COUNTY GOVERNMENT OF WAJIR

DEPARTMENT OF HEALTH

Wajir County Nutrition SMART Survey Report

County Department of Health

July 2024

Supporting Partners

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Abbreviations

ANC – Antenatal Care
BCG – Bacillus Calmette-Guérin (vaccine for tuberculosis)
CNAP – County Nutrition Action Plan
CSB – Corn-Soy Blend
FAO – Food and Agriculture Organization
FCS – Food Consumption Score
FSL – Food Security and Livelihoods
GAM – Global Acute Malnutrition
HDDS – Household Dietary Diversity Score
HSNP – Hunger Safety Net Programme
KHIS – Kenya Health Information System
LRA – Long Rains Assessment
LTA – Long-Term Average
MUAC – Mid-Upper Arm Circumference
NDMA – National Drought Management Authority
NFIs – Non-Food Items
OPV – Oral Polio Vaccine
OTP – Outpatient Therapeutic Program
PLW – Pregnant and Lactating Women
PPS – Probability Proportionate to Size
RUTF – Ready-to-Use Therapeutic Food
SAM – Severe Acute Malnutrition
SFP – Supplementary Feeding Program
SMART – Standardized Monitoring and Assessment of Relief and Transitions
URTI – Upper Respiratory Tract Infection
VAS – Vitamin A Supplementation
VCI – Vegetation Condition Index
WASH – Water, Sanitation, and Hygiene
WAZ – Weight-for-Age Z-Score
WHZ – Weight-for-Height Z-Score
WHO – World Health Organization

Executive Summary

The 2024 Wajir County SMART Survey was conducted to assess the nutritional status of children aged 6-59 months and women of reproductive age (WRA) 15-49 years, as well as household food security, WASH (Water, Sanitation, and Hygiene) conditions, and other related factors. The survey covered 628 households and successfully measured 554 children for anthropometric data. The overall objective was to provide evidence for the design of future interventions aimed at improving the health and nutrition outcomes of vulnerable populations in Wajir County.

Key findings from the survey indicate significant improvements in nutritional outcomes when compared to previous years. The prevalence of Global Acute Malnutrition (GAM) in children under five decreased to 11.2% in 2024 from 19.0% in 2023. Severe Acute Malnutrition (SAM) also declined from 2.2% in 2023 to 1.8% in 2024, reflecting positive trends in addressing malnutrition. The Mid-Upper Arm Circumference (MUAC) data further supported these findings, with global malnutrition rates reported at 1.4%.

Immunization coverage remained high across the surveyed population, with BCG coverage at 98.4%, OPV1 at 97.9%, and measles vaccination at 94.8% for children at 9 months. However, there was a dropin measles vaccination at 18 months to 83.6%. Morbidity remained a challenge, with 26.2% of children under five reported to have been ill in the two weeks preceding the survey, particularly from diarrheal diseases and upper respiratory tract infections (URTI).

Food security showed notable improvement, with 89.0% of households reporting acceptable food consumption, compared to 76.0% in 2023. The proportion of households with poor food consumption decreased from 7.1% to 1.8%. However, challenges remain in the diversity and quality of diets, as well as in household access to vitamin and mineral-rich foods.

In the WASH sector, access to protected water sources increased to 48.0% from 36.3% in 2023. Nevertheless, a significant number of households (28.2%) still relied on unprotected sources like earth pans or dams for their drinking water. Only 19.8% of households reported treating their drinking water, with chemicals being the most common treatment method.

Overall, the 2024 SMART Survey highlights both the progress made and the ongoing challenges in improving nutrition, health service delivery, food security, and access to clean water and sanitation in Wajir County.

CHAPTER ONE

INTRODUCTION

Background on survey area

Wajir County is situated in the North-eastern region of Kenya, covering an area of 56,685.9 square kilometers. It shares borders with the Republic of Somalia to the East, Federal Republic of Ethiopia to the North, Mandera County to the northeast, Isiolo County to the southwest, Marsabit County to the west, and Garissa County to the south. The population of Wajir County was estimated at 781,263 in the 2019 Kenya Population and Housing Census, and this number is projected to have grown to 892, 887 in 2024[1]

Administratively, the county is divided into six constituencies: Wajir East, Tarbaj, Wajir West, Eldas, Wajir North, and Wajir South. It is further subdivided into 30 wards. Wajir County is classified as a semi-arid area, falling within ecological zones V and VI. Zone V receives annual rainfall between 300-600mm. The county is divided into four main livelihood zones:

1. Agro-Pastoral,
2. Pastoral (all species),
3. Pastoral (cattle),
4. Pastoral (camel) and formal employment.

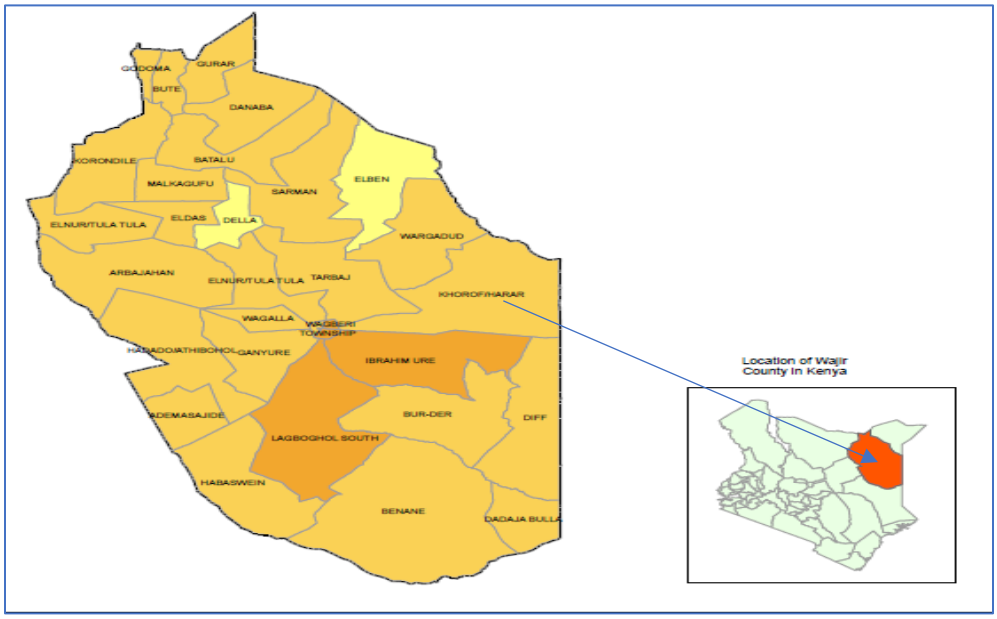


Figure 1: Wajir County and its location within Kenya

[1] KNBS, 2019 Kenya population and housing Census: Analytical report on population projection, volume XVI, 2022

The drought phase across all livelihood zones in Wajir County was classified as normal and stable[2]. The Vegetation Condition Index (VCI) score for the county indicates above-normal greenness, significantly surpassing the long-term average. This was attributed to the above-normal rainfall performance during the 2023 OND (October-November-December) short rains season and the sustained rains during the 2024 MAM (March-April-May) long rain season. The pasture and browse condition were good across the county and projected to last for the next 3 to 4 months according to the same early warning. The main water sources in use for both human and livestock consumption were water pans, shallow wells, and boreholes, though the majority of these sources remain unprotected. Livestock body condition (BCS) for all species within the livelihood zones ranges from good (BCS 4) to very good (BCS 5). Milk production is above the long-term average (LTA), currently at 2.7 liters per household, with projections for further increases due to the anticipated calving and kidding in the coming months.

Survey Justification

According to the NDMA early warning information Drought phase was **normal** within all the livelihood zones following above average rainfall received during the season[3] attributed to OND El Nino phenomenon and sustained rains in the long rains' season of 2024. This had a positive impact on the condition of both browse and pasture and body condition of livestock. Milk consumption remained above mean in the first four months of 2024, as illustrated in figure 2 attributed to a good rainfall performance in the last two seasons. According to the NDMA sentinel data, the proportion of children aged 6 -59 months with moderate acute malnutrition was 10%, which improved slightly from last month (13.1%), indicating an improving nutrition situation

