.3)
Saved some money, support other family members, relatives, friends	26/280	9.3% (6.2-13.3)
Education (e.g. school fees, uniform, books)	39/280	13.9% (10.1-18.6)
Other	15/280	5.4% (3.0-8.7)

The category of basic needs that cannot be met reported the most are: food, hygiene items, household items, and assets for livelihood.

3.19. Negative household coping strategies

FDSPs receive 50% of food assistance monthly provided through general distribution conducted by Samaritan Purse, a WFP partner. The modality of distribution was cash during the survey period. However, a mixed approach is always used in Maban depending on the situation. The food basket comprised of cereals, lentils, cooking oil, and cash for milling and salt. Should be noted the cash transfer value varies from one month to other depending on the prices of commodities in Maban markets prior to the actual GFD days.

To fill the food gaps, the FDSPs mentioned different types of strategies as shown on table below to cope with the situation.

Table 61. Coping strategies used by the surveyed population over the past month – Doro refugee camp.

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Rely on less preferred and/or less expensive foods	276/280	98.6% (96.4-99.6)
Borrow food, or rely on help from a friend or relative	173/280	61.8% (55.8-67.5)

Reduce the number of meals eaten in a day	251/280	89.6% (85.5-93.0)
Limit portion sizes at mealtime	264/280	94.3% (90.9-96.7)
Reduce consumption by adults so children could eat	192/280	68.6% (62.8-74.0)
Average rCSI (mean S.D/range)	280	21.6 (11.9) [1-9]
Proportion of households reporting using none of the negative coping strategies over the past month	4/280	1.4% (0.4-3.6)

* The total was over 100% as households used several negative coping strategies.

Reported coping strategies applied due to lack of food or money to buy food were relying on less preferred or less expensive foods and limiting portion sizes at mealtime. Only 1.4% of households were not under significant stress to meet their food needs as indicated by the proportion of household using none of the negative coping strategies over the past month prior to the survey.

The average reduced Coping Strategy Index (rCSI) score was 21.6% and this situation indicates the FDSPs in Doro camp rely on multiple types of coping strategies. Use of this for longer period will lead them towards chronic food insecurity.

3.20. Food Consumption Score (FCS)

April 2024 GFD cycle was considered the last general food distribution prior to the survey. In Doro camp, general food distribution lasts for more than a week due to its large population size and distribution is organized by family size. For the first time in the refugee camp, the survey was conducted during lean season where overall food availability is limited thus likely that the household dietary diversity score is lower than it would be.

Table 62. Food consumption score by category and average FCS – Doro refugee camp

FCS profiles	Number/total	% (95% CI)
Acceptable (FCS > 35)	71/280	25.4% (20.4-30.8)
Borderline (21.5≤FCS≤35)	93/280	33.2% (27.7-39.1)
Poor (FCS≤21)	116/280	41.4% (35.6-47.4)
Average FCS (SD) [range]	280	27.8 (14.0) [10-97]

*Maximum FCS is 112.

The average FCS among refugees in Doro camp was 27.9 out of total score of 112, which falls into the borderline category. This is echoed by most households having FCS score classified as borderline.

Table 63. Consumption frequency categories of each nutrient rich food groups (FCS-N) – Doro refugee camp

Nutrient rich food groups	Consumption frequency categories	Number/total	% (95% CI)
Vitamin A rich foods	Never	108/280	38.6% (32.8-44.6)
	Sometimes	136/280	48.6% (42.6-54.6)
	At least daily	36/280	12.9% (9.2-17.4)
Protein rich foods	Never	64/280	22.9% (18.1-28.2)
	Sometimes	177/280	63.2% (57.3-68.9)
	At least daily	39/280	13.9% (10.1-18.6)
Haem iron rich foods	Never	159/280	56.8% (50.8-62.7)
	Sometimes	114/280	40.7% (34.9-46.7)
	At least daily	7/280	2.5% (1.0-5.1)

In terms of the nutrient rich food, 61.5% households reported consumed Vitamin A rich foods (sometimes or daily), 77.1% reported consumed protein rich foods, while only 43.2% reported consumed Haem iron rich foods.

Table 64. Food acquisition sources – Doro refugee camp

Food acquisition sources	Number/total	% (95% CI)
Purchase (using cash grants and/or with their own cash)	207/280	73.9% (68.4-79.0)
Own production (crops, livestock, fishing/ hunting, gathering)	2/280	0.7% (0.1-2.6)
Traded goods/services, barter	38/280	13.6% (9.8-18.2)
Borrowed (loan/credit from traders)	27/280	9.6% (6.5-13.7)
Received as gift (from family relatives or friends/neighbour)	2/280	0.7% (0.1-2.6)
In-kind or voucher based food assistance	4/280	1.4% (0.4-3.6)

The main source for food reported was through purchasing (73.9%), traded goods/services (13.6%), and borrowing (9.6%).

3.21. Household Mosquito net ownership and utilization

Table 65. Household Mosquito net ownership

	Number/total	%	Targets
Household owning at least one mosquito net (any type)	132/273	48.4% (42.3-54.5)	

Household owning at least one mosquito net (LLIN type)	109/273	39.9% (34.1-46.0)	Target of > 80%

Table 66. Number of nets

Average number of LLINs per household	Average number of persons per LLIN
1.4	5.4

Table 67. Mosquito net utilization

	Proportion of total population (all ages)		Proportion of children 0-59 months		Proportion of pregnant women	
	Total # 1484	%	Total No # 304	%	Total # 57	%
Slept under net of any type	563	37.9	158	52.0	13	22.8
Slept under LLIN	460	31.0	125	41.1	11	19.3

Proportion of household owning at least one mosquito net of any type and LLIN type in Doro camp was 48.4% and 39.9% respectively leading to increased number of persons per mosquito net (4.2 per mosquito net of any type and 5.4 per LLIN mosquito net) which is beyond the recommended UNHCR standard (2 persons/LLIN).

Table 68. Indoor Residual Spraying

	Number/total	% (95% CI)
Proportion of households covered by Indoor Residual Spraying (IRS)	3/273	1.1% (0.2-3.2)

The IRS coverage was 1.1% and this could be due to no IRS conducted within the last six months in the camp.

3.22. Results From Yusuf Batil Refugee Camp.

Below table shows the anthropometric measurements taken from a total of number of children surveyed in Yusuf Batil refugee camp verses the targeted children in the survey. The SENS guideline recommends that at least 80% of the targeted children to be surveyed. All the children who participated in the survey were considered using either available official age documentation or age estimation from local context calendar of event developed to estimate the age. Of the total surveyed children 6-59 months in Doro refugee camp, 89% had official age documentation. See table below for details.

Table 69 : Target and actual number captured-Yusuf Batil refugee camp, South Sudan. (May 2024)

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	368	502	136.4%

3.23. Anthropometric results (based on WHO Growth standards 2006)

Table 70 : Distribution of age and sex of sample - Yusuf Batil refugee camp.

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	59	44.4	74	55.6	133	26.4	0.8
18-29	39	39.8	59	60.2	98	19.5	0.7
30-41	61	50.4	60	49.6	121	24.1	1.0
42-53	56	48.7	59	51.3	115	22.9	0.9
54-59	21	58.3	15	41.7	36	7.2	1.4
Total	236	46.9	267	53.1	503	100.0	0.9

The distribution of the assessed children by age and sex shows an overall sex ratio of boys: girls 0.9 indicating that both sexes were equally represented in the survey.

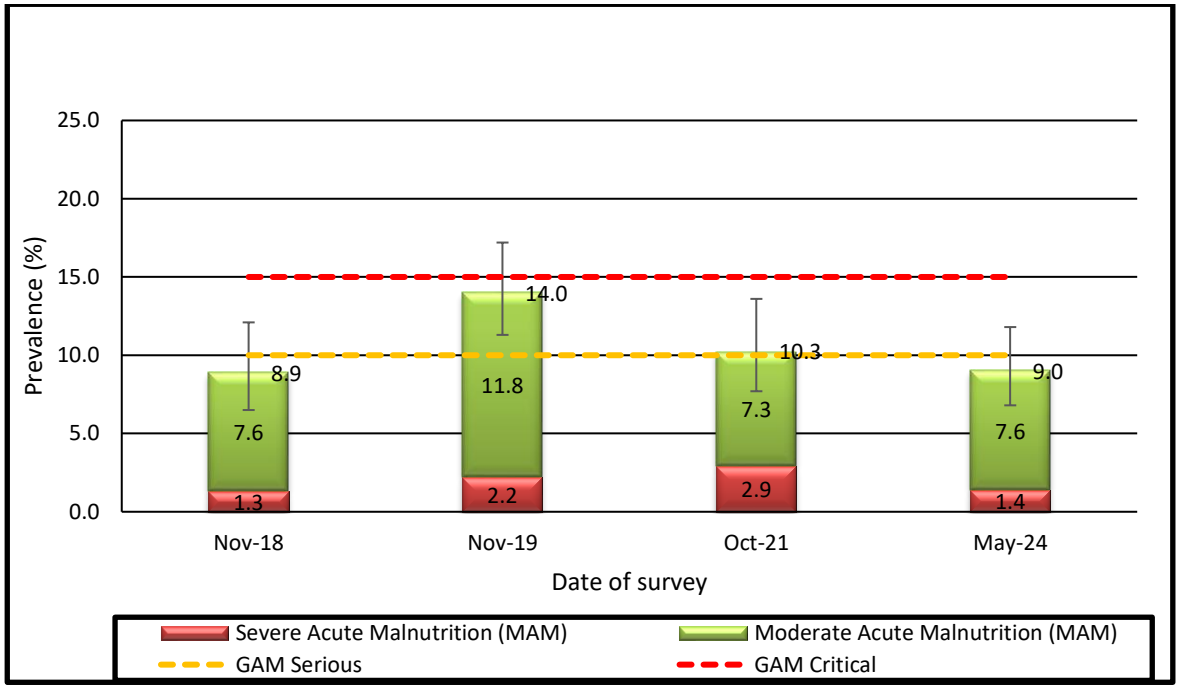
Table 71 : Prevalence of acute malnutrition based on weight-for-height z-scores and/or oedema and by sex - Yusuf Batil refugee camp.

	All n = 502	Boys n = 235	Girls n = 267
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(45) 9.0 % (6.8 - 11.8 95% C.I.)	(16) 6.8 % (4.2 - 10.8 95% C.I.)	(29) 10.9 % (7.7 - 15.2 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(38) 7.6 % (5.6 - 10.2 95% C.I.)	(13) 5.5 % (3.3 - 9.2 95% C.I.)	(25) 9.4 % (6.4 - 13.5 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(7) 1.4 % (0.7 - 2.9 95% C.I.)	(3) 1.3 % (0.4 - 3.7 95% C.I.)	(4) 1.5 % (0.6 - 3.8 95% C.I.)

The prevalence of oedema was 0.0% and the data excluded SMART flags. Prevalence of Global Acute Malnutrition based on WFH z-score and/or oedema and by sex, was 9.0% (6.8-11.8 95% C.I.), and the Severe Acute Malnutrition rate was 1.4% (0.7-2.9 95% C.I.). GAM prevalence indicates a medium (poor) situation according to the WHO classification of acute malnutrition.

Based on the CI indicated in the prevalence of acute malnutrition between boys and girls as estimated by Weight for Height Z-score all were equally wasted but results showed girls more affected compared to boys.

Figure 17 : Trends in the prevalence of global and severe acute malnutrition based on WHO Growth standards in children 6-59 months from 2018 to 2024 - Yusuf Batil refugee camp.



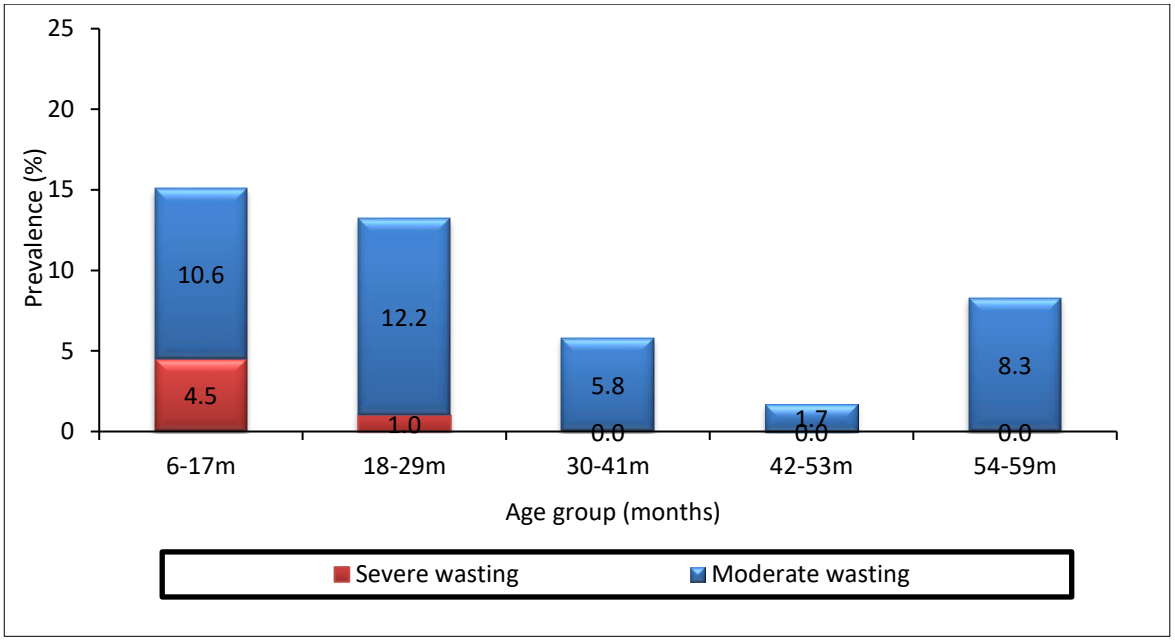
The prevalence of Global and Severe Acute Malnutrition based on WHO **G**rowth standards among children 6-59 month in 2024 decreased as compared to 2021. However, the decrease is not significant.

Table 72 : Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Yusuf Batil refugee camp.

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	132	6	4.5	14	10.6	112	84.8	0	0.0
18-29	98	1	1.0	12	12.2	85	86.7	0	0.0
30-41	121	0	0.0	7	5.8	114	94.2	0	0.0
42-53	115	0	0.0	2	1.7	113	98.3	0	0.0
54-59	36	0	0.0	3	8.3	33	91.7	0	0.0
Total	502	7	1.4	38	7.6	457	91.0	0	0.0

The prevalence of acute malnutrition (WHZ<-2 and/or oedema) by age shows that younger children in the age catergories 6-17 and 18-29 months were the most affected by severe and moderate acute malnutrition respectively.

Figure 18 : Trend in the prevalence of wasting by age in children 6-59 months - Yusuf Batil camp.



Children aged 6-17 are the most affected age groups by wasting in Yusuf Batil refugee camp indicating higher vulnerability of these age category.

Table 73 : Distribution of acute malnutrition and oedema based on weight-for-height z-scores in Yusuf Batil refugee camp.

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)
Oedema absent	Marasmic No. 8 (1.6 %)	Not severely malnourished. 495 (98.4 %)

During the survey, no case of oedema was identified. However, there were 8 marasmic cases with no oedema as shown in table above.

Figure 19 : Distribution of weight-for-height z-scores (based on WHO Growth standards ; the reference population is shown in green and the surveyed population in red) of the surveyed population compared to the international WHO Standard population (reference population) of children aged 6-59 months.

The graphical figure shows that the distribution for weight-for-height z-scores for the surveyed sample shifted/deviated to the left. This indicates that the nutrition status of the surveyed population is poor compared to the WHO reference population.

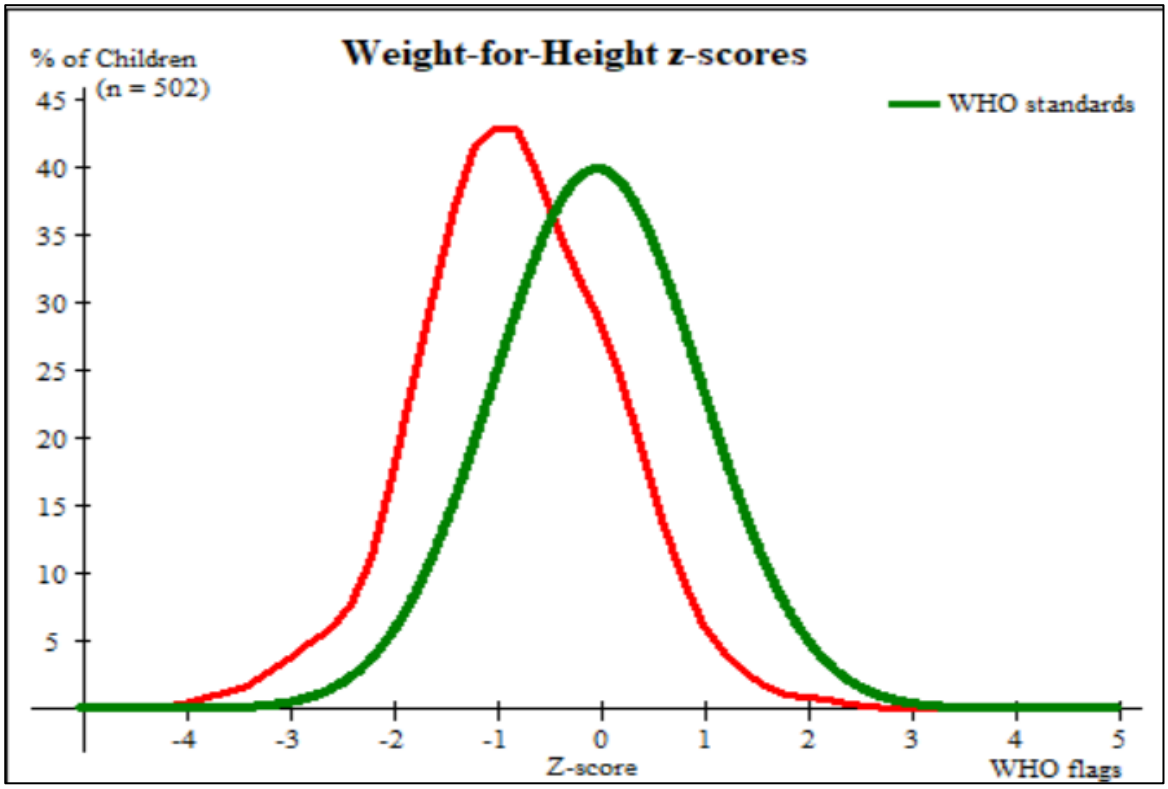


Table 74 : Prevalence of acute malnutrition based on MUAC cut off's and/or oedema and by sex - Yusuf Batil camp.

	All n = 505	Boys n = 238	Girls n = 267
Prevalence of global malnutrition (< 125 mm and/or oedema)	(18) 3.6 % (2.3 - 5.6 95% C.I.)	(4) 1.7 % (0.7 - 4.2 95% C.I.)	(14) 5.2 % (3.1 - 8.6 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(16) 3.2 % (2.0 - 5.1 95% C.I.)	(2) 0.8 % (0.2 - 3.0 95% C.I.)	(14) 5.2 % (3.1 - 8.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.4 95% C.I.)	(2) 0.8 % (0.2 - 3.0 95% C.I.)	(0) 0.0 % (0.0 - 1.4 95% C.I.)

As indicated in the above table, girls were most wasted than boys. The prevalence of acute malnutrition using MUAC is significantly lower compared to using Weight for Height Z-scores. Studies on the concordance between estimates of wasting measured by weight-for-height and by MUAC generally indicate great variation between these two measurements mainly because of variations in the body shape, age, and gender among various surveyed populations.

Though MUAC measurements is being used in the community to monitor malnutrition trends and for admissions and discharge in the therapeutic and supplementary feeding nutrition programmes, good indicator of risk of mortality in children under five, and is easy to do, it is therefore recommended that both criteria are used in anthropometric surveys.

Table 75 : Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema - Yusuf Batil camp.

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	133	1	0.8	13	9.8	119	89.5	0	0.0
18-29	98	0	0.0	3	3.1	95	96.9	0	0.0
30-41	122	0	0.0	0	0.0	122	100.0	0	0.0
42-53	115	1	0.9	0	0.0	114	99.1	0	0.0
54-59	37	0	0.0	0	0.0	37	100.0	0	0.0
Total	505	2	0.4	16	3.2	487	96.4	0	0.0

Generally, younger children aged 6-17 months were more affected by both severe and moderate acute malnutrition based on MUAC. This may be attributed to inadequate feeding practices among these children.

Table 76: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex*

	All n = 503	Boys n = 236	Girls n = 267
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(53) 10.5 % (8.1 - 13.5 95% C.I.)	(19) 8.1 % (5.2 - 12.2 95% C.I.)	(34) 12.7 % (9.3 - 17.3 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(9) 1.8 % (0.9 - 3.4 95% C.I.)	(5) 2.1 % (0.9 - 4.9 95% C.I.)	(4) 1.5 % (0.6 - 3.8 95% C.I.)

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

The prevalence of combined GAM among children aged 6-59 months in Yusuf Batil refugee camp was 10.5% (8.1-13.5 95% CI) as indicated in the table above. Although there is no globally accepted threshold for combined GAM and SAM, the observed prevalence of combined GAM was higher than the prevalence of WHZ or and MUAC on their own, implying that the combined GAM and MUAC indicator identified more acutely malnourished children.

Table 77: Detailed numbers for combined GAM and SAM

	GAM		**SAM**	
	no.	**%**	**no.**	**%**
MUAC	**8**	**1.6**	**2**	**0.4**
WHZ	**35**	**7.0**	**7**	**1.4**
Both	**10**	**2.0**	**0**	**0.0**
Edema	**0**	**0.0**	**0**	**0.0**
Total	**53**	**10.5**	**9**	**1.8**

Total population: 503

Table 78 : Prevalence of underweight based on weight-for-age z-scores by sex - Yusuf Batil camp.

	All n = 503	Boys n = 236	Girls n = 267
Prevalence of underweight (<-2 z-score)	(114) 22.7 % (19.2 - 26.5 95% C.I.)	(49) 20.8 % (16.1 - 26.4 95% C.I.)	(65) 24.3 % (19.6 - 29.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(92) 18.3 % (15.2 - 21.9 95% C.I.)	(36) 15.3 % (11.2 - 20.4 95% C.I.)	(56) 21.0 % (16.5 - 26.3 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(22) 4.4 % (2.9 - 6.5 95% C.I.)	(13) 5.5 % (3.2 - 9.2 95% C.I.)	(9) 3.4 % (1.8 - 6.3 95% C.I.)

The prevalence of underweight among children aged 6-59 months was 22.7% (19.2-26.5 95% C.I.) with 4.4% (2.9-6.5 95% C.I.) being severely underweight. Both boys and girls were affected by underweight.

Table 79 : Prevalence of underweight by age, based on weight-for-age z-scores - Yusuf Batil camp.

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	133	11	8.3	24	18.0	98	73.7	0	0.0
18-29	98	7	7.1	21	21.4	70	71.4	0	0.0
30-41	121	3	2.5	23	19.0	95	78.5	0	0.0
42-53	115	1	0.9	18	15.7	96	83.5	0	0.0
54-59	36	0	0.0	6	16.7	30	83.3	0	0.0
Total	503	22	4.4	92	18.3	389	77.3	0	0.0

Prevalence of underweight by age shows children in the age group of 6-17 and 18-29 months were most affected by severe and moderate underweight respectively. Generally, younger children aged 6-17 and 18-29 months were more susceptible to both severe and moderate underweight.

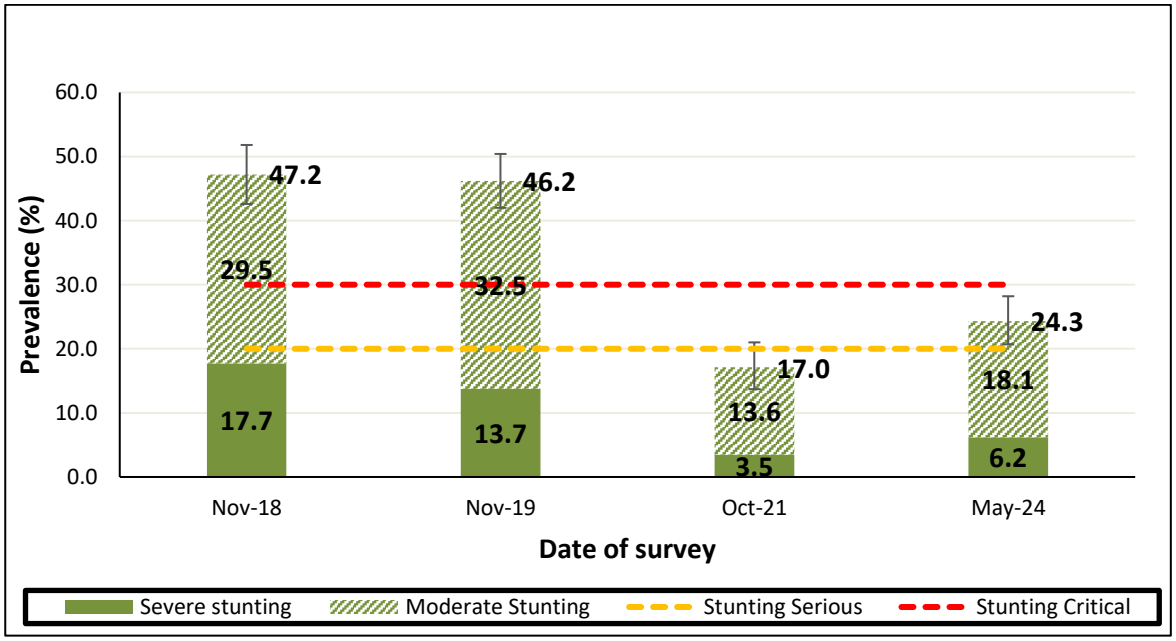
Table 80 : Prevalence of stunting based on height-for-age z-scores and by sex - Yusuf Batil camp.

	All n = 503	Boys n = 236	Girls n = 267
Prevalence of stunting (<-2 z-score)	(122) 24.3 % (20.7 - 28.2 95% C.I.)	(61) 25.8 % (20.7 - 31.8 95% C.I.)	(61) 22.8 % (18.2 - 28.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(91) 18.1 % (15.0 - 21.7 95% C.I.)	(41) 17.4 % (13.1 - 22.7 95% C.I.)	(50) 18.7 % (14.5 - 23.8 95% C.I.)

Prevalence of severe stunting (<-3 z-score)	(31) 6.2 % (4.4 - 8.6 95% C.I.)	(20) 8.5 % (5.6 - 12.7 95% C.I.)	(11) 4.1 % (2.3 - 7.2 95% C.I.)

The rate of stunting in Yusuf Batil camp was 24.3% (20.7-28.2 95% C.I.) and severe stunting was 6.2% (4.4-8.6 95% C.I.). This result is classified as high (serious situation) according to the WHO classification. Boys had a higher stunting rate 25.8% (20.7-31.8 95% C.I.) than girls 22.8% (18.2-28.2) but the difference in stunting by gender was not statistically significant.

Figure 20 : Trends in the prevalence of global, moderate, and severe stunting based on WHO Growth standards in children 6-59 months from 2018 to 2024 - Yusuf Batil refugee camp.



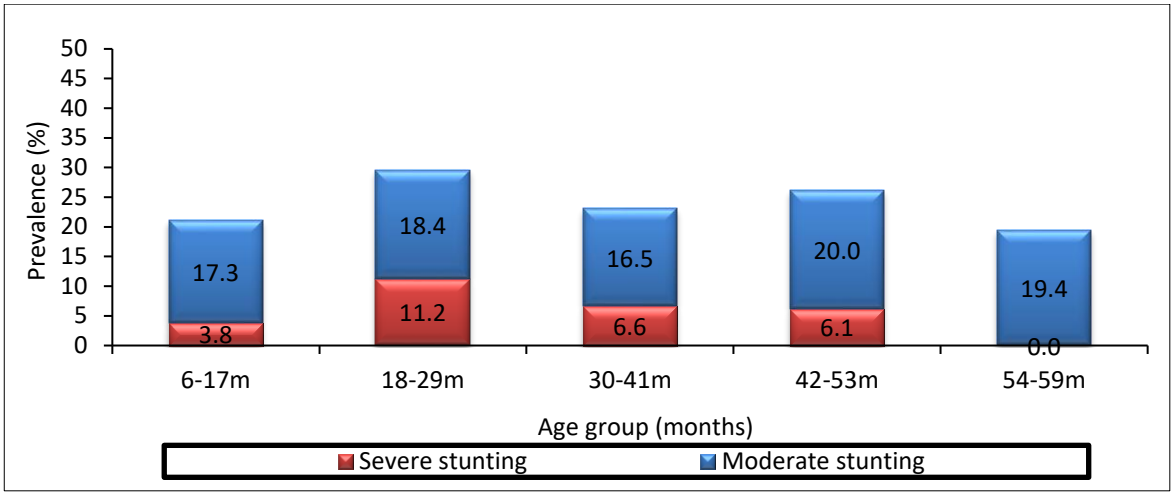
Significant increas in stunting prevalence was noted in 2024 in Yusuf Batil refugee camp as compared to 2021. However, the prevalence is below the WHO threshold of 40%.

Table 81 : Prevalence of stunting by age based on height-for-age z-scores - Yusuf Batil camp.

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	133	5	3.8	23	17.3	105	78.9
18-29	98	11	11.2	18	18.4	69	70.4
30-41	121	8	6.6	20	16.5	93	76.9
42-53	115	7	6.1	23	20.0	85	73.9
54-59	36	0	0.0	7	19.4	29	80.6
Total	503	31	6.2	91	18.1	381	75.7

Stunting prevalence by age indicates that children in the age category 18-29 and 42-53 months were more affected by severe and moderate stunting respectively.

Figure 21: Trends in the Prevalence of Stunting By Age in Children 6-59 Months - Yusuf Batil camp.



Children aged 18-29 months are the most affected by stunting.

Table 82: Prevalence of overweight based on weight for height cut offs and by sex (no oedma) - Yusuf Batil camp.

	All n = 502	Boys n = 235	Girls n = 267
Prevalence of overweight (WHZ > 2)	(2) 0.4 % (0.1 - 1.4 95% C.I.)	(2) 0.9 % (0.2 - 3.0 95% C.I.)	(0) 0.0 % (0.0 - 1.4 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 0.8 95% C.I.)	(0) 0.0 % (0.0 - 1.6 95% C.I.)	(0) 0.0 % (0.0 - 1.4 95% C.I.)

Boys are more overweight than girls.

Table 83: Prevalence of overweight by age, based on weight for height (no oedema) - Yusuf Batil camp.

		Overweight (WHZ > 2)		Severe Overweight (WHZ > 3)	
Age (mo)	Total no.	No.	%	No.	%
6-17	132	1	0.8	0	0.0
18-29	98	0	0.0	0	0.0
30-41	121	1	0.8	0	0.0
42-53	115	0	0.0	0	0.0
54-59	36	0	0.0	0	0.0
Total	502	2	0.4	0	0.0

Table 84 : Mean z-scores, Design Effects and excluded subjects - Yusuf Batil refugee camp.

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	502	-0.82±0.95	1.00	0	1
Weight-for-Age	503	-1.38±0.86	1.00	0	0
Height-for-Age	503	-1.45±0.95	1.00	0	0

* contains for WHZ and WAZ the children with edema.

The mean Z scores for wasting (WHZ), underweight (WAZ) and stunting (HAZ) were -0.82±0.95, -1.38±0.86, and -1.45±0.95 respectively. All indicate a poorer nutrition situation compared to WHO reference population. The standard deviations for all the three nutrition indicators including WHZ, WAZ, and HAZ were within the acceptable range of 0.8-1.2 which indicates that the survey data was of high quality.

3.24. Feeding Programme Enrollment Coverage

Selective feeding programme

Table 85 : Programme enrollment for Acutely Malnourished Children Based on all admission criteria (MUAC, WHZ and/or oedema) - Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	1/12	8.3% (0.2-38.5)
Supplementary feeding programme (TSFP) enrolment	6/47	12.8% (4.8-25.7)

Table 86 : Programme enrollment for acutely malnourished children based on MUAC and/or oedema only - Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	0/5	0.0% (0.0-0.0)
Supplementary feeding programme (TSFP) enrolment	5/16	31.3% (11.0-58.7)

Enrollment coverage of children aged 6-59 months based on both all admission criteria and using MUAC and/or oedema only in OTP and TSFP was below the recommended standard of ≥ 90%.

Table 87: BSFP enrollment coverage for children 6-59 months - Yusuf Batil camp

	Number/Total	% (95% CI)
Blanket enrolment	166/182	91.2% (86.1-94.9)
Product name	Lipid based Nutrient Supplements-MQ	
Target age group	6-23 months	

The BSFP enrollment coverage for children 6-23 months in Yusuf Batil camp was 91.2%.

3.25. Measles vaccination coverage results

Table 88 : Measles vaccination coverage for children aged 9-59 months (N=468)

	Number/total	% (95% CI)
Measles vaccination with card	331/468	70.7% (66.5-74.7)
Measles vaccination with confirmation from mother	117/468	25.0% (21.3-29.1)
Measles vaccination with card or confirmation from mother	448/468	95.7% (93.5-97.2)

The survey findings indicated that the proportion of all children aged 9-59 months who had received measles vaccination was 95.7% (93.5-97.2). This meets the recommended standard of ≥ 95%.