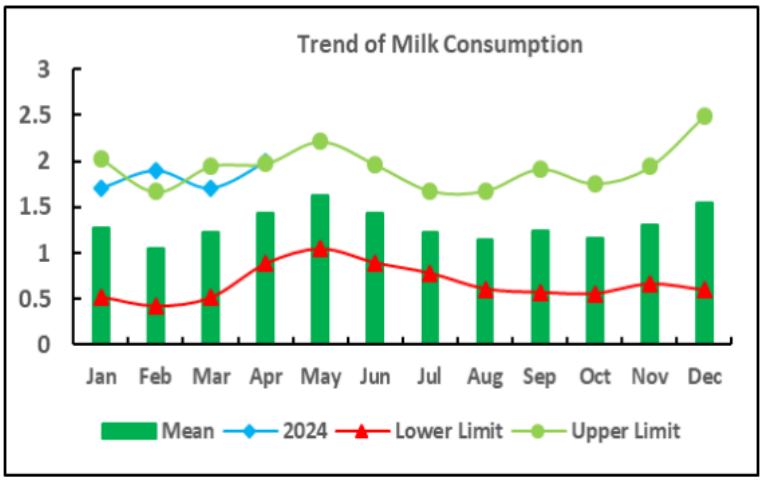
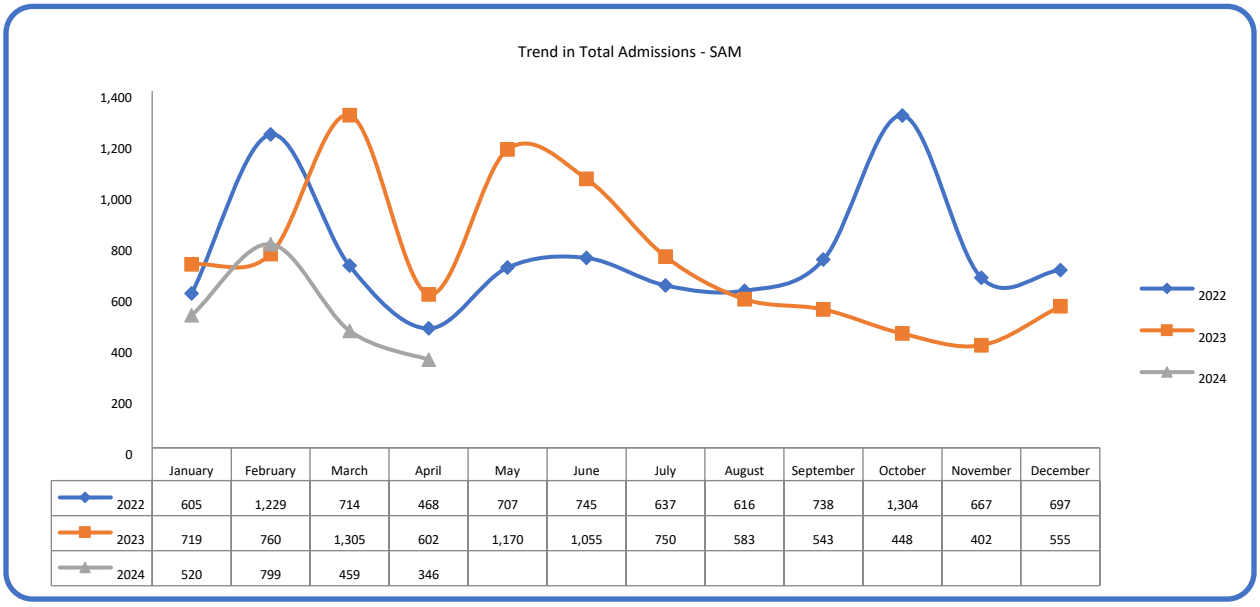


Figure 2: Wajir Milk Consumption

According to the IPC analysis conducted in February 2024, the Acute Malnutrition (IPC AMN) classification was at a serious level, with projections indicating it will remain the same, reflecting an overall improvement in the nutrition situation. Admissions of children aged 6 to 59 months into nutrition programs have been declining over the past two months but remain consistent with seasonal trends as illustrated in figure 3.

[2] National Drought Management Authority monthly bulletin April 2024
[3] National Drought Management Authority Monthly Bulletin, April 2024



	January	February	March	April	May	June	July	August	September	October	November	December
2022	605	1,229	714	468	707	745	637	616	738	1,304	667	697
2023	719	760	1,305	602	1,170	1,055	750	583	543	448	402	555
2024	520	799	459	346								

Figure 3: Wajir Severe Acute Malnutrition admission Trends for January 2022 – April 2024

However, morbidity has remained high, particularly for diarrheal diseases and Upper Respiratory Tract Infections (URTI), as reported in the Kenya Health Information System (KHIS). A measles outbreak is active in four sub-counties—Wajir North, Wajir West, Wajir South, and Wajir East—where 33 cases have been recorded as of May 17, 2024. If this outbreak is not contained, it could negatively impact the nutritional status of children. Additionally, the scale-down of integrated outreaches across the County over the last two months has hindered access to health and nutrition services. This has resulted in some children either seeking treatment at nearby health facilities or defaulting altogether.

The data collected provided insights into the effects of the short rains, the observed improvements in food security, and morbidity trends as well as the measles outbreak—on the nutritional status of children aged 6 to 59 months, as well as pregnant and lactating women. This information will be critical in guiding future planning and will also contribute to the 2024 Long Rains Assessment (LRA).

Overall objective:

- To determine the prevalence of malnutrition amongst children aged 6-59 months and women of reproductive age 15 – 49 years and mortality

Specific objectives: were

- To determine the prevalence of acute and chronic malnutrition in children aged 6-59 months
- To determine the immunization coverage for BCG, Measles (at 9, 18 months), Oral Polio Vaccines (OPV 1 and 3) and vitamin A supplementation in children aged 6-59 months

- To determine de-worming coverage for children aged 12 to 59 months
- To establish coverage of iron / folic acid supplementation during pregnancy among pregnant and lactating women during their previous pregnancy
- To determine the nutritional status of women of reproductive age (15-49 years) by MUAC
- To collect contextual information on possible causes of malnutrition such as household food security, water, sanitation, and hygiene (WASH) practices and morbidity
- To assess the Minimum meal frequency, Minimum Acceptable Diet and Minimum Dietary Diversity for children aged 6-23 months

Survey timing

The survey was conducted at the end of the 2024 long rain season (March to May) in the month of June as indicated in figure 4 to assess its impact of the season on the nutrition status of children 6 – 59 months and pregnant and breastfeeding women.

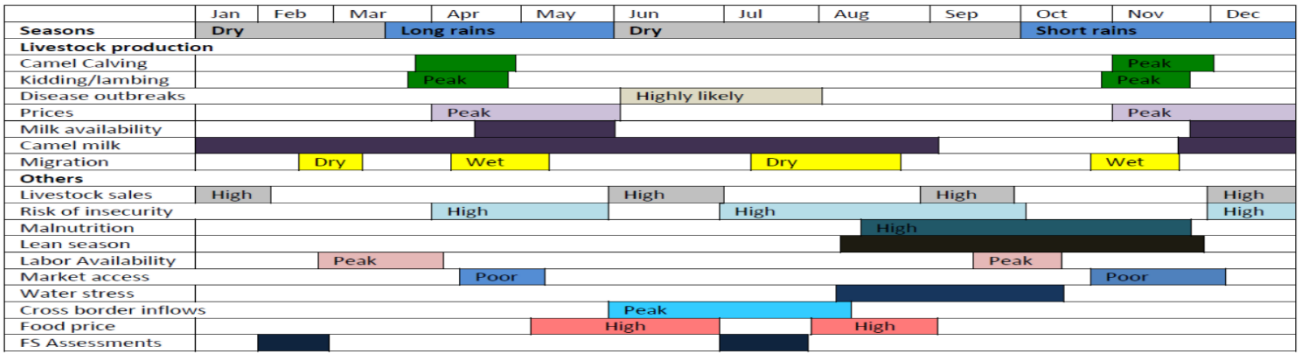


Figure 4: Wajir Seasonal Calendar

CHAPTER TWO

METHODOLOGY

Survey Design

The survey was a cross-sectional two stage cluster design based on SMART Methodology. Clusters were selected in the first stage using probability proportionate to size (PPS), and households in the second stage by simple random sampling; population listing approach. Household member data on anthropometry, retrogressive morbidity, vaccination and maternal health was collected. Other data collected data on Water Sanitation and Hygiene (WASH) and Food security and livelihood.

Sampling and sample size determination

The sample size calculation was based on ENA for SMART 2020 (January 11th, 2020, version). It entailed determination of number of children and households to be included in the survey based on different parameters as shown in table 1 as well as sample size calculation for anthropometric

Table 1: Sample size determination for anthropometric

Data entered in ENA for SMART	**Anthropometric survey**	**Rationale**
Estimated prevalence	15.3%	Based on contextual data (KHIS, NDMA EWS, Mass screening data and routine admission data). According to NDMA sentinel data the proportion of children with acute malnutrition has been declining. Milk consumption has increased. There has been decline in the number of children being admitted into both OTP and SFP. There is a likelihood of improved nutrition situation. In view of the foregoing using lower limit value of July 2023 SMART survey result 19.0 % (**15.3** - 23.2 95% C.I.)
±Desired precision	4.3	Rule of thumb for prevalence of 15-20%
Design effect	1.72	From the results of July 2024
Number of children	**504**	**As calculated by ENA**

Average household size	6	2019 KPHC – and from previous survey
Proportion of under-five	15.2%	2019 KPHC – Analytical Report on Population Projections Vol XVI
Non-response rate	2.0%	Previous surveys in Wajir non-response during data collection < 1%
No. of Households	**627**	**As calculated by ENA**
No. of HH per day	**15**	This is based on the start time, distance between households and lunch break as well as the past survey team performance per day

Description of sampling methods

The first stage required an updated list of all villages in Wajir County with their respective population sizes. The final list of villages was uploaded into ENA for SMART software and 42 number of clusters were selected based on probability proportional to population size (PPS).

The second stage involved selection of 15 households from each of the sampled clusters. A list of households was prepared by the team leader with support of the village elder if the list was not available. The selection was done using simple random sampling method through household listing approach and use of android application (random number generator). All eligible children (6-59 months) in the selected households were assessed for anthropometry, morbidity and vaccination. In sampled households with no eligible children, only household related data (WASH and Food security) was collected.

Survey organization

Recruitment and composition of survey teams

The survey was executed under the overall leadership of the County Nutrition Coordinator (CNC). She was supported by two staff, one from the national information working group and UNICEF. The survey had seven teams of three members each (1 team leader and 2 survey measurers).