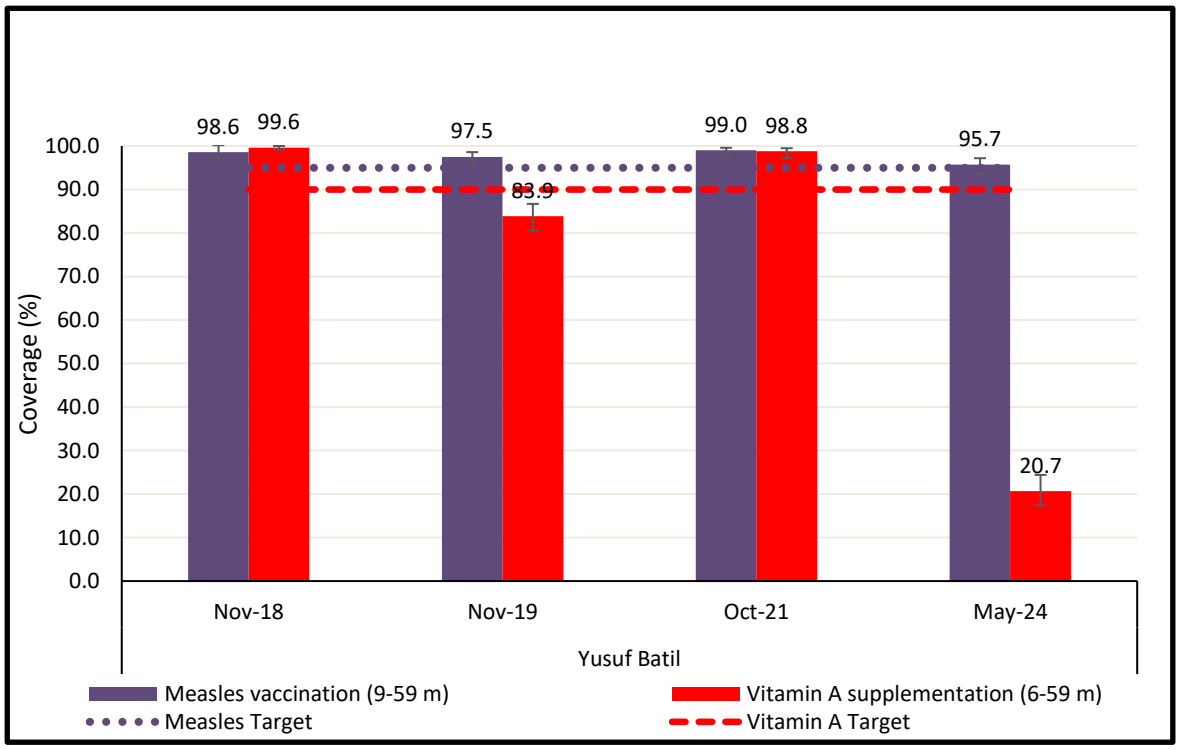
3.26. Vitamin A supplementation coverage results

Table 89 : Vitamin A supplementation for children aged 6-59 months within past 6 months (N= 503)

	Number/total	% (95% CI)
Vitamin A supplementation in the last 6 months with card	79/503	15.7% (12.8-19.1)
Vitamin A supplementation in the last 6 months with confirmation from mother	25/503	5.0% (3.4-7.2)
Vitamin A supplementation in the last 6 months with card or confirmation from mother	104/503	20.7% (17.4-24.4)

The survey findings indicated that the proportion of all children aged 6-59 months who had received Vitamin A in the last 6 months was 20.7% (17.4-24.4). This didn't meet the recommended standard of ≥ 90%.

Figure 22 : Trends in the coverage of measles vaccination and vitamin A supplementation in last 6 months in children 6-59 months from 2018 to 2024 - Yusuf Batil refugee camp, South Sudan.



Vitamin A supplementation coverage was below standard in 2024 compared to 2021. Last Vitamin A campaign was conducted in Nov 2023 hence by May when the survey was conducted, it was past six months.

3.27. Diarrhoea Results

Table 90 : Period prevalence of diarrhea – Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	58/500	11.6% (9.1-14.7)

The survey findings indicated that 11.6% (9.1-14.7) of the surveyed children had diarrhoea (3 or more times loose or watery stools in a day) in the past two weeks preceding the survey.

Table 91: use of ORS and Zinc during diarrhoea episode – Yusuf Batil refugee camp.

	Number/total	% (95% CI)
ORS use during diarrhoea episode	48/58	82.8% (70.6-91.4)
Zinc tablet or syrup use during diarrhoea episode	38/58	65.5% (51.9-77.5)

Among the surveyed children who had diaarhoea, 82.8% of them were treated with ORS while 65.5% treated with Zinc.

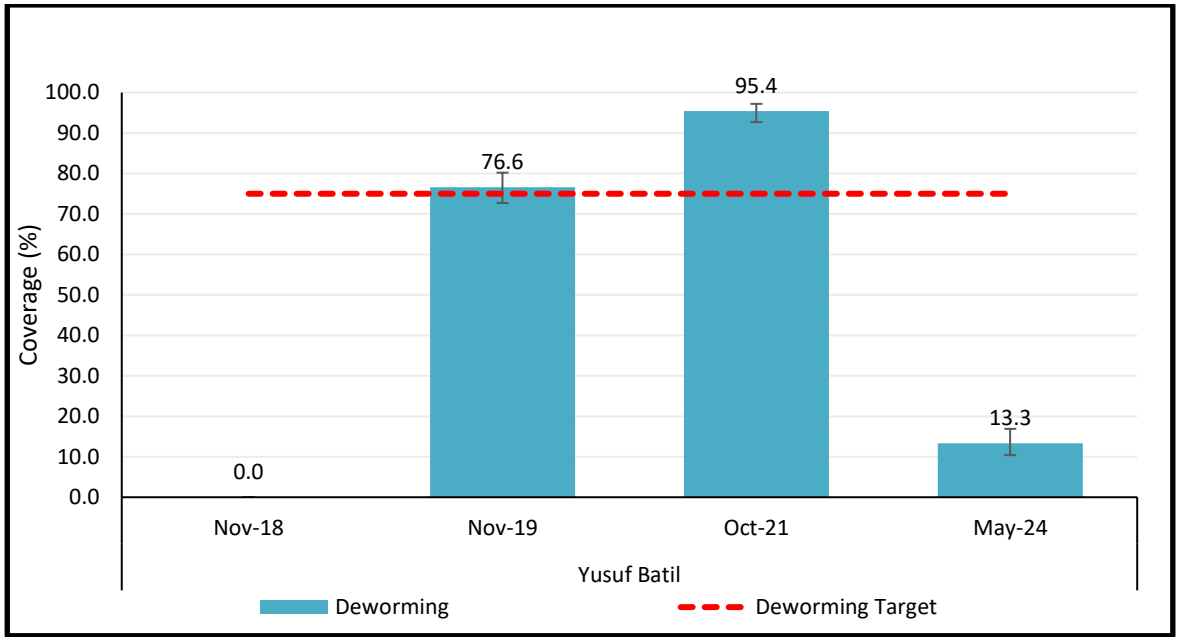
3.28. Deworming

Table 92: Deworming coverage – Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Deworming within the past 6 months	56/420	13.3% (10.4-16.9)

The survey findings indicated that 13.3% of children aged 12-59 months received deworming tablet in the last 6 months prior to the survey. The coverage didn't meet the recommended standard of (≥75%).

Figure 23 : Trends in the coverage of deworming in last 6 months in children 12-59 months from 2018 to 2024 - Yusuf Batil refugee camp, South Sudan.



Deworming coverage was below standard in 2024 compared to 2021. Deworming campaign was conducted in Nov 2023 hence by May when the survey was conducted, it was past six months.

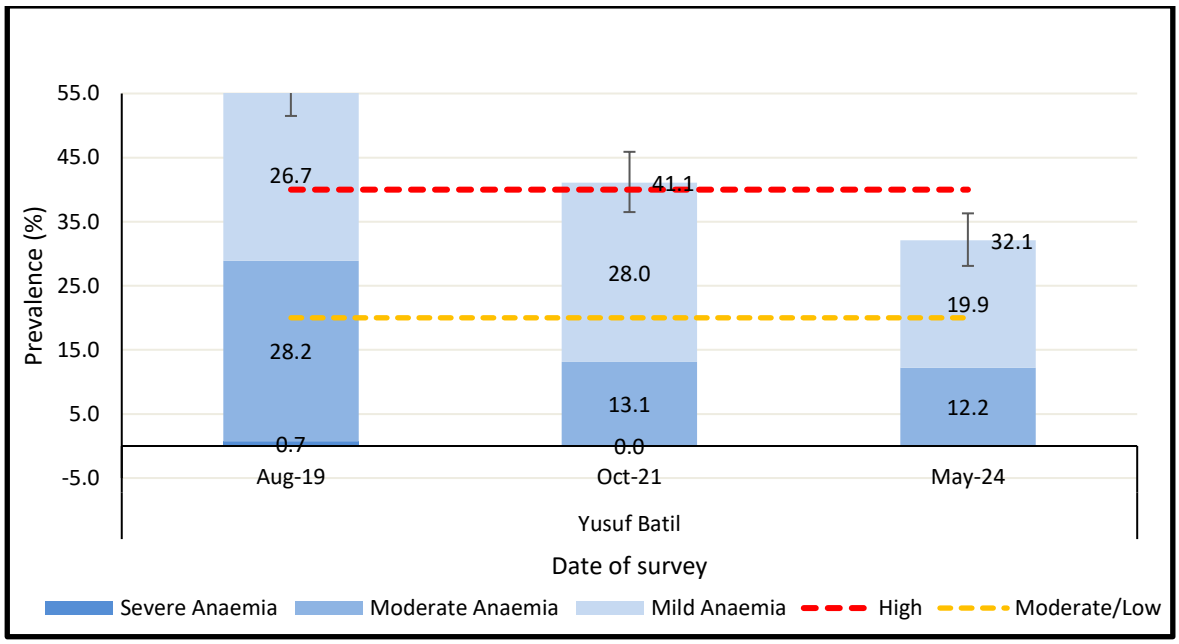
3.29. Anaemia Results in children 6 - 59 months - Yusuf Batil refugee camp

Overall anaemia prevalence among surveyed children 6 to 59 months was 32.1% which is of medium public health signifcance. Children 6 to 23 months were the most affected with prevalence of 50.8% above WHO threshold of 40% compared to the 24-59 months age group (21.5%).

Table 93 : Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group - Yusuf Batil camp.

	6-59 months n = 502	6-23 months n=183	24-59 months n=320
Total Anaemia (Hb <11.0 g/dl)	(161) 32.1% (28.1-36.3, 95% CI)	(92) 50.3% (42.8-57.7, 95% CI)	(69) 21.6% (17.4-26.4, 95% CI)
Mild Anaemia (Hb 10.0-10.9 g/dl)	(100) 19.9% (16.7-23.6, 95% CI)	(48) 26.2% (20.0-33.2, 95% CI)	(52) 16.3% (12.6-20.7, 95% CI)
Moderate Anaemia (Hb 7.0-9.9 g/dl)	(61) 12.2% (9.6-15.3, 95% CI)	(44) 24.6% (18.1-30.9, 95% CI)	(17) 5.3% (3.3-8.3, 95% CI)
Severe Anaemia (Hb <7.0 g/dl)	(0) 0.0% (0.0-0.0, 95% CI)	(0) 0.0% (0.0-0.0, 95% CI)	(0) 0.0% (0.0-0.0, 95% CI)
Mean Hb (g/dl) [SD/range]	11.3 (1.2) [7.9-14.7]	10.8 (1.2) [7.9-13.9]	11.7 (1.0) [8.2-14.7]

Figure 24 : Trends in Anaemia Categories in Children 6-59 Months from 2019 to 2024 - Yusuf Batil refugee camp.



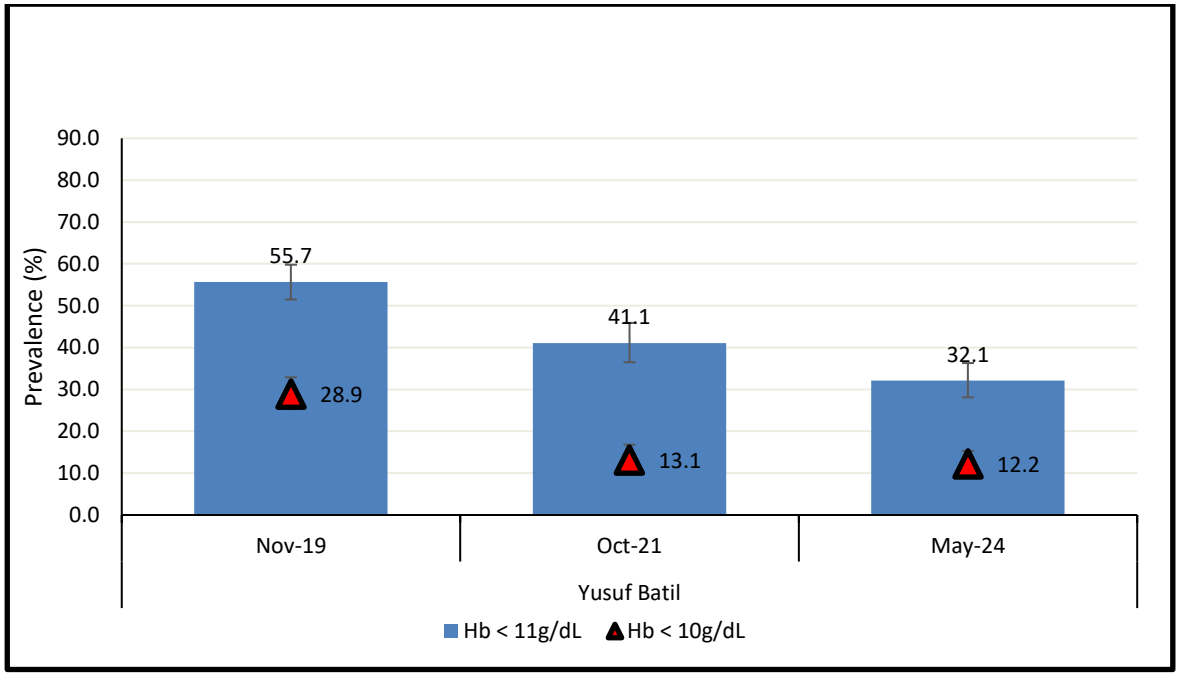
The proportion of severe and moderate anaemia indicated a decreasing trend in 2024 as compared to 2021 in Yusuf Batil refugee camp. However, the decrease is not significant.

Table 94 : Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group in Yusuf Batil refugee camp.

	6-59 months n = 502	6-23 months n= 183	24-59 months n= 320

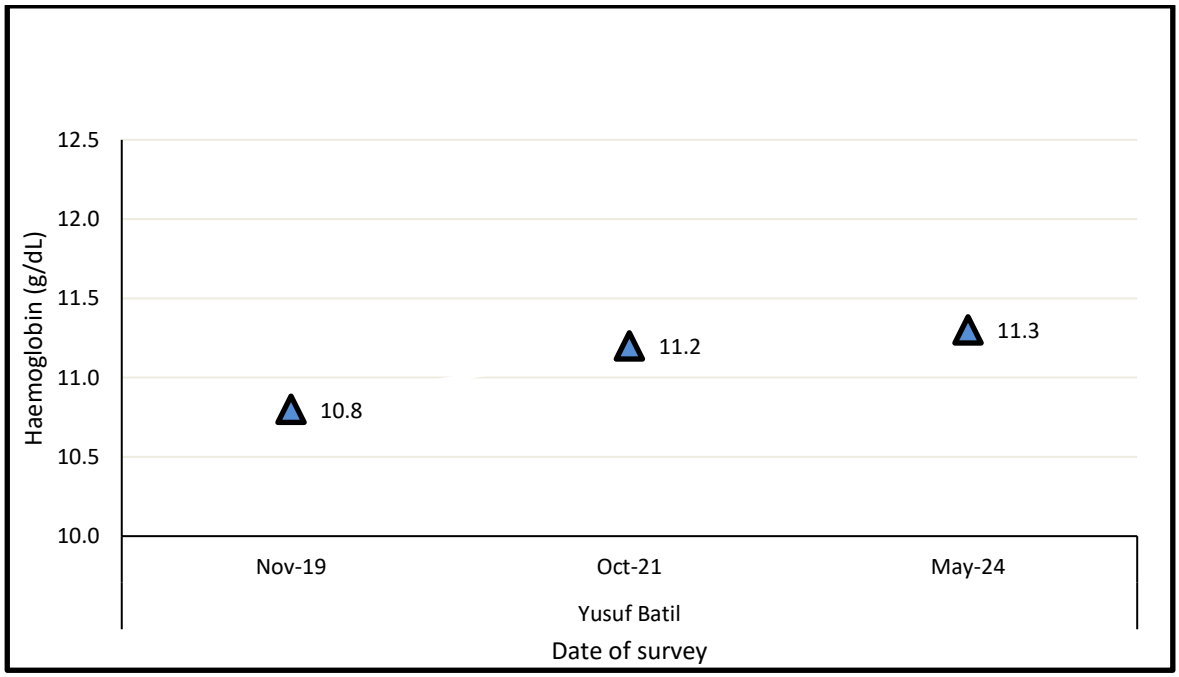
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(61) 12.2% (9.6-15.3, 95% CI)	(44) 24.0% (18.1-30.9)	(17) 5.3% (3.3-8.3)

Figure 25 : Trend in total anaemia (<11 g/dl) and moderate and severe anaemia (<10 g/dl) among children 6-59 months from 2019 to 2024 - Yusuf Batil refugee camp.



There is decrease in total anaemia (<11 g/dl) and moderate and severe anaemia (<10 g/dl) among children 6-59 months in 2024 compared to 2021 in Yusuf Batil camp. However, the decrease is not significant.

Figure 26: Trend in mean haemoglobin concentration in children 6-59 months from 2019 to 2024 - Yusuf Batil refugee camp.

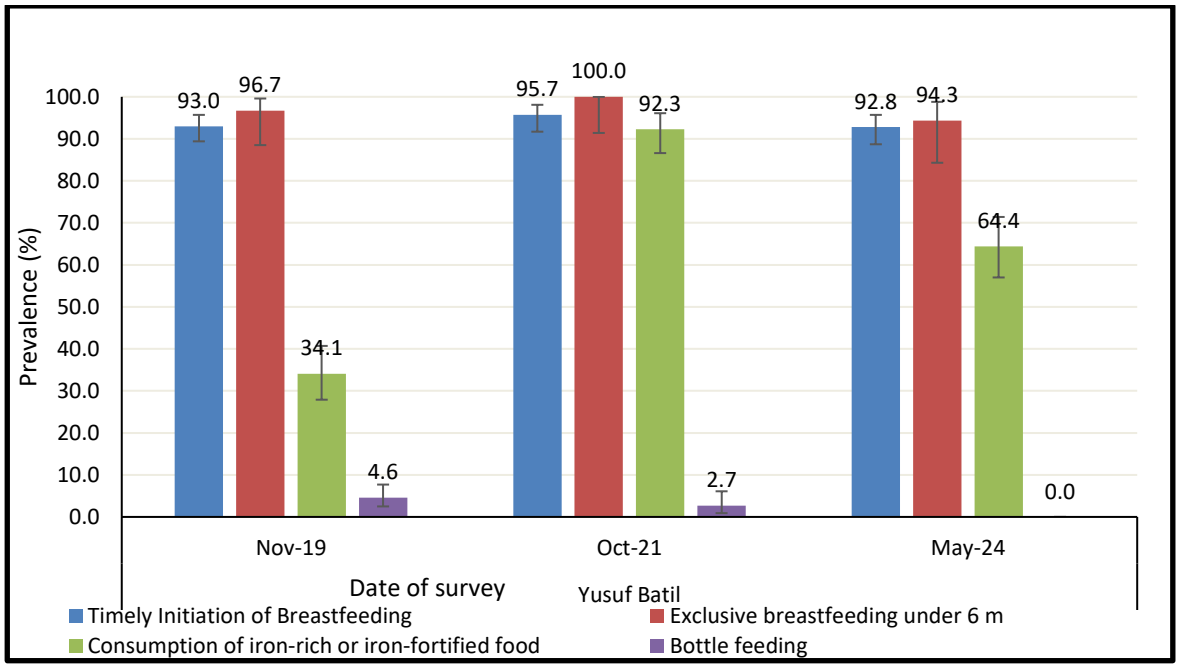


3.30. IYCF Children 0-23 Months in Yusuf Batil refugee camp

Table 95 : Prevalence of Infant and Young Child Feeding Practices Indicators - Yusuf Batil refugee camp.

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	218/235	92.8	(88.7-95.7)
Exclusive breastfeeding under 6 months	0-5 months	50/53	94.3	(84.3-98.8)
Continued breastfeeding at 1 year	12-15 months	40/42	95.2	(83.8-99.4)
Continued breastfeeding at 2 years	20-23 months	20/30	66.7	(47.2-82.7)
Introduction of solid, semi-solid or soft foods	6-8 months	25/35	71.4	(53.7-85.4)
Consumption of iron-rich or iron-fortified foods	6-23 months	116/180	64.4	(57.0-71.4)
Bottle feeding	0-23 months	0/235	0.0	(0.0-0.0)

Figure 27: Key IYCF indicators from 2017 to 2021 in Yusuf Batil refugee camp.



The rate of timely initiation of breastfeeding (92.8%) and exclusive breastfeeding (94.3%) rate remained high in 2024 though the rates showed decrese compared to 2021. Consumption of iron rich foods decreased from 92.3% in 2021 to 64.4% in 2024. Bottle feeding rate reduced in 2024 (0.0%) compared to 2021 (2.7%).

Prevalence of Intake

Infant Formula

Table 96 : Infant formula intake in children aged 0-23 months-Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	2/235	0.9% (0.1-3.0)

Table 97: Fortified Blended Foods intake in children aged 6-23 months-Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	0/183	0.0% (0.0-0.0)

Table 98 : Fortified Blended Foods (CSB++) Intake in Children aged 6-23 Months -Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	60/182	33.0% (26.2-40.3)

Table 99: Lipid based Nutrient Supplements intake in children 6-23 months- Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive LNS	60/182	33.0% (26.2-40.3)

Table 100: Micronutrient powder intake in children 6-23 months- Yusuf Batil refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive MNP	14/182	7.7% (4.3-12.6)

3.31. Anaemia Women 15-49 Years Results in Yusuf Batil camp.

Table 101: Women Physiological Status and Age - Yusuf Batil refugee camp.

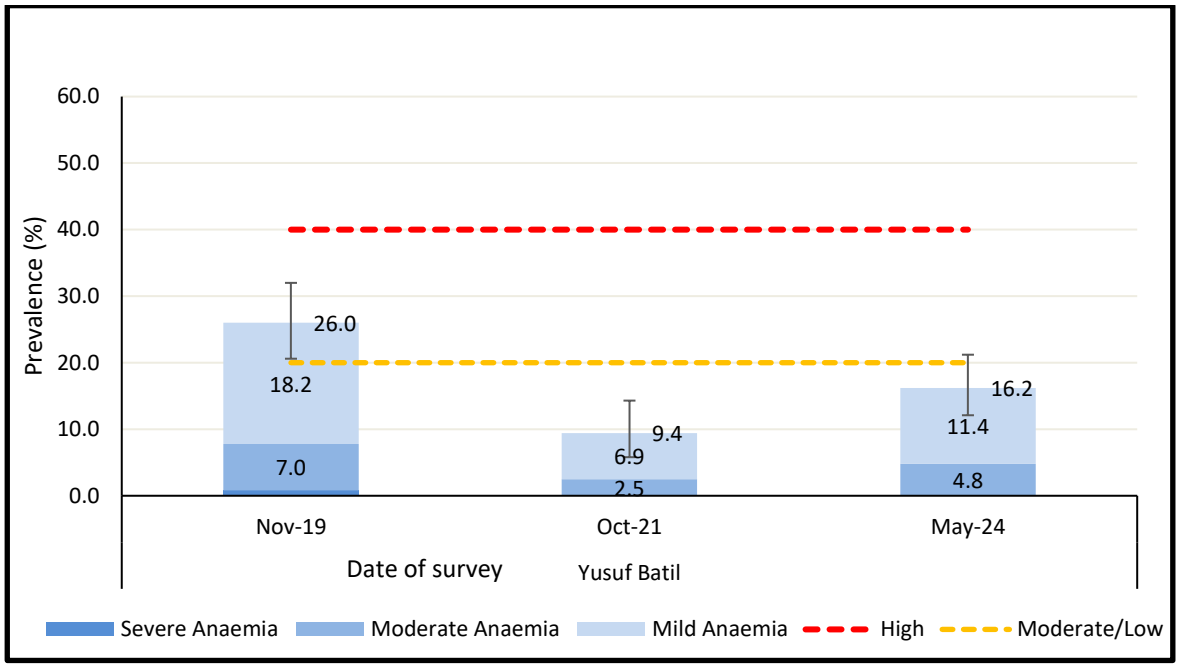
Physiological status	Number/total	% of sample
Non-pregnant	271/294	92.2% (88.5-95.0)
Pregnant	23/294	7.8% (5.0-11.5)
Mean age (SD/range)	27.6 (9.5) [15.0-49.0]	

Table 102 : Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Yusuf Batil refugee camp.

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 271
Total Anaemia (<12.0 g/dL)	(44) 16.2% (12.1-21.2)
Mild Anaemia (11.0-11.9 g/dL)	(31) 11.4% (7.9-15.8)
Moderate Anaemia (8.0-10.9 g/dL)	(13) 4.8% (2.6-8.1)
Severe Anaemia (<8.0 g/dL)	(0) 0.0% (0.0-0.0)

Mean Hb (g/dL) [range]	13.0 (1.2) [8.5-15.9]

Figure 28 : Trends in anaemia categories in women of reproductive age (non-pregnant) from 2019 to 2024 - Yusuf Batil refugee camp.



The proportion of mild and moderate anaemia among non pregnant women of reproductive age increased in 2024 compared to 2021 (16.2% in 2024 vs 9.4% in 2021).

Table 103: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years) - Yusuf Batil refugee camp.

	Number /total	% (95% CI)
Currently enrolled in ANC programme	21/23	91.3 (72.0-98.9)
Currently receiving iron-folic acid pills	20/23	87.0 (66.4-97.2)

Table 104: BSFP enrollment coverage among pregnant and lactating women (15-49 years) – Yusuf Batil refugee camp

	Number /total	% (95% CI)
Currently enrolled in BSFP	43/54	79.6% (66.5-89.4)

3.32. Demography

Household size and composition

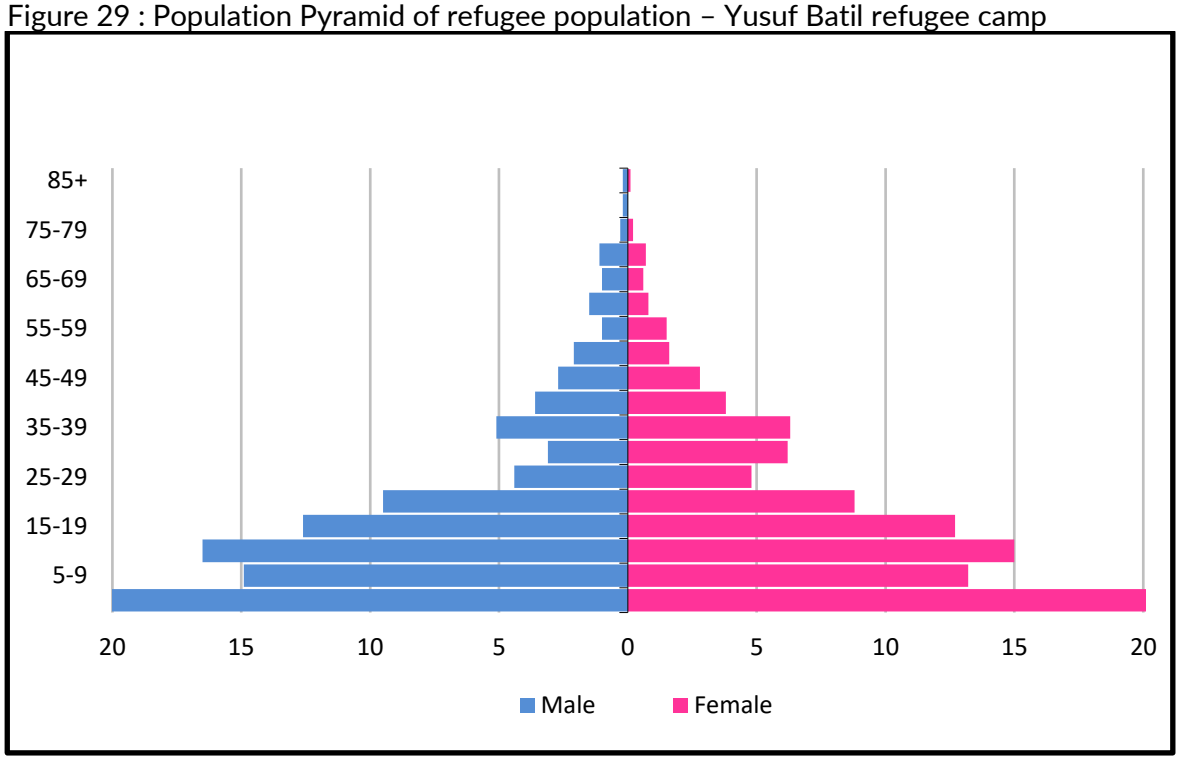
Table105. Demographic characteristics, household size and composition of the surveyed population – Yusuf Batil refugee camp

Household size and composition	Results
Population size – Total persons (ProGres 31st March 2024)	53,630
Total households surveyed	406
Total population surveyed	2759
Total U2 in surveyed households	238

Total U5 in surveyed households		568
Average household size		6.8
Household size categories	1-4 person(s)	20.9%
	5-6 persons	27.1%
	7-9 persons	34.0%
	≥ 10 persons	18.0%
Household composition	Children under two	0.6
	Children under five	1.4
	Children aged 5-14 years	2.0
	Members aged 15-64 years	3.2
	Members aged 65 years and above	0.2
Percent of children U2	%	8.6%
Percent of children U5	%	20.6%
Percent pregnant women (15-49 years)	%	1.3%
Percent of elders (65 years and above)	%	2.2%
Sex ratio	Male/Female	0.96

Overall, male to female sex ratio was 0.96. This implies the higher proportion of the population is female than male. The percentage of children under five was 20.6%, elders (65 years and above) was 2.2%, and and the average household size is 6.8.

Figure 29 : Population Pyramid of refugee population – Yusuf Batil refugee camp



The population pyramid is strongly lean to children between 0 months to 19 years. Among children and teenages up to 19 years old, the population of males (64.1%) is slightly more than the population of females (62.0%). However, among population

of aged between 20 to 59 years old, there are more females (35.7%) than males (31.5%). One probable contributing factor could be the higher rate of out migration in search for livelihood opportunities. The dependency ratio in Yusuf Batil refugee camp is 22.8%. This suggests there is a lesser burden on the family economic situation as there are more working members of the households.

Household head profile

Table 106. Household head profile – Yusuf Batil refugee camp

	Number/total	% (95% CI)
Female headed households (working age 15-64 years)	223/404	50.3 (45.4-55.1)
Male headed households (working age 15-64 years)	169/404	41.8 (37.1-46.7)
Children headed households (under 15 years)	1/404	0.3 (0.0-1.4)
Elderly headed households (65 years and above)	31/404	7.7 (5.5-10.7)
Mean age of household head in years (SD) [range]	42.6 (13.2) [6-86]	

A higher proportion of the households are headed by females (50.3%) than males (41.8%).

Food security

Access to food assistance in Yusuf Batil refugee camp.

Table 107. Food assistance ration card and cash coverage – Yusuf Batil refugee camp

	Number/total	% (95% CI)
Proportion of households with a ration card	207/207	100.0% (98.2-100)
Proportion of households receiving cash grants & inkind	207/207	100% (98.2-100.0)

All the surveyed households had ration cards and received food assistance (cash grants and in-kind food assistance) for the month (April) prior to the survey.

Table 108: Reported duration of general food ration

	Number/total	% (95% CI)
Average number of days general food ration lasts out days (mean, S.D/range)	207	8.3 (4.6) [1-20]

The food and cash received from GFD in the month prior to the survey was reported to last 8.3 days out of the distribution cycle of 30 days.

Table 109. Description of utilisation of cash assistance – Yusuf Batil refugee camp

Proportion of households that use cash grants for:	Number/total	% (95% CI)
Food	205/207	99.0% (96.6-99.9)
Water	1/207	0.5% (0.0-2.7)
Hygiene items, clothes, shoes	121/207	58.5% (51.4-65.2)

Health costs (including medicines)	14/207	6.8% (3.8-11.1)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	0/207	0.0% (0.0-0.0)
Firewood / fuel for cooking or heating	23/207	11.1% (7.2-16.2)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	9/207	4.4% (2.0-8.1)
Debts repayment	25/207	12.1% (8.0-17.3)
Saved some money, gave some to other family members, relatives, friends	0/207	0.0% (0.0-0.0)
Education (e.g. school fees, uniform, books)	4/207	1.9% (0.5-4.9)
Other	0/207	0.0% (0.0-0.0)

Most families reported spending the received money on food (99.0%), followed by hygiene items (58.5%), and then debts repayment (12.1%).

Coverage of basic needs

Table 110. Description of basic needs not met by the households – Yusuf Batil refugee camp.

Basic needs not met by the households:	Number/total	% (95% CI)
Food	176/207	85.0% (79.4-89.6)
Water	1/207	0.5% (0.0-2.7)
Hygiene items, clothes, shoes	167/207	80.7% (74.6-85.8)
Health costs (including medicines)	35/207	16.9% (12.1-22.7)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	28/207	13.5% (9.2-19.0)
Firewood / fuel for cooking or heating	18/207	8.7% (5.2-13.4)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	36/207	17.4% (12.5-23.2)
Debts repayment	18/207	8.7% (5.2-13.4)
Saved some money, support other family members, relatives, friends	5/207	2.4% (0.8-5.6)
Education (e.g. school fees, uniform, books)	49/207	23.7% (18.1-30.1)
Other	10/207	4.8% (2.3-8.7)

The category of basic needs that cannot be met reported the most are: food, hygiene items, education (stationaries), and health cost for medicines.

Negative household coping strategies

FDSPs receive 50% of food assistance monthly provided through general distribution conducted by Samaritan Purse, a WFP partner. The modality of distribution was cash during the survey period. However, a mixed approach is always used in Maban depending on the situation. The food basket comprised of cereals, lentils, cooking oil, and cash for milling and salt. Should be noted the cash transfer value varies from one month to other depending on the prices of commodities in Maban markets prior to the actual GFD days.