Survey team training and supervision

A four-day training workshop was held at Grenville hotel, Wajir town. The training focused on: - the purpose and objectives of the survey; familiarization with the questionnaire by reviewing the purpose for each question; recording of data using ODK software; how to take accurate anthropometric measurements; cluster and household selection. Demonstrations on how to take

accurate anthropometric measurements were conducted. Enumerators training also emphasized on field procedures, measurements, interviewing techniques as well as anthropometric standardization as recommended by SMART methodology. The protocol and tools were reviewed and discussed for a better understanding by the survey team. Possible problematic situations that might arise during the training were described and solutions for them given.

A standardization test was conducted on the third day to assess enumerators' accuracy and precision in taking anthropometric measurements. Pre-testing of the survey questionnaire was conducted on the last day of the training in one of the clusters not sampled. This was to gauge the enumerator's level of understanding, ability to follow sampling procedures and ease in use of tablets; take and record measurements correctly as well as interact effectively with respondents. After the pre-testing, a debriefing session with the survey team was held where difficulties that arose were addressed.

Data Collection

Data collection took a period of six days using seven teams. During data collection, all the field procedures were followed to select eligible households, identify children for anthropometric measurement as well as the respondents for the interviews. Survey teams first reported to the area chief or village elder for the respective selected clusters/villages updated the list of households and were then assigned a village guide. Using random numbers generator, households to be visited were randomly selected. Village guide then took teams around the village to the selected households. Each day after data collection, all the teams were able to submit the data electronically. A central data manager was on stand-by to be able receive, review, export data, filter and give feedback teams through the field supervisor or WhatsApp group created for the survey.

Case Definitions

In all selected households, all children 6-59 months were included in the anthropometric survey. The age of the children was determined using a local historical and seasonal calendar of events or a birth notification slip or certificate if available. If there were no children aged 6-59 months in the household, the household was still interviewed for Water Sanitation and Hygiene (WASH), Food Security and Livelihoods (FSL), Health access and protection data. Data on morbidity WASH and FSL were collected by recall.

The following case definitions were used in the assessment:

- Household: Group of persons who live together under the same roof and eat from the same pot for at least a period of 3 months preceding the assessment. In polygamous homes, those

living and eating in different houses are considered as separate households. Wives living in different houses but eating from the same pot are considered as one household.

- Head of household: One who controls and makes key decisions on household resources (livestock, assets, income, and food), health and social matters for and on behalf of the household members
- Respondent: The person responsible for food preparation on the recall day. For the child, this refers to the mother or caregiver.
- Diarrhea: having three or more loose or watery stools per day
- Measles vaccination: a jap in the upper arm given to children after 9 months and 18 months of age at health clinics or by mobile health teams.
- Meal: food served and eaten at one time (excluding snacks) and includes one of the three commonly known: - breakfast, lunch and supper/dinner
- Bilaterally oedema: Swollen limbs leaving depression 3 seconds after pressing on both feet (bilateral)

Indicators, guidelines and formulas used in acute malnutrition

Weight for Height (WHZ) index

This was estimated from a combination of the weight for height (WHZ) index values (and/or oedema) and by sex based on WHO standards 2006. This index was expressed in WHZ indices in Z-scores, according to WHO 2006 reference standards.

Z-Score:

- Severe acute malnutrition is defined by WHZ < -3 SD and/or bilateral Oedema
- Moderate acute malnutrition is defined by WHZ < -2 SD and >-3 SD and no Oedema.
- Global acute malnutrition is defined by WHZ < -2 SD and/or bilateral Oedema.

Mid Upper Arm Circumference (MUAC)

MUAC measurements was also undertaken to determine the nutrition status of eligible children and mothers/caretaker (15-49 years of age) from sampled households. The following MUAC criteria were applied.

Table 2: MUAC Guideline

MUAC Guideline Children 6 - 59 Months	**Interpretation**
MUAC< 115mm and/ or bilateral oedema	Severe acute malnutrition

MUAC 115mm and <125mm (no bilateral oedema)	Moderate acute malnutrition
MUAC 125MM and 135mm (no bilateral oedema)	At Risk of Malnutrition
MUAC >135 MM	Adequate nutrition
Maternal MUAC Cut off	**Interpretation**
MUAC< 21cm	Malnourished
MUAC 21 - 23 cm	At risk of malnutrition
MUAC > 23cm	Normal

- **Global Acute Malnutrition (GAM):** weight-for-height Z scores less than -2 and/or presence of oedema (WHZ<-2 and/oedema)
- **Severe Acute Malnutrition (SAM):** weight-for-height Z scores less than -3 and/or presence of oedema (WHZ<-3 and/oedema)
- **Global Acute Malnutrition based on MUAC (GAMMUAC**): Mid Upper Arm Circumference less than 125 mm and/or presence of oedema (MUAC<125 mm and/oedema); and severe acute malnutrition as MUAC<115 mm and/oedema
- **Wasting**: weight-for-height Z scores less than -2 (WHZ<-2); and severe wasting as WHZ<-3.
- **Underweight**: weight-for-age Z scores less than -2 (WAZ<-2); and severe underweight as WAZ<-3.
- **Stunting**: height-for-age Z scores less than -2 (HAZ<-2); and severe stunting as HAZ<-3.

Data Management

Data Quality Control

To ensure data quality, the following measures were put in place;

- A four-day comprehensive training including standardization and pilot test
- Field supervision of the survey teams during data collection
- Use of ODK for data collection and hosting in ona
- Daily calibration and standardization of the survey equipment
- Use of cluster control forms for survey outcome for every sampled household
- Daily plausibility checks and sharing feedback with the teams every morning before proceeding to the field
- Adequate logistic planning during training and fieldwork

Data collection tool

The national SMART methodology data collection tools were harmonized and designed in ODK for use. The tools captured all the indicators as per the survey specific objectives.

Data analysis and processing

Anthropometric data entry and processing was done using the ENA for SMART software 11th January 2020 where the World Health Organization Growth Standards (WHO-GS) data cleaning and flagging procedures were used to identify outliers that enabled data cleaning as well as exclusion of discordant measurements from anthropometric analysis. The SMART/ENA software generated weight-for-height, height-for-age and weight-for-age Z scores to classify them into various nutritional status categories using WHO standards and cut-off points. Additional data for children aged 6-59 months, women aged 15-49 years, WASH, and food security indicators were cleaned and analysed using STATA and Excel. The result of this survey was compared to WHO/UNICEF standard cut-off points

Table 3: Definition of boundaries for exclusion

1. If sex is missing the observation was excluded from analysis.
2. If Weight is missing, no WHZ and WAZ were calculated, and the programme derived only HAZ.
3. If Height is missing, no WHZ and HAZ were calculated, and the programme derived only WAZ.
5. For any child records with missing age (age in months) only WHZ was calculated.
6. If a child has oedema only his/her HAZ was calculated.

CHAPTER THREE

SURVEY RESULTS

Household Demographics and Survey Coverage

Figure 3 shows the sampled clusters reached by the seven survey teams covered in six days. The survey successfully reached 99.7% (628 households) of the targeted sample of 630 households. Only three households were unavailable during the survey period, ensuring a high response rate and robust data collection.

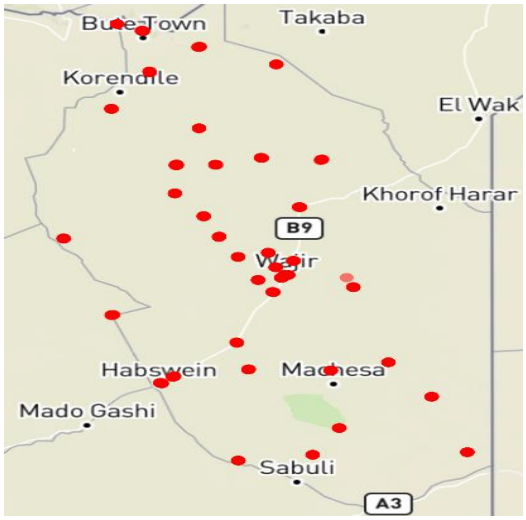


Figure 5: Wajir County showing sampled clusters sampled

A total of 42 clusters were planned, and all were achieved, marking 100% completion of the survey's geographic scope. The survey also exceeded expectations in terms of children reached for anthropometric measurements, with 554 children measured against the planned 504, achieving a response rate of 109.9%.

Population Distribution and Gender distribution

The survey captured a total population of 3,665 individuals across the sampled households. The average household size was calculated at 5.9 members per household, which reflects a typical family household size of six in Wajir.

The population is relatively young, with 44% of the population aged between 5 and 18 years, while 17.5% are children under the age of 5. Adults aged 18 years and above account for 38.5% of the total population. This demographic structure highlights a significant proportion of children in the surveyed communities, underscoring the importance of child-focused health and nutrition interventions.

Table 4: Population distribution

AGE GROUP	n	Proportion
18 years and above (Adult)	**1411**	**38.5%**
Female	769	54.5%
Male	642	45.5%
5 to less than 18 years	**1614**	**44.0%**
Female	764	47.3%

Male	850	52.7%
Less than 5 years	**640**	**17.5%**
Female	312	48.8%
Male	328	51.3%

Gender distribution was relatively balanced, though slight variations were observed across different age groups as illustrated in table 4. Among adults (18 years and older), females constituted 54.5%, while males accounted for 45.5%. In the 5 to less than 18 years category, males slightly outnumbered females at 52.7% and 47.3%, respectively. Among children under 5, the distribution was more even, with males at 51.3% and females at 48.8%.