To fill the food gaps, the FDSPs mentioned different types of strategies as shown on table below to cope with the situation.

Table 111. Coping strategies used by the surveyed population over the past month – Doro refugee camp.

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Rely on less preferred and/or less expensive foods	205/207	99.0% (96.6-99.9)
Borrow food, or rely on help from a friend or relative	168/207	81.2% (75.2-86.3)
Reduce the number of meals eaten in a day	190/207	91.8% (87.2-95.1)
Limit portion sizes at mealtime	199/207	96.1% (92.5-98.3)
Reduce consumption by adults so children could eat	140/207	67.6% (60.8-74.0)
Average rCSI (mean, SD / range)	207	18.1 (10.9) [0-9]
Proportion of households reporting using none of the negative coping strategies over the past month	2/207	1.0% (0.1-3.5)

* The total was over 100% as households used several negative coping strategies.

Reported coping strategies applied due to lack of food or money to buy food were relying on less preferred or less expensive foods and limiting portion sizes at mealtime. Only 1.0% of households were not under significant stress to meet their food needs as indicated by the proportion of household using none of the negative coping strategies over the past month prior to the survey.

The average reduced Coping Strategy Index (rCSI) score was 18.1% and this situation indicates the FDSPs in Yusuf Batil camp rely on multiple types of coping strategies. Use of this for longer period will lead them towards chronic food insecurity.

Food Consumption Score (FCS)

April 2024 GFD cycle was considered the last general food distribution prior to the survey. In Yusuf Batil camp, general food distribution lasts for utmost a week due to its population size and distribution is organized by family sizes. For the first time in the refugee camp, the survey was conducted during lean season where overall food availability is limited thus likely that the household dietary diversity score is lower than it would be.

Table 112. Food consumption score by category and average FCS – Yusuf Batil refugee camp

FCS profiles	Number/total	% (95% CI)
Acceptable (FCS > 35)	73/207	35.3% (28.8-42.2)
Borderline (21.5≤FCS≤35)	62/207	30.0% (23.8-36.7)
Poor (FCS≤21)	72/207	34.8% (28.3-41.7)
Average FCS (SD) [range]	207	28.9 (14.6) [0-9.5]

*Maximum FCS is 112.

The average FCS among refugees in Yusuf Batil camp was 28.9 out of total score of 112, which falls into the borderline category. This is echoed by most households having FCS score classified as borderline.

Table 113. Consumption frequency categories of each nutrient rich food groups (FCS-N) – Yusuf Batil refugee camp

Nutrient rich food groups	Consumption frequency categories	Number/total	% (95% CI)
Vitamin A rich foods	Never	93/207	44.9% (38.0-52.0)
	Sometimes	92/207	44.4% (37.6-51.5)
	At least daily	22/207	10.6% (6.8-15.7)
Protein rich foods	Never	34/207	16.4% (11.7-22.2)
	Sometimes	124/207	59.9% (52.9-66.6)
	At least daily	49/207	23.7% (18.1-30.1)
Haem iron rich foods	Never	87/207	42.0% (35.2-49.1)
	Sometimes	104/207	50.2% (43.2-57.3)
	At least daily	16/207	7.7% (4.5-12.3)

In terms of the nutrient rich food, 55.0% households reported consumed Vitamin A rich foods (sometimes or daily), 83.6% reported consumed protein rich foods, while only 57.9% reported consumed Haem iron rich foods.

Table 114. Food acquisition sources – Yusuf Batil refugee camp

Food acquisition sources	Number/total	% (95% CI)
Purchase (using cash grants and/or with their own cash)	135/207	65.2% (58.3-71.7)
Own production (crops, livestock, fishing/ hunting, gathering)	7/207	3.4% (1.4-6.8)
Traded goods/services, barter	1/207	0.5% (0.0-2.7)
Borrowed (loan/credit from traders)	35/207	16.9% (12.1-22.7)
Received as gift (from family relatives or friends/neighbour)	1/207	0.5% (0.0-2.7)
In-kind or voucher based food assistance	28/207	13.5% (9.2-19.0)

The main source for food reported was through purchasing (65.2%), borrowing (16.9%), and in-kind food assistance (13.5%).

3.6. Household Mosquito net ownership and utilization

Table 115. Household Mosquito net ownership

	Number/total	% (95% CI)
Household owning at least one mosquito net of any type	86	41.2% (34.4-48.2)
Household owning at least one mosquito net of LLIN type	75	35.9% (29.4-42.8)

Table 116. Number of nets

Average number of LLINs per household	Average number of persons per LLIN
1.4	6.4

Table 117. Mosquito net utilization

	Proportion of total population (all ages)		Proportion of children 0-59 months		Proportion of pregnant women	
	Total# 1342	%	Total # 273	%	Total# 20	%
Slept under net of any type	356	26.5	116	42.5	12	60.0
Slept under LLIN	303	22.6	95	34.8	9	45.0

Proportion of household owning at least one mosquito net of any type and LLIN type in Yusuf Batil camp was 41.0% and 35.7% respectively leading to increased number of persons per mosquito net (4.1 per mosquito net of any type and 6.4 per LLIN mosquito net) which is beyond the recommended UNHCR standard (2 persons/LLIN).

Table 118. Indoor Residual Spraying

	Number/total	% (95% CI)
Proportion of households covered by Indoor Residual Spraying (IRS)	31/209	14.8% (10.3-20.4)

The IRS coverage was 14.8% and this was due to no IRS conducted within the last six months in the camp.

3.3 GENDRASSA *FROM* REFUGEE CAMP.

Below table shows the anthropometric measurements taken from a total of number of children surveyed in Gendrassa refugee camp verses the targeted children in the survey. The SENS guideline recommends that at least 80% of the targeted children to be surveyed. All the children who participated in the survey were considered using either available official age documentation or age estimation from local context calendar of event developed to estimate the age. Of the total surveyed children 6-59 months in Gendrassa refugee camp, 81% had official age documentation. See table below for details.

Table 120 : Target and actual number captured-Gendrassa refugee camp, South Sudan. (May 2024)

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	314	461	146.8%

Anthropometric results (based on WHO Growth standards 2006)

Table 121 : Distribution of age and sex of sample - Gendrassa refugee camp.

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	60	53.1	53	46.9	113	24.4	1.1
18-29	58	53.2	51	46.8	109	23.5	1.1
30-41	57	50.4	56	49.6	113	24.4	1.0
42-53	42	48.3	45	51.7	87	18.8	0.9
54-59	25	61.0	16	39.0	41	8.9	1.6
Total	242	52.3	221	47.7	463	100.0	1.1

The overall sex ratio of boys: girls was 1.1 indicating both sexes were equally represented. The distribution of the assessed children by age and sex shows an overall sex ratio of boys: girls 1.1 indicating that both sexes were equally represented in the survey.

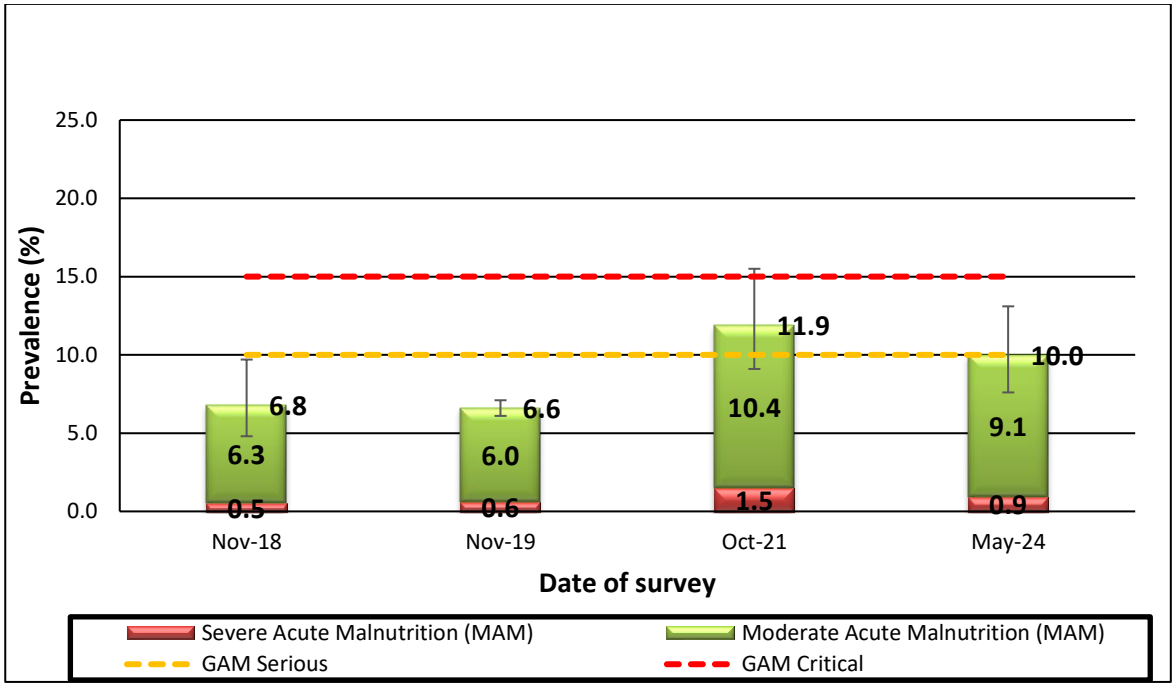
Table 122 : Prevalence of acute malnutrition based on weight-for-height z-scores and/or oedema and by sex - Gendrassa refugee camp.

	All n = 461	Boys n = 241	Girls n = 220
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(46) 10.0 % (7.6 - 13.1 95% C.I.)	(27) 11.2 % (7.8 - 15.8 95% C.I.)	(19) 8.6 % (5.6 - 13.1 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(42) 9.1 % (6.8 - 12.1 95% C.I.)	(23) 9.5 % (6.4 - 13.9 95% C.I.)	(19) 8.6 % (5.6 - 13.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(4) 0.9 % (0.3 - 2.2 95% C.I.)	(4) 1.7 % (0.6 - 4.2 95% C.I.)	(0) 0.0 % (0.0 - 1.7 95% C.I.)

The prevalence of oedema was 0.0% and the data excluded SMART flags. Prevalence of Global Acute Malnutrition based on WFH z-score and/or oedema and by sex, was 10.0% (7.6-13.1 95% C.I.), and the Severe Acute Malnutrition rate was 0.9% (0.3-2.2 95% C.I.) GAM prevalence indicates high (serious situation) according to the WHO classification of acute malnutrition.

Based on the CI indicated in the prevalence of acute malnutrition between boys and girls as estimated by Weight for Height Z-score all were equally wasted.

Figure 30 : Trends in the prevalence of global and severe acute malnutrition based on WHO Growth standards in children 6-59 months from 2018 to 2024 - Gendrassa refugee camp.



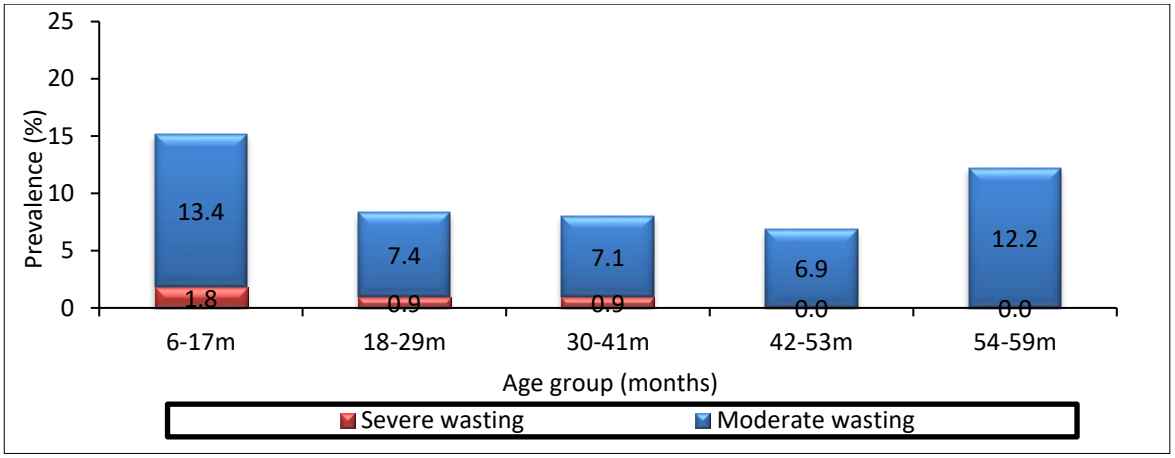
The prevalence of Global and Severe Acute Malnutrition based on WHO **G**rowth standards among children 6-59 month in 2024 decreased as compared to 2021 in Gendrassa refugee camp. However, the decrease is not significant thus indicating still a deteriorating situation in the camp.

Table 123 : Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema in Gendrassa refugee camp.

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	112	2	1.8	15	13.4	95	84.8	0	0.0
18-29	108	1	0.9	8	7.4	99	91.7	0	0.0
30-41	113	1	0.9	8	7.1	104	92.0	0	0.0
42-53	87	0	0.0	6	6.9	81	93.1	0	0.0
54-59	41	0	0.0	5	12.2	36	87.8	0	0.0
Total	461	4	0.9	42	9.1	415	90.0	0	0.0

The prevalence of acute malnutrition (WHZ<-2 and/or oedema) by age shows that younger children in the age catergories 6-17 months were the most affected by severe and moderate acute malnutrition.

Figure 31 : Trend in the Prevalence of Wasting By Age in Children 6-59 Months - Gendrassa refugee camp.



Children 6-17 are the most affected age groups by wasting in Gendrassa refugee camp indicating higher vulnerability of these age category.

Table124 : Distribution of acute malnutrition and oedema based on weight-for-height z-scores

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)
Oedema absent	Marasmic No. 4 (0.9 %)	Not severely malnourished. 459 (99.1 %)

During the survey, no case of oedema was identified. However, there were 4 marasmic cases with no oedema as shown in table above.

Figure 32 : Distribution of weight-for-height z-scores (based on WHO Growth standards ; the reference population is shown in green and the surveyed population in red) of the surveyed population compared to the international WHO Standard population (reference population) of children aged 6-59 months.

The graphical figure shows that the distribution for weight-for-height z-scores for the surveyed sample shifted/deviated to the left. This indicates that the nutrition status of the surveyed population is poor compared to the WHO reference population.

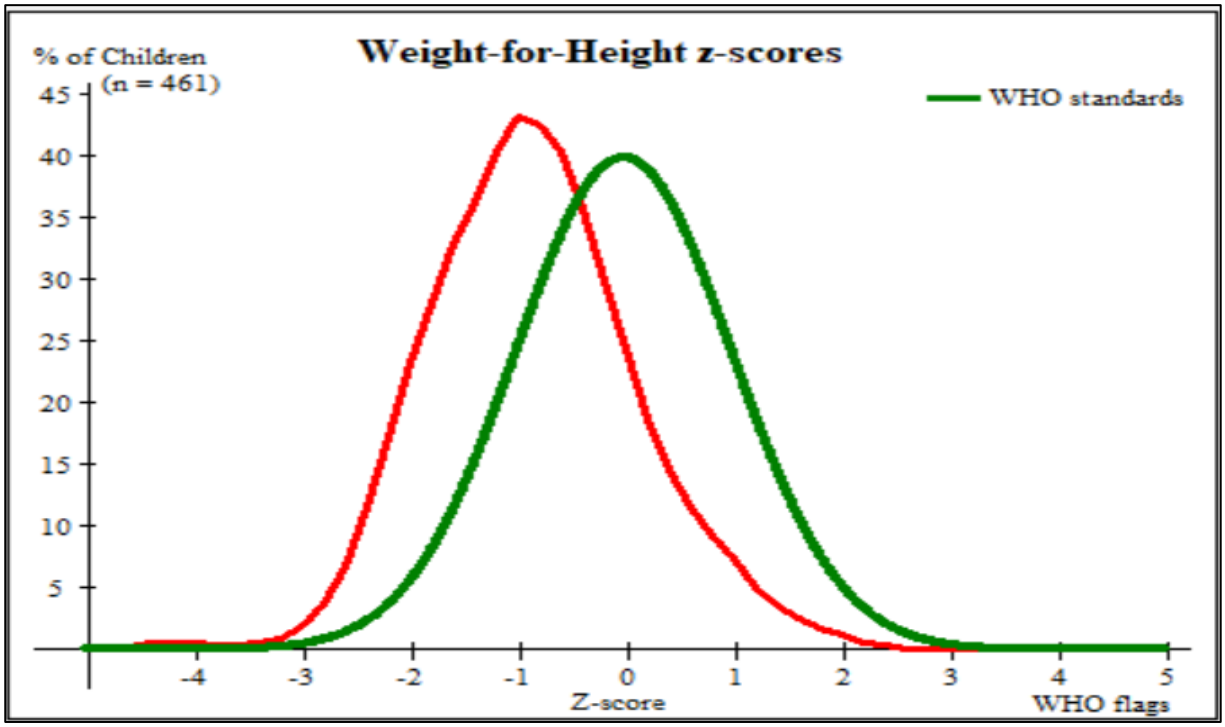


Table 125 : Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex - Gendrassa refugee camp.

	All n = 464	Boys n = 243	Girls n = 221
Prevalence of global malnutrition (< 125 mm and/or oedema)	(10) 2.2 % (1.2 - 3.9 95% C.I.)	(4) 1.6 % (0.6 - 4.2 95% C.I.)	(6) 2.7 % (1.3 - 5.8 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(8) 1.7 % (0.9 - 3.4 95% C.I.)	(4) 1.6 % (0.6 - 4.2 95% C.I.)	(4) 1.8 % (0.7 - 4.6 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.4 % (0.1 - 1.6 95% C.I.)	(0) 0.0 % (0.0 - 1.6 95% C.I.)	(2) 0.9 % (0.2 - 3.2 95% C.I.)

As indicated in the above table, the prevalence of acute malnutrition using MUAC is significantly lower compared to using Weight for Height Z-scores. Studies on the concordance between estimates of wasting measured by weight-for-height and by MUAC generally indicate great variation between these two measurements mainly because of variations in the body shape, age, and gender among various surveyed populations.

Though MUAC measurements is being used in the community to monitor malnutrition trends and for admissions and discharge in the therapeutic and supplementary feeding nutrition programmes, good indicator of risk of mortality in children under five, and is easy to do, it is therefore recommended that both criteria are used in anthropometric surveys.

Table 126: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by age - Gendrassa refugee camp.

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	114	1	0.9	6	5.3	107	93.9	0	0.0
18-29	109	1	0.9	2	1.8	106	97.2	0	0.0
30-41	113	0	0.0	0	0.0	113	100.0	0	0.0
42-53	87	0	0.0	0	0.0	87	100.0	0	0.0
54-59	41	0	0.0	0	0.0	41	100.0	0	0.0
Total	464	2	0.4	8	1.7	454	97.8	0	0.0

Younger children aged 6-17 months were more affected by both severe and moderate acute malnutrition based on MUAC. This may be attributed to inadequate feeding practices among these children.

Table 127: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex- Gendrassa refugee camp

	All n = 463	Boys n = 242	Girls n = 221
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(50) 10.8 % (8.3 - 14.0 95% C.I.)	(27) 11.2 % (7.8 - 15.7 95% C.I.)	(23) 10.4 % (7.0 - 15.1 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(6) 1.3 % (0.6 - 2.8 95% C.I.)	(4) 1.7 % (0.6 - 4.2 95% C.I.)	(2) 0.9 % (0.2 - 3.2 95% C.I.)

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

The prevalence of combined GAM among children aged 6-59 months in Gendrassa refugee camp was 10.8% (8.3-14.0 95% CI) as indicated in the table above. Although there is no globally accepted threshold for combined GAM and SAM, the observed prevalence of combined GAM was higher than the prevalence of WHZ or and MUAC on their own, implying that the combined GAM and MUAC indicator identified more acutely malnourished children.

Table 128: Detailed numbers for combined GAM and SAM-Gendrassa refugee camp

	GAM		SAM	
	no.	%	no.	%
MUAC	4	0.9	2	0.4
WHZ	40	8.6	4	0.9
Both	6	1.3	0	0.0
Edema	0	0.0	0	0.0
Total	50	10.8	6	1.3

Total population: 463

Table 129 : Prevalence of underweight based on weight-for-age z-scores by sex - Gendrassa refugee camp.

	All n = 463	Boys n = 242	Girls n = 221
Prevalence of underweight (<-2 z-score)	(81) 17.5 % (14.3 - 21.2 95% C.I.)	(49) 20.2 % (15.7 - 25.8 95% C.I.)	(32) 14.5 % (10.4 - 19.7 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(71) 15.3 % (12.3 - 18.9 95% C.I.)	(42) 17.4 % (13.1 - 22.6 95% C.I.)	(29) 13.1 % (9.3 - 18.2 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(10) 2.2 % (1.2 - 3.9 95% C.I.)	(7) 2.9 % (1.4 - 5.8 95% C.I.)	(3) 1.4 % (0.5 - 3.9 95% C.I.)

The prevalence of underweight among children aged 6-59 months was 17.5% (14.3-21.2 95% C.I.) with 2.2% (1.2-3.9 95% C.I.) being severely underweight. Both boys and girls were affected by underweight.

Table 130 : Prevalence of underweight by age, based on weight-for-age z-scores in Gendrassa refugee camp.

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	113	3	2.7	21	18.6	89	78.8	0	0.0
18-29	109	2	1.8	16	14.7	91	83.5	0	0.0
30-41	113	3	2.7	18	15.9	92	81.4	0	0.0
42-53	87	2	2.3	9	10.3	76	87.4	0	0.0
54-59	41	0	0.0	7	17.1	34	82.9	0	0.0
Total	463	10	2.2	71	15.3	382	82.5	0	0.0

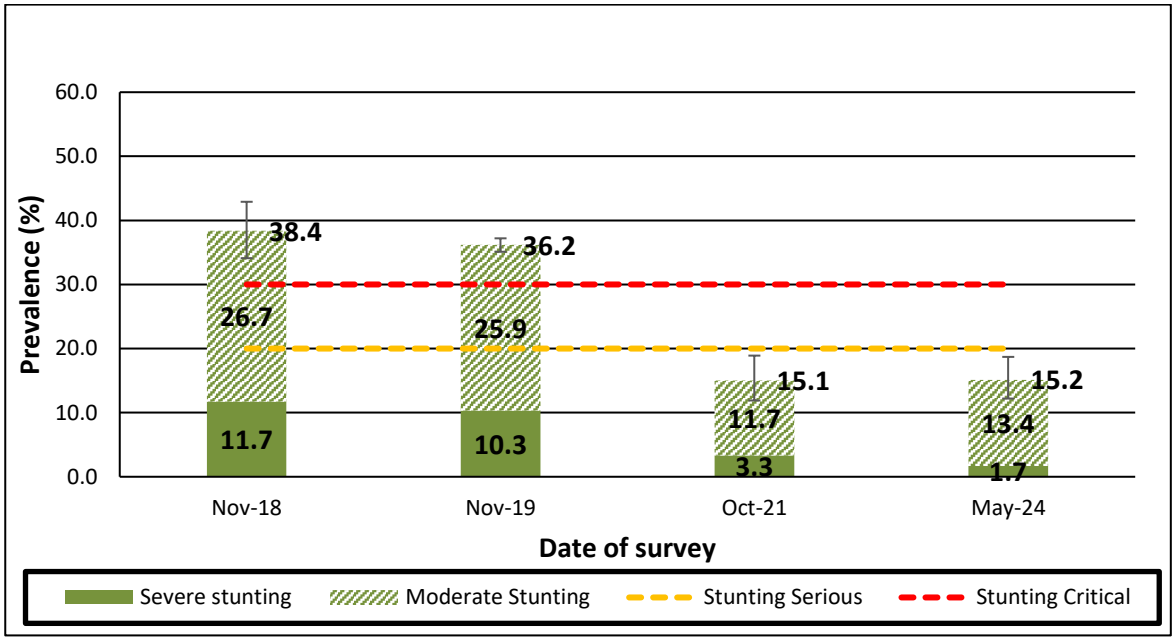
Prevalence of underweight by age shows children in the age group of 6-17 months were most affected by both severe and moderate underweight. Generally, younger children aged 6-17 months were more susceptible to both severe and moderate underweight.

Table 131: Prevalence of stunting based on height-for-age z-scores and by sex - Gendrassa refugee camp.

	All n = 462	Boys n = 242	Girls n = 220
Prevalence of stunting (<-2 z-score)	(70) 15.2 % (12.2 - 18.7 95% C.I.)	(42) 17.4 % (13.1 - 22.6 95% C.I.)	(28) 12.7 % (9.0 - 17.8 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(62) 13.4 % (10.6 - 16.8 95% C.I.)	(39) 16.1 % (12.0 - 21.3 95% C.I.)	(23) 10.5 % (7.1 - 15.2 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(8) 1.7 % (0.9 - 3.4 95% C.I.)	(3) 1.2 % (0.4 - 3.6 95% C.I.)	(5) 2.3 % (1.0 - 5.2 95% C.I.)

The rate of stunting in Gendrassa camp was 15.2% (12.2-18.7 95% C.I.) and severe stunting was 1.7% (0.9-3.4 95% C.I.). This result is classified as medium (poor situation) according to the WHO classification. Boys had a higher stunting rate 17.4% (13.1-22.6 95% C.I.) than girls 12.7% (9.0-17.8) but the difference in stunting by gender was not statistically significant.

Figure 33 : Trends in the prevalence of global, moderate, and severe stunting based on WHO Growth standards in children 6-59 months from 2018 to 2024 - Gendrassa refugee camp.



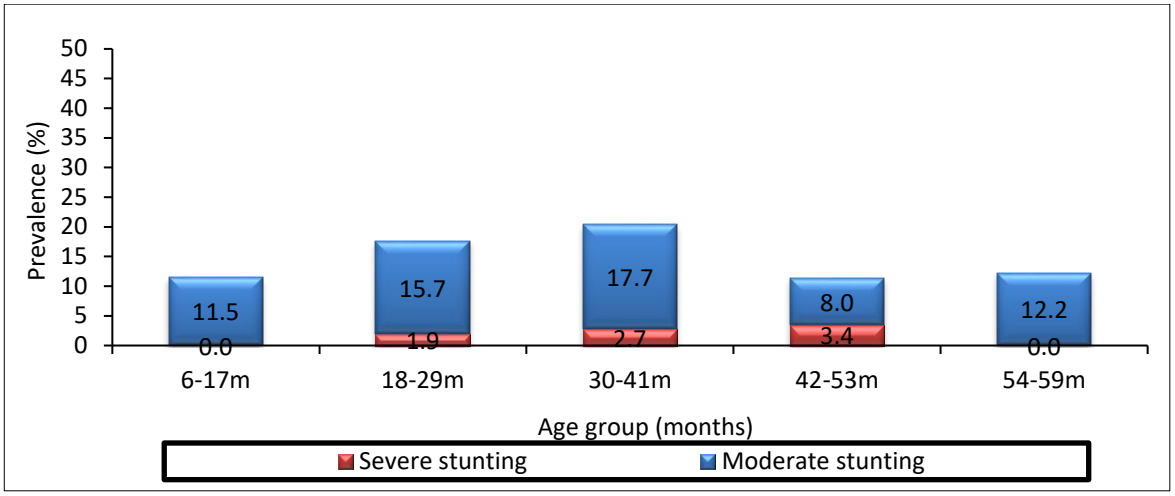
Stunting prevalence in 2024 remained the same as compared to 2021. However, the prevalence is below the WHO threshold of 40%.

Table 132 : Prevalence of stunting by age based on height-for-age z-scores - Gendrassa refugee camp.

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	113	0	0.0	13	11.5	100	88.5
18-29	108	2	1.9	17	15.7	89	82.4
30-41	113	3	2.7	20	17.7	90	79.6
42-53	87	3	3.4	7	8.0	77	88.5
54-59	41	0	0.0	5	12.2	36	87.8
Total	462	8	1.7	62	13.4	392	84.8

Stunting prevalence by age indicates that children in the age category 6-17 and 42-53 months were more affected by moderate and severe stunting respectively. However, overall, children aged 30-41 months are the most affected age category.

Figure 34: Trends in the prevalence of stunting by age in children 6-59 months - Gendrassa refugee camp.



Children aged 30-41 months are the most affected by stunting.

Table 133: Prevalence of overweight based on weight for height cut offs and by sex (no oedma) - Gendrassa refugee camp.

	All n = 461	Boys n = 241	Girls n = 220
Prevalence of overweight (WHZ > 2)	(1) 0.2 % (0.0 - 1.2 95% C.I.)	(0) 0.0 % (0.0 - 1.6 95% C.I.)	(1) 0.5 % (0.1 - 2.5 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(0) 0.0 % (0.0 - 0.8 95% C.I.)	(0) 0.0 % (0.0 - 1.6 95% C.I.)	(0) 0.0 % (0.0 - 1.7 95% C.I.)

Table 134: Prevalence of overweight by age, based on weight for height (no oedema) - Gendrassa refugee camp.

		Overweight (WHZ > 2)		Severe Overweight (WHZ > 3)	
Age (mo)	Total no.	No.	%	No.	%
6-17	112	1	0.9	0	0.0
18-29	108	0	0.0	0	0.0
30-41	113	0	0.0	0	0.0
42-53	87	0	0.0	0	0.0
54-59	41	0	0.0	0	0.0
Total	461	1	0.2	0	0.0

Table 135 : Mean z-scores, Design Effects and excluded subjects - Gendrassa refugee camp.

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	461	-0.86±0.95	1.00	0	2
Weight-for-Age	463	-1.19±0.88	1.00	0	0
Height-for-Age	462	-1.11±0.87	1.00	0	1

* contains for WHZ and WAZ the children with edema.

The mean Z scores for wasting (WHZ), underweight (WAZ) and stunting (HAZ) were -0.86±0.95, -1.19±0.88, and -1.11±0.87 respectively. All indicate a poorer nutrition situation compared to WHO reference population. The standard deviations for all the three nutrition indicators including WHZ, WAZ, and HAZ were within the acceptable range of 0.8-1.2 which indicates that the survey data was of high quality.

Feeding Programme Enrollment Coverage

Selective feeding programme

Table 136 **:** Programme enrollment for Acutely Malnourished Children Based on all admission criteria (MUAC, WHZ and/or oedema) -Gendrassa refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	1/5	20.0% (0.5-71.6)
Supplementary feeding programme (TSFP) enrolment	7/45	15.6% (6.5-29.5)

Table 137 **:** Programme enrollment for acutely malnourished children based on MUAC and/or oedema only -Gendrassa refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	0/1	0.0% (0.0-0.0)
Supplementary feeding programme (TSFP) enrolment	3/8	37.5% (8.5-75.5)

The enrollment coverage based on both admission criteria and using MUAC and/or oedema only for both OTP and TSFP was below the standard of ≥ 90%.

Table 138: BSFP enrollment coverage for children 6-59 months - Gendrassa refugee camp

	Number/Total	% (95% CI)
Blanket feeding programme enrolment	144/160	90.0% (84.3-94.2)
Product name	Lipid based Nutrient Supplements-MQ	
Target age group	6-23 months	

The BSFP enrollment coverage for children aged 6-23 months in Gendrassa refugee camp was 90.0%.

Measles vaccination coverage results

Table 139 : Measles vaccination coverage for children aged 9-59 months (N=433) - Gendrassa refugee camp.

	Number/total	% (95% CI)
Measles vaccination with card	246/433	56.8% (52.1-61.4)
Measles vaccination with confirmation from mother	176/433	40.7 (36.1-45.3)
Measles vaccination with card or confirmation from mother	422/433	97.5% (95.5-98.6)

The survey findings indicated that the proportion of all children aged 9-59 months who had received measles vaccination was 97.5% (95.5-98.6). This meets the recommended standard of ≥ 95%.

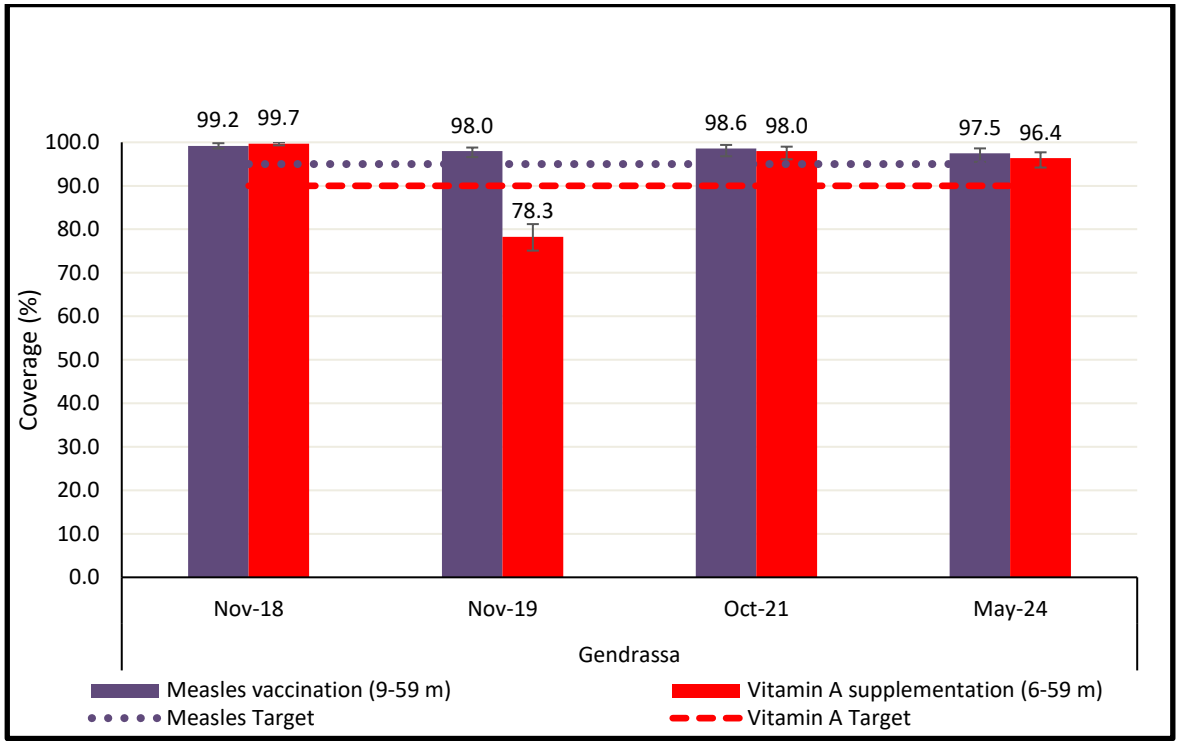
Vitamin A supplementation coverage results

Table 140 : Vitamin A supplementation for children aged 6-59 months within past 6 months (N= 466) - Gendrassa refugee camp.