Residency Status, Main Occupations of Household Heads

The vast majority (97.1%) of surveyed households reported being permanent residents, with only 2.9% identifying as nomadic or pastoralist. This finding suggests that most households are relatively stable and are likely to have consistent access to services within their communities. The primary source of livelihood for the majority (51.5%) of household heads was livestock herding, a critical occupation in the region's arid and semi-arid lands (ASAL). This was followed by casual wage labour (17.9%) and petty trade (10.4%), indicating a reliance on both pastoral and non-pastoral livelihoods. A small proportion of households (8.6%) reported salaried employment, reflecting limited formal employment opportunities.

Sources of Household Income and Cash Transfer Programs

The sale of livestock was the main source of income for 48.2% of households, further reinforcing the importance of livestock as an economic asset in the region. Casual labour (19%) and petty trading, such as the sale of firewood (11.4%), were other significant income sources as illustrated in table 5. A notable 5% of households reported having no income, while 7.2% cited permanent jobs as their main source of income.

Table 5: Source of income

Source of income (625)	**N**	**Proportion**
Sale of livestock	301	48.2%
Casual labor	119	19.0%
Petty trading e.g. sale of firewood	71	11.4%
Permanent job	45	7.2%
No income	31	5.0%
Remittance	20	3.0%

Sale of crops	13	2.1%
Sale of livestock products	21	3.4%
Sale of personal assets	4	0.6%

More than half (55.4%) of the surveyed households reported participation in cash transfer programs, with the majority (91.3%) enrolled in the Hunger Safety Net Programme (HSNP). Smaller proportions benefited from other safety net programs such as the Older Persons Programme (3.8%) and the Orphans and Vulnerable Children (OVC) Programme (2.9%).

School Enrollment

Among school-aged children (3 – 18 years), majority (74%) are attending school. There were various reasons cited for not attending school with the main reason for not attending school were being too young (45.2%), others were attending religious instruction at Duksi or Madarasa (25.9%), and family labour responsibilities (10%). Notably, a small percentage (2.4%) of children were involved in livestock herding, reflecting the pastoral lifestyle of many households.

CHILD RESULTS

Access and utilization of health and nutrition services

Immunization plays a critical role in improving child nutrition outcomes by preventing diseases that can lead to malnutrition and other health complications. Vaccines protect children from life-threatening illnesses such as measles, polio, and pneumonia, which can impair their growth and development if left untreated. Timely health-seeking behaviors are equally important, as early diagnosis and treatment of illnesses reduce the risk of complications that could exacerbate nutritional deficiencies. When caregivers seek medical assistance promptly, children are more likely to receive the necessary interventions, such as therapeutic feeding or treatment for infections, leading to better overall health and nutrition. Together, immunization and timely healthcare utilization significantly contribute to improved child survival, growth, and long-term development

In 2024, there was notable progress in children's access to health and nutrition services, reflecting improvements in the delivery and uptake of critical interventions. This was attributed to sustained scale of drought and post-flood emergency response.

Child Morbidity and Health-Seeking Behavior

The survey revealed that 26.2% of children under five years of age experienced illness in the two weeks preceding the survey. Among these children, 69.7% were taken to a healthcare provider for treatment. The majority of caregivers sought assistance from public health facilities as shown

in figure 6, with a notable increase in those consulting community health workers, rising to 5.5% from the previous.

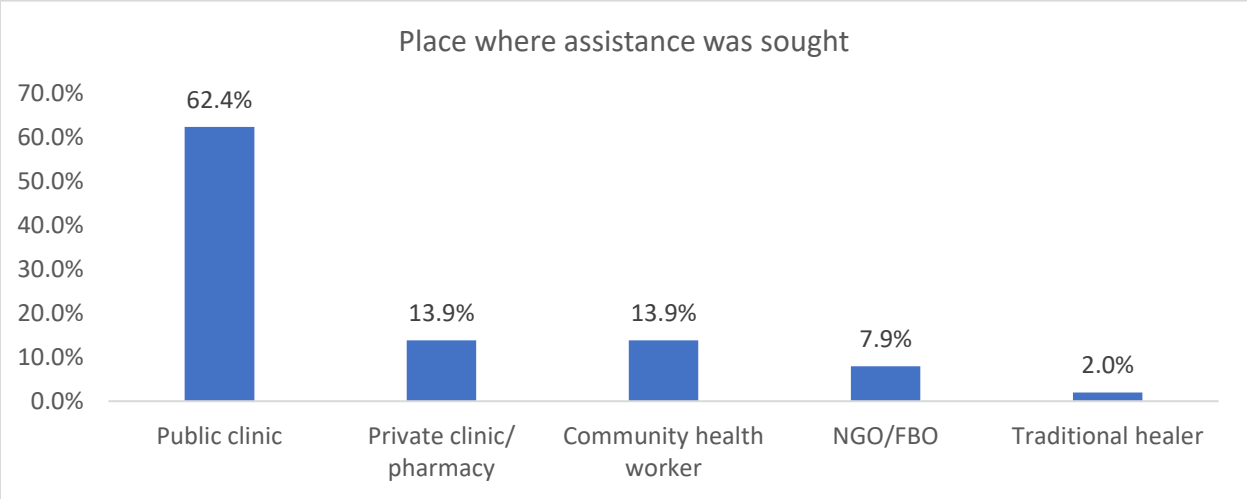


Figure 6: Places where caregivers sought assistance

Treatment of Watery Diarrhea

Of the children who presented with watery diarrhea, 70.6% received therapeutic zinc, and 52.9% were given Oral Rehydration Salts (ORS). This indicates room for improvement in ensuring full adherence to diarrhea management protocols, particularly in the use of ORS, which should be provided alongside zinc for better outcomes. It is however worth to note that majority of the public health facilities receive zinc-ORS co-pack.

Immunization Coverage

Immunization coverage was generally high in the surveyed population. BCG coverage stood at 98.4%, as verified either by the presence of a scar or by immunization card checks. Other key antigens are OPV1 and OPV3 coverage reached 97.9% and 97.5%, respectively, Measles vaccination at 9 months was 94.8%, while at 18 months, coverage dropped to 83.6%. as illustrated in table 6.

The immunization data indicates strong program performance, though there is a slight decline in coverage for the second measles dose, which warrants further attention. It was also observed that most of the immunization status was by recall as majority of the mothers/ caregivers didn't have mother child booklet

Table 6: Immunization status

	Yes, Card	Yes, Recall	Total Immunized	Not Immunized	Don't know

OPV 1, N=554	27.10%	70.80%	**97.90%**	1.30%	0.90%
OPV 3, N= 554	26.20%	71.30%	**97.50%**	1.30%	1.30%
Measles at 9 months, N= 533	25.00%	69.80%	**94.80%**	2.10%	3.20%
Measles at 18 months, N=433	19.20%	64.40%	**83.60%**	6.50%	9.90%

Vitamin A Supplementation

Vitamin A Supplementation (VAS) coverage improved significantly in 2024. Compared to 2023, when only 34.6% of children aged 12-59 months received the recommended two doses or more, there was a marked increase in 2024 as illustrated in figure 7. This improvement is largely attributed to the accelerated VAS campaign carried out in June 2024.

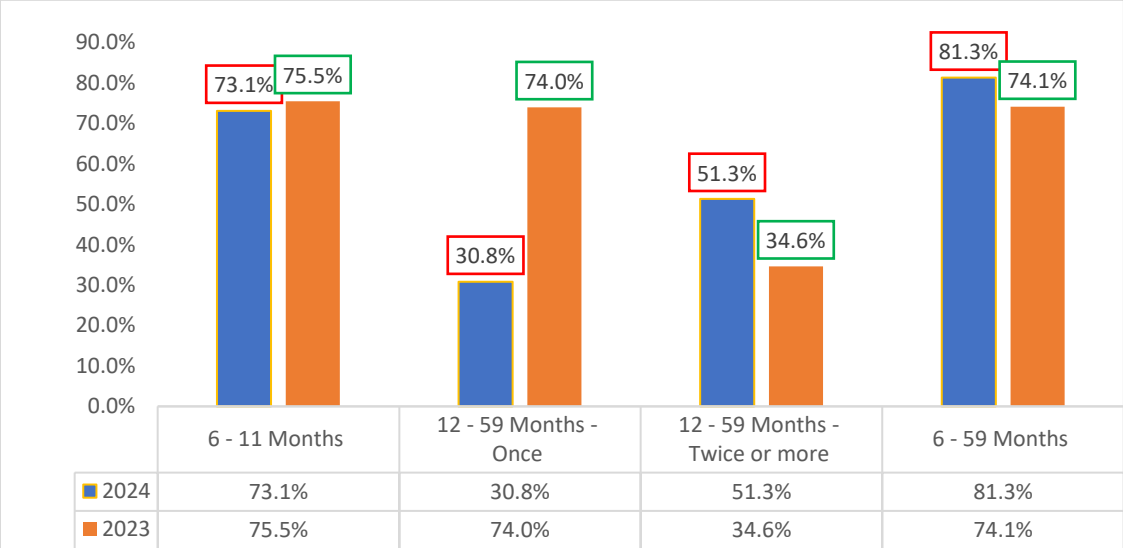


Figure 7 Vitamin A supplementation Coverage for 2024 compared to 2023

Deworming Coverage

Deworming coverage for children aged 12-59 months showed mixed results:

- 42.4% of children received deworming at least once in the past 12 months, down from 68.0% in 2023.
- However, 25.5% of children were dewormed twice or more in 2024, a slight increase from 24.4% in the previous year.