	Number/total	% (95% CI)
Vitamin A supplementation in the last 6 months with card	196/466	42.1% (37.7-46.6)
Vitamin A supplementation in the last 6 months with confirmation from mother	253/466	54.3% (49.8-58.8)
Vitamin A supplementation in the last 6 months with card or confirmation from mother	449/466	96.4% (94.2-97.7)

The survey findings indicated that the proportion of all children aged 6-59 months who had received vitamin A in the last 6 months was 96.4% (94.2-97.7). This meets the recommended standard of ≥ 90%.

Figure 35 : Trends in the coverage of Measles vaccination and Vitamin A supplementation in last 6 months in children 6-59 months from 2018 to 2024 - Gendrassa refugee camp.



Diarrhoea Results

Table 141 : Period Prevalence of Diarrhoea - Gendrassa refugee camp.

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	39/463	8.4% (6.2-11.3)

8.4% (6.2-11.3) of the surveyed children had diarrhoea (3 or more times loose or watery stools in a day) in the past two weeks preceding the survey.

Table 142: use of ORS and Zinc during diarrhoea episode

	Number/total	% (95% CI)
ORS use during diarrhoea episode	34/38	89.5% (75.2-97.1)
Zinc tablet or syrup use during diarrhoea episode	33/38	86.8% (71.9-95.6)

Among the surveyed children who had diarrhoea, 89.5% were treated with ORS while 86.8% were treated with Zinc.

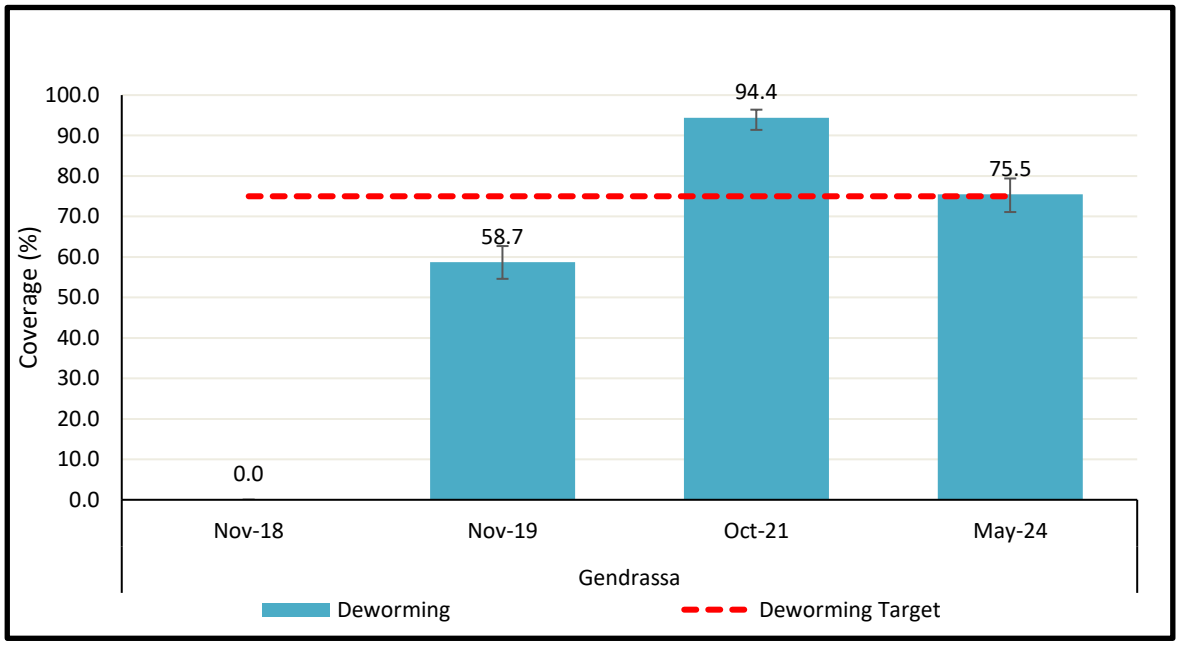
Deworming

Table 143: Deworming coverage - Gendrassa refugee camp.

	Number/total	% (95% CI)
Children received a deworming tablet in the last six months (12-59 months)	308/408	75.5% (71.1-79.4)

75.5% of children aged 12-59 months received deworming tablet in the last 6 months prior to the survey in Gendrassa refugee camp. The coverage meets the recommended standard of (≥75%).

Figure 36: Trends in the coverage of deworming in last 6 months in children 12-59 months from 2018 to 2024 - Gendrassa refugee camp



Anaemia Children 6 - 59 months

The total anaemia prevalence among children 6 to 59 months is of high public health significance (32.8%). Children of 6-23 months were the most affected with prevalence of 54.1% above WHO threshold of 40% compared to the 24-59 months age category (22.1%).

Table 144 : Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group - Gendrassa refugee camp.

	6-59 months n= 436	6-23 months n=146	24-59 months n=290
Total Anaemia (Hb<11.0 g/dL)	(143) 32.8% (28.6-37.3)	(79) 54.1% (45.7-62.4)	(64) 22.1% (17.4-27.3)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(92) 21.1% (17.5-25.2)	(39) 26.7% (19.7-34.7)	(53) 18.3% (14.0-23.2)
Moderate Anaemia (7.0-9.9 g/dL)	(49) 11.2% (8.6-14.6)	(38) 26.0% (19.1-33.9)	(11) 3.8% (1.9-6.7)
Severe Anaemia (<7.0 g/dL)	(2) 0.5% (0.1-1.7)	(2) 1.4% (0.2-4.9)	(0) 0.0% (0.0-0.0)
Mean Hb (g/dL) [SD/range]	11.4 (1.2) [6.8-14.9]	10.7 (1.3) [6.8-14.9]	11.7 (1.0) [8.8-14.3]

Figure 37: Trends in anaemia categories in children 6-59 months from 2019 to 2024 - Gendrassa refugee camp.

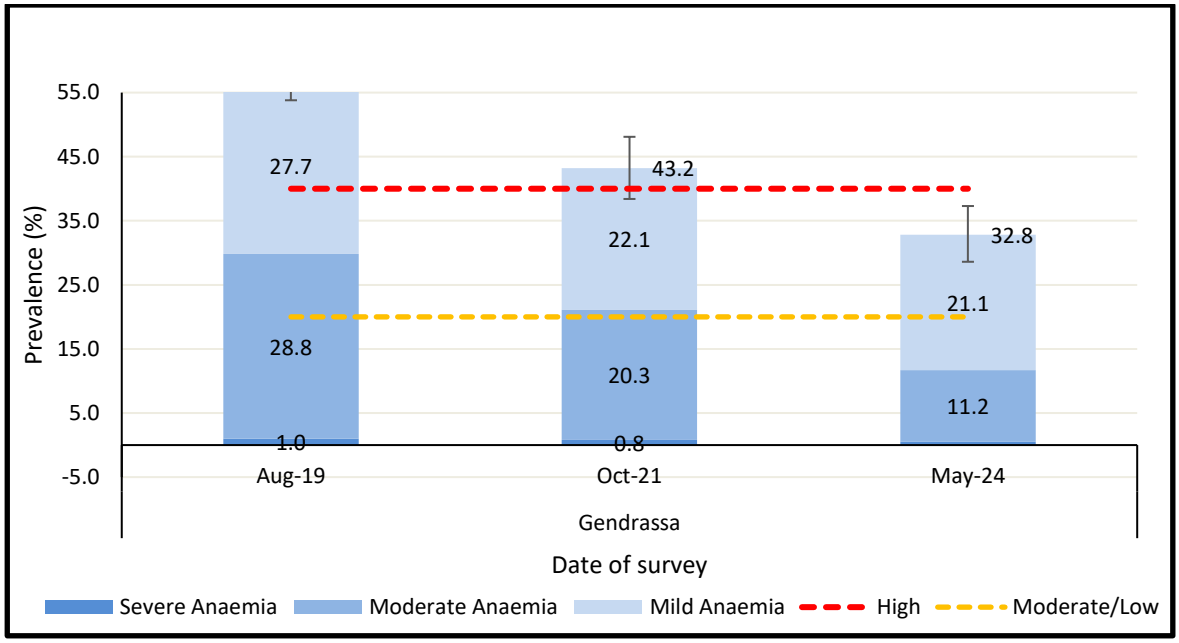
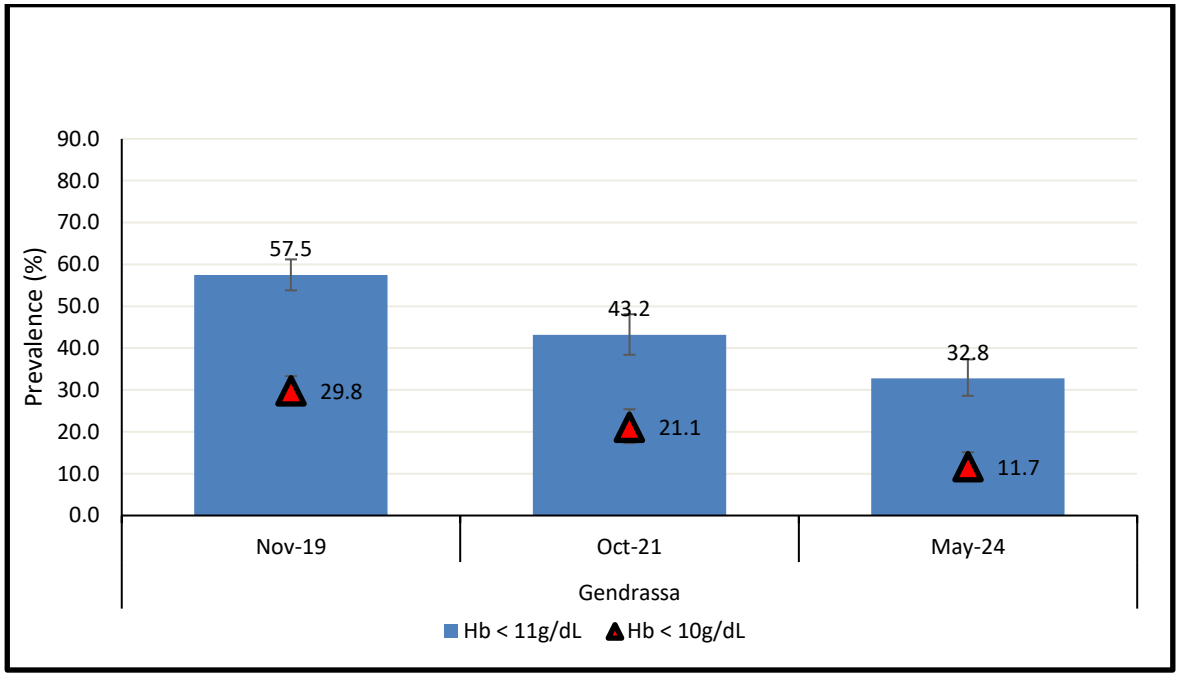


Table 145 : Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group-Gendrassa refugee camp.

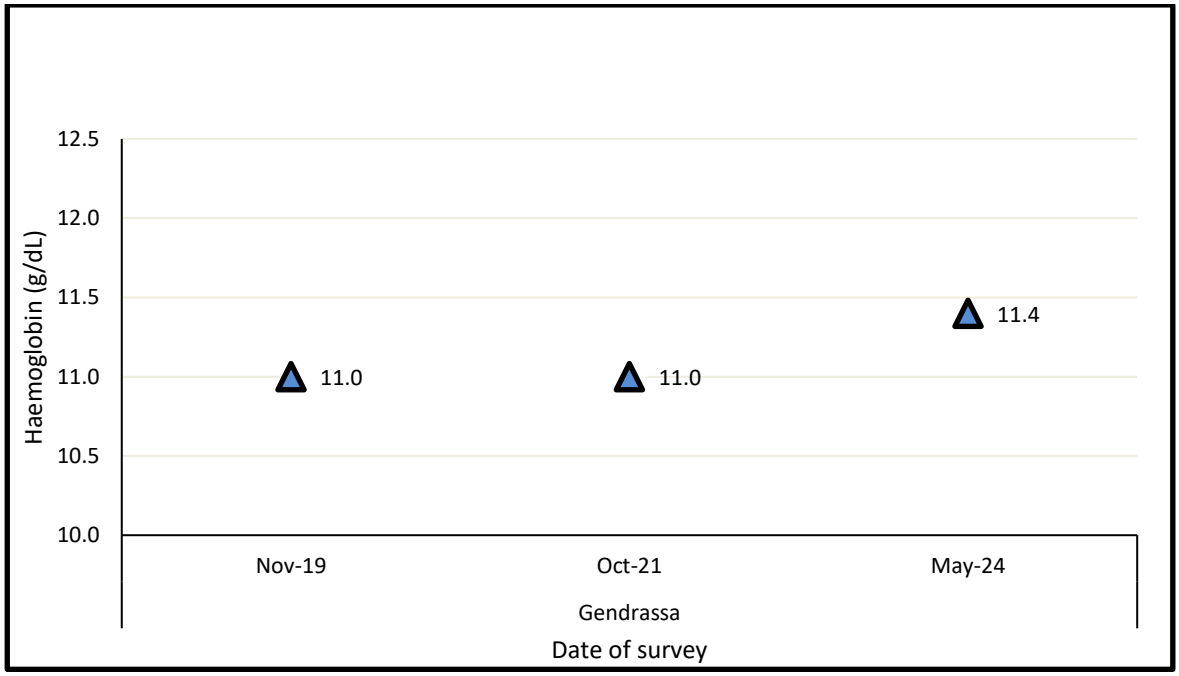
	6-59 months n = 436	6-23 months n=146	24-59 months n= 290
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(51) 11.7% (9.0-15.1)	(40) 27.4% (20.4-35.4)	(11) 3.8% (1.9-6.7)

Figure 38 : Trend in total anaemia (<11 g/dl), and moderate and severe anaemia (<10 g/dl) in children 6-59 Months from 2019 to 2024 - Gendrassa refugee camp.



There was significant decrease in total anaemia (<11 g/dl) and moderate and severe anaemia (<10 g/dl) in children 6-59 Months in 2024 compared to 2021.

Figure 39: Trend in mean haemoglobin concentration in children 6-59 months from 2019 to 2024 - Gendrassa refugee camp.

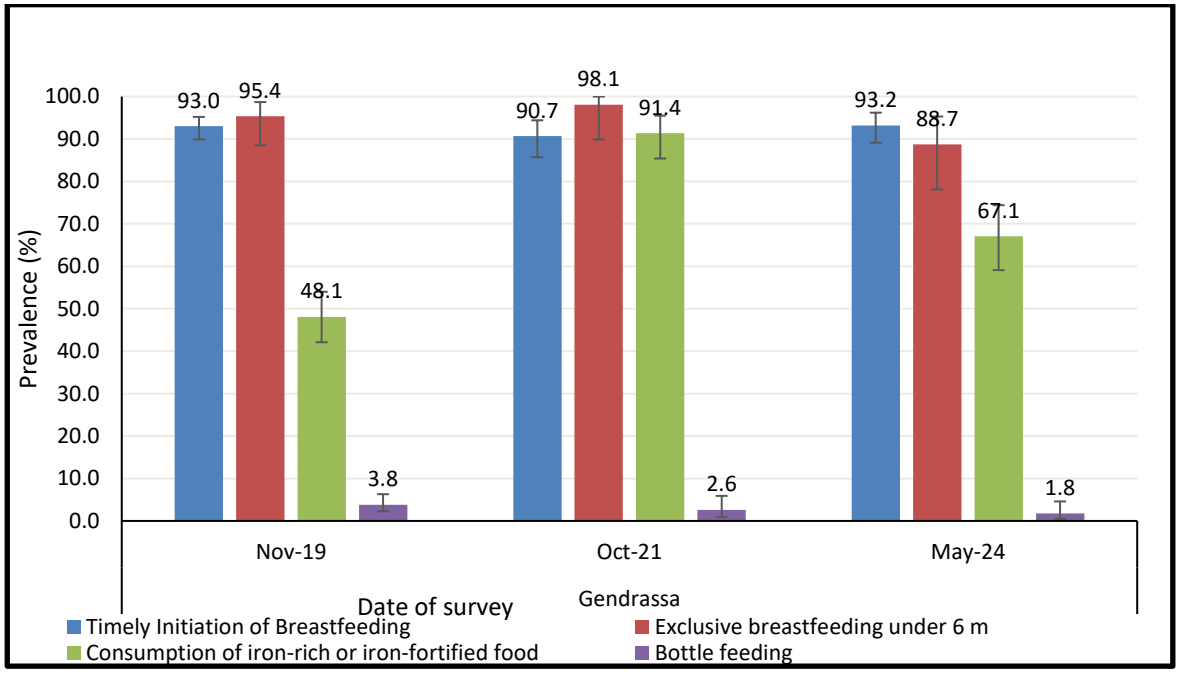


IYCF Children 0-23 Months in Gendrassa refugee camp.

Table 146 : Prevalence of Infant and Young Child Feeding Practices Indicators - Gendrassa refugee camp.

Indicator	Age range	Number/ total	Prevalence (%)	95% CI
Timely initiation of breastfeeding	0-23 months	207/222	93.2	(89.1-96.2)
Exclusive breastfeeding under 6 months	0-5 months	55/62	88.7	(78.1-95.3)
Continued breastfeeding at 1 year	12-15 months	39/43	90.7	(77.9-97.4)
Continued breastfeeding at 2 years	20-23 months	25/31	80.7	(62.5-92.6)
Introduction of solid, semi-solid or soft foods	6-8 months	17/33	51.5	(33.5-69.2)
Consumption of iron-rich or iron-fortified foods	6-23 months	104/155	67.1	(59.1-74.4)
Bottle feeding	0-23 months	4/222	1.8	(0.5-4.6)

Figure 40 : Key IYCF indicators from 2019 to 2024 - Gendrassa refugee camp.



The timely initiation of breastfeeding rate was 93.2% (89.1-96.2) and comparatively higher than in 2021 which was 90.7%. The survey findings also indicated 88.7% (78.1-95.3) children under six months had exclusively been breastfed. Compared to 2021, there is decrease. Consumption of iron rich foods decreased from 91.4% in 2021 to 67.1% in 2024. The survey revealed the rate of bottle feeding reduced in 2024 (1.8%) compared to 2021 (2.6%).

Prevalence of Intake

Infant Formula

Table 147 : Infant formula intake in children aged 0-23 months - Gendrassa refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	2/222	0.9% (0.13.2)

Table 148: Fortified Blended Foods (CSB+) intake in children aged 6-23 months - Gendrassa refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	0/159	0.0% (0.0-0.0)

Table 149 : Fortified Blended Foods (CSB++) Intake in Children Aged 6-23 Months - Gendrassa refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	56/160	35.0% (27.6-42.9)

Table 150: Lipid based Nutrient Supplements intake in children aged 6-23 months - Gendrassa refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive LNS	46/160	28.8% (21.9-36.4)

Table 151: Micronutrient powder intake in children aged 6-23 months - Gendrassa refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive MNP	8/160	5.0% (2.2-9.6)

Anaemia Women 15-49 Years Results

Table 152: Women Physiological Status and Age - Gendrassa refugee camp.

Physiological status	Number/total	% of sample
Non-pregnant	296/323	91.6% (88.1-94.2; 95% CI)
Pregnant	27/323	8.4% (5.8-11.9; 95% CI)
Mean age (SD/range)	26.9 years (9.4) [15.0-48.0]	

Table 153 : Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) - Gendrassa refugee camp.

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n = 296
Total Anaemia (<12.0 g/dL)	(62) 21.0% (16.5-26.0)
Mild Anaemia (11.0-11.9 g/dL)	(42) 14.2% (10.4-18.7)
Moderate Anaemia (8.0-10.9 g/dL)	(20) 6.8% (4.2-10.2)

Severe Anaemia (<8.0 g/dL)	(0) 0.0%
Mean Hb (g/dL) [range]	13.0 [8.7-16.0]

Figure 41 : Trends in anaemia categories in women of reproductive age (non-pregnant) from 2019 to 2024 - Gendrassa refugee camp.

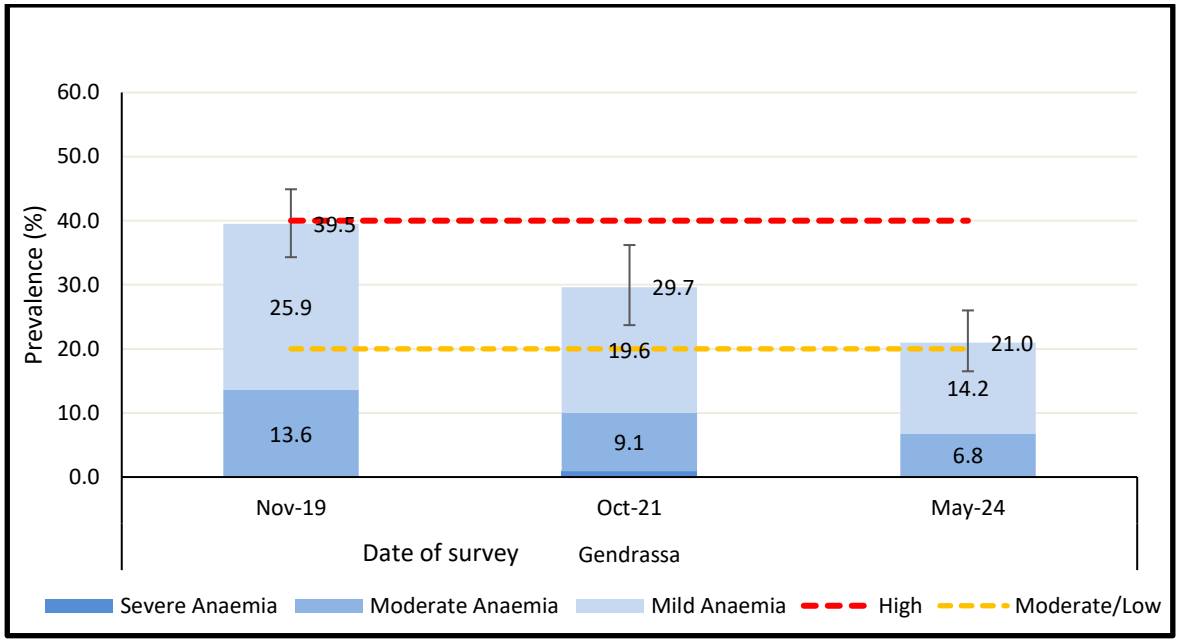


Table 154: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years) - Gendrassa refugee camp.

	Number /total	% (95% CI)
Currently enrolled in ANC programme	24/27	88.9 (70.8-97.7)
Currently receiving iron-folic acid pills	24/27	88.9 (70.8-97.7)

Table 155: BSFP enrollment coverage among pregnant and lactating women (15-49 years) – Gendrassa refugee camp

	Number /total	% (95% CI)
Currently enrolled in BSFP	56/64	87.5% (76.9-94.5)

Demography

Household size and composition

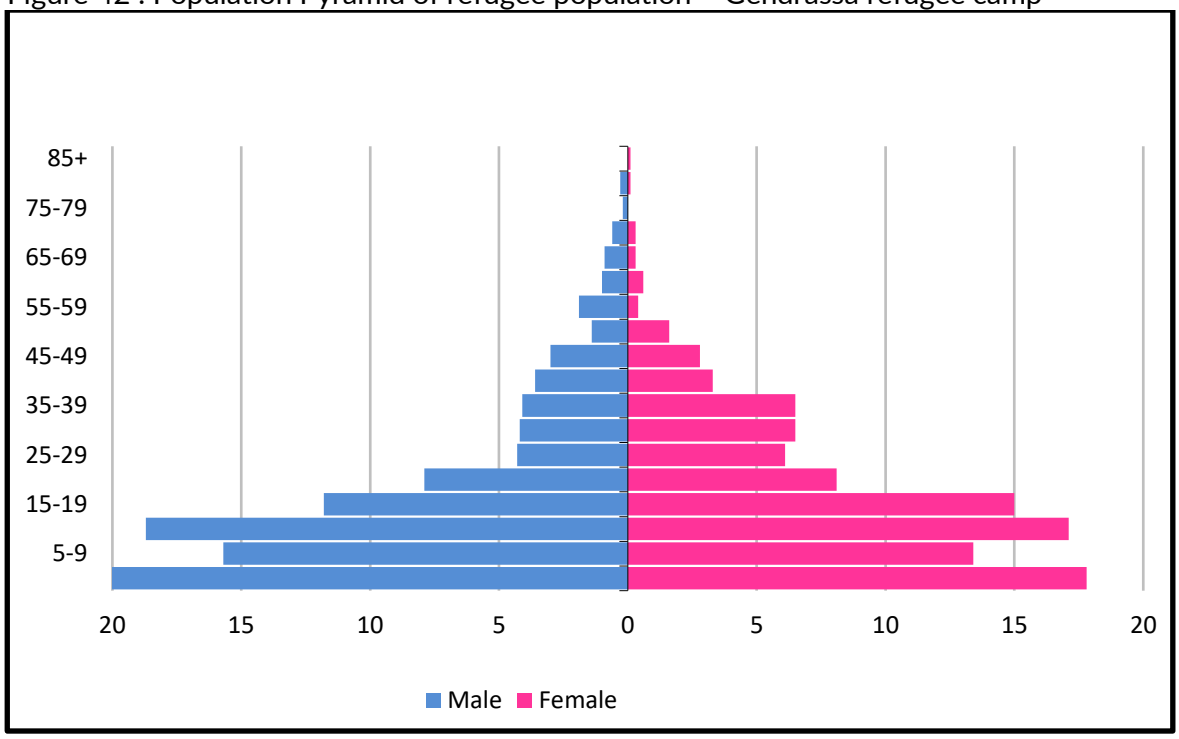
Table 1561 : Demographic characteristics, household size and composition of the surveyed population – Gendrassa refugee camp

Household size and composition	Results
Population size – Total persons (ProGres 31st March 2024)	18,942
Total households surveyed	436
Total population surveyed	2846
Total U2 in surveyed households	226
Total U5 in surveyed households	543

Average household size		6.5
Household size categories	1-4 person(s)	23.6%
	5-6 persons	26.4%
	7-9 persons	35.1%
	≥ 10 persons	14.9%
Household composition	Children under two	0.5
	Children under five	1.2
	Children aged 5-14 years	2.1
	Members aged 15-64 years	3.1
	Members aged 65 years and above	0.1
Percent of children U2	%	7.9%
Percent of children U5	%	19.1%
Percent pregnant women (15-49 years)	%	1.4%
Percent of elders (65 years and above)	%	1.3%
Sex ratio	Male/Female	0.95

Overall, male to female sex ratio was 0.95. This implies the higher proportion of the population is female than male. The percentage of children under five was 19.1%, elders (65 years and above) was 2.2%, and and the average household size is 6.5.

Figure 42 : Population Pyramid of refugee population – Gendrassa refugee camp



The population pyramid is strongly lean to children between 0 months to 19 years. Among children and teenages up to 19 years old, the population of males (66.6%) is higher than the population of females (63.3%). However, among age between 20

to 59 years old, there were more females (35.3%) than males (30.4%). One probable contributing factor could be the higher rate of out migration in search for livelihood opportunities. The dependency ratio in Doro refugee camp is 20.4%. This suggests there is a lesser burden on the family economic situation as there are more working members of the households.

Household head profile

Table 157: Household head profile – Gendrassa refugee camp

	Number/total	% (95% CI)
Female headed households (working age 15-64 years)	227/435	52.2 (47.5-56.8)
Male headed households (working age 15-64 years)	180/435	41.4 (36.9-46.1)
Children headed households (under 15 years)	0/435	0.0 (0.0-0.0)
Elderly headed households (65 years and above)	28/435	6.4 (4.5-9.2)
Mean age of household head in years (SD) [range]	41.0 (12.7) [18.0-83.0]	

A higher proportion of the households are headed by females (52.2%) than males (41.4%).

Food security

Access to food assistance in Gendrassa refugee camp.

Table 158: Food assistance ration card and cash coverage – Gendrassa refugee camp

	Number/total	% (95% CI)
Proportion of households with a ration card	221/221	100% (98.3-100)
Proportion of households receiving cash grants & inkind	221/221	100% (98.3-100)

As indicated on the above table, all the surveyed households had ration cards and received food assistance in April.

Table 159: Reported duration of general food ration

	Number/total	% (95% CI)
Average number of days general food ration lasts out days (mean, S.D/range)	219	9.1 (4.5) [1-21]

The food and cash received from GFD in the month prior to the survey was reported to last 9.0 days out of the distribution cycle of 30 days.

Table 160: Description of utilisation of cash assistance – Gendrassa refugee camp

Proportion of households that use cash grants for:	Number/total	% (95% CI)
Food	215/219	98.2% (95.4-99.5)
Water	1/219	0.5% (0.0-2.5)
Hygiene items, clothes, shoes	146/219	66.7% (60.0-72.9)

Health costs (including medicines)	19/219	8.7% (5.3-13.2)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	3/219	1.4% (0.3-4.0)
Firewood / fuel for cooking or heating	27/219	12.3% (8.3-17.4)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	4/219	1.8% (0.5-4.6)
Debts repayment	25/219	11.4% (7.5-16.4)
Saved some money, gave some to other family members, relatives, friends	0/219	0.0% (0.0-0.0)
Education (e.g. school fees, uniform, books)	6/219	2.7% (1.0-5.9)
Other	2/219	0.9% (0.1-3.3)

Most families reported spending the received money on food (98.2%), hygiene items (66.7%), and then debts repayment (12.4%).

Coverage of basic needs

Table 161: Description of basic needs not met by the households – Gendrassa refugee camp.

Basic needs not met by the households:	Number/total	% (95% CI)
Food	177/221	80.1% (74.2-85.2)
Water	2/221	0.9% (0.1-3.2)
Hygiene items, clothes, shoes	179/221	81.0% (75.2-86.0)
Health costs (including medicines)	40/221	18.1% (13.3-23.8)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	30/221	13.6% (9.4-18.8)
Firewood / fuel for cooking or heating	23/221	10.4% (6.7-15.2)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	27/221	12.2% (8.2-17.3)
Debts repayment	18/221	8.1% (4.9-12.6)
Saved some money, support other family members, relatives, friends	10/221	4.5% (2.2-8.2)
Education (e.g. school fees, uniform, books)	45/221	20.4% (15.3-26.3)
Other	6/221	2.7% (1.0-5.8)

The category of basic needs that cannot be met reported the most are: hygiene items, food, education (books, uniforms), and health cost (for medicines).

Negative household coping strategies

FDSPs receive 50% of food assistance monthly provided through general distribution conducted by Samaritan Purse, a WFP partner. The modality of distribution was cash during the survey period. However, a mixed approach is always used in Maban depending on the situation. The food basket comprised of cereals, lentils, cooking oil, and cash for milling and

salt. Should be noted the cash transfer value varies from one month to other depending on the prices of commodities in Maban markets prior to the actual GFD days.

To fill the food gaps, the FDSPs mentioned different types of strategies as shown on table below to cope with the situation.

Table 162: Coping strategies used by the surveyed population over the past month – Gendrassa refugee camp.

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Rely on less preferred and/or less expensive foods	216/221	97.7% (94.8-99.3)
Borrow food, or rely on help from a friend or relative	173/221	78.3% (72.3-83.5)
Reduce the number of meals eaten in a day	201/221	91.0% (86.4-94.4)
Limit portion sizes at mealtime	212/221	95.9% (92.4-98.1)
Reduce consumption by adults so children could eat	163/221	73.8% (67.4-79.4)
Average rCSI (mean, SD / range)	221	18.7 (11.2) [0-9]
Proportion of households reporting using none of the negative coping strategies over the past month	5/221	2.3% (0.7-5.2)

* The total was over 100% as households used several negative coping strategies.

Reported coping strategies applied due to lack of food or money to buy food were relying on less preferred or less expensive foods and limiting portion sizes at mealtime. Only 2.3% of households were not under significant stress to meet their food needs as indicated by the proportion of household using none of the negative coping strategies over the past month prior to the survey.

The average reduced Coping Strategy Index (rCSI) score was 18.7% and this situation indicates the FDSPs in Gendrassa camp rely on multiple types of coping strategies. Use of this for longer period will lead them towards chronic food insecurity.

Food Consumption Score (FCS)

April 2024 GFD cycle was considered the last general food distribution prior to the survey. In Gendrassa camp, general food distribution lasts for 3-4 days due to its small population size and distribution is organized by family sizes. For the first time in the refugee camp, the survey was conducted during lean season where overall food availability is limited thus likely that the household dietary diversity score is lower than it would be.

Table 163: Food consumption score by category and average FCS – Gendrassa refugee camp

FCS profiles	Number/total	% (95% CI)

Acceptable (FCS > 35)	67/221	30.3% (24.3-36.8)
Borderline (21.5≤FCS≤35)	65/221	29.4% (23.5-35.9)
Poor (FCS≤21)	89/221	40.3% (33.8-47.1)
Average FCS (SD) [range]	221	30.1 (16.5) [11-9]

*Maximum FCS is 112.

The average FCS among refugees in Gendrassa camp was 30.3 out of total score of 112, which falls into the borderline category. This is echoed by most households having FCS score classified as borderline.