Anthropometric results

The survey data on the nutritional status of children under five reveals important insights into the overall health and development of children in Wajir County. The key indicators being covered in this section include Global Acute Malnutrition (GAM), stunting, underweight prevalence, and trends in malnutrition over time. A total of 552 children were measured and included in the data analysis for the different nutrition parameters. The mean z-scores, design effects and excluded subjects are as indicated in table 6. The data quality was excellent as indicated in the plausibility report, figure 8.

Table 7: Mean z-scores, Design Effects and excluded subjects

Indicator	N	Mean z-scores ± SD	Design Effect (z-score < -2)	z-scores not available*	z-scores out of range
Weight-for-Height	552	-0.88±0.99	1.00	0	2
Weight-for-Age	550	-0.93±0.95	1.07	0	4
Height-for-Age	543	-0.63±1.07	1.62	0	11

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	Score
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (0.4 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.832)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.728)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
Standard Dev WHZ . .	Excl Excl	SD SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	**0** (0.99)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.10)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.15)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.714)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**0** %

The overall score of this survey is 0 %, this is excellent.

Figure 8: Plausibility report

Global Acute Malnutrition (GAM)

The prevalence of Global Acute Malnutrition, based on weight-for-height z-scores (WHZ), showed a significant improvement compared to the previous year. In 2024, the GAM rate stood at 11.2% (95% CI: 9.0 - 13.9), as indicated in table 8 a notable decrease from the 19.0% reported the same season in 2023. Severe Acute Malnutrition (SAM) prevalence also declined to 1.8% (95% CI: 1.0 - 3.2) in 2024, down from 2.2% in 2023. These improvements indicate progress in addressing acute malnutrition, although the GAM rate remains above the WHO emergency threshold of 15% from previous years. Gender-wise, GAM prevalence was similar between boys (11.2%) and girls (11.3%), indicating no significant gender disparities in the incidence of acute malnutrition. The prevalence of moderate malnutrition (WHZ <-2 and >=-3) was higher among girls (10.2%) than boys (8.7%), while severe malnutrition was more pronounced in boys (2.5%) compared to girls (1.1%).

Table 8: Prevalence of Global Acute Malnutrition based on weight-for-height z-scores

	All n = 552	**Boys n = 277**	**Girls n = 275**
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(62) **11.2 %** (9.0 - 13.9 95% C.I.)	(31) **11.2 %** (7.8 - 15.8 95% C.I.)	(31) **11.3 %** (7.8 - 16.0 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(52) **9.4 %** (7.5 - 11.7 95% C.I.)	(24) **8.7 %** (5.9 - 12.5 95% C.I.)	(28) **10.2 %** (7.1 - 14.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(10) **1.8 %** (1.0 - 3.2 95% C.I.)	(7) **2.5 %** (1.2 - 5.1 95% C.I.)	(3) **1.1 %** (0.4 - 3.3 95% C.I.)

Mid-Upper Arm Circumference (MUAC) Data

The MUAC data supported the findings of the WHZ, with the prevalence of global malnutrition (MUAC <125mm) being relatively low at 1.4%. This low figure suggests that while acute malnutrition remains a concern, severe cases are less common in the population. Notably, no severe cases (MUAC <115mm) were reported during the survey.

Table 9: Prevalence of Global of Acute based on MUAC

	All n = 554	Boys n = 279	Girls n = 275
Prevalence of global malnutrition (< 125 mm and/or oedema)	(8) **1.4 %** (0.7 - 3.0 95% C.I.)	(4) **1.4 %** (0.5 - 3.7 95% C.I.)	(4) **1.5 %** (0.6 - 3.7 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(8) **1.4 %** (0.7 - 3.0 95% C.I.)	(4) **1.4 %** (0.5 - 3.7 95% C.I.)	(4) **1.5 %** (0.6 - 3.7 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(0) **0.0 %** (0.0 - 0.0 95% C.I.)	(0) **0.0 %** (0.0 - 0.0 95% C.I.)	(0) **0.0 %** (0.0 - 0.0 95% C.I.)

Underweight Prevalence

The survey also assessed underweight prevalence based on weight-for-age z-scores (WAZ). The prevalence of underweight children was 12.9% (95% CI: 10.2 - 16.2), with moderate underweight affecting 11.8% of children and severe underweight present in 1.1%. Boys had a higher prevalence of underweight (14.9%) compared to girls (10.9%) as illustrated in table 10.

Table 10: Prevalence of Underweight based on weight-for-age z-scores

	All n = 550	Boys n = 275	Girls n = 275
Prevalence of underweight (<-2 z-score)	(71) **12.9 %** (10.2 - 16.2 95% C.I.)	(41) **14.9 %** (11.0 - 19.9 95% C.I.)	(30) **10.9 %** (7.8 - 15.0 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(65) **11.8 %** (9.2 - 15.0 95% C.I.)	(37) **13.5 %** (9.7 - 18.4 95% C.I.)	(28) **10.2 %** (7.3 - 14.1 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(6) **1.1 %** (0.5 - 2.3 95% C.I.)	(4) **1.5 %** (0.6 - 3.8 95% C.I.)	(2) **0.7 %** (0.2 - 2.9 95% C.I.)

Stunting Prevalence

Stunting, an indicator of chronic malnutrition, was found in 9.8% (95% CI: 6.9 - 13.6) of the children surveyed, with boys (12.5%) being more affected than girls (7.0%). The prevalence of moderate stunting was 8.3%, while severe stunting affected 1.5% of children. These findings

indicate a lower rate of chronic malnutrition compared to acute malnutrition, but it still represents a challenge for long-term child development.

Table 11: Prevalence of Stunting based on height-for-age z-scores

	All **n = 543**	**Boys** **n = 273**	**Girls** **n = 270**
Prevalence of stunting (<-2 z-score)	(53) **9.8 %** (6.9 - 13.6 95% C.I.)	(34) **12.5 %** (8.1 - 18.7 95% C.I.)	(19) **7.0 %** (4.7 - 10.5 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(45) **8.3 %** (5.8 - 11.7 95% C.I.)	(28) **10.3 %** (6.2 - 16.4 95% C.I.)	(17) **6.3 %** (3.9 - 9.9 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(8) **1.5 %** (0.8 - 2.8 95% C.I.)	(6) **2.2 %** (1.0 - 4.6 95% C.I.)	(2) **0.7 %** (0.2 - 2.9 95% C.I.)

Trends in Global Acute Malnutrition

Over the past five years, the prevalence of GAM has fluctuated, with rates recorded at 16.39% in 2019, rising to 19.0% in 2023 before improving to 11.2% in 2024. Despite the improvements, the GAM rates in some years exceeded the WHO emergency threshold of 15%, emphasizing the ongoing need for focused nutrition interventions in the community.

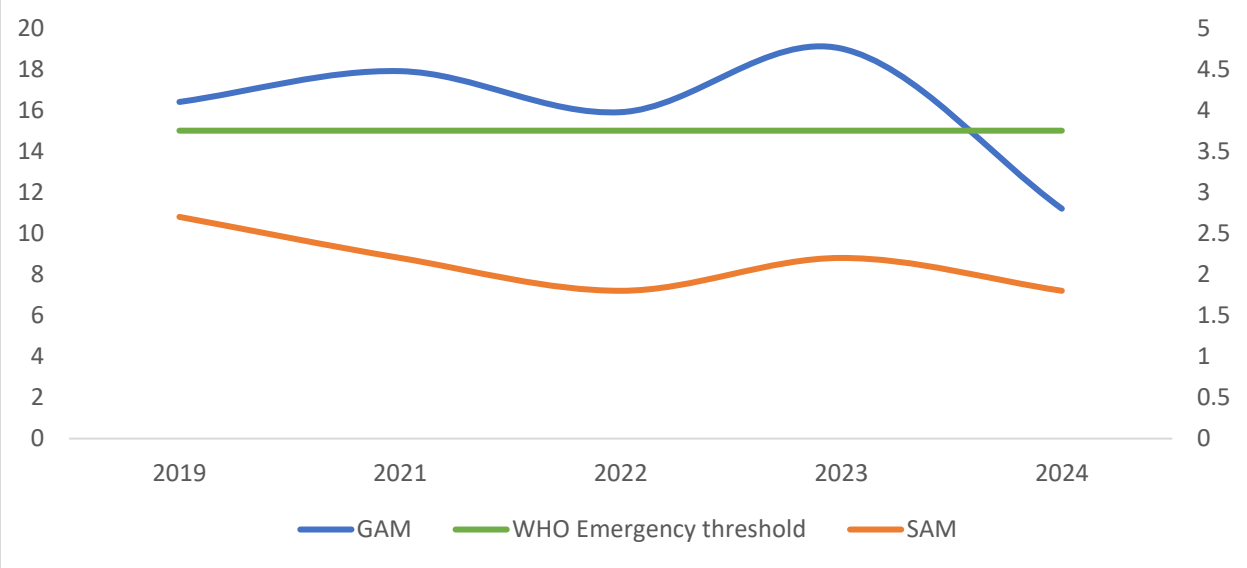


Figure 9: Trends of Global Acute Malnutrition from 2019 - 2023

Water Hygiene and Sanitation

This section covers 3 sub-topics namely; Water access, hygiene which entails practices that support to maintain health and prevent the spread of diseases specifically handwashing. The section also covers sanitation which involves the systems and infrastructure designed to manage waste, sewage, and the cleanliness of living environments. In this case, the focus will be the utilization of sanitation facilities for human waste disposal.

Safe drinking water, sanitation, and hygiene are crucial to human health and well-being. Safe WASH is not only a prerequisite to health but contributes to livelihoods, school attendance, and dignity and helps to create resilient communities living in healthy environments. Water hygiene and sanitation are right every Kenyan is entitled to according to article 43 of the Kenyan Constitution 2010. The right to water and sanitation is part of the universal rights essential for human survival and dignity, and state and non-state actors have responsibilities to fulfill the right (SPHERE 2018). The main objective of an intervention to improve household water quality is to ensure that the water consumed will not produce disease (Oxfam 2008). According to WHO, improved drinking-water sources are defined as those likely to be protected from outside contamination, and fecal matter in particular. Improved water sources include household connections, public standpipes, boreholes, protected dug wells, protected springs, and rainwater collection. Unimproved water sources include unprotected wells and springs, surface water (e.g. river, dam or lake), vendor-provided water, bottled water (unless water for other uses is available from an improved source) and tanker truck-provided water.

Water Access

A. Main Sources of Drinking Water

The main source of drinking water among the surveyed households was boreholes /protected shallow wells (33.4%). This was an improvement in access to water from protected sources compared to the immediate previous survey (2023) where the main source of drinking water was earth pan/dam (35.1%). Notably, 28.2% obtained drinking water from earth pan/dam (28.2%). There was an improvement for the households sourcing their water from protected sources i.e. boreholes, protected shallow wells, and piped water systems from 36.3% in 2023 to 48.0% in 2024. The table below illustrates the water sources for drinking water for the 2024 Integrated SMART survey compared to the same survey in 2023.

Table 12: Main Sources of drinking water

MAIN SOURCE OF DRINKING WATER	n	Percent (2024), N= 625	Percent (2023), N= 607)
Borehole /protected shallow wells	209	33.4%	15.7%
Earth pan/dam	176	28.2%	35.1%

Unprotected shallow well	116	18.6%	22.7%
Piped water system	91	14.6%	20.6%
Water trucking / Boozer	17	2.7%	1.2%
Earth pan/dam with infiltration well	7	1.1%	0.5%
Other	5	0.8%	0.0%
Water vendor	2	0.3%	3.3%
Harvested water (Jabiya)	1	0.2%	0.5%
River/spring	1	0.2%	0.0%

B. Distances to water sources and Queuing Time

According to the SPHERE handbook for minimum standards for WASH, the maximum distance from any household to the nearest water point should be 500 meters. It also gives the maximum queuing time at a water source which should be no more than 30 minutes.

Analysis of the distance to the water sources shows that the proportion of households accessing their drinking water from sources within a distance of 500m significantly reduced from 65.7% in 2023 to 56.3% in 2024 as indicated in figure 10. Overall, the proportion of households that accessed water beyond 500 meters equivalent to 15 minutes or more increased from 34.3% to 43.7%. While 32.8% accessed their water from sources above 500m and less than 2km, 10.9% accessed their drinking water from sources beyond 2km from their households.

Regarding the queuing time, 28.2% (n= 176) of the households queued for water with 68.2% of them being within the SPHERE recommendation (< 30 minutes). This was a marginal decline compared to 63.6% who queued for the same time in 2023. Approximately a quarter (26.1%) of the households of households queued for water between 30 to 60 minutes while 10.2% of the households for more than 1 hour. Notably, the trekking distance varied significantly with queuing time (p= 0.001), with households whose trekking distance falling within the SPHERE threshold reporting queuing time within the Minimum queuing time threshold.

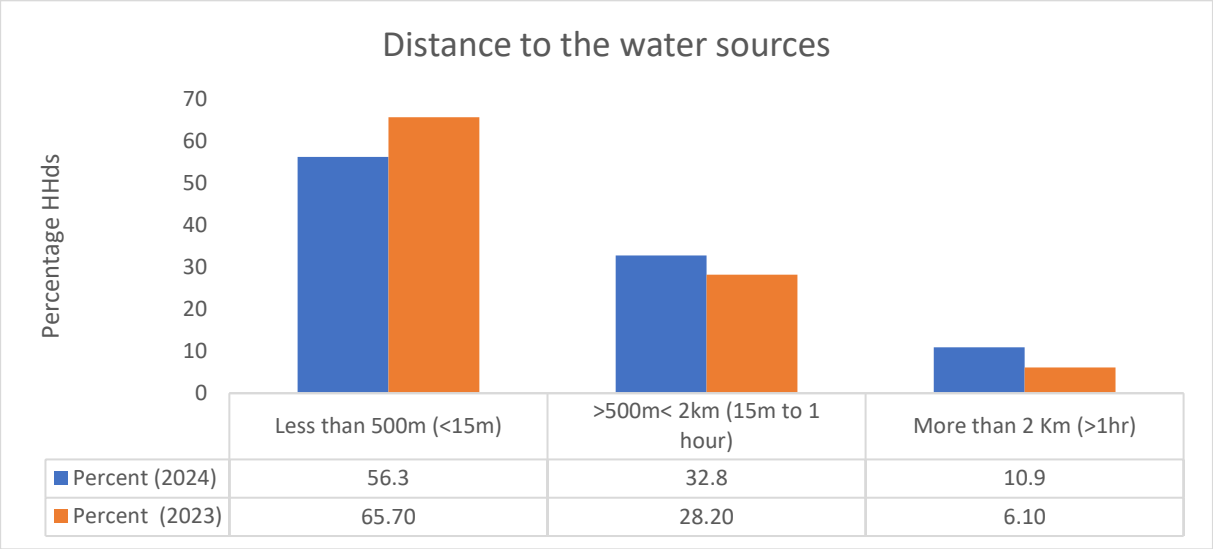


Figure 10: Distance to Water Sources

C. Water Storage and Treatment

A safe water intervention should begin with an improved water supply and be followed by safe water collection, handling, and storage. In circumstances where the source is not deemed safe, point-of-use water treatment should be performed (Oxfam 2008). Based on the 2018 SPHERE handbook, water storage should have lids, and be clean and covered. Storage containers should have a narrow neck or tap to ensure safe collection, storage, and consumption of drinking water. It is not always necessary to include household water treatment in the safe water chain. If the quality of water at the source cannot be guaranteed, a treatment process is needed to purify the water before drinking. This is referred to as point–of–use or household water treatment.

Overall, 19.8% of the households reported to treat their drinking water. There was no significant difference in the water treatment practices between the households using the improved water sources and those who were not using the unimproved water sources. This means that households that were using unimproved water sources such as earth pans or dams, unprotected shallow wells, water trucks/boozers, rivers or springs as well as harvested water may not be treating their water in equal measure as those that were using improved water sources such as piped water systems and boreholes and protected springs.

Table 13: water treatment vs the water source

	Do you treat your drinking water?				
Type of water sources	No	Percent No	Yes		Total
Not Improved	255	40.8%	70	11.2%	325
Improved source	246	39.4%	54	8.6%	300
Total	501	80.2%	124	19.8%	625
Pearson chi square= 1.2282, p= 0.268					

Among the treatment methods used, chemicals were used by a majority (69.4%), of the households. This was almost the same proportion in 2023 where 69.5% used chemicals such as chlorine, and PUR as illustrated in the table below.

Table 14: Water treatment methods used.

Water treatment method	n	Percent 2024	Percent 2023
Boiling	63	50.8	33.3
Use of chemicals	86	69.4	69.5
Pot filters	1	0.8	0.6

Three-quarters (75%) of the households stored their drinking water in closed containers as recommended. This was similar to the previous year's SMART survey where 75.9% stored their drinking water in the covered containers.

D. Water Consumption and Purchase

According to SPHERE handbook for minimum standards for WASH, the average water consumption for drinking, cooking, and personal hygiene in any household should be at least 15 liters per person per day. Analysis shows that 52.3% of the household members met the household per capita consumption. This is a slight deterioration compared to 2023 when the proportion that met this threshold was 54.7% as illustrated in the table below. The mean water consumption per person per day was 20.6 liters compared to 2023 where the mean consumption was 18.4 liters.

Table 15: Household water consumption per capita

QUANTITY OF WATER USED	n	Percent (2024)	Percent (2023
Less than 15L /day/person	298	47.7	45.3
15L and above/day/person	327	52.3	54.7
Average consumption L/day/person		**20.6**	**18.4**

Regarding the cost of water, 49.6% of the respondents stated that their households purchased water in comparison to 43.2% in 2023. Among respondents whose households purchased water, 56.8% purchased water in 20-liter jerrican while 43.2% were billed monthly. The average cost for 20 liters of jerrican was KES 30. This was an increase compared to 2023 where the average cost per 20 liters of jerrican was KES 13. Regarding to the households who paid for water on a monthly

basis, the average monthly bill was KES 937.5. This was also an increase compared to 2023 where the average monthly bill was KES 882.

Table 16: Cost of water

Purchase method	No of HH	% HH	Min (KES.)	Max (KES.)	AVG (KES.)
20-liter jerrican	176	56.8%	2	30	11.50
Monthly bill	134	43.2%	30	7000	937.50

Hand Hygiene

According to the Global Handwashing Partnership, proper hand hygiene is one of the most effective ways to prevent infection and limit the spread of diseases, such as respiratory infections, diarrheal diseases, outbreak-related pathogens (such as cholera), neglected tropical diseases, and healthcare-associated infections. Hand hygiene is a primary measure of health and development, and practices include handwashing with soap and use of alcohol-based hand rub. This survey assessed the community hand-washing practices and also awareness.