Table 164 Consumption frequency categories of each nutrient rich food groups (FCS-N) – Gendrassa refugee camp

Nutrient rich food groups	Consumption frequency categories	Number/total	% (95% CI)
Protein rich foods	Never	33/221	14.9% (10.5-20.3)
	Sometimes	129/221	58.4% (51.6-64.9)
	At least daily	59/221	26.7% (21.0-33.0)
Haem iron rich foods	Never	111/221	50.2% (43.4-57.0)
	Sometimes	92/221	41.6% (35.1-48.4)
	At least daily	18/221	8.1% (4.9-12.6)

In terms of the nutrient rich food, data on households that reported consumption of Vitamin A rich foods (sometimes or daily) had error therefore, analysis is not possible. On protein rich foods, 85.1% reported to have consumed protein rich foods either sometimes or at least daily, while only 49.7% reported consumed Haem iron rich foods either sometimes or at least daily.

Table 165 : Food acquisition sources – Gendrassa refugee camp

Food acquisition sources	Number/total	% (95% CI)
Purchase (using cash grants and/or with their own cash)	149/221	67.4% (60.8-73.6)
Own production (crops, livestock, fishing/ hunting, gathering)	0/221	0.0% (0.0-0.0)
Traded goods/services, barter	11/221	5.0% (2.5-8.7)
Borrowed (loan/credit from traders)	34/221	15.4% (10.9-20.8)
Received as gift (from family relatives or friends/neighbour)	0/221	0.0% (0.0-0.0)
In-kind or voucher based food assistance	27/221	12.2% (8.2-17.3)

The main source for food reported was through purchasing (67.4%), borrowing (15.4%), and in-kind (12.2%).

3.6. Household Mosquito net ownership and utilization

Table 166: Household Mosquito net ownership

	Number/total	%
Household owning at least one mosquito net of any type	89	40.8
Household owning at least one mosquito net of LLIN type	72	33.0

Table 167: Number of nets

Average number of LLINs per household	Average number of persons per LLIN
1.4	6.2

Table 168: Mosquito net utilization

	Proportion of total population (all ages)		Proportion of children 0-59 months		Proportion of pregnant women	
	Total# 1343	%	Total # 252	%	Total# 37	%
Slept under net of any type	359	26.7	93	36.9	13	35.1
Slept under LLIN	292	21.7	74	29.4	10	27.0

Proportion of household owning at least one mosquito net of any type and LLIN type in Gendrassa camp was 40.8% and 33.0% respectively leading to increased number of persons per mosquito net (4.0 per mosquito net of any type and 6.2 per LLIN mosquito net) which is beyond the recommended UNHCR standard (2 persons per LLIN).

Table 169: Indoor Residual Spraying

	Number/total	% (95% CI)
Proportion of households covered by Indoor Residual Spraying (IRS)	111/217	51.2% (44.3-58.0)

The IRS coverage was 51.2% and this could be due to no IRS conducted within the last six months in the camp.

3.4 KAYA REFUGEE CAMP

Below table shows the anthropometric measurements taken from a total of number of children surveyed in Kaya refugee camp verses the targeted children in the survey. The SENS guideline recommends that at least 80% of the targeted children to be surveyed. All the children who participated in the survey were considered using either available official age documentation or age estimation from local context calendar of event developed to estimate the age. Of the total surveyed children 6-59 months in Doro refugee camp, 85% had official age documentation. See table below for details.

Table 170 : Target and actual number captured-Kaya refugee camp, South Sudan. (May 2024)

	Target (No.)	Total surveyed (No.)	% of the target
Children 6-59 months	375	747	199.2%

Anthropometric results (based on WHO Growth standards 2006)

Table 171 : Distribution of age and sex of sample - Kaya refugee camp.

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy:girl
6-17	88	46.8	100	53.2	188	25.1	0.9
18-29	86	53.4	75	46.6	161	21.5	1.1
30-41	109	57.1	82	42.9	191	25.5	1.3
42-53	64	43.2	84	56.8	148	19.8	0.8
54-59	33	55.0	27	45.0	60	8.0	1.2
Total	380	50.8	368	49.2	748	100.0	1.0

The distribution of the assessed children by age and sex shows an overall sex ratio of boys: girls 1.0 indicating that both sexes were equally represented in the survey.

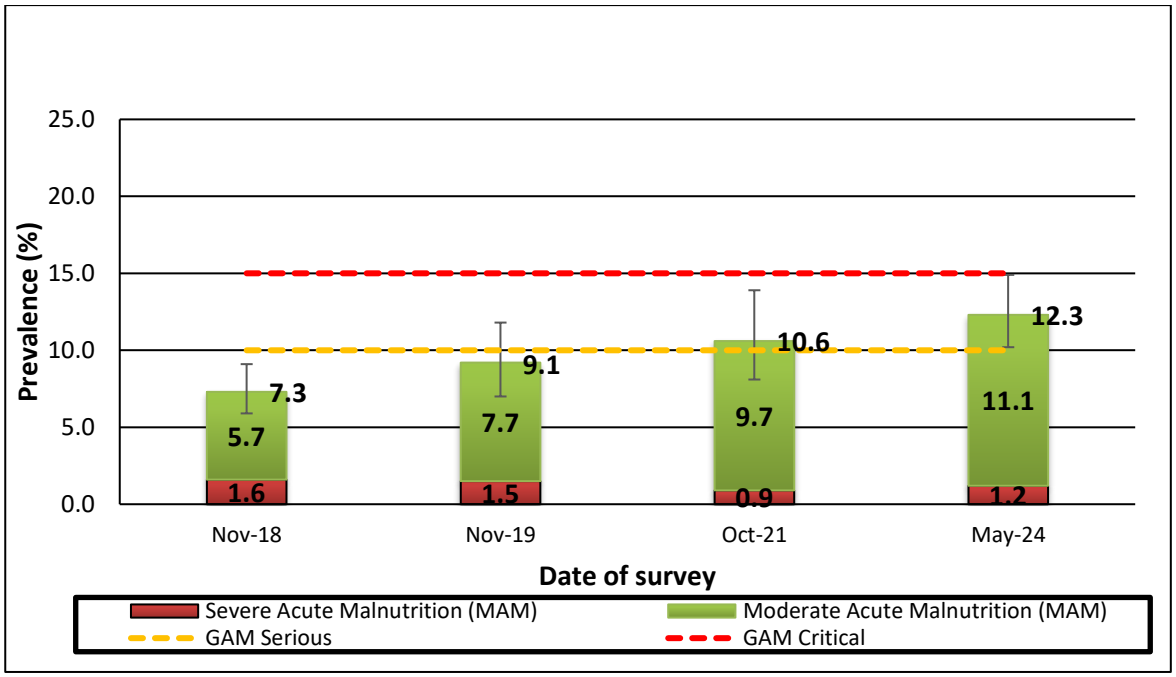
Table 172 : Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex - Kaya refugee camp.

	All n = 747	Boys n = 380	Girls n = 367
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(92) 12.3 % (10.2 - 14.9 95% C.I.)	(43) 11.3 % (8.5 - 14.9 95% C.I.)	(49) 13.4 % (10.2 - 17.2 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(83) 11.1 % (9.1 - 13.6 95% C.I.)	(41) 10.8 % (8.1 - 14.3 95% C.I.)	(42) 11.4 % (8.6 - 15.1 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(9) 1.2 % (0.6 - 2.3 95% C.I.)	(2) 0.5 % (0.1 - 1.9 95% C.I.)	(7) 1.9 % (0.9 - 3.9 95% C.I.)

The prevalence of oedema was 0.0% and the data excluded SMART flags. Prevalence of Global Acute Malnutrition based on WFH z-score and/or oedema and by sex, was 12.3% (10.2-14.9 95% C.I.), and the Severe Acute Malnutrition rate was 1.2% (0.6-2.3 95% C.I.) GAM prevalence indicates a high (serious situation) according to the WHO classification of acute malnutrition.

No statistically significant difference based on the CI indicated in the prevalence of acute malnutrition between boys and girls as estimated by Weight for Height Z-score. Both sexes were equally wasted

Figure 43: Trends in the prevalence of global and severe acute malnutrition based on WHO Growth standards in children 6-59 months from 2018 to 2024 - Kaya refugee camp.



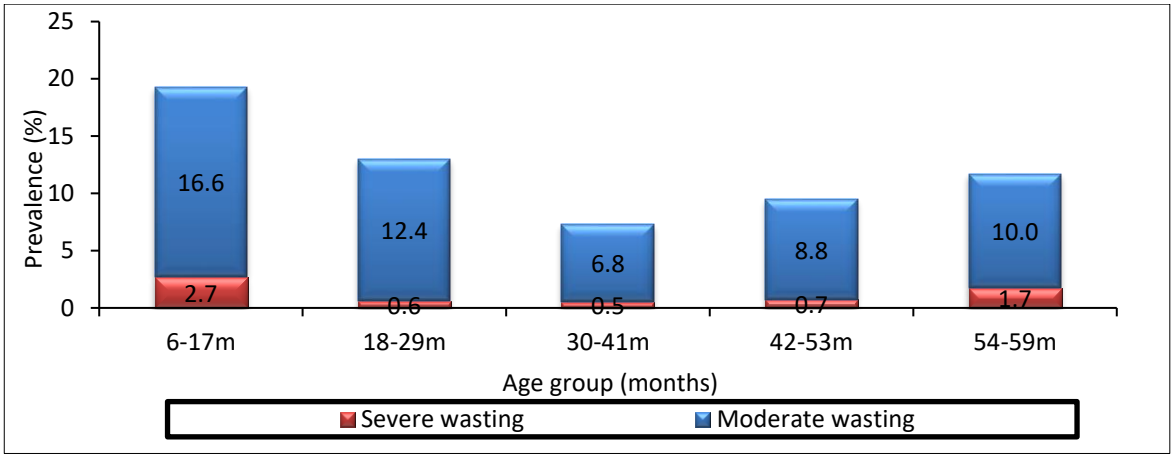
The prevalence of Global and Severe Acute Malnutrition based on WHO **G**rowth standards among children 6-59 month in 2024 significantly increased as compared to 2021 in Gendrassa refugee camp. This indicates a deteriorating trend.

Table 173: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema - Kaya refugee camp.

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	187	5	2.7	31	16.6	151	80.7	0	0.0
18-29	161	1	0.6	20	12.4	140	87.0	0	0.0
30-41	191	1	0.5	13	6.8	177	92.7	0	0.0
42-53	148	1	0.7	13	8.8	134	90.5	0	0.0
54-59	60	1	1.7	6	10.0	53	88.3	0	0.0
Total	747	9	1.2	83	11.1	655	87.7	0	0.0

The prevalence of acute malnutrition (WHZ<-2 and/or oedema) by age shows that younger children in the age catergories 6-17 months were the most affected by severe and moderate acute malnutrition.

Figure 44 : Trend in the prevalence of wasting by age in children 6-59 months in Kaya refugee camp.



Children 6-17 are the most affected age groups by wasting in Kaya refugee camp indicating higher vulnerability of these age category.

Table 174 : Distribution of acute malnutrition and oedema based on weight-for-height z-scores - Kaya refugee camp.

	<-3 z-score	>=-3 z-score
Oedema present	Marasmic kwashiorkor. 0 (0.0 %)	Kwashiorkor. 0 (0.0 %)
Oedema absent	Marasmic No. 9 (1.2 %)	Not severely malnourished. 739 (98.8 %)

During the survey, no case of oedema was identified. However, there were 9 marasmic cases with no oedema as shown in table above.

Figure 45 : Distribution of weight-for-height z-scores (based on WHO Growth standards ; the reference population is shown in green and the surveyed population in red) of the surveyed population compared to the international WHO Standard population (reference population) of children aged 6-59 months.

The graphical figure shows that the distribution for weight-for-height z-scores for the surveyed sample shifted/deviated to the left. This indicates that the nutrition status of the surveyed population is poor compared to the WHO reference population.

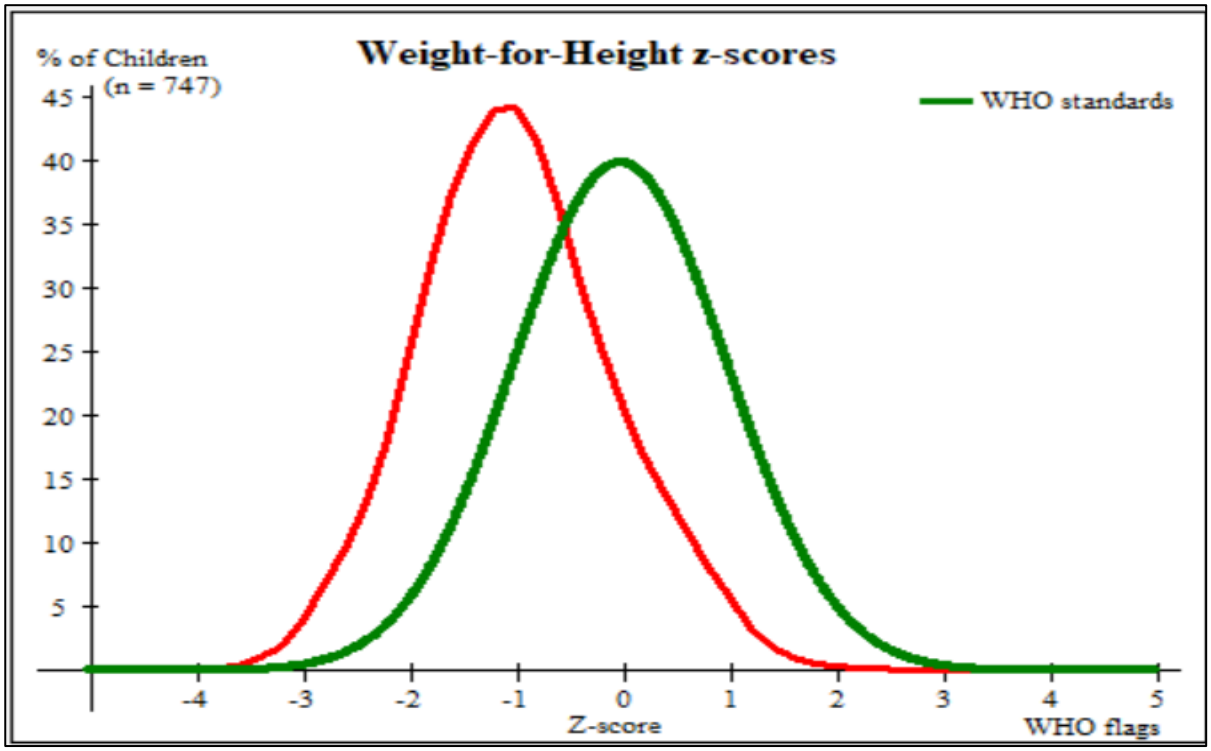


Table 175 : Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex - Kaya refugee camp.

	All n = 752	Boys n = 382	Girls n = 370
Prevalence of global malnutrition (< 125 mm and/or oedema)	(37) 4.9 % (3.6 - 6.7 95% C.I.)	(8) 2.1 % (1.1 - 4.1 95% C.I.)	(29) 7.8 % (5.5 - 11.0 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(35) 4.7 % (3.4 - 6.4 95% C.I.)	(7) 1.8 % (0.9 - 3.7 95% C.I.)	(28) 7.6 % (5.3 - 10.7 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(2) 0.3 % (0.1 - 1.0 95% C.I.)	(1) 0.3 % (0.0 - 1.5 95% C.I.)	(1) 0.3 % (0.0 - 1.5 95% C.I.)

As indicated in the above table, the prevalence of acute malnutrition using MUAC is significantly lower compared to using Weight for Height Z-scores. Studies on the concordance between estimates of wasting measured by weight-for-height and by MUAC generally indicate great variation between these two measurements mainly because of variations in the body shape, age, and gender among various surveyed populations.

Though MUAC measurements is being used in the community to monitor malnutrition trends and for admissions and discharge in the therapeutic and supplementary feeding nutrition programmes, good indicator of risk of mortality in children under five, and is easy to do, it is therefore recommended that both criteria are used in anthropometric surveys.

Table 176: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema - Kaya refugee camp.

		Severe wasting (< 115 mm)		Moderate wasting (>= 115 mm and < 125 mm)		Normal (> = 125 mm)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	188	2	1.1	26	13.8	160	85.1	0	0.0
18-29	161	0	0.0	8	5.0	153	95.0	0	0.0
30-41	193	0	0.0	1	0.5	192	99.5	0	0.0
42-53	150	0	0.0	0	0.0	150	100.0	0	0.0
54-59	60	0	0.0	0	0.0	60	100.0	0	0.0
Total	752	2	0.3	35	4.7	715	95.1	0	0.0

Younger children aged 6-17 months were more affected by both severe and moderate acute malnutrition based on MUAC. This may be attributed to inadequate feeding practices among these children.

Table 177: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex-Kaya refugee camp

	All n = 748	Boys n = 380	Girls n = 368
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(105) 14.0 % (11.7 - 16.7 95% C.I.)	(45) 11.8 % (9.0 - 15.5 95% C.I.)	(60) 16.3 % (12.9 - 20.4 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(11) 1.5 % (0.8 - 2.6 95% C.I.)	(3) 0.8 % (0.3 - 2.3 95% C.I.)	(8) 2.2 % (1.1 - 4.2 95% C.I.)

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

The prevalence of combined GAM among children aged 6-59 months in Kaya refugee camp was 14.0% (11.7-16.7 95% CI) as indicated in the table above. Although there is no globally accepted threshold for combined GAM and SAM, the observed prevalence of combined GAM was higher than the prevalence of WHZ or and MUAC on their own, implying that the combined GAM and MUAC indicator identified more acutely malnourished children.

Table 178: Detailed numbers for combined GAM and SAM

	GAM		SAM	
	no.	%	no.	%
MUAC	13	1.7	2	0.3
WHZ	68	9.1	9	1.2
Both	24	3.2	0	0.0
Edema	0	0.0	0	0.0
Total	105	14.0	11	1.5

Total population: 748

Table 179 : Prevalence of underweight based on weight-for-age z-scores by sex - Kaya refugee camp.

	All n = 748	Boys n = 380	Girls n = 368
Prevalence of underweight (<-2 z-score)	(211) 28.2 % (25.1 - 31.5 95% C.I.)	(101) 26.6 % (22.4 - 31.2 95% C.I.)	(110) 29.9 % (25.4 - 34.8 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(173) 23.1 % (20.2 - 26.3 95% C.I.)	(85) 22.4 % (18.5 - 26.8 95% C.I.)	(88) 23.9 % (19.8 - 28.5 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(38) 5.1 % (3.7 - 6.9 95% C.I.)	(16) 4.2 % (2.6 - 6.7 95% C.I.)	(22) 6.0 % (4.0 - 8.9 95% C.I.)

The prevalence of underweight among children aged 6-59 months was 28.2% (25.1-31.5 95% C.I.) with 5.1% (3.7-6.9 95% C.I.) being severely underweight. Both boys and girls were affected by underweight.

Table 180 : Prevalence of underweight by age, based on weight-for-age z-scores - Kaya refugee camp.

		Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	188	11	5.9	43	22.9	134	71.3	0	0.0
18-29	161	10	6.2	38	23.6	113	70.2	0	0.0
30-41	191	9	4.7	53	27.7	129	67.5	0	0.0
42-53	148	7	4.7	29	19.6	112	75.7	0	0.0
54-59	60	1	1.7	10	16.7	49	81.7	0	0.0
Total	748	38	5.1	173	23.1	537	71.8	0	0.0

Children in age groups of 30-41 and of 18-29 months are the most underweight.

Prevalence of underweight by age shows children in the age group of 18-29 and 30-41 months were most affected by severe and moderate underweight respectively. Generally, younger children aged 6-17, 18-29, and 30-41 months were more susceptible to both severe and moderate underweight.

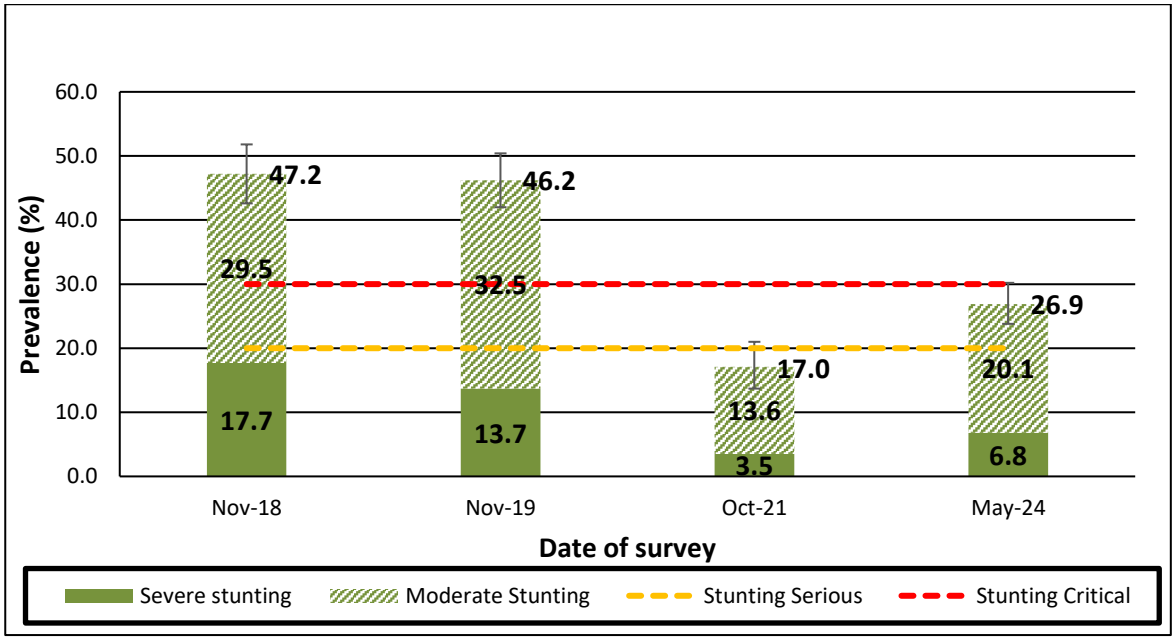
Table 181 : Prevalence of stunting based on height-for-age z-scores and by sex - Kaya refugee camp.

	All n = 748	Boys n = 380	Girls n = 368
Prevalence of stunting (<-2 z-score)	(201) 26.9 % (23.8 - 30.2 95% C.I.)	(114) 30.0 % (25.6 - 34.8 95% C.I.)	(87) 23.6 % (19.6 - 28.2 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(150) 20.1 % (17.3 - 23.1 95% C.I.)	(85) 22.4 % (18.5 - 26.8 95% C.I.)	(65) 17.7 % (14.1 - 21.9 95% C.I.)

Prevalence of severe stunting (<-3 z-score)	(51) 6.8 % (5.2 - 8.9 95% C.I.)	(29) 7.6 % (5.4 - 10.7 95% C.I.)	(22) 6.0 % (4.0 - 8.9 95% C.I.)

The rate of stunting in Kaya camp was 26.9% (23.8-30.2 95% C.I.) and severe stunting was 6.8% (5.2-8.9 95% C.I.). This result is classified as high (serious situation) according to the WHO classification. Boys had a higher stunting rate 30.0% (25.6-34.8 95% C.I.) than girls 23.6% (19.6-28.2) but the difference in stunting by gender was not statistically significant.

Figure 46 : Trends in the prevalence of global and severe stunting based on WHO Growth standards in children 6-59 months from 2018 to 2024 - Kaya refugee camp.



Significant increase in stunting prevalence was noted in 2024 in Kaya refugee camp as compared to 2021. However, the prevalence is below the WHO threshold of 40%.

Table 182 : Prevalence of stunting by age based on height-for-age z-scores - Kaya refugee camp.

		Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Normal (> = -2 z score)	
Age (mo)	Total no.	No.	%	No.	%	No.	%
6-17	188	10	5.3	27	14.4	151	80.3
18-29	161	15	9.3	39	24.2	107	66.5
30-41	191	16	8.4	46	24.1	129	67.5
42-53	148	8	5.4	29	19.6	111	75.0
54-59	60	2	3.3	9	15.0	49	81.7
Total	748	51	6.8	150	20.1	547	73.1

Stunting prevalence by age indicates that children in the age category 18-29 and 30-41 months were more affected by both severe and moderate stunting.

Figure 47 : Trends in the prevalence of stunting by age in children 6-59 months - Kaya refugee camp.

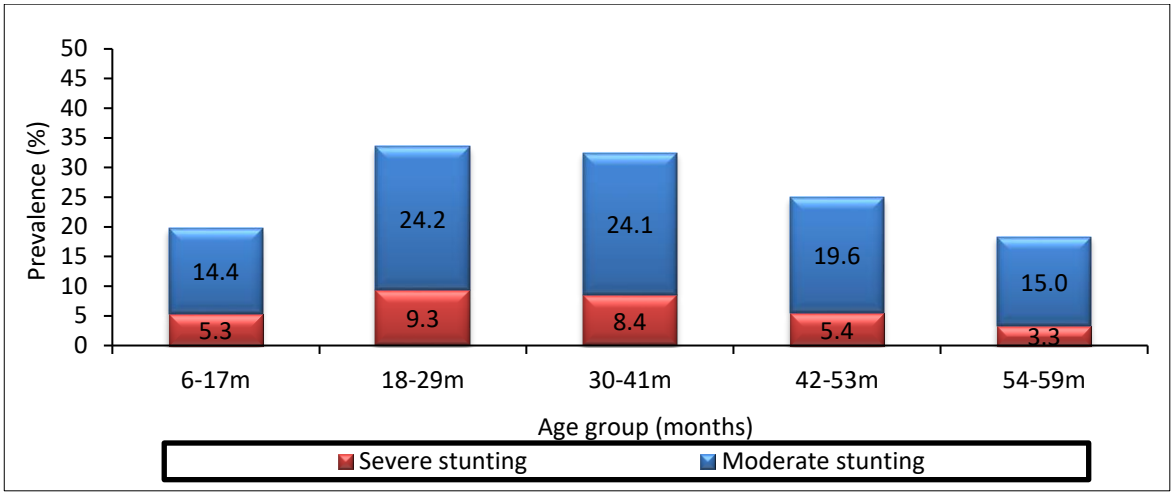


Table 183: Prevalence of overweight based on weight for height cut offs and by sex (no oedma) - Kaya refugee camp.

	All n = 747	Boys n = 380	Girls n = 367
Prevalence of overweight (WHZ > 2)	(2) 0.3 % (0.1 - 1.0 95% C.I.)	(0) 0.0 % (0.0 - 1.0 95% C.I.)	(2) 0.5 % (0.1 - 2.0 95% C.I.)
Prevalence of severe overweight (WHZ > 3)	(1) 0.1 % (0.0 - 0.8 95% C.I.)	(0) 0.0 % (0.0 - 1.0 95% C.I.)	(1) 0.3 % (0.0 - 1.5 95% C.I.)

Table 184: Prevalence of overweight by age, based on weight for height (no oedema) - Kaya refugee camp.

		Overweight (WHZ > 2)		Severe Overweight (WHZ > 3)	
Age (mo)	Total no.	No.	%	No.	%
6-17	187	1	0.5	1	0.5
18-29	161	1	0.6	0	0.0
30-41	191	0	0.0	0	0.0
42-53	148	0	0.0	0	0.0
54-59	60	0	0.0	0	0.0
Total	747	2	0.3	1	0.1

Table 185 **:** Mean z-scores, design effects and excluded subjects - Kaya refugee camp.

Indicator	n	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	747	-0.99±0.94	1.00	0	1
Weight-for-Age	748	-1.50±0.92	1.00	0	0
Height-for-Age	748	-1.48±1.01	1.00	0	0

* contains for WHZ and WAZ the children with edema.

The mean Z scores for wasting (WHZ), underweight (WAZ) and stunting (HAZ) were -0.99±0.94, -1.50±0.92, and -1.48±1.01 respectively. All indicate a poorer nutrition situation compared to WHO reference population. The standard deviations for all the three nutrition indicators including WHZ, WAZ, and HAZ were within the acceptable range of 0.8-1.2 which indicates that the survey data was of high quality.

Feeding Programme Enrollment Coverage

Selective feeding programme

Table 186 : Programme enrollment for Acutely Malnourished Children Based on all admission criteria (MUAC, WHZ and/or oedema) - Kaya refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	1/12	8.3% (0.2-38.5)
Supplementary feeding programme (TSFP) enrolment	17/100	17.0% (10.2-25.8)

Table 187: Programme enrollment for acutely malnourished children based on MUAC and/or oedema only - Kaya refugee camp.

	Number/total	% (95% CI)
Therapeutic feeding programme enrolment (OTP/SC)	0/3	0.0% (0.0-0.0)
Supplementary feeding programme (TSFP) enrolment	15/35	42.9% (26.3-60.6)

The enrollment coverage based on both admission criteria and using MUAC and/or oedema only was below the standard of ≥ 90%.

Table 188: BSFP enrollment coverage for children 6-59 months – Kaya refugee camp.

	Number/Total	**% (95% CI)**
Blanket feeding programme enrolment	239/255	93.7% (90.0-96.4)
Product name	Lipid based Nutrient Supplements-MQ	
Target age group	6-23 months	

The BSFP enrollment coverage for children aged 6-23 months in Kaya refugee camp was 93.7%.

Measles vaccination coverage results

Table 189 : Measles vaccination coverage for children aged 9-59 months (N=695) - Kaya refugee camp.

	Number/total	% (95% CI)
Measles vaccination with card	455/695	65.5% (61.9-68.8)
Measles vaccination with confirmation from mother	211/695	30.4% (27.1-33.9)
Measles vaccination with card or confirmation from mother	666/695	95.8% (94.1-97.1)

The survey findings indicated that the proportion of all children aged 9-59 months who had received measles vaccination was 95.8% (94.1-97.1). This meets the recommended standard of ≥ 95%.

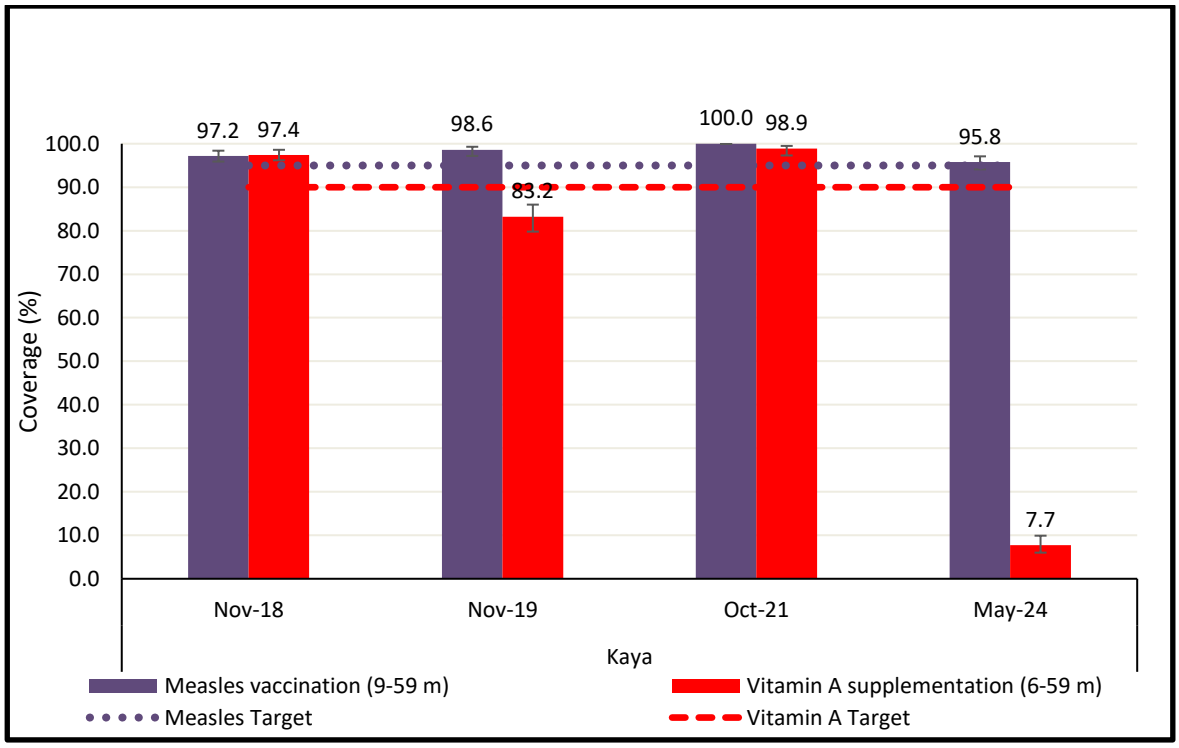
Vitamin A supplementation coverage results

Table 190 : Vitamin A supplementation for children aged 6-59 months within past 6 months (N= 751) - Kaya refugee camp.

	Number/total	% (95% CI)
Vitamin A supplementation in the last 6 months with card	26/751	3.5% (2.4-5.0)
Vitamin A supplementation in the last 6 months with confirmation from mother	32/751	4.3 (3.0-6.0)
Vitamin A supplementation in the last 6 months with card or confirmation from mother	58/751	7.7% (6.0-9.9)

The survey findings indicated that the proportion of all children aged 6-59 months who had received Vitamin A in the last 6 months was 7.7% (6.0-9.9). This is below the recommended standard of ≥90%.

Figure 48 : Trends in the coverage of measles vaccination and Vitamin A supplementation in last 6 months in children 6-59 months from 2018 to 2024 in Kaya refugee camp.



Diarrhoea Results

Table 191 : Period Prevalence of Diarrhoea - Kaya refugee camp.

	Number/total	% (95% CI)
Diarrhoea in the last two weeks	70/747	9.4% (7.5-11.7)

9.4% (7.5-11.7) of the surveyed children had diarrhoea (3 or more times loose or watery stools in a day) in the past two weeks preceding the survey.

Table 192: use of ORS and Zinc during diarrhoea episode

	Number/total	**% (95% CI)**
ORS use during diarrhoea episode	63/70	90.0% (80.5-95.9)
Zinc tablet or syrup use during diarrhoea episode	62/70	88.6% (78.7-94.9)

Of all the surveyed children who had diarrhoea in Kaya camp, 90.0% were treated with ORS while 88.6% were treated with Zinc.

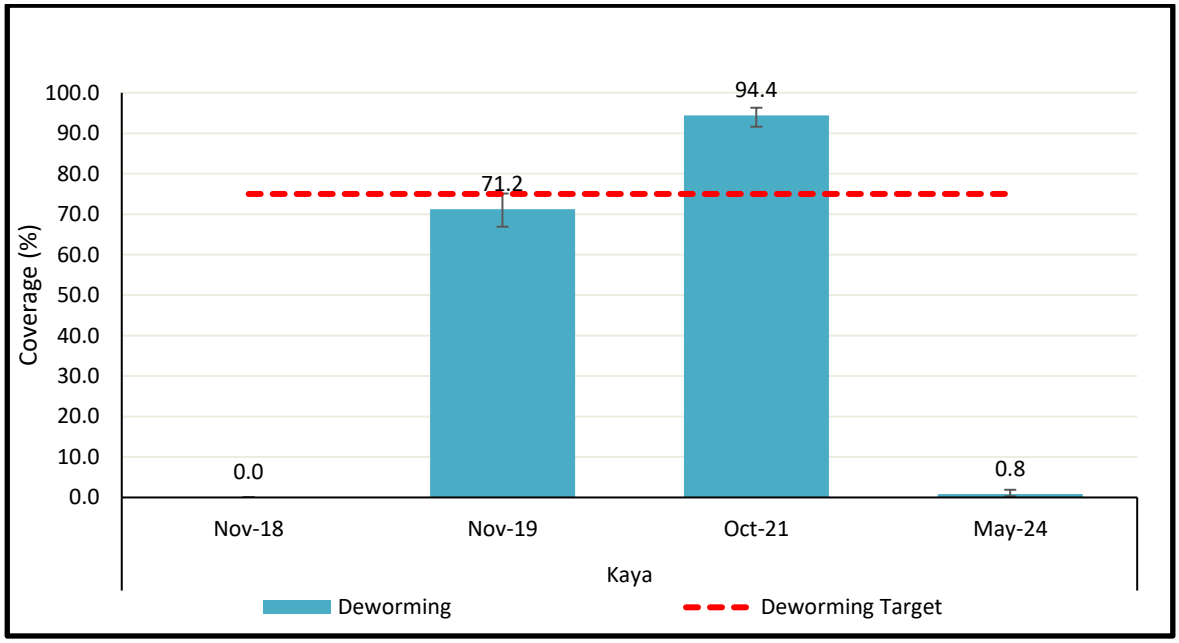
Deworming

Table 193: Deworming coverage - Kaya refugee camp.

	Number/total	% (95% CI)
Children received a deworming tablet in the last six months (12-59 months)	5/605	0.8% (0.3-1.9)

0.8% of children aged 12-59 months received deworming tablet in the last 6 months prior to the survey. The coverage is below the recommended standard of (≥75%).

Figure 49 : Trends in the coverage of deworming in last 6 months in children 12-59 months from 2018 to 2024 in Kaya refugee camp.



Anaemia Results Children 6 - 59 months

Overall anaemia prevalence among children 6 to 59 months in Kaya refugee camp is of medium public health significance at 34.1%. Children aged 6 to 23 months are the most affected with prevalence of 55.1% above WHO threshold of 40% compared to the 24-59 months age group (23.4%).

Table 194 : Prevalence of total anaemia, anaemia categories, and mean haemoglobin concentration in children 6-59 months of age and by age group - Kaya refugee camp, South Sudan.

	6-59 months n = 750	6-23 months n=254	24-59 months n=496
Total Anaemia (Hb<11.0 g/dL)	(256) 34.1% (30.8-37.6)	(140) 55.1% (48.8-61.3)	(116) 23.4% (19.9-27.3)
Mild Anaemia (Hb 10.0-10.9 g/dL)	(162) 21.6% (18.8-24.7)	(78) 30.7% (25.1-36.8)	(84) 16.9% (13.9-20.5)
Moderate Anaemia (7.0-9.9 g/dL)	(92) 12.3% (10.1-14.8)	(60) 23.6% (18.5-29.3)	(32) 6.5% (4.6-7.0)
Severe Anaemia (<7.0 g/dL)	(2) 0.3% (0.1-1.0)	(2) 0.8% (0.1-2.8)	(0) 0.0% (0.0-0.0)
Mean Hb (g/dL) [SD/range]	11.4 (1.3) [6.7-18.3]	10.7 (1.2) [6.7-14.1]	11.7 (1.1) [8.5-18.3]

Figure 50 : Trends in anaemia categories in children 6-59 months from 2019 to 2024 - Kaya refugee camp.

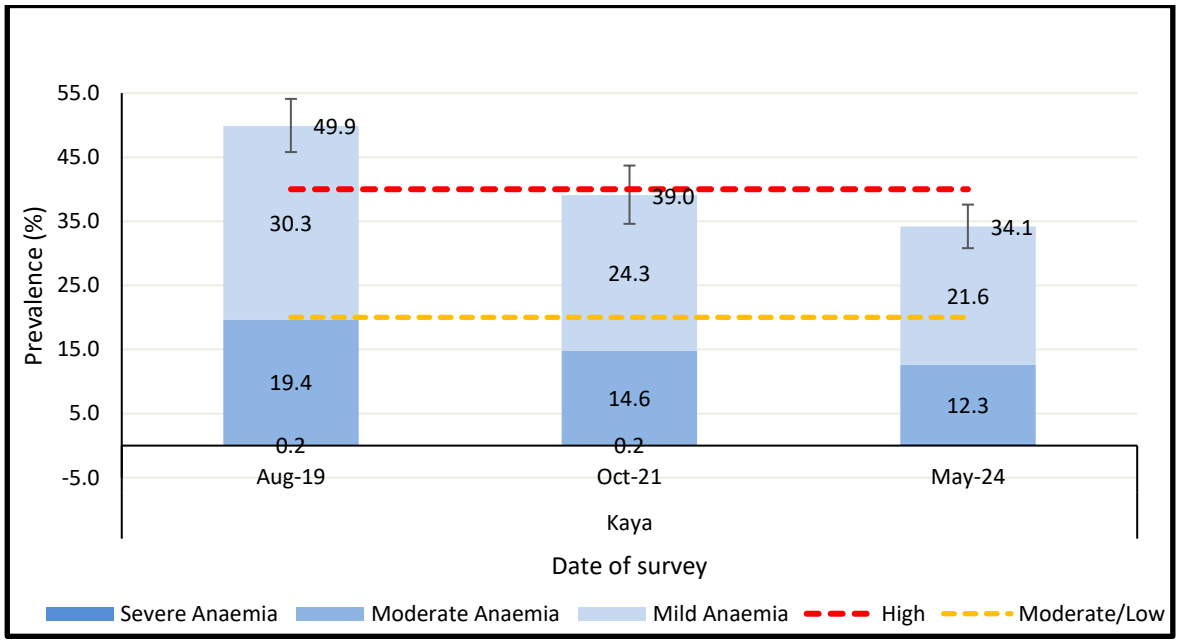
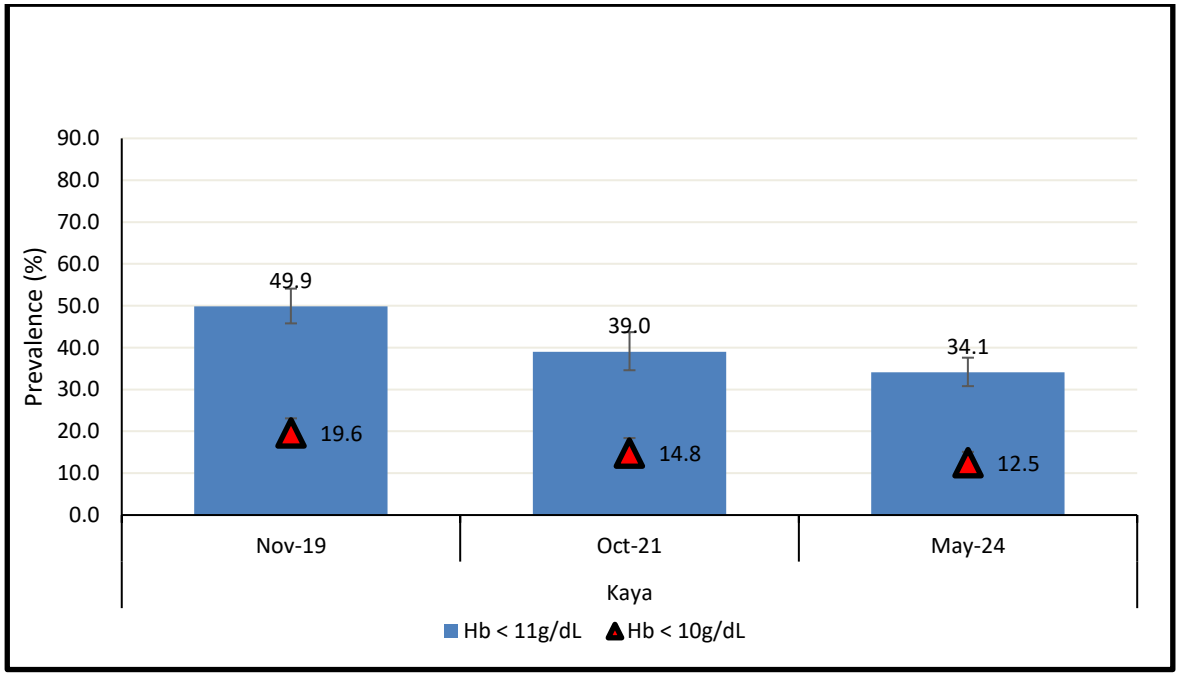


Table 195 : Prevalence of moderate and severe anaemia in children 6-59 months of age and by age group - Kaya refugee camp.

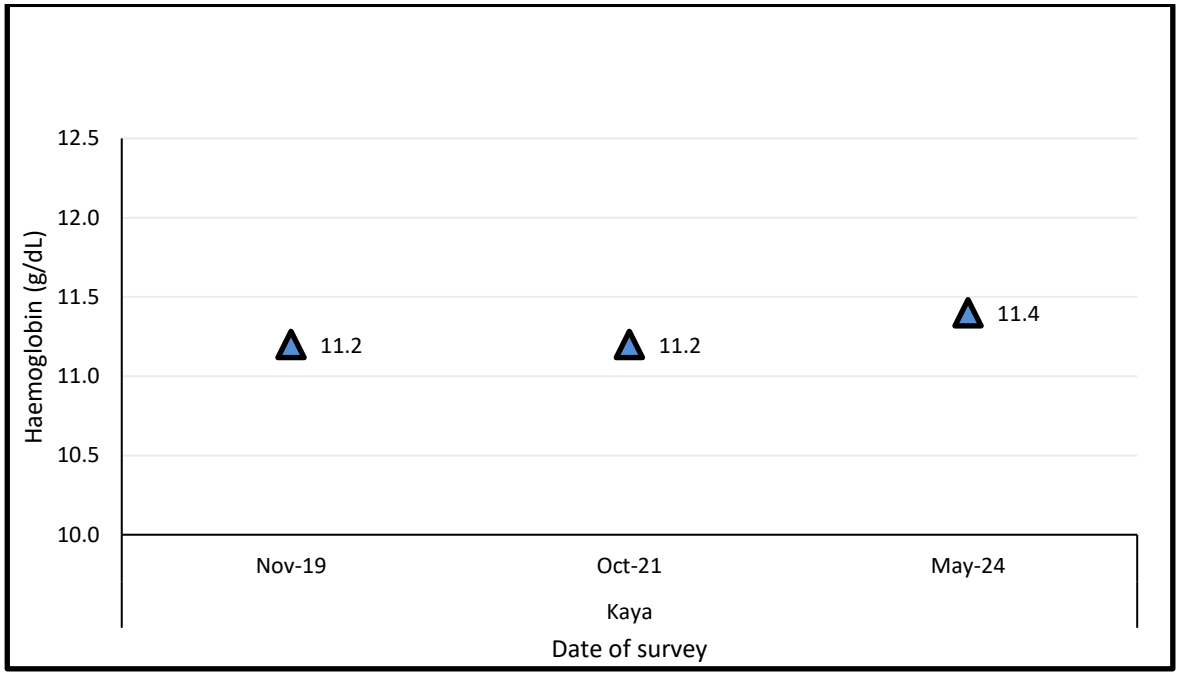
	6-59 months n = 750	6-23 months n= 254	24-59 months n= 497
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(94) 12.5% (10.4-15.1)	(62) 24.4% (19.3-30.2)	(32) 6.5% (4.6-9.0)

Figure 51 : Trend in total anaemia (<11 g/dl), and moderate and severe anaemia (<10 g/dl) with 95% ci in children 6-59 months from 2018 to 2024 in Kaya refugee camp.



Total anaemia (<11 g/dl) and moderate and severe anaemia (<10 g/dl) among children 6-59 months decrease in 2024 compared to 2021.

Figure 52: Trend in Mean Haemoglobin Concentration in Children 6-59 Months from 2019 to 2024 - Kaya refugee camp.



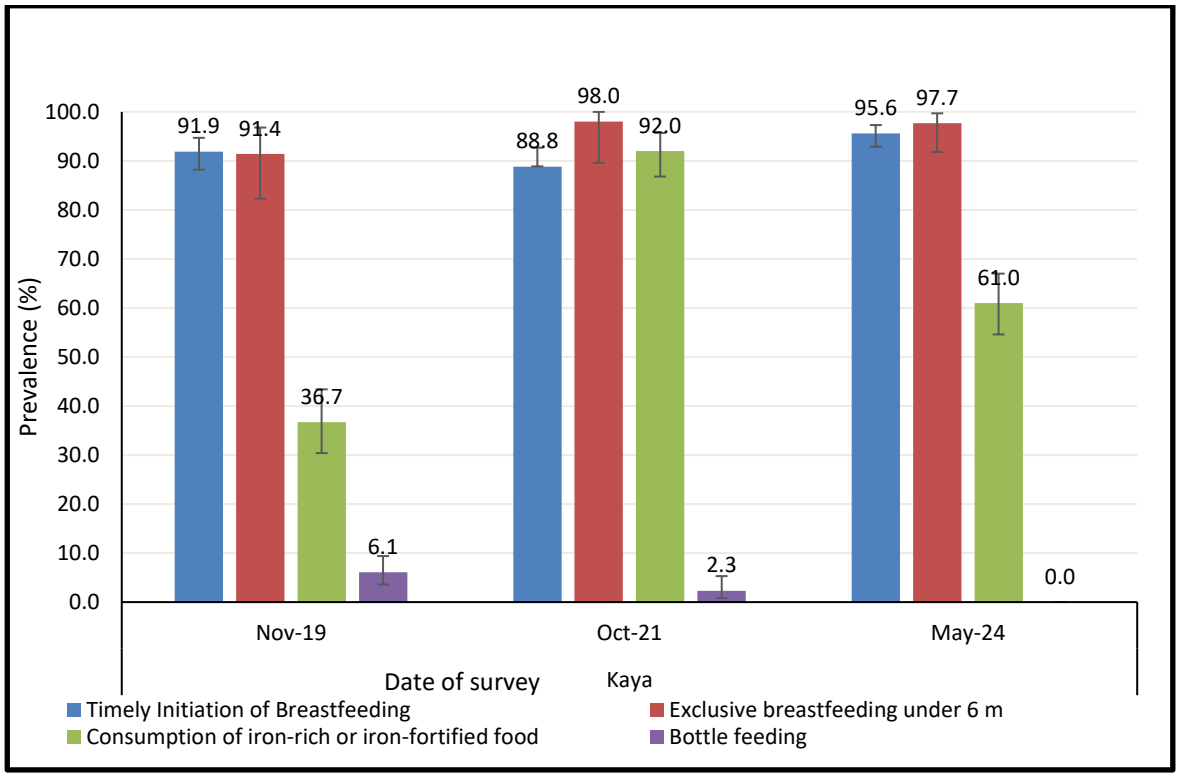
IYCF Children 0-23 Months in Kaya refugee camp

Table 196 : Prevalence of Infant and Young Child Feeding Practices Indicators - Kaya refugee camp.

Indicator	Age range	Number/ total	Prevalence (%)	95% CI

Timely initiation of breastfeeding	0-23 months	325/340	95.6	(92.9-97.3)
Exclusive breastfeeding under 6 months	0-5 months	83/85	97.7	(91.8-99.7)
Continued breastfeeding at 1 year	12-15 months	39/43	90.7	(77.9-97.4)
Continued breastfeeding at 2 years	20-23 months	21/36	58.3	(40.8-74.5)
Introduction of solid, semi-solid or soft foods	6-8 months	32/56	57.1	(43.2-70.3)
Consumption of iron-rich or iron-fortified foods	6-23 months	153/251	61.0	(54.6-67.0)
Bottle feeding	0-23 months	0/340	0.0	(0.0-0.0)

Figure 53: Key IYCF indicators from 2019 to 2024 - Kaya refugee camp.



The timely initiation of breastfeeding rate was 95.6% (92.9-97.3) and comparatively higher than in 2021 which was 91.9%. The survey findings also indicated 97.7% (91.8-99.7) children under six months had exclusively been breastfed. Compared to 2021, there is increase. Consumption of iron rich foods showed a decrease in 2024 (61.0%) compared to 2021 (92.0%). Bottle feeding rate reduced in 2024 (0.0%%) compared to 2021 (2.3%).

Prevalence of Intake

Infant Formula

Table 197 : Infant formula intake in children aged 0-23 months - Kaya refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-	4/339	1.2% (0.5-3.0)

fortified)		

Table 198: Fortified Blended Foods (CSB+) intake in children aged 6-23 months - Kaya refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF	0/255	0.0% (0.0-0.0)

Table 199 : Fortified Blended Foods (CSB++) intake in children aged 6-23 months - Kaya refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive FBF++	57/255	22.4% (17.4-28.0)

Table 200: Lipid based Nutrient Supplements intake in children aged 6-23 months - Kaya refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive LNS	72/255	28.2% (22.8-34.2)

Table 201: Micronutrient powder intake in children aged 6-23 months - Kaya refugee camp.

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive MNP	3/252	1.2% (0.3-3.4)

Anaemia Women 15-49 Years Results

Table 202: Women Physiological Status and Age - Kaya refugee camp.

Physiological status	Number/total	% of sample
Non-pregnant	374/417	89.7% (86.4-92.3)
Pregnant	43/417	10.3% (7.8-13.6)
Mean age (SD/range)	28.1 years (9.5) [15.0-48.0]	

Table 2023 : Prevalence of anaemia and haemoglobin concentration in non-pregnant women of reproductive age (15-49 years) in Kaya refugee camp.

Anaemia in non-pregnant women of reproductive age (15-49 years)	All n =375
Total Anaemia (<12.0 g/dL)	(73) 19.5% (15.8-23.8)
Mild Anaemia (11.0-11.9 g/dL)	(58) 15.5% (12.2-19.5)
Moderate Anaemia (8.0-10.9 g/dL)	(14) 3.7% (2.2-6.2)

Severe Anaemia (<8.0 g/dL)	(1) 0.3% (0.1-1.5)
Mean Hb (g/dL) [range]	13.0 [7.1-19.9]

Figure 54 : Trends in anaemia categories in women of reproductive age (non-pregnant) from 2019 to 2024 - Kaya refugee camp.

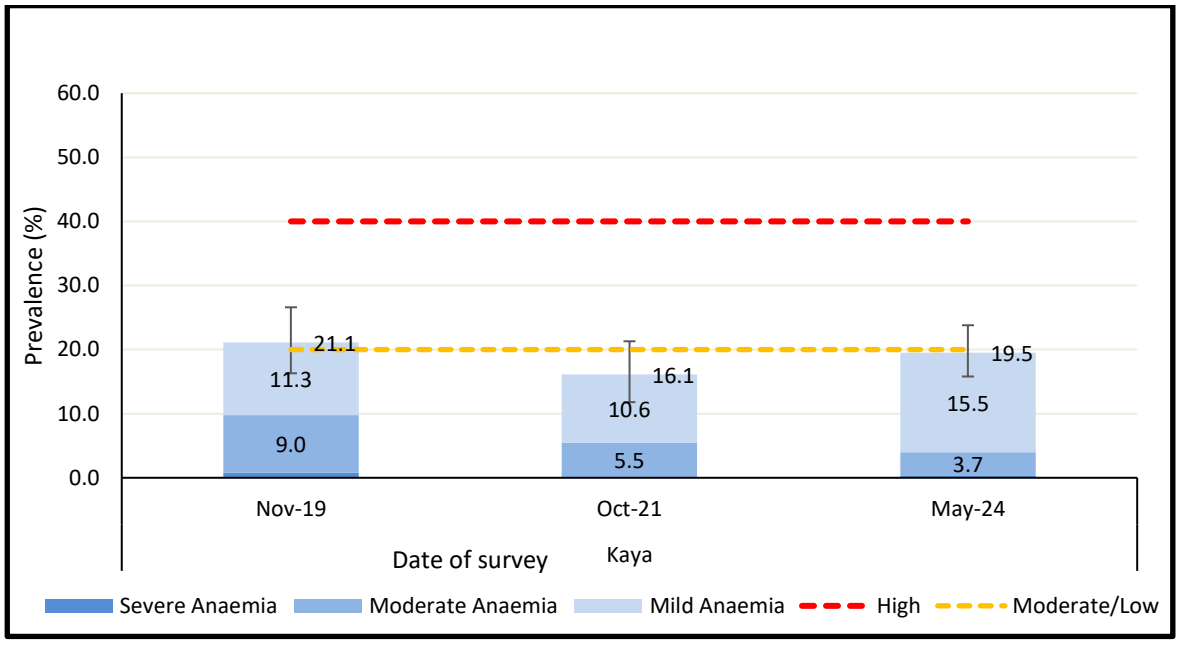


Table 204: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years) - Kaya refugee camp.

	Number /total	% (95% CI)
Currently enrolled in ANC programme	40/43	93.0% (80.9-98.5)
Currently receiving iron-folic acid pills	40/43	93.0% (80.9-98.5)

Table 167: BSFP enrollment coverage among pregnant and lactating women (15-49 years) – Kaya refugee camp

	Number /total	**% (95% CI)**
Currently enrolled in BSFP	67/83	80.7% (70.6-88.6)

Demography

Household size and composition

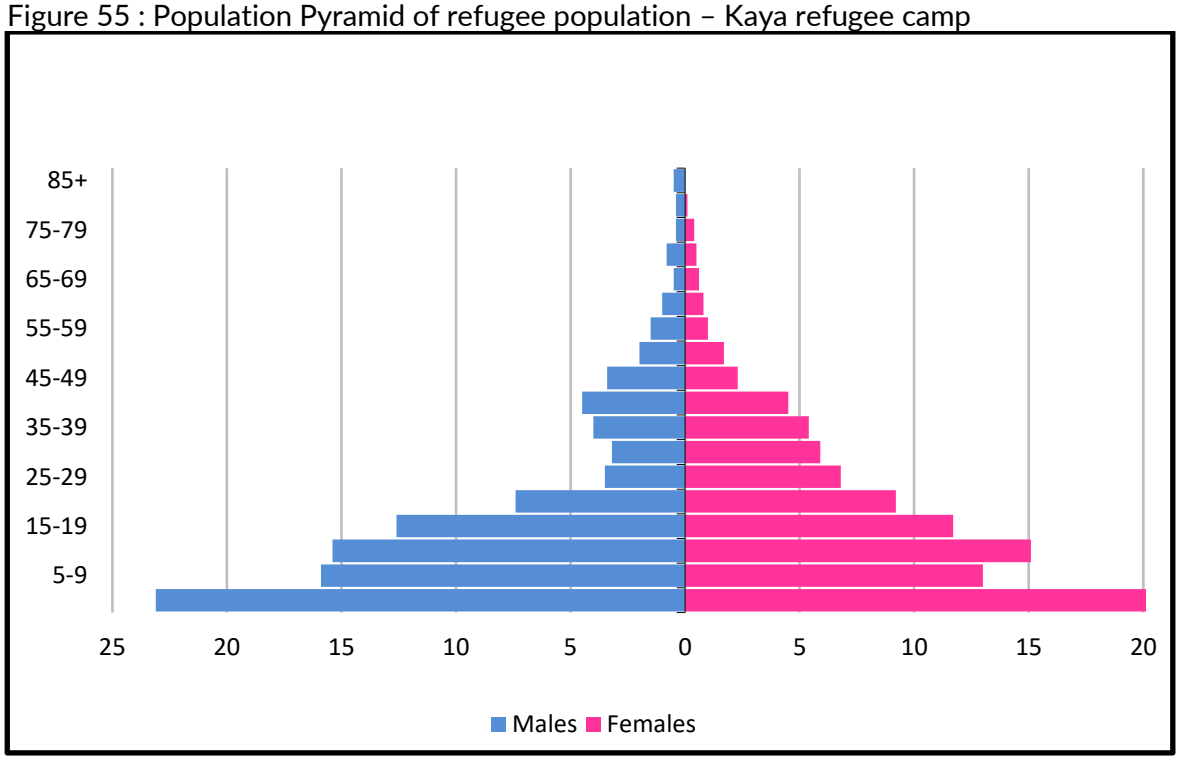
Table 205: Demographic characteristics, household size and composition of the surveyed population – Kaya refugee camp

Household size and composition	Results
Population size – Total persons (ProGres 31st March 2024)	33,851
Total households surveyed	560
Total population surveyed	3857
Total U2 in surveyed households	347

Total U5 in surveyed households		854
Average household size		6.9
Household size categories	1-4 person(s)	22.9%
	5-6 persons	26.6%
	7-9 persons	32.3%
	≥ 10 persons	18.2%
Household composition	Children under two	0.6
	Children under five	1.5
	Children aged 5-14 years	2.0
	Members aged 15-64 years	3.2
	Members aged 65 years and above	0.1
Percent of children U2	%	9.0%
Percent of children U5	%	22.1%
Percent pregnant women (15-49 years)	%	1.6%
Percent of elders (65 years and above)	%	2.0%
Sex ratio	Male/Female	0.95

Overall, male to female sex ratio was 0.95. This implies the higher proportion of the population is female than male. The percentage of children under five was 22.1%, elders (65 years and above) was 2.0%, and and the average household size is 6.9.

Figure 55 : Population Pyramid of refugee population – Kaya refugee camp



The population pyramid is strongly lean to children between 0 months to 19 years. Among children and teenages up to 19 years old, males (67.0%) are more than females (61.0%). However, among aged between 20 to 59 years old, there were

more females (36.8%) than males (29.5%). One probable contributing factor could be the higher rate of out migration in search for livelihood opportunities. The dependency ratio in Doro refugee camp is 24.1%. This suggests there is a lesser burden on the family economic situation as there are more working members of the households.

Household head profile

Table 206: Household head profile – Kaya refugee camp

	Number/total	% (95% CI)
Female headed households (working age 15-64 years)	273/557	49.0 (44.9-53.2)
Male headed households (working age 15-64 years)	239/557	42.9 (38.9-47.1)
Children headed households (under 15 years)	0/557	0.0 (0.0-0.0)
Elderly headed households (65 years and above)	45/557	8.2 (6.1-10.6)
Mean age of household head in years (SD) [range]	42.1 (14.1) [18.0-92.0]	

A higher proportion of the households are headed by females (49.0%) than males (42.9%).

Food security

Access to food assistance in Doro refugee camp.

Table 207: Food assistance ration card and cash coverage – Kaya refugee camp

	Number/total	% (95% CI)
Proportion of households with a ration card	284/284	100% (98.7-100.0)
Proportion of households receiving cash grants & inkind	284/284	99.6% (98.7-100.0)

As indicated on the above table, all the surveyed households had ration cards and have been receiving food assistance. The proportion of households that received cash grants and in-kind food assistance for the month prior to the survey was 285 (99.6%).

Table 208: Reported duration of general food ration

	Number/total	% (95% CI)
Average number of days general food ration lasts out days (mean, S.D/range)	284	7.7 (4.6) **[1-30]**

The food and cash received from GFD in the month prior to the survey was reported to last 7.7 days out of the distribution cycle of 30 days.

Table 209: Description of utilisation of cash assistance – Kaya refugee camp

Proportion of households that use cash grants for:	Number/total	% (95% CI)
Food	282/283	99.7% (98.1-100.0)
Water	0/283	0.0% (0.0-0.0)
Hygiene items, clothes, shoes	161/283	56.9% (50.9-62.7)

Health costs (including medicines)	19/283	6.7% (4.1-10.3)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	5/283	1.8% (0/6-4.1)
Firewood / fuel for cooking or heating	16/283	5.7% (3.3-9.2)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	6/283	2.1% (0.8-4.6)
Debts repayment	51/283	18.0% (13.7-23.0)
Saved some money, gave some to other family members, relatives, friends	0/283	0.0% (0.0-0.0)
Education (e.g. school fees, uniform, books)	2/283	0.7% (0.1-2.5)
Other	0/283	0.0% (0.0-0.0)

Most families reported spending the received money on food (99.7%), hygiene items (56.9%), and then debts repayment (18.0%).

Coverage of basic needs

Table 210: Description of basic needs not met by the households – Kaya refugee camp.

Basic needs not met by the households:	Number/total	% (95% CI)
Food	240/283	84.8% (80.1-88.8)
Water	0/283	0.0% (0.0-0.0)
Hygiene items, clothes, shoes	221/283	78.1% (72.8-82.8)
Health costs (including medicines)	57/283	20.1% (15.6-25.3)
Rent, shelter repair, household items (e.g. mattress, blankets, jerrycan), utilities and bills (e.g. electricity, water bills, phone calling credit)	65/283	23.0% (18.2-28.3)
Firewood / fuel for cooking or heating	23/283	8.1% (5.2-12.0)
Assets for a livelihood activity (e.g. seeds, tools, farming, fishing, petty trade, etc.)	77/283	27.2% (22.1-32.8)
Debts repayment	29/283	10.3% (7.0-14.4)
Saved some money, support other family members, relatives, friends	8/283	2.8% (1.2-5.5)
Education (e.g. school fees, uniform, books)	51/283	18.0% (13.7-23.0)
Other	6/283	2.1% (0.8-4.6)

The category of basic needs that cannot be met reported the most are: food, hygiene items, and household items.

Negative household coping strategies

FDSPs receive 50% of food assistance monthly provided through general distribution conducted by Samaritan Purse, a WFP partner. The modality of distribution was cash during the survey period. However, a mixed approach is always used in Maban depending on the situation. The food basket comprised of cereals, lentils, cooking oil, and cash for milling and

salt. Should be noted the cash transfer value varies from one month to other depending on the prices of commodities in Maban markets prior to the actual GFD days.

To fill the food gaps, the FDSPs mentioned different types of strategies as shown on table below to cope with the situation.

Table 211: Coping strategies used by the surveyed population over the past month – Kaya refugee camp.

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Rely on less preferred and/or less expensive foods	275/284	96.8% (94.1-98.5)
Borrow food, or rely on help from a friend or relative	226/284	79.6% (74.4-84.1)
Reduce the number of meals eaten in a day	258/284	90.9% (86.9-93.9)
Limit portion sizes at mealtime	263/284	92.6% (88.9-95.4)
Reduce consumption by adults so children could eat	188/284	66.2% (60.4-71.7)
Average rCSI (mean, SD / range)	284	16.6 (9.6) [0-9]
Proportion of households reporting using none of the negative coping strategies over the past month	9/284	3.2% (1.5-5.9)

* The total was over 100% as households used several negative coping strategies.

Reported coping strategies applied due to lack of food or money to buy food were relying on less preferred or less expensive foods and limiting portion sizes at mealtime. Only 3.2% of households were not under significant stress to meet their food needs as indicated by the proportion of household using none of the negative coping strategies over the past month prior to the survey.

The average reduced Coping Strategy Index (rCSI) score was 16.6% and this situation indicates the FDSPs in Kaya camp rely on multiple types of coping strategies. Use of this for longer period will lead them towards chronic food insecurity.

Food Consumption Score (FCS)

April 2024 GFD cycle was considered the last general food distribution prior to the survey. In Kaya camp, general food distribution lasts for a week due to its population size and distribution is organized by family sizes. For the first time in the refugee camp, the survey

was conducted during lean season where overall food availability is limited thus likely that the household dietary diversity score is lower than it would be.

Table 213: Food consumption score by category and average FCS – Kaya refugee camp

FCS profiles	Number/total	% (95% CI)
Acceptable (FCS > 35)	55/284	19.4% (14.9-24.5)
Borderline (21.5≤FCS≤35)	106/284	37.3% (31.7-43.2)
Poor (FCS≤21)	123/284	43.5% (37.5-49.3)
Average FCS (SD) [range]	284	25.4 (12.9) [10-9]

*Maximum FCS is 112.

The average FCS among refugees in Kaya camp was 25.4 out of total score of 112, which falls into the borderline category. This is echoed by most households having FCS score classified as borderline.

Table 214: Consumption frequency categories of each nutrient rich food groups (FCS-N) – Doro refugee camp

Nutrient rich food groups	Consumption frequency categories	Number/total	% (95% CI)
Vitamin A rich foods	Never	153/284	53.9% (47.9-59.8)
	Sometimes	101/284	35.6% (30.0-41.4)
	At least daily	30/284	10.6% (7.2-14.7)
Protein rich foods	Never	58/284	20.4% (15.9-25.6)
	Sometimes	179/284	63.0% (57.1-68.7)
	At least daily	47/284	16.6% (12.4-21.4)
Haem iron rich foods	Never	184/284	64.8% (58.9-70.3)
	Sometimes	89/284	31.3% (26.0-37.1)
	At least daily	11/284	3.9% (2.0-6.8)

In terms of the nutrient rich food, 46.2% households reported consumed Vitamin A rich foods (sometimes or daily), 79.6% reported consumed protein rich foods, while only 35.2% reported consumed Haem iron rich foods.

Table 215 : Food acquisition sources – Kaya refugee camp

Food acquisition sources	Number/total	% (95% CI)
Purchase (using cash grants and/or with their own cash)	181/284	63.7% (57.8-69.3)
Own production (crops, livestock, fishing/ hunting, gathering)	3/284	1.1% (0.2-3.1)
Traded goods/services, barter	1/284	0.4% (0.0-2.0)

Borrowed (loan/credit from traders)	66/284	23.2% (18.5-28.6)
Received as gift (from family relatives or friends/neighbour)	1/284	0.4% (0.0-2.0)
In-kind or voucher based food assistance	32/284	11.3% (7.8-15.5)

The main source for food reported was through purchasing (63.7%), borrowing (23.2%), and in-kind food assistance (11.3%).