In terms of awareness, 83.4% of the respondents indicated that they were aware of handwashing practices. This was a significant reduction compared to the 2023 SMART survey where 90.3% of the respondents had the same awareness.

In terms of practices, majority of respondents washed their hands before eating and after visiting the toilets. The same instances were highly reported during the 2023 SMART survey. Notably, there were marginal and insignificant increments in the proportion of respondents who washed their hands in both instances. Handwashing after taking the child to the toilet remained relatively low with very minimal change. Overall, there was a significant reduction in the proportion of respondents washing their hands in 4 critical moments from 51.1% in 2023 to 44.2% in 2024. However, the proportion of respondents washing their hands with soap and water increased significantly from 42.2% to 49.5% in 2024 as illustrated in the table 17.

Table 17: Handwashing practices

Handwashing Instances N=625	**n**	**2024**	**2023**
After toilet	568	90.9%	87.0%
Before cooking	388	62.1%	77.2%
Before eating	604	96.6%	96.4%

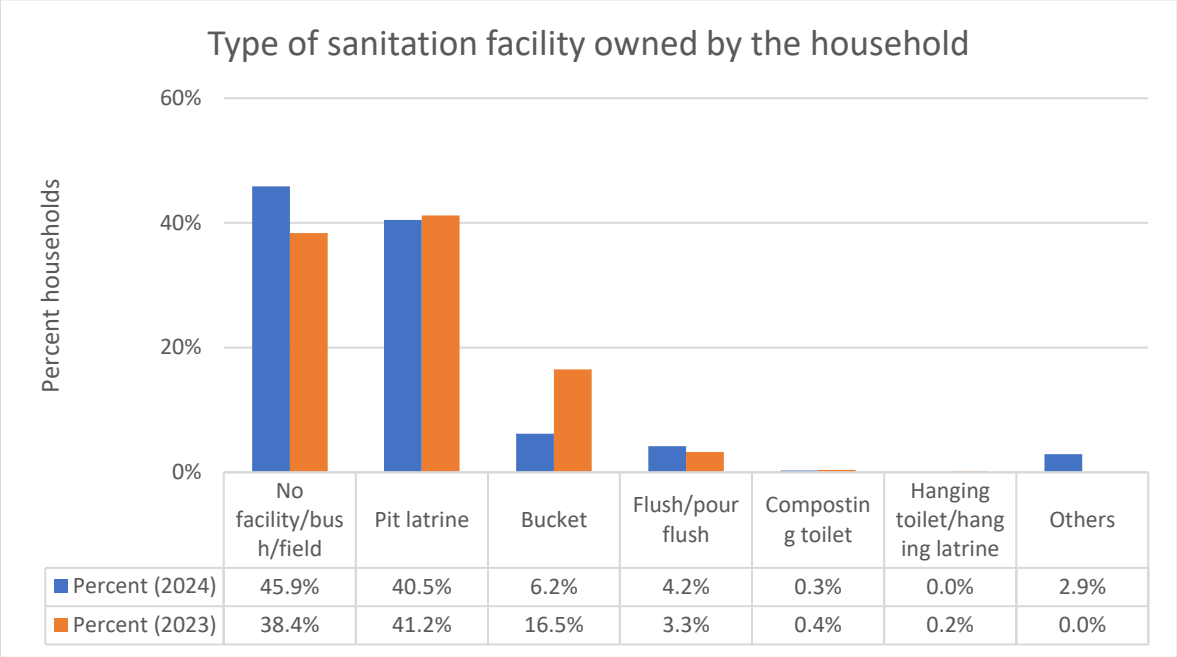
After taking the children to the toilet	387	61.8%	61.9%
At 4 critical times	**276**	**44.2%**	**51.1%**
Soap and water		49.5%	42.2%

Sanitation

Sanitation includes behaviors, facilities, and services that provide the hygienic environment that children need to fight diseases and grow up healthy (UNICEF). Poor sanitation puts children at risk of childhood diseases and malnutrition that can impact their overall development, learning, and, later in life, economic opportunities. Lack of sanitation facilities such as toilets may lead to open defecation.

Open defecation is the practice of defecating in open areas such as fields, bushes, or bodies of water. Exposed fecal matter contaminates food, water, and the environment, and can spread serious diseases, such as cholera. Coupled with poor hygiene practices, exposure to fecal matter remains a leading cause of child mortality, morbidity, undernutrition, and stunting, and can negatively impact a child's cognitive development. This survey assessed the access to sanitation facilities in Wajir County.

In the County, a majority (45.9%) of residents had no sanitation and therefore used open bushes or fields. This was a deterioration compared to 2023 where the proportion that did not have sanitation facilities was 38.4%. The deterioration can be attributed to enhanced short and long rains that had a destructive impact on the County's sanitation infrastructure. While 40.5% of the residents used pit latrines, only 6.2% and 4.2% used bucket and flush toilets respectively. Except for bucket toilet utilization which decreased from 16.5% in 2023, the utilization of the pit latrine and flush toilets remained relatively the same as illustrated in the figure below.



	No facility/bush/field	Pit latrine	Bucket	Flush/pour flush	Composting toilet	Hanging toilet/hanging latrine	Others
Percent (2024)	45.9%	40.5%	6.2%	4.2%	0.3%	0.0%	2.9%
Percent (2023)	38.4%	41.2%	16.5%	3.3%	0.4%	0.2%	0.0%

Figure 11: Access to sanitation facilities in Wajir County

Food Security

Introduction

Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Food security indicators are part of the contributing factors to acute malnutrition at the underlying level (food availability, food access, and household food utilization) as well as at the immediate cause level (Food consumption- energy quantity and nutrition quality of food intake). This section covers key indicators of household and individual food consumption as well as food access indicators. Further, it presents the findings in terms of food security vulnerabilities and coping mechanisms applied by the households when food insecurity occurred.

Household Dietary Diversity (HDD)

Household Dietary Diversity is a proxy indicator of food access (Swindale and Bilinsky 2006). Household Dietary Diversity has not been validated as a proxy indicator for adequacy of specific macronutrients or micronutrients. Because household dietary diversity generally increases as income increases, this indicator is sometimes used as a proxy for the access dimension of food insecurity, and is one of the indicators frequently used to assess how interventions designed to increase household income have affected food consumption.

In case of this survey, 24-hour recall was used as the reference period for calculation of HDD. As recommended by FANTA (Swindale and Bilinsky 2006). In data collection phase, households were

interrogated about their consumption of 16 food groups. At the analysis phase, the food groups were combined to 12 food groups as presented in figure 12.

Considering the house consumption of the 12 food groups across the County, cereals and cereal products, sugars and sweets, oils and fats as well as pulses and legumes were the highly consumed food groups at 98.2%, 98.9%, 98.1% and 87.7%. Majorly, the main source of these food groups was purchase at 96.5% (cereals), 91.2% (sweets and sugars), 98.1% (oils and fats) and 97.6% (legumes and pulses). Fish, fruits and meats were least consumed at 0.0% 6.1% and 23.2% respectively.

The mean Household dietary diversity was 6.1 which falls under the high HDDs. Majority of the households (59.0%) consumed more than 5 food groups, 40.3% consumed between 3 to 5 food groups (medium HDDS) while only 0.6% consumed less than 3 food groups (Low HDDS).

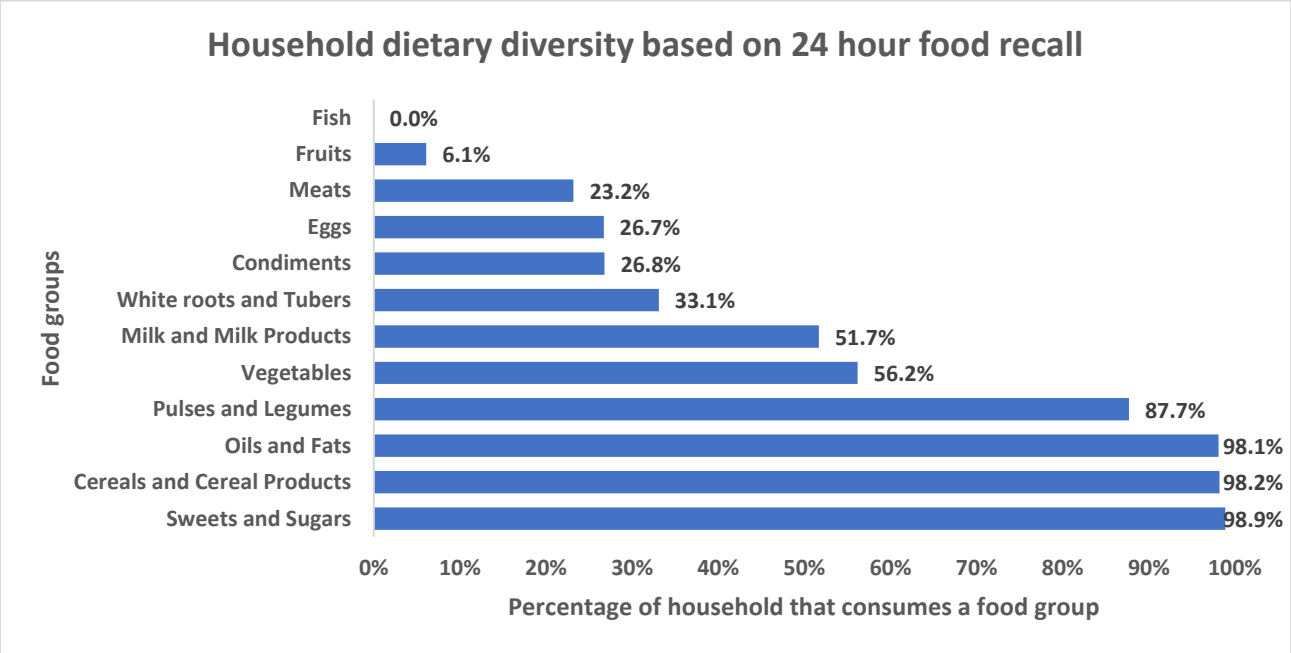


Figure 12: Dietary Diversity (proportion of households consuming different food groups).