3.6. Household Mosquito net ownership and utilization

Table 216**:** Household Mosquito net ownership

	Number/total	% (95% CI)
Household owning at least one mosquito net of any type	131	46.3% (40.4-52.3)
Household owning at least one mosquito net of LLIN type	95	33.5% (28.0-39.3)

Table 217: Number of nets

Average number of LLINs per household	Average number of persons per LLIN
1.0	6.5

Table 218: Mosquito net utilization

	Proportion of total population (all ages)		Proportion of children 0-59 months		Proportion of pregnant women	
	Total# 1838	%	Total # 402	%	Total# 46	%
Slept under net of any type	480	26.1	178	44.3	23	50
Slept under LLIN	327	17.8	111	27.6	17	37.0

Proportion of household owning at least one mosquito net of any type and LLIN type in Kaya camp was 46.1% and 33.5% respectively leading to increased number of persons per mosquito net (3.7 per mosquito net of any type and 6.5 per LLIN mosquito net) which is beyond the recommended UNHCR standard (2 persons/LLIN).

Table 219: Indoor Residual Spraying

	Number/total	% (95% CI)
Proportion of households covered by Indoor Residual Spraying (IRS)	2/284	0.7% (0.1-2.5)

The IRS coverage was 1.1% and this was due to no IRS conducted within the last six months in the camp.

4.0 LIMITATIONS

Torn or lost birth notification and EPI cards for documentation; the age documentation coverage ranged between 75%-86% in all the camps. Some caretakers/mothers reported either loosing the mentioned cards or the cards were torn. Therefore, confirmation using the event calendar was done to ascertain the age given by the mother or caregiver is true. This may impact on the reliability or interpretation of the stunting and under weight results. Therefore, caution is needed as z scores for height-for-age requires accurate ages.

Maban camps dynamics; two separate sets of surveys teams had to be trained each in Doro and Gendrassa/Yusuf Batil and Kaya. This is due to the dynamics of ethnicity between Doro camp and the other three camps. The two groups from Doro and three camps can't meet in either way. This increased the training and the data collection duration.

5.0 DISCUSSION

Nutritional Status of Young Children

Generally, boys and girls were equally represented in the survey. These are indicated by respective camps age sex ratio of the anthropometric data of 1.0 in Doro, 0.9 in Yusuf Batil, 1.1 in Gendrassa, and 1.0 in Kaya for boys and girls of all ages.

Global Acute Malnutrition: Based on weight for height (WHZ), the prevalence of acute malnutrition among children 6-59 months showed a deteriorating acute malnutrition situation of very high public health concern in Doro camp (17.3%). Prevalence in Gendrassa (10.0%) and Kaya (12.3%) camps remained of high public health concern while in Yusuf Batil remained of poor public health concern according to WHO classification (10 - <15% = high and 5-<10 = poor). The weighted GAM prevalence (13.7%) across all camps was of high public health concern. Compared to previous years surveys, there has been significant rised in GAM prevalence in Doro (from 9.5% in 2022 to 17.3% in 2024) and Kaya (from 10.6% in 2021 to 12.3% in 2024). Though there is decrease in GAM prevalence in Yusuf Batil (from 10.3% to 9.0%) and Gendrassa (from 11.9% to 10.0%) camps as compared to 2021, the prevalence didn't show a significant reduction ($p>0.05$). Overall, the results showed a deteriorating Global Acute Malnutrition (GAM) situation of very high public health concern in the camps.

Combined Acute Malnutrition (cGAM): The overall combined Acute Malnutrition prevalence (cGAM) by weight-for-height Z-score (WHZ) and/or low MUAC and/or edema was 14.9%. The prevalence of combined GAM was higher than the prevalence of WHZ or and MUAC (13.7%). Although there is no globally accepted threshold for combined GAM and SAM, this is a relevant indicator for caseload planning for nutrition treatment programs.

Moderate Acute Malnutrition (MAM): Results showed MAM prevalences of 13.8% in Doro, 7.6% in Yusuf Batil, 9.1% in Gendrassa, and 11.1% in Kaya. Compared to previous surveys findings, there is an observed increase in MAM prevalence in the camps. It is important to note that MAM cases form the highest caseload of malnutrition in all the camps, therefore attention should be given to lowering the MAM rates.

Severe Acute Malnutrition (SAM): SAM prevalence across the camps ranged between 0.9%-3.5%. Overall weighted SAM prevlence in all camps was 2.3% and this is above the UNHCR target of <2% in camp settings. Respective camps SAM are indicated by 3.5% (Doro), 1.4% (Yusuf Batil), 0.9% (Gendrassa), and 1.2% (Kaya). Compared to previous years findings, the overall prevalence increases from 1.5% in 2021 to 1.8% in 2024.

Stunting (chronic malnutrition): Overall, the prevalence of stunting among children 6-59 months across Maban camps was high (26.8%) based on WHO threshold of 20-<30%. Respective camps prevalences are 15.2% in Gendrassa, 24.3% in Yusuf Batil, 26.9% in Kaya, and 30.5% in Doro. Compared to previous year survey findings, the prevalence showed an increasing trend in the three camps of Yusuf Batil, Gendrassa, and Kaya. While in Doro camp, there is decrease noted. Though all prevalences are below WHO acceptable standard of (40%) across all camp, the situation remains serious.

Diarrhoea prevalence
The survey findings indicated that 22.6% (Doro), 11.6% (Yusuf Batil), 8.4% (Gendrassa), and 9.4% (Kaya) of the surveyed children had diarrhoea (3 or more times loose or watery stools in a day) in the past two weeks preceding the survey. Overall prevalence in all camps was 16.1% and this points to a significant morbidity burden in the camps which calls for interventions to treat and prevent common childhood illnesses including the other illnesses.

Of the surveyed children who had diarrhoea, more than 80% in the camps of Yusuf Batil, Gendrassa, and Kaya were treated using ORS while in Doro camp, only 67.2%. For treatment using Zinc tablet, below are the respective camps rates; Yusuf Batil (65.5%), Doro (75.2%), Gendrassa (83.3%), and Kaya (88.6%).

Health and nutrition program coverage:
Measles vaccination: the proportion of all children aged 9-59 months who had received measles vaccination through either use of EPI cards or recall from the mothers met the recommended Sphere standard of ≥95% (Doro 98.0%, Yusuf Batil 95.7%, Gendrassa 97.5%, and Kaya 95.8%).

Vitamin A supplementation: the survey findings showed children aged 6-59 months were supplemented with Vitamin A in the last six months. Supplementation coverages in Yusuf Batil and Kaya were very low as indicated by 20.7% and 7.7% respectively. Coverages in Doro (93.3%) and Gendrassa (96.4%) met the Sphere recommended standard of ≥90%. Is to be noted that only in Doro and Gendrassa camps that the last campaign conducted was within the six months prior to the survey.

Vitamin A Supplementation is critical, not only for eliminating Vitamin A deficiency as a public health problem, but also plays key role for child survival. This calls for strengthen efforts to ensuring timely provision of Vitamin A supplements to children aged 6-59 months.

Deworming coverage: Survey findings indicated deworming coverage among children aged 12-59 month measured by recall information from the mothers or caretakers within the past six months was below the recommended standard of ≥75%. While in Doro and Gendrassa camps, the coverage was within recommended standard of ≥75%. Respective camps coverages are as shown; Doro 77.5%, Yusuf Batil 13.3%, Gendrassa 75.5%, and Kaya 0.8%. Is to be noted that only in Doro and Gendrassa camps that the last campaign conducted was within the six months prior to the survey.

Selective feeding programmes enrolment coverages: the enrolment coverage results based on both admission criteria in all camps for selective feeding programmes (OTP and TSFP) were below ≥90% SPHERE standard for the camps. Coverages ranged from 12.8% in Yusuf Batil to 17.0% in Kaya for SFP and 8.3% in Yusuf Batil and Kaya to 20.0% in Gendrassa for OTP. Similarly, findings from survey indicated indicated low enrolment coverage in both OTP and TSFP based on admission criteria using MUAC and/or oedema only. This indicates the need to strengthen mass screening, active case findining, and timely referrals to the nutrition sites for treatment.

BSFP enrollment coverages: Survey findings indicated the BSFP enrolment coverage for children aged 6-23 months was within the recommended standard of ≥90% for the camps setting. Respective camps coverages were 92.2% (Doro), 91.2% (Yusuf Batil), 90.0% (Gendrassa), and 93.7% (Kaya).

Programme coverage in women: Survey results indicated coverage for ANC for women of reproductive age was 58.1% (Doro), 91.3% (Yusuf Batil), 88.9% (Gendrassa), and 93.0% (Kaya). Iron Folic acid supplementation coverage was 50% (Doro), 87.0% (Yusuf Batil), 89.0% (Gendrassa), and 93.0% (Kaya). BSFP enrolment coverage; Doro (74.1%), Yusuf Batil (79.6%), Gendrassa (87.5%), and Kaya (80.7%). Overall coverages for ANC and Iron Folic Acid supplementation in Doro camp were low.

Anaemia in Children 6-59 Months and Women

Anaemia in children 6-59 months; Surevy findings indicated 34.8% overall anaemia prevalence among children aged 6 to 59 months in all the refugee camps. These were indicated by respective camps prevalences of 36.9% (Doro), 32.1% (Yusuf Batil), 32.8% (Gendrassa), and 34.1% (Kaya). These prevalences are of medium public health significance. Compared to 2021 survey findings, the prevalence of anaemia showed a decrease however, of note is that children aged 6-23 months compared to 24-59 months were the most affected by anaemia with prevalence of 53.5% above the WHO threshold of 40%.

Despite average consumption of iron rich foods by children as indicated by a range of rate between 61.0% (Kaya) to 67.9% (Doro), consistent implementation of blanket supplementary feeding programme for children aged 6-23 months, strengthened IYCF intervention, and nutrition linkages with livelihoods, the effectiveness of these programs still have minimal impact in reducing the prevalence of anaemia. Therefore, there is need for additional multisectoral efforts towards anaemia prevention and control interventions to address the nutritional, health, and other underlying causes of anaemia among children 6-59 months.

Anaemia in women (15-49 years); Survey findings indicated an overall prevalence of anaemia 23.7% among women of non-pregnant reproductive age (15-49 years). This prevalence is of medium public significance and compared to 2021 survey findings, the results showed an increase in prevalence. Respective camp prevalences were Yusuf Batil (16.2%), Kaya (19.5%), Doro (30.0%), and Gendrassa (21.0%). In Doro and Gendrassa camps, the prevalence is above the expected <20% UNHCR target.

IYCF indicators

When interpreting the IYCF indicators, it is important to be cautious and careful as the survey sample sizes were small and calculated based on previous survey prevalence of GAM for children aged 6-59 months to draw meaningful conclusions. The presented results provide an overview or idea of the situation on IYCF practices among the surveyed children aged 0-23 months and therefore should not be generalized.

Early initiation to breastmilk; Early initiation to breastmilk within one hour of birth reduces the risk of neonatal mortality. Infants with delayed initiation of breastfeeding for more than 24 hours after birth, are 2.4 times more likely to die during the first month of life. Survey results indicated that the early initiation of breastfeeding rate across all camps was above the recommended standard of >90% across all camps. This is indicated by respective camps rates 91.1% in Doro, 92.8% in Yusuf Batil, 93.2% in Gendrassa, and 95.6% in Kaya. Compared to survey findings in 2021, there was an increase. Interventions to ensuring all

delivered children receive timely initiation of breastfeeding should be strengthened to ensuring child survival.

Exclusive breastfeeding: Breastmilk alone satisfies the nutritional and fluid requirement of an infant for the first six months in life in all settings and climate. If milk-based fluids or solids are provided to breastfed neonate, the risk of neonatal death is increased. After six-month, infant needs additional foods to meet the energy and other nutrient requirements. The exclusive breastfeeding rate in the three camps of Yusuf Batil (94.3%), Gendrassa (88.7%), and Kaya (97.7%) for the first six months of life met the UNHCR standard of ≥75%. While in Doro camp the rate was 56.1%.

Continued breastfeeding at one year; the continuation of breastfeeding among children aged 12-15 (at 1 year) in all refugee camps were >90% (96.5% in Doro, 95.2% in Yusuf Batil, 90.7% in Gendrassa, and 90.7% in Kaya). Continuation of breastfeeding among children aged 20-23 months (at 2 years) was <90% (86.0% in Doro, 66.7% in Yusuf Batil, 80.7% in Gendrassa, and 58.3% in Kaya). Probable reason for the low rates could be due to either high birth rate or short birth intervals. Key IYCF messages such as continued breastfeeding into the second year and birth spacing need to be strengthened at all contact points to ensuring continuation of breastfeeding at 1 and 2 years.

Introduction of solid/semi-solid/soft foods: after six months of age, the nutrition needs of children 6-23 months increase and therefore, breast milk or fluid alone is not sufficient for them. It is necessary to introduce timely complementary feeding to add on to the breastmilk to meet the energy and other nutrient requirements of the infant. Findings from the survey indicated that the introduction of solid/semi-solid/soft foods rate to infants aged 6-8 months increased compared to the survey findings in 2021. These are indicated by respective camps rate of 65.9% (Doro), 71.4% (Yusuf Batil), 51.5% (Gendrassa), and 57.1% (Kaya). The proportion of children aged 6 -23 months who had consumed iron-rich or iron-fortified foods significantly decreased in 2024 across all camps compared to 2021. The rates were <70% (67.9% in Doro, 64.4% in Yusuf Batil, 67.1% in Gendrassa, and 61.0% in Kaya). Messaging on importance of complementary feeding needs to be strengthened especially across all camps as this has direct impact on stunting outcomes.

Bottle feeding; Bottle feeding places children at high risk of illness (diarrhoeal disease) due to likelihood contamination of the bottle and nipple. Survey findings revealed that bottle feeding rate among children aged 0-23 months were 0.8% (Doro), 0.0% (Yusuf Batil and Kaya), and 1.8% (Gendrassa). Compared to findings in 2021, there is decreased across all camps. At all contact points messaging on importance of early initiation, exclusive breastfeeding for the first six complete months, and the continuation of breastfeeding into the second year of life need to be strengthened to provide the best chance of survival for infants and young children.

Food security

All surveyed households in the camps had ration cards and received food and cash assistance during the April GFD. The duration of days the general food ration provided last for 8.6 (Doro), 8.3 (Yusuf Batil), 9.1 (Gendrassa), and 7.7 (Kaya) out of 30 days. FCS among refugees in all camps as indicated from the survey findings was 25.4 (Kaya), 30.1 (Gendrassa), 27.8 (Doro) and 28.9 (Yusuf Batil) out of total score of 112 which falls into the borderline category (21.5-35). To fill the gaps, most households in the camps reported using one or more of the negative coping strategies of less expensive foods, borrowing food or relying on help from friend or relative, reducing the number of meals eaten in a day, limiting portion sizes at mealtime, and reducing consumption by adults so children could eat.

Mosquito net ownership and utilization

The survey findings indicated ownership of Long-Lasting Insecticide Treated Nets (LLINs) was 39.9% (Doro), 35.9% (Yusuf Batil), 33.0% (Gendrassa), and 33.5% (Kaya). All camps coverages were below the UNHCR target of 80% for the mosquito nets to have community level protection against malaria. Neither blanket nor targeted mosquito nets distribution was done in the camps for the old refugee's case load, and this could be contributing factor for the low coverage. Mosquito nets distribution was only conducted for the new arrivals as part of the UNHCR NFI package. On average 23.3% of the surveyed populated slept under an LLIN with higher utilization among at risk population of children U5 (33.2%) and pregnant women (32.1%). More than 2 (three times) persons shared a LLIN compared to the UNHCR standard of 2 persons per LLIN. The IRS coverages wer 1.1%, 14.8%, 51.2%, and 0.7% in the camps of Doro, Yusuf Batil, Gendrassa, and Kaya respectively. All camps coverages were very low because last campaign was conducted in June 2023. However, during the survey, there was an ongoing IRS in Gendrassa that is why the coverage looks higher than other camps.

Conclusion

The prevalence of GAM (13.7%) among children 6-59 months across all Maban camps remained of high public health concern with noted very high situation in Doro camp (17.3%). Stunting also remained high with overall prevalence of 26.8% closed to the threshold or critical level of 30%. Anaemia prevalence among children aged 6-59 months remained a medium public health concern with overall prevalence 34.8%. children 6-23 months were most affected with anaemia prevalence of 53.5% above WHO threshold of 40% thus indicating a major public health problem. Diarrhoea prevalence remained high at 16.1%. Overall, the survey results indicate a concerning state of malnutrition in the camps, considering aggravating factors such as surges in morbidities (diarrhoeal, malaria and respiratory tract infections) among children 6-59 months, continuous floods during rainy season, reduced food assistance (from 12 to 8 calendar year and targeted food assistance to only vulnerable population). Multisectoral effort should be made and strengthen where existing to mitigate the impact on children.

Interms of health and nutrition programmes coverage, most indicators such as measles vaccination and blanket supplementary feeding coverage among children were good. Vitamin A supplementation, deworming, and selective feeding enrollment coverages remained low. Among women of reproductive age, access to and coverage of antenatal care (ANC) and iron folic acid (IFA) supplementation was good except in Doro camp. Blanket Supplementary Feeding program for pregnant and lactating women was good. Therefore, there is need for additional multisectoral efforts towards ensuring timely provision of Vitamin A supplements to children aged 6-59 months and Iron Folic Acid supplements to pregnant women, strengthened active case findining and timely referrals to the nutrition sites for treatment.

Ownership of Long-Lasting Insecticide Treated Nets (LLINs) coverage were below the UNHCR target of 80% for the mosquito nets to have community level protection against malaria. Additionally, LLIN mosquito nets continues to be a gap in the operation. No neither blanket nor targeted distribution to the FDSPs. More than 2 (three times) persons shared a LLIN compared to the UNHCR standard of 2 persons per LLIN. Though IRS coverage was low in all camps, partner Mentor Initiative concluded IRS campaign in all camps with coverages more than 90%.

With the reduced GFD calendar months from 12 to 8 in Maban, targeted food assistance to only the vulnerable population in the camps, and limited livelihood options, expansion of

agriculture and livelihood activities should be prioritized to meet the needs of the persons of concern.

6.0 RECOMMENDATION AND PRIORITIES

Recommendation

Nutrition related.

1. Strengthen continued implementation of the Community based Management of Acute Malnutrition program to ensure timely treatment of identified and referred cases to the nutrition sites (RI, IRC, UNHCR, and UNICEF).

2. Maintain community and facility screening including active case finding of children U5 in the camps to ensure timely enrollment of malnourished children U5 into treatment programs (RI and UNHCR).

3. Strengthen two-stage screening measurements for children with MUAC at risk at all contact points at facilities. This is to ensure timely identifification and admission of malnourished children into the appropriate programs (RI).

4. Strengthen capacity building of staff on nutrition programming to facilitate quality provision of nutrition services (RI, IRC, UNHCR, WFP, and UNICEF).

5. Advocate for continue implementation of BSFP to children aged 6-23/59 months and pregnant and breastfeeding women to prevent malnutrition and cover nutrient gap (WFP and UNHCR).

6. Scale up investments in nutrition prevention approaches including social behaviour change programmes (health education on optimal childcare, proper sanitation and hygiene including appropriate IYCF and MIYCN practices). This is to help in reducing incidences of malnutrition and diarrhoea among children U5 and promotion of appropriate IYCF practices in the camps (RI and IRC).

7. Strenthen systematic anaemia screening, diagnosis, and treatment among children U5 and PBW and promotion of production and consumption of iron rich foods (RI, and IRC).

8. Maintain routine Expanded Program of Immunization (EPI) and as well as campaigns as per National Ministry of Health schedule (RI, UNICEF, and UNHCR).

9. Strengthen monitoring of the nutrition situation through regular assessments and data analysis to ensure quality of interventions and better health and nutrition outcomes (RI, UNHCR, WFP, UNICEF, and IRC).

Food security

1. Strengthen multisectoral approaches to addressing the major causes of acute malnutrition through improved farming (climate smart Agriculture), storage/food preservation techniques, and promoting the growing of nutrient dense foods (RI, UNHCR, WFP, and FAO).

2. Conduct joint assessments to monitor the food security situation in the camps (WFP, UNHCR, RI, SP, and other partners).

3. Strengthen school feeding programme through diversification of school meals through school agriculture clubs to enhance local food Production (fruits and

vegetables) to increases the variety and nutritional quality of the food school meals served (SP,RI, UNHCR, WFP, and FAO).

Health and WASH related.

1. Strengthen management of early childhood diseases among children U5 and reproductive health interventions focusing on healthy timing and spacing of pregnancies for better health outcomes (RI, IRC, UNHCR, and UNICEF).

2. Advocate for blanket distribution of Long-Lasting Insecticide Treated Nets to achieve high net coverage across all camps (UNHCR, UNICEF, MI, and RI).

3. Strengthen hygiene promotion and provision of adequate soap to facilitate the prevention and control of infections like diarrhea and other hygiene related illnesses to be strentened (RI and UNHCR).

7.0 APPENDICES

APPENDIX 1: SURVEY TEAMS

Survey coordination, team supervision and operational support		
UNHCR		
Abe John M KIRI	Senior Nutrition and Food Security Associate	UNHCR-Bunj
Sebit Mustafa	Senior Public Health Associate	UNHCR-Juba
WFP		
Alice Tiko	Program Associate-Nutrition focal person	WFP-Bunj
RI		
Michael Eida	Senior Nutrition Officer	Maban
Ramadan Lal	BCC Officer	Maban
Foni Joyce	MIYCN Officer	Maban
Yengi Gerald	MEAL Coordinator	Maban
Alier Peter	BCC Officer	Maban
Lovister Ange	Senior MIYCN Officer	Maban
Amacara Pausto	OTP Nurse	Maban
Lasu Emmanuel	OTP Nurse	Maban
Jimmy Chol	OTP Nurse	Maban
Turo Patrick	Nutrition Coordinator	Maban
Ramadan Lal	BCC Officer	Maban
Awad Abraham	OTP Nurse	Maban

Data Analysis and Report writing		
Abe John M Kiri	Senior Nutrition and Food Security Associate	UNHCR-Maban
Sebit Mustafa	Senior Public Health Associate	UNHCR-Juba

Amina Mohamed Abdille	Assistant Nutrition and Food Security Officer	UNHCR - Nairobi (Regional Bureau)

Technical Report Review		
Dr. Alemayehu Nigatu G	Public Health Officer	UNHCR-Juba
Amina Mohamed Abdille	Assistant Nutrition and Food Security Officer	UNHCR - Nairobi (Regional bureau)

APPENDIX 2: SUMMARY OF THE OVERALL QUALITY OF ANTHROPOMETRIC DATA

Doro refugee camp

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (2.2 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.967)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.277)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (10)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.00)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.06)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.09)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**2** %

The overall score of this survey is 2 %, this is excellent.

Yusuf Batil refugee camp

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.6 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.167)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.992)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (0.93)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.06)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (0.24)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**3** %

The overall score of this survey is 3 %, this is excellent.

Gendrassa refugee camp

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (1.1 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.329)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.387)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (4)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (10)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (0.91)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (0.30)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.01)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**5** %

The overall score of this survey is 5 %, this is excellent.

Kaya refugee camp

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (0.5 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.661)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.696)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**2** (8)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (0.91)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**1** (0.20)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.07)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**3** %

The overall score of this survey is 3 %, this is excellent.

APPENDIX 3: SURVEY QUESTIONNAIRES

Greeting and reading rights.

UNHCR Standardised Expanded Nutrition Survey (SENS) Questionnaire	المفوضية الموحد مسح التغذية الموسعة (SENS) استبيان

Greeting and reading of rights:	**تحية وقراءة من الحقوق**
THIS STATEMENT IS TO BE READ TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSE BEFORE THE INTERVIEW. DEFINE A HOUSEHOLD AS A GROUP OF PEOPLE WHO LIVE TOGETHER AND ROUTINELY EAT OUT OF SAME POT. DEFINE HEAD OF HOUSEHOLD AS MEMBER OF THE FAMILY WHO MANAGES THE FAMILY RESOURCES AND IS THE FINAL DECISION MAKER IN THE HOUSE.	هذا البيان هو أن تقرا قبل المقابلة لربة الاسرة أو إذا ما غاب أو عضو آخر البالغين من البيت.تعريف سكان لبيت مجموعة من الناس الذين يعيشون معا ويأكلون بشكل روتيني في قدر او (هال) واحد تعريف مسؤول اوربة البيت فرد من أفراد الأسرة الذي يدير موارد الأسرة وهو صانع القرار النهائي في البيت.

Hello, my name is _____ and I work with *[UNHCR]*. We would like to invite your household to participate in a survey that is looking at the nutrition and health status of people living in this camp.

- UNHCR is sponsoring this nutrition survey.
- Taking part in this survey is totally your choice. You can decide to not participate, or if you do participate you can stop taking part in this survey at any time for any reason. If you stop being in this survey, it will not have any negative effects on how you or your household is treated or what aid you receive.
- If you agree to participate, I will ask you some questions about your family and I will also measure the weight and height of all the children in the household who are older than 6 months and younger than 5 years In addition to these assessments, I will test a small amount of blood from the finger of the children and women to see if they have anaemia.
- Before we start to ask you any questions or take any measurements, we will ask you to state your consent on this form. Be assured that any information that you will provide will be kept strictly confidential.
- You can ask me any questions that you have about this survey before you decided to participate or not.
- If you do not understand the information or if your questions were not answered to your satisfaction, do not declare your consent on this form.

Thank you.

مرحبا، اسمي _____ وأنا أعمل مع [المفوضية]. نود أن ندعو أهل بيتك للمشاركة في الدراسة أن تبحث في الحالة الغذائية والصحية للناس الذين يعيشون في هذا المخيم.

- المفوضية في رعاية هذا المسح التغذوي.
- المشاركة في هذا المسح هو تماما اختيارك. يمكنك أن تقرر عدم المشاركة، أو إذا كنت تفعل المشاركة يمكنك إيقاف المشاركة في هذا المسح في أي وقت ولأي سبب. إذا كنت تتوقف عن أن تكون في هذه الدراسة، فإنه لن يكون لها أي تأثير سلبي على كيفية التعامل معك أو أسرتك أو ما تلقي المساعدات لك.
- إذا كنت توافق على المشاركة، وسوف أسألك بعض الأسئلة عن عائلتك وسوف أيضا قياس الوزن والطول للأطفال كل في الأسرة الذين هم أكبر سنا من 6 أشهر والذين تقل أعمارهم عن 5 سنوات بالإضافة إلى هذه التقييمات، |سيتم اختبار كمية صغيرة من الدم من الاصبع من الأطفال والنساء لمعرفة إذا كان لديهم فقر الدم.
- قبل أن نبدأ أن أطلب منكم أي أسئلة أو اتخاذ أي قياسات، سوف نطلب منك موافقتك على الدولة هذا النموذج. التأكد من أن أي وستبقى المعلومات التي سوف تقدم في سرية تامة.
- يمكنك أن تسأل أي سؤال لي أن لديك حول هذا المسح قبل أن تقرر المشاركة أم لا.
- إذا كنت لا تفهم المعلومات أو إذا لم تكن الإجابة على الأسئلة الخاصة بك لالارتياح الخاص بك، لا تعلن موافقتك على هذا النموذج.

شكرا لك

SENS 2024 Questionnaires – Maban

No	QUESTION	ANSWER CODES	
SECTION IDENTIFICATION THIS SECTION IS TO BE COMPLETED IN ALL SELECTED HOUSEHOLDS. THIS MODULE IS MANDATORY TO COMPLETE.			
ID1	Camp Name **CAMPNAME**	|_____|	
ID2	Zone/Block Code / Number **SECTION**		|__|__|__|
ID3	Date of interview (dd/mm/yyyy) **SURVDAT**	Day/Month/Year… |__|__| /|__|__| / |__|__||__|__|	
ID4	Team Number **TEAM**		|__|__|
ID5	Household Number **HH**		|__|__|__|
ID6	UNHCR household ID number **HHID**		|_____|

Demography questionnaire		
No	**QUESTION**	**ANSWER**
SECTION DM1: Household Head Information THESE QUESTIONS NEED TO BE ASKED TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSEHOLD.		
DM1A	Was consent given for conducting the interview? **DMCONST**	Yes No Absent
DM1B	Was consent given for conducting the interview using Mobile Data Collection (use of smartphone or tablet)? **MDCCONST**	Yes No Absent
DM2	What is the sex of the household head? **HHHSEX**	Male Female
DM3	What is the age of the household head (years)? **HHHAGE**	|_____|_____| years
DM4	What is the total number of household members? **DMHHSIZE**	|_____|_____| people
SECTION DM2: Household Member Information ASK INTERVIEWEE IF THOSE ARE ALL THE MEMBERS IN THE HOUSEHOLD AND THAT NO ONE IS MISSING. THESE QUESTIONS NEED TO BE COMPLETED FOR EACH HH MEMBER WHO LIVES IN THE HOUSEHOLD.		
DM5	Name of household member	

	NAME	
DM6	What is the sex of the household member? HHMSEX	Male Female
DM7	What is the age of the household member (years)? HHMAGE	
DM8	Is the household member currently pregnant? HHMPREG	Yes No Don't know
Note	Summary messages WRITE DOWN THE SUMMARY DATA PROVIDED BELOW ON THE PARTICIPANTS AND MEASURES CONTROL SHEET.	
DM9	**Total number of children under 5 (0-4 years)** |_____|_____|**children under-5** TOTU5	
DM10	**Total number of women aged 15-49 years** |_____|_____|**women** TOTWM	
DM11	**Total number of pregnant women aged 15-49 years** |_____|_____| **pregnant women** TOTPREG	
	Interviewer: I confirm that questionnaire is complete: yes/no	
	Supervisor: I confirm that questionnaire is complete: yes/no MESSAGE TO INTERVIEWER: DO NOT ANSWER THIS QUESTION.	
Child and infant questionnaire		
No	**QUESTION**	**ANSWER**
SECTION CHILD1: Details of the Child 0-59 months or 6-59 months THIS SECTION IS TO BE ADMINISTERED TO ALL CHILDREN IN THE SELECTED HOUSEHOLDS BETWEEN 0-59 MONTHS OR 6-59 MONTHS: DEPENDING ON WHICH SENS MODULE IS INCLUDED. THESE QUESTIONS NEED TO BE ASKED TO THE MOTHER OR THE MAIN CAREGIVER.		
CH1	ID Number ID	|_____|_____|
CH2	Was consent given for conducting the interview and the measurements? CHCONST	Yes No
CH3	Name of the child ONLY WRITE FIRST NAME. CHNAME	
CH4	UNHCR individual ID number CHID	|_____|_____|
CH5	Sex of [NAME OF CHILD]? SEX	Male Female
CH6	Do you have an official age documentation for [NAME OF CHILD]? XDOBK	Yes No
CH7	[NAME OF CHILD]'s date of birth THE EXACT BIRTH DATE SHOULD ONLY BE TAKEN FROM AN AGE DOCUMENTATION SHOWING DAY, MONTH AND YEAR OF BIRTH. BIRTHDAT	Day/Month/Year

CH8	When did [NAME OF CHILD] born? ONLY ASK WHEN THERE IS NO AGE DOCUMENTATION, ESTIMATE AGE USING A LOCAL EVENTS CALENDAR. **MONTHS**	|_____|_____| months
SECTION CHILD3: Nutrition, Health and Anaemia Status of the Child 6-59 months THIS SECTION IS TO BE ADMINISTERED TO ALL CHILDREN BETWEEN 6 AND 59 MONTHS OF AGE. EXCLUDE HB MEASUREMENTS IF SENS MODULE 2 (ANAEMIA MODULE) IS NOT INCLUDED. IN MDC SURVEYS, THIS SECTION IS AUTOMATICALLY SKIPPED FOR THE CHILDREN NOT ELIGIBLE BASED ON AGE (<6 MONTHS).		
CH9	Is [NAME OF CHILD] currently present in the household? **CHPRES**	Yes No
CH10	[NAME OF CHILD]'s weight in kilograms (±0.1kg) **WEIGHT**	|_____|_____| kg
CH11	[NAME OF CHILD]'s length/height in cm (±0.1cm) **HEIGHT**	|_____|_____| cm
CH12	Was [NAME OF CHILD] measured lying down or standing up? **MEASURE**	Child lying down Child standing up
CH13	Clinical examination: Does [NAME OF CHILD] present bilateral pitting oedema? **EDEMA**	Yes No
CH14	[NAME OF CHILD]'s middle upper arm circumference (MUAC) in mm (±1mm) or cm (±0.1cm) **MUAC**	
CH15	Is [NAME OF CHILD] currently being treated in SC/OTP/TSFP for malnutrition? SHOW COMMODITY PROVIDED IN TSFP AND OTP/SC. **ENROL**	Yes TSFP Yes OTP/SC No Don't know
CH16	Is [NAME OF CHILD] currently enrolled in the BSFP? SHOW COMMODITY/PACKAGING PROVIDED IN BSFP. **BSFP**	Yes No Don't know
CH17	Has [NAME OF CHILD] been vaccinated against measles? CHECK VACCINATION CARD (ONLY FOR CHILDREN OLDER THAN 9 MONTHS). **MEASLES**	Yes, card Yes, recall No Don't know
CH18	Has [NAME OF CHILD] received a vitamin A capsule in the past six months? CHECK VACCINATION/HEALTH CARD AND SHOW CAPSULE. **VITA**	Yes, card Yes, recall No Don't know
CH19	Was [NAME OF CHILD] given any drug for intestinal worms in the last six months? SHOW TABLET. **DEWORM**	Yes No Don't know
CH20	Has [NAME OF CHILD] had diarrhoea in the past 2 weeks? CASE DEFINITION: THREE OR MORE LOOSE OR LIQUID STOOLS DURING 24 HOURS. **DIAR**	Yes No Don't know
CH21	Did you give ORS to [NAME OF CHILD] when s/he had diarrhoea? SHOW ORS SACHET. **DIARORS**	Yes No Don't know
CH22	Did you give zinc tablets or syrup to [NAME OF CHILD] when s/he had diarrhoea? SHOW ZINC TABLET OR SYRUP. **DIARZINC**	Yes No Don't know

REFER	**Referral for child with signs of acute malnutrition who is not already enrolled in a nutrition programme:** • Child needs to be referred for moderate acute malnutrition • Child needs to be referred for severe acute malnutrition **REFMAM/REFSAM**	
CH23	[NAME OF CHILD]'s haemoglobin (Hb) in g/dL (±0.1 g/dL) or in g/L (±1g/L) **CHHB**	|____|____|.|____| g/dL or g/L
REFER	**Referral for child who has severe anaemia:** • Child needs to be referred for severe anaemia (if Hb<7 0g/dL) **REFANEM**	
SECTION IYCF1: breastfeeding for the Child 0-23 months THIS SECTION IS TO BE ADMINISTERED TO THE MOTHER OR THE MAIN CAREGIVER WHO IS RESPONSIBLE FOR FEEDING THE CHILD AND THE CHILD SHOULD BE BETWEEN 0 AND 23 MONTHS OF AGE. THESE QUESTIONS NEED TO BE ASKED TO THE MOTHER OR THE MAIN CAREGIVER WHO IS RESPONSIBLE FOR FEEDING THE CHILD.		
IF1	Has [NAME OF CHILD] ever been breastfed? **EVERBF**	Yes No Don't know **IF ANSWER IS No or Don't know GO TO IF4**
IF2	How long after birth did you first put [NAME OF CHILD] to the breast? **INITBF**	Less than one hour Between 1 and 23 hours More than 24 hours Don't know
IF3	Was [NAME OF CHILD] breastfed yesterday during the day or at night? **YESTBF**	Yes No Don't know
IF4	Now I would like to ask you about liquids that [NAME OF CHILD] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] receive any of the following? ASK ABOUT EVERY LIQUID. EVERY QUESTION MUST HAVE AN ANSWER.	
	4A. Plain water **WATER**	Yes No Don't know
	4B. Infant formula, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF INFANT FORMULA, *ALL TYPES*] **INFORM**	
	4C.Milk such as tinned, powdered, or fresh animal milk, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF TINNED AND POWDERED MILK] **MILK**	
	4D. Juice or juice drinks, for example [INSERT LOCALLY AVAILABLE BRAND NAMES OF JUICE DRINKS] **JUICE**	
	4E. Clear broth **BROTH**	
	4F. Sour milk or yogurt, for example [INSERT LOCAL NAMES] **YOGURT**	
	4G. Thin porridge, for example [INSERT LOCAL NAMES] **THINPOR**	
	4H. Tea or coffee with milk **WHTEACOF**	
	4I. Any other water-based liquids, for example [INSERT OTHER WATER-BASED LIQUIDS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g.*sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual fluids)* **WATLQD**	

IF5	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? **FOOD**	Yes No Don't know
IF6	Did [NAME OF CHILD] drink anything from a bottle with a nipple yesterday during the day or at night? **BOTTLE**	Yes No Don't know
SECTION IYCF2: Iron -fortified or Iron-rich Foods for the Child 6-23 months IN MDC SURVEYS, THIS SECTION IS AUTOMATICALLY SKIPPED FOR THE CHILDREN NOT ELIGIBLE BASED ON AGE (<6 MONTHS AND ≥24 MONTHS).		
IF7	Now I would like to ask you about some particular foods [NAME OF CHILD] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following? ASK ABOUT EVERY ITEM. EVERY QUESTION MUST HAVE AN ANSWER.	
	7A. [INSERT COMMON MEAT, FISH, POULTRY AND LIVER/ORGAN FLESH FOODS USED THE LOCAL SETTING] *(e.g. beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart)* **FLESHFD**	Yes No Don't know
	7B. [INSERT CSB++ AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] *(e.g. CSB++)* **FBFSUPER**	
	7C.[INSERT RUTF PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. Plumpy'Nut®) SHOW SACHET. **RUTF**	
	7D. [INSERT RUSF PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. Plumpy'Sup®) SHOW SACHET. **RUSF**	
	7E. [INSERT LNS PRODUCTS AVAILABLE IN THE LOCAL SETTING AND USE LOCAL NAMES] (e.g. Plumpy'Doz®) SHOW SACHET / POT. **LNS**	
	7F. [INSERT LOCALLY AVAILABLE BRAND NAMES OF IRON FORTIFIED INFANT FORMULA] (e.g. Nan, S26 infant formula) **INFORMFE**	
	7G. [INSERT ANY IRON FORTIFIED SOLID, SEMI-SOLID OR SOFT FOODS DESIGNED SPECIFICALLY FOR INFANTS AND YOUNG CHILDREN AVAILABLE IN THE LOCAL SETTING THAT ARE DIFFERENT THAN DISTRIBUTED COMMODITIES AND USE LOCALLY AVAILABLE BRAND NAMES] (e.g. Cerelac, Weetabix) **FOODFE**	
	Interviewer: I confirm that questionnaire is complete: yes/no	
	Supervisor: I confirm that questionnaire is complete.: yes/no MESSAGE TO INTERVIEWER: DO NOT ANSWER THIS QUESTION.	
SECTION WM2: Anthropometry, Physiological and Anaemia Status of the Woman 15-49 years THIS SECTION IS TO BE ADMINISTERED TO ALL ELIGIBLE WOMEN BETWEEN 15 AND 49 YEARS IN THE SELECTED HOUSEHOLD.		
WM1	ID Number **WMID**	

WM2	Was consent given for conducting the interview and the measurements? **IF ANSWER IS No or Absent STOP HERE** **WMCONST**	Yes No Absent
WM3	Name of the woman ONLY WRITE FIRST NAME. **WMNAME**	
WM4	Age of [NAME OF WOMAN] in years ONLY WOMEN BETWEEN 15 AND 49 ARE BEING INTERVIEWED. **WMAGE**	|_____|_____|years
WM5	Are you pregnant? **PREGNANT**	Yes No Don't know
WM6	Are you currently enrolled in the ANC programme? **ANC**	Yes No Don't know
WM7	Are you currently receiving iron-folate pills? SHOW PILL. **FEREC**	Yes No Don't know
WM8	Are you currently breastfeeding? **LACTAT**	Yes No Don't know
WM9	Is the child you are breastfeeding younger than 6 months old? **LACTATU6**	Yes No Don't know
WM10	Are you currently enrolled in the BSFP? SHOW COMMODITY/PACKAGING GIVEN IN BSFP. **WMBSFP**	Yes No Don't know
WM11	[NAME OF WOMAN]'s MUAC in mm (±1mm) or cm (±0.1cm) **WMMUAC**	|_____|_____| cm
WM12	[NAME OF WOMAN]'s haemoglobin in g/dL (±0.1 g/dL) or in g/L (±1g/L) **WMHB**	|___|___|. |___| g/dL or g/L
REFER	**Automatic referral for woman with signs of acute malnutrition:** Woman needs to be referred for acute malnutrition (if MUAC< [INSERT VALUE] mm) (TO BE INCLUDED ONLY IF MUAC IS MEASURED) **WMREFMAL**	
REFER	**Referral for woman Who has severe anaemia:** Woman needs to be referred for severe anaemia (if Hb<8. 0g/dL) **WMREFAN**	
	Interviewer: I confirm that questionnaire is complete: yes/no	
	Supervisor: I confirm that questionnaire is complete: yes/no MESSAGE TO INTERVIEWER:	
SECTION FS1: Food assistance: Household information THIS QUESTIONNAIRE NEED TO BE ASKED TO THE MAIN CARETAKER WHO IS RESPONSIBLE FOR COOK- ING THE MEALS.		
FS1	Was consent given for conducting the interview? **FSCONST**	Yes No Absent

FS2	Does your household receive food assistance (general in-kind and cash grants in April GFD cycle? FOODASS	Yes No Don't know **IF YES OR DON'T KNOW, GO TO FS4**
FS3	Why do you not have access to the food assistance programmes? YNOFOODA	Food voucher not given even if eligible. Not registered. Registered but determined not eligible. Other. Don't know.
FS4	How many days did the food from the general in-kind food distribution from the [April] last? GFDLAST	RECORD THE NUMBER OF DAYS IF KNOWN. RECORD 98 IF UNKNOWN.
FS5	Does your household receive cash grants from the April cycle to meet basic needs CASH	Yes No Don't know
FS6	How did you spend the cash grants you received in the April cycle SELECT ALL THAT APPLY. CASHSPNT: FOOD / WATER / HYGIENE / HEALTH / HOUSE / FUELA / LIVELI / DEBTS / SAVING / EDUCA / OTHER / DKN	Food Water Hygiene items, clothes, shoes Health costs (including medicines) Rent, shelter repair, household items (e.g. mattress, blanket, jerrycan), utilities and bills (e.g electricity, water bills, phone calling credit) Firewood/fuel for cooking or heating Assets for a livelihood activity (e.g seeds, tools, farming, fishing, petty trade, etc) Debt repayment Save some money or gave to other family members, relatives, friends Education (e.g school fees, uniform, books) Other Don't know
FS7	Which of your household's basic needs can you not meet? DO NOT READ THE ANSWERS. SELECT ALL THAT APPLY.	Food Water Hygiene items, clothes, shoes Health costs (including medicines) Rent, shelter repair, household items (e.g. mattress, blanket, jerrycan), utilities and bills (e.g electricity, water bills, phone calling credit) Firewood/fuel for cooking or heating Assets for a livelihood activity (e.g seeds, tools, farming, fishing, petty trade, etc) Debt repayment Save some money or gave to other family members, relatives, friends Education (e.g school fees, uniform, books) Other Don't know
SECTION FS2: Coping Strategies and Reduced Coping Strategy Index (rCSI)		

Note	EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.	
FS8	In the past 4 weeks, have you or anyone in your household needed to stop a child from attending school? **SCHOOL**	Yes No Don't know
FS9	In the past 4 weeks, have you or anyone in your household needed to sold any assets that would not have normally sold in order to buy food or basic goods (e.g. sold items such as a car, motorbike, plough, sewing machine, tools, seed stock, livestock, productive land)? **SELLLIV**	Yes No Don't know
FS10	In the past 4 weeks, have you or anyone in your household needed to ask for money from strangers (begging)? **BEG**	Yes No Don't know
FS11	In the past 4 weeks, have you or anyone in your household needed to move to a poorer quality shelter? **SHELTER**	Yes No Don't know
FS12	In the past 4 weeks, have you or anyone in your household needed to send household members under the age of 16 to work? **CHILDLAB**	Yes No Don't know
FS13	In the past 4 weeks, have you or anyone in your household needed to send a member of the household to work far away? **WORKAWAY**	Yes No Don't know
FS14	In the past 4 weeks, have you or anyone in your household needed to engage in activities for money or items that you feel puts you or other members of your household at risk of harm (e.g. illegal activities like hunting, fishing, survival sex, drug dealing, early marriage, joining armed groups, etc.)? **RISKYACT**	Yes No Don't know
FS15	In the past 4 weeks, have you or anyone in your household needed to skip paying rent / debt repayments to meet other needs? **RENTDEBT**	Yes No Don't know
FS16	In the past 4 weeks, have you or anyone in your household needed to take out new loans or borrowed money? **LOANBRW**	Yes No Don't know
FS17	In the past 4 weeks, have you or anyone in your household needed to reduce expenditure on hygiene items, water, baby items, health or education in order to meet household food needs? **REDUCE**	Yes No Don't know
SECTION FS2: Negative coping strategy EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.		
FS18	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? **LESSEXP**	RECORD DAYS 0-7.
FS19	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? **BRW**	RECORD DAYS 0-7.

FS20	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? **LESSMEAL**	RECORD DAYS 0-7.
FS21	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? **REDMEAL**	RECORD DAYS 0-7.
FS22	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? **REDADULT**	RECORD DAYS 0-7.
SECTION : FCS and FCS-N		
FS23	How many days over the last 7 days, did members of your household eat the following food items, prepared and/or consumed at home? READ THE LIST OF FOODS AND DO NOT PROBE. ONLY RECORD THE CONSUMPTION OF SIGNIFICANT QUANTITIES OF FOOD BY THE HOUSEHOLD. WRITE '0' IF NOT CONSUMED IN THE LAST 7 DAYS.	
	1. In the past 7 days, how many days did your household eat any [INSERT CEREALS LOCALLY AVAILABLE] (*e.g. wheat, corn/maize, barley, buckwheat, millet, oats, rice, rye, sorghum, teff*) or any foods made from these such as [INSERT LOCAL FOODS] (*e.g. bread, porridge, noodles, ugali, nshima, pasta*). Or any [INSERT WHITE ROOTS AND TUBERS LOCALLY AVAILABLE] *(e.g. green bananas, lotus root, parsnip, taro, plantains, white potatoes, white yam, white cassava, white sweet potato)* or any foods made from roots such as [INSERT LOCAL FOODS]. Or any [INSERT OTHER STARCHY FOODS LOCALLY AVAILABLE] *(e.g. green bananas, plantains)* **CRLROTU**	Number of days eaten in past 7 days
	2. In the past 7 days, how many days did your household eat any [INSERT LEGUMES, NUTS AND SEEDS LOCALLY AVAILABLE] *(e.g. dried beans, chickpeas, lentils, cowpeas, groundnuts, Egyptian beans, nuts, seeds)* or any foods made from these such as [INSERT LOCAL FOODS] *(e.g. hummus, peanut butter)* **PULSE**	Number of days eaten in past 7 days
	3. In the past 7 days, how many days did your household eat any [INSERT MILK AND MILK PRODUCTS LOCALLY AVAILABLE] *(e.g. fresh milk, sour milk, infant formula, cheese, kefir, yogurt)* **MILK**	Number of days eaten in past 7 days
	4. In the past 7 days, how many days did your household eat any meat, fish and eggs *(e.g. goat, beef, chicken, pork, blood, fish including canned tuna, snails, and/or other seafood, eggs)* **PROT**	Number of days eaten in past 7 days
	4.1. In the past 7 days, how many days did your household eat any [INSERT FLESH MEAT LOCALLY AVAILABLE] *(e.g. beef, goat, lamb, mutton, pork, rabbit, chicken, duck, cane rat, guinea pig, rat, agouti frogs, snakes, insects)* **FLSHMT**	Number of days eaten in past 7 days
	4.2. In the past 7 days, how many days did your household eat any [INSERT ORGAN MEAT OR BLOOD-BASED FOODS LOCALLY AVAILABLE] *(e.g. liver, kidney, heart)* **ORGMT**	Number of days eaten in past 7 days
	4.3. In the past 7 days, how many days did your household eat any [INSERT FRESH, DRIED OR CANNED FISH OR SHELLFISH LOCALLY AVAILABLE] *(e.g. anchovies, tuna, sardines, shark, whale, roe/fish eggs, clam, crab, lobster, crayfish, mussels, shrimp, octopus, squid, sea snails)* **FISHSF**	Number of days eaten in past 7 days
	4.4. In the past 7 days, how many days did your household eat any eggs from [INSERT EGGS LOCALLY AVAILABLE] (*e.g. eggs from chicken, duck, guinea fowl)*	Number of days eaten in past 7 days

	EGGS	
	5. In the past 7 days, how many days did your household eat any [INSERT ANY VEGETABLES AND LEAVES LOCALLY AVAILABLE] *(e.g. spinach, cassava leaves, onion, carrot, lettuce, bamboo shoots, cabbage, pepper, tomato, eggplant, zucchini, etc.)* **VEGL**	Number of days eaten in past 7 days
	5.1. In the past 7 days, how many days did your household eat any [INSERT VITAMIN A RICH VEGETABLES AND TUBERS LOCALLY AVAILABLE] *(e.g. carrot, pumpkin, squash, or sweet potato that are orange inside, red sweet pepper)* **VITAV**	Number of days eaten in past 7 days
	5.2. In the past 7 days, how many days did your household eat any [INSERT DARK GREEN LEAFY VEGETABLES LOCALLY AVAILABLE INLCUDING WILD FORMS AND VITAMIN A RICH LEAVES] *(e.g. amaranth, arugula (rocket), cassava leaves, kale, broccoli, spinach)* **GREENV**	Number of days eaten in past 7 days
	6.In the past 7 days, how many days did your household eat any [INSERT ANY FRUITS LOCALLY AVAILABLE INCLUDING WILD FRUITS], and 100% fruit juice made from these *(e.g. mango, apricot, peach, apple, avocados, banana, coconut flesh, lemon, orange, etc.)* **FRT**	Number of days eaten in past 7 days
	6.1. In the past 7 days, how many days did your household eat any [INSERT VITAMIN A RICH FRUITS LOCALLY AVAILABLE], and 100% fruit juice made from these *(e.g. mango (ripe, fresh and dried), cantaloupe melon (ripe), apricot (fresh or dried), ripe papaya, passion fruit (ripe), dried peach)* **VITAFRT**	Number of days eaten in past 7 days
	7. In the past 7 days, how many days did your household eat any [INSERT OILS AND FATS LOCALLY AVAILABLE] added to food or used for cooking *(e.g. vegetable / nut oil made from almond, avocado, canola, coconut, cottonseed, groundnut, maize, olive, rapeseed, safflower, sesame, soybean, sunflower/walnut, ghee, butter, margarine, mayonnaise, palm oil -**not** red palm oil, shortenings, sour cream)* **FATS**	Number of days eaten in past 7 days
	8. In the past 7 days, how many days did your household eat any [INSERT SWEETS, SWEETENED SODA OR JUICE DRINKS AND SUGARY FOODS LOCALLY AVAILABLE] *(e.g. sugar, honey, syrup, soda drinks, chocolates, candies, cookies, sweet biscuits and cakes)* **SWTS**	Number of days eaten in past 7 days
	9. In the past 7 days, how many days did your household eat any [INSERT SPICES, CONDIMENTS AND BEVERAGES LOCALLY AVAILABLE] *(e.g. black pepper, salt, chilies, soy sauce, hot sauce, fish powder, fish sauce, ginger, herbs, magi cubes, ketchup, mustard, coffee, tea, milk/cream in small quantities)* **SPICE**	Number of days eaten in past 7 days
	10. In the past 7 days, how many days did your household eat any [INSERT SPECIALIZED NUTRITIOUS FOODS AVAILABLE] *(e.g. CSB, Super Cereals)* **SPENUTF**	Number of days eaten in past 7 days
	How was this food acquired?	Purchase (using cash grants and/or with their own cash) Own production (crops, livestock, fishing/hunting, gathering) Traded goods/ services, barter Borrowed (loan/credit from traders) Receive as gift (from family relatives or friend/neighbor In-kind or voucher based food assistance

	FOODSOU	Other Don't know
	Interviewer: I confirm that questionnaire is complete: yes/no	
	Supervisor: I confirm that questionnaire is complete.: yes/no MESSAGE TO INTERVIEWER: DO NOT ANSWER THIS QUESTION.	

No	QUESTION	ANSWER CODES	
SECTION TN1: Details on the Household			
Note	THESE QUESTIONS NEED TO BE ASKED TO THE HEAD OF THE HOUSEHOLD OR, IF THEY ARE ABSENT, ANOTHER ADULT MEMBER OF THE HOUSEHOLD.		
TN1	Was consent given for conducting the interview? ENSURE THAT YOU HAVE INTRODUCED THE TEAM AND INFORMED THEM ABOUT THE INTERVIEW. TNCONST	Yes.....1 No.....2 Absent.....3	|__|**IF ANSWER IS 2 or 3 STOP HERE**
TN2	What is the total number of household members? RECORD NUMBER. TNHHSIZE		|__|__|
TN3	How many people live in this household and slept here last night? RECORD NUMBER TOTHH		|__|__|
TN4	How many children 0-59 months live in this household and slept here last night? RECORD NUMBER OR TYPE 0 IF THERE AREN'T ANY CHILDREN BELOW 5 YEARS. TOTCH		|__|__|
TN5	How many pregnant women live in this household and slept here last night? RECORD NUMBER OR TYPE 0 IF THERE AREN'T ANY PREGNANT WOMEN. TOTPW		|__|__|

TN6	Did you have your house sprayed with insecticide in an indoor residual spray campaign in the past 6 months? (IF APPLICABLE) EXPLAIN THAT THIS IS NOT THE CAN OF INSECTICIDE THAT CAN BE SPRAYED IN THE HOUSE. **HHIRS**	Yes.....1 No.....2 Don't know.....8	|___|
TN7	Do you have mosquito bed nets in this household that can be used while sleeping? **MOSNETS**	Yes.....1 No.....2 Don't know.....8	|___| **IF ANSWER IS 2 OR 8 STOP NOW**
TN8	How many of these mosquito bed nets that can be used while sleeping does your household have? PROBE FOR ANY NETS CURRENTLY NOT IN USE THAT ARE BEING SAVED OR STORED (STILL IN THEIR PACKAGE). RECORD REPORTED NUMBER. **Lower limit=1** **Upper limit=10** **NUMNETS**		|___|Nets
SECTION TN2: Observation of Bed Nets THIS SECTION IS TO BE COMPLETED FOR ALL BED NETS USED FOR SLEEPING REPORTED BY THE RESPONDENT.			
Note	THESE QUESTIONS ARE ASKED FOR EACH BED NET USED FOR SLEEPING REPORTED BY THE RESPONDENT.		
TN9	Can the bed net be observed? ASK RESPONDENT TO SHOW YOU THE NET IN THE HOUSEHOLD. **NETSOBS**	Yes.....1 No.....2	|___| **IF ANSWER IS 2 SKIP TO TN12**
TN10	What is the brand of the net observed? LOOK AT THE TAG ON THE NET. IF THERE IS NONE OR IS UNREADABLE, SELECT 'UNIDENTIFIABLE'/'DON'T KNOW. **NETBRAND**	DAWAPLUS.....01 DURANET.....02 INTERCEPTOR.....03 LIFENET.....04 MAGNET.....05 MIRANET.....06 OLYSET.....07 PANDANET.....08 PERMANET.....09 ROYALSENTRY.....10 SAFENET.....11 VEERALIN.....12 YALE.....13 YORKOOL.....14 Other (please specify) .....96 Unidentifiable/Don't know.....98	|___|___| **IF ANSWER IS 96 GO TO TN11**

TN11	If other, please specify the brand name of net **BRANDOTH**	_____	
	TOTLN		____
SECTION TN3: Survey of household members THIS SECTION IS TO BE COMPLETED FOR EACH HH MEMBER WHO LIVES HERE AND SLEPT HERE LAST NIGHT.			
Note	THESE QUESTIONS NEED TO BE COMPLETED FOR EACH HH MEMBER WHO LIVES IN THE HOUSEHOLD AND SLEPT HERE LAST NIGHT.		
TN12	ID of household member **HHMID**		___
TN13	What is the sex of the household member? **HHMSEX**	Male.....m Female.....f	___
TN14	How old is the household member? **HHMAGE**	<5 years.....1 ≥5 years.....2	___
TN15	Is the household member currently pregnant? **HHMPREG**	Yes.....1 No.....2 Don't know.....8	___
TN16	Did the household member sleep under a net last night? **SLPNET**	Yes.....1 No.....2 Don't know.....8	___
TN17	Select the brand of the net under which the household member slept ASK THE RESPONDENT TO PHYSICALLY IDENTIFY WHICH OF THE OBSERVED NETS S/HE SLEPT UNDER. **SLPBRAND**	RESPONSES FROM TN10 SHOWN HERE. EXAMPLE: NETBRAND1-PERMANET NETBRAND2-PERMANET NETBRAND3-Unidentifiable/Don't know NETBRAND4- OLYSET	___
Note	Error messages		
	The total number of children in the household declared at the beginning of the form (TN4) does not match the number of children you have entered in the group (TN14). Please review to ensure they match.		
	The total number of pregnant woman in the household you declared at the beginning of the form (TN5) does not match the number of pregnant woman you have entered (TN15). Please review to ensure they match.		
	Interviewer: I confirm that questionnaire is complete: yes/no		
	Supervisor: I confirm that questionnaire is complete: yes/no MESSAGE TO INTERVIEWER: DO NOT ANSWER THIS QUESTION.		

Appendix 4: Events Calendar

Seasons	Religious Holidays	Other Events	Months / Years	Age (M)	Height Range
		SPLA day	May-24	0	
Land preparation start			Apr-24	1	
Land preparation start			Mar-24	2	
		The month after new year	Feb-24	3	
		New year celebrations	Jan-24	4	
	Christmas (25 Dec)	World Aid Day	Dec-23	5	
Sorghum harvest, Jadar Nar	Thanksgiving		Nov-23	6	
Groundnuts, Simsim harvest		Global hand-washing day	Oct-23	7	65-70 cm
1st Maize and sorghum harvest,			Sep-23	8	
Weeding of crops, Last groundnut harvest		World breastfeeding week	Aug-23	9	
Sorghum, maize groundnut planting continues			Jul-23	10	
Rain starts, Sorghum, maize groundnut, Simsim planting		World refugee day (20 June)	Jun-23	11	71-76 cm
		SPLA day	May-23	12	
Land preparation			Apr-23	13	
Land preparation			Mar-23	14	
		The month after new year	Feb-23	15	
		New year celebrations	Jan-23	16	
		World Aid Day	Dec-22	17	77-80 cm
Sorghum harvest, Jadar Nar	Thanksgiving		Nov-22	18	
Groundnuts, Simsim harvest		Global hand-washing day	Oct-22	19	
1st Maize and sorghum harvest,			Sep-22	20	
Weeding of crops, Last groundnut harvest		World breastfeeding week	Aug-22	21	
Sorghum, maize groundnut planting continues			Jul-22	22	81-86 cm
Rain starts, Sorghum, maize groundnut, Simsim planting		World refugee day (20 June)	Jun-22	23	
		SPLA day	May-22	24	
Land preparation			Apr-22	25	
Land preparation			Mar-22	26	
		The month after new year	Feb-22	27	
		New year celebrations	Jan-22	28	
	Christmas (25 Dec)	World Aid Day	Dec-21	29	
Sorghum harvest, Jadar Nar	Thanksgiving		Nov-21	30	
Groundnuts, Simsim harvest		Global hand-washing day	Oct-21	31	87-90 cm
1st Maize and sorghum harvest,			Sep-21	32	
Weeding of crops, Last groundnut harvest		World breastfeeding week	Aug-21	33	
Sorghum, maize groundnut planting continues			Jul-21	34	
Rain starts, Sorghum, maize groundnut, Simsim planting		World refugee day (20 June)	Jun-21	35	
		SPLA day	May-21	36	
Land preparation			Apr-21	37	
Land preparation			Mar-21	38	
Sorghum, maize groundnut planting continues		The month after new year	Feb-21	39	
Rain starts, Sorghum, maize groundnut, Simsim planting		New year celebrations	Jan-21	40	
	Christmas (25 Dec)	World Aid Day	Dec-20	41	91-99 cm
Sorghum harvest, Jadar Nar	Thanksgiving		Nov-20	42	
Groundnuts, Simsim harvest		Global hand-washing day	Oct-20	43	
1st Maize and sorghum harvest,			Sep-20	44	
Weeding of crops, Last groundnut harvest		World breastfeeding week	Aug-20	45	
Sorghum, maize groundnut planting continues			Jul-20	46	
Rain starts, Sorghum, maize groundnut, Simsim planting		World refugee day (20 June)	Jun-20	47	
		SPLA day	May-20	48	

Land preparation			Apr-20	49	100-110cm
Land preparation			Mar-20	50	
		The month after new year	Feb-20	51	
		New year celebrations	Jan-20	52	
	Christmas (25 Dec)	World Aid Day	Dec-19	53	
Sorghum harvest, Jadar Nar	Thanksgiving		Nov-19	54	
Groundnuts, Simsim harvest		Global hand-washing day	Oct-19	55	
1st Maize and sorghum harvest,			Sep-19	56	
Weeding of crops, Last groundnut harvest		World breastfeeding week	Aug-19	57	
Sorghum, maize groundnut planting continues			Jul-19	58	
Rain starts, Sorghum, maize groundnut, Simsim planting		World refugee day (20 June)	Jun-19	59	
			May-19	60	

How to Use a Local Events Calendar

Survey inclusion and exclusion criteria.

Survey inclusion criteria: these are the cut-off birth dates for children to be eligible to participate in the 6-59 months sample.
- Included in the survey are all children born between November 2014 and April 2019.

Survey exclusion criteria: all children born as of these dates are excluded from the sample (i.e. they are over 59 months or under 6):
- Excluded from the survey are all children born before November 2014 and April 2019.

When to use the events calendar?

- The events calendar is a tool that helps determine the approximate age of children who have no reliable administrative documents (birth certificate, child's health notebook, etc.)
- It includes all different events that occurred during the 60 months that preceded the survey and serves as a reference and checklist for surveyors and surveyed populations.

How to use the events calendar

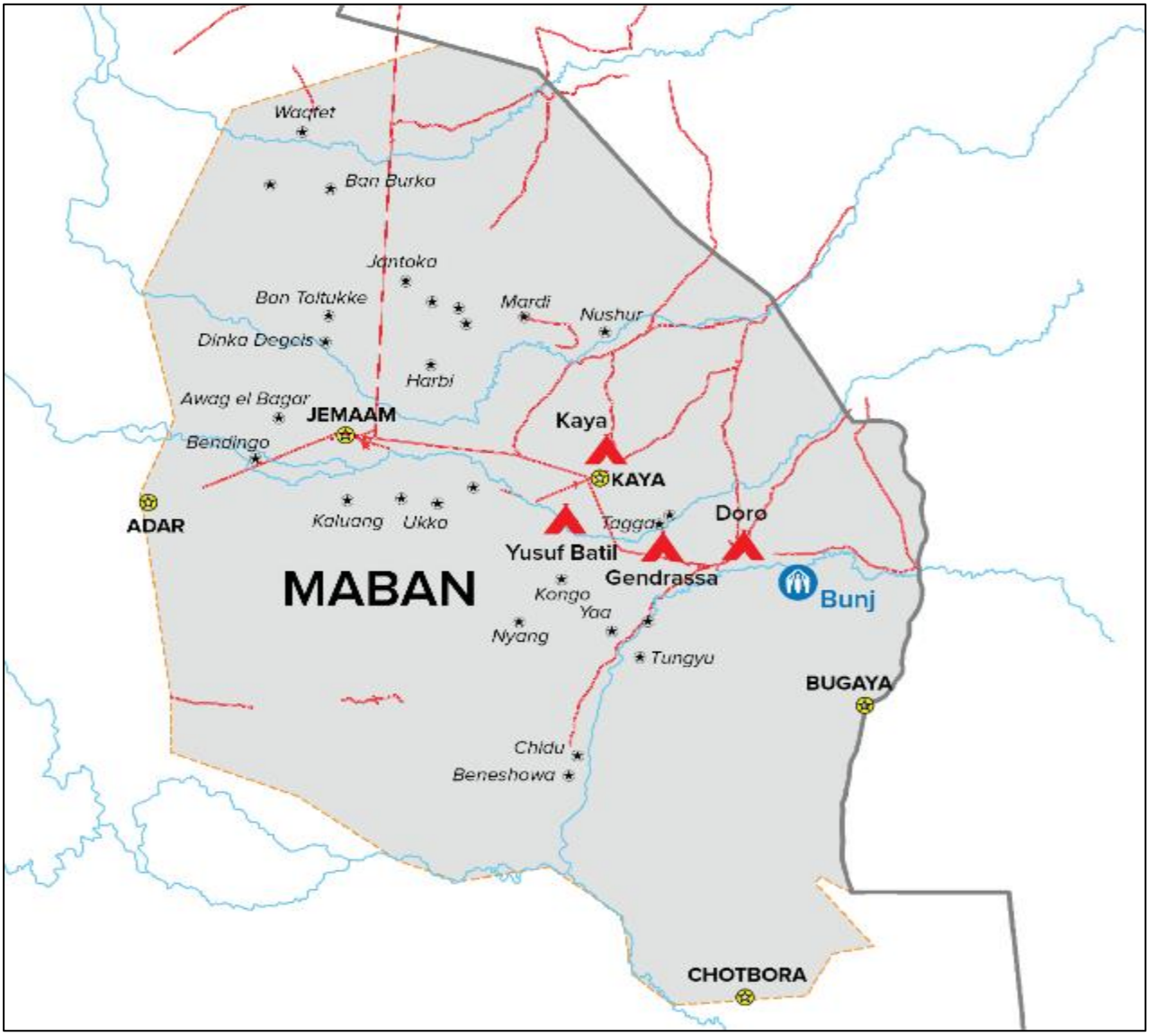
- Use a line of questions phrased as follows: ***"<name> was he/she born before or after <event>?"***
- Choose the events in the most appropriate column of the calendar to reduce the range at each question.
- The child's mother usually knows either the age of the child in years, or the birth date (but without any official corroboration. In both cases, it is necessary to refine the age estimation by using the events calendar.

1. When the mother knows the age in years, convert the age in months using the calendar and ask her questions relating to the events that occurred around the child's birth. Specify with the mother:
- On the calendar, whether a particular even occurred about the time the child was born (e.g., end of Ramadan); ask the mother whether the birth occurred before or after this event.
- Ask her the season in which the child was born rain, warm or cold season, etc.
- This information will allow you to estimate the child's age in a more reliable and accurate way.

2. When the mother knows the child's birth date, but has no official document to prove it:
- Locate the birth date on the calendar.
- Ask the mother questions on events that occurred around the child's birth (religious holiday, celebration, season, etc.) in order to estimate the age in actual months.

3. When the mother knows neither the age nor the birth date, the events listed in the calendar will help her remember the circumstances of her child's birth and to estimate the age in months:
- Ask the mother, or the person who cares for the child, if she remembers the period or an event that surrounded the birth of the child.
- According to her answer, ask further questions to locate the month and year of the birth.

4. When it is absolutely impossible to get any reliable indication from the mother, look for a child of similar stature in the neighbourhood:
- Determine the age of the other child.

• Estimate the age difference between both children using the calendar. • Deduce the age of the surveyed child.
To determine the age of a child, the surveyor must enter on the questionnaire either the date of birth or the age in months, ***but not both.*** *If the child has a health notebook or an official identity document that indicates his/her birth date; write down the birth date on the questionnaire.*

Appendix 5: Map Of Maban