In comparison to the immediate previous survey (2023), the proportion of households with high HDDS increased from 35.4% in 2023 to 59.0% in 2024. There was notable reduction in households under medium and low HDDS as illustrated in figure 13.

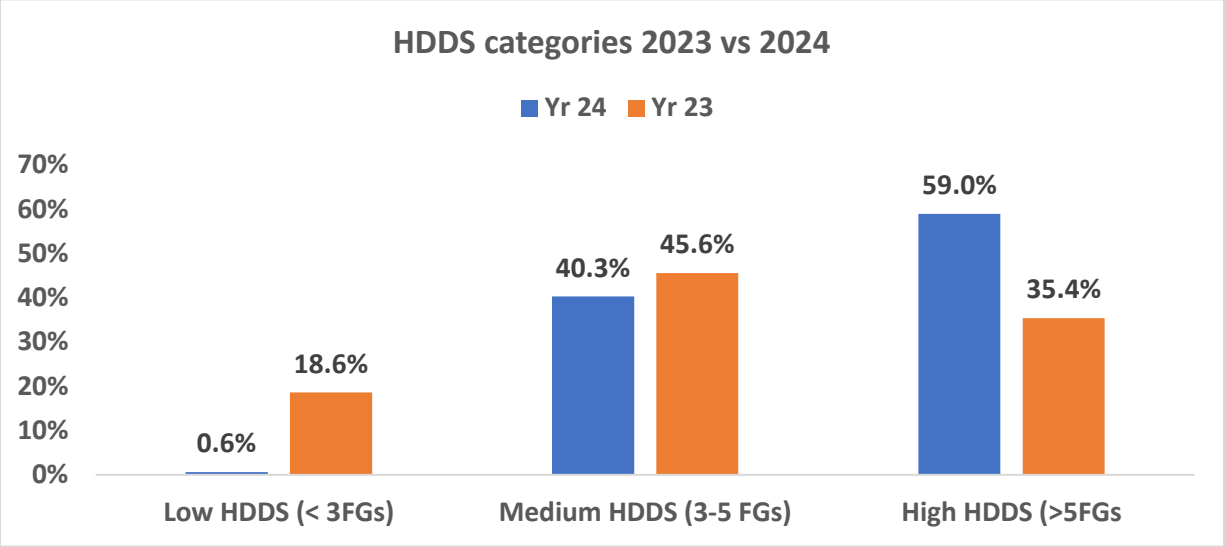


Figure 13: Household Dietary Diversity categories

Further analysis was done on household consumption for the past 7 days prior to the survey. As illustrated in figure 14, staples were consumed almost all the 7 days with a mean of 6.9 days an improvement compared to 2023 where the mean consumption was 6.1 days. Oils and fats were consumed for almost 7 days with a mean of 6.6 days compared to 4.4 days in 2023 while protein sources which include legumes and pulses, milk and milk products, meats and eggs were consumed at an average of 6.1 days compared to 5.3 days in 2023. Given that the main sources of these foods was purchase, this may signify an improvement of purchasing power of the sampled population. The least consumed foods were vitamin A rich foods that showed no significant improvement at 0.7 days compared to 0.6 days in 2023. In case of iron rich foods, the average consumption reduced from a mean of 2.3 days in 2023 compared to 1.5 days in 2024.

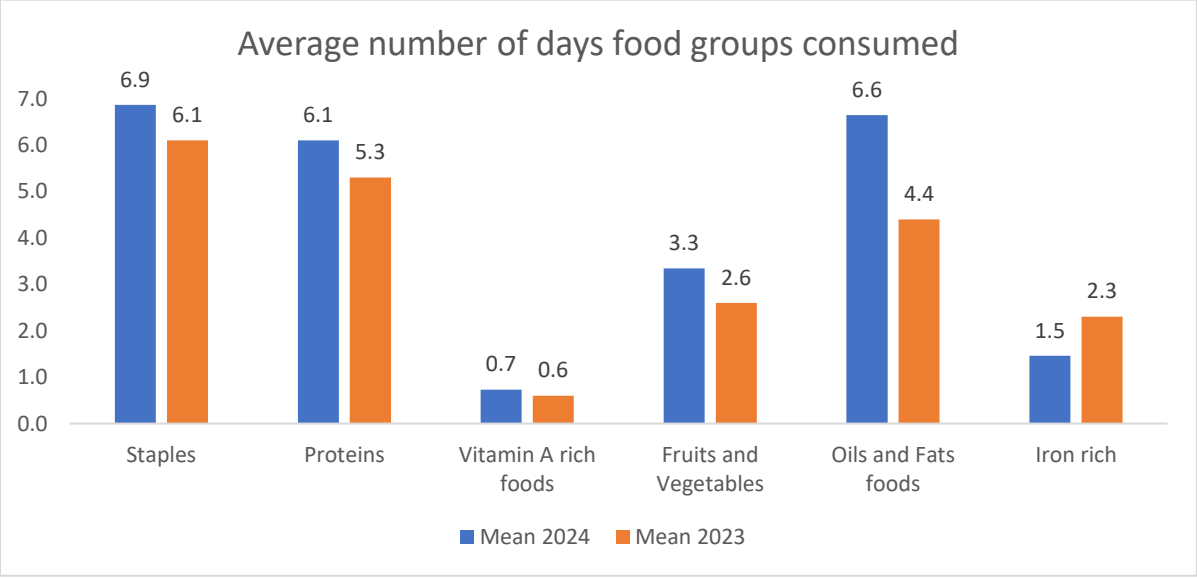


Figure 14: Average consumption of foods in Wajir County.

Food Consumption Score (FCS)

The FCS aggregates household-level data on the diversity and frequency of food groups consumed over the previous seven days, which is then weighted according to the relative nutritional value of the consumed food groups. It is used to compare food consumption across geography and time, target households in need of food assistance, monitor seasonal fluctuations in food consumption and provide key diet information to early warning analyses. Based on this score, a household's food consumption can be further classified into one of three categories: poor, borderline, or acceptable.

Most of the households in Wajir County (89.0%) fall under the acceptable food consumption score. There was notable improvement in food consumption score compared to 2023 where the proportion of households that fall under acceptable FCS was 76.0%. Other notable improvement was reduction of household that fall under the poor food consumption score from 7.1% to 1.8% as illustrated in table 1 below.

Table 18: Food consumption score

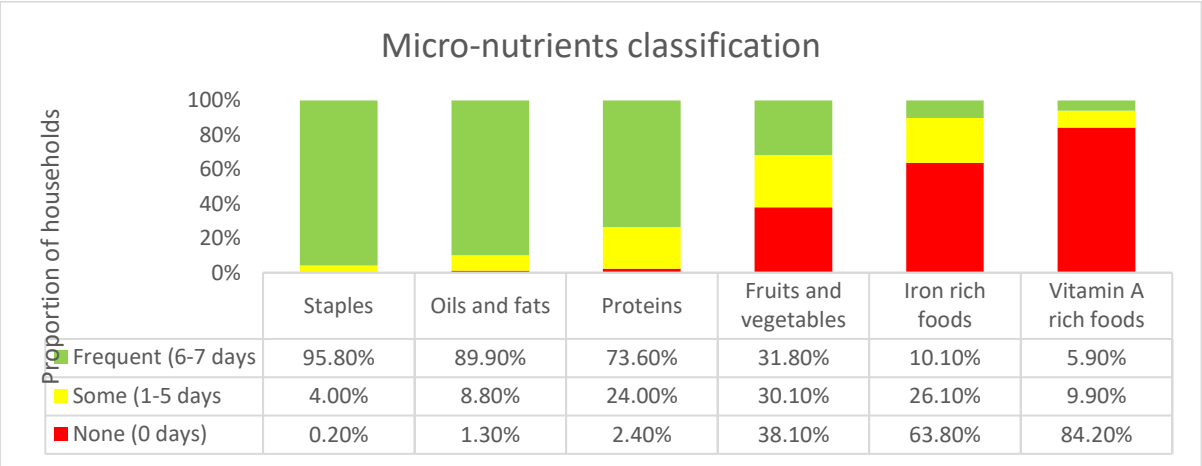
Food consumption score 2024, N=625				**2023 (n=607)**
Threshold	Nomenclature	n	Percent	n (%)
0-21	Poor food consumption, manly cereal and sugar	11	1.8%	43 (7.1%)
21.5-35	Borderline food consumption Cereal, legumes, milk, oil, sugar	58	9.3%	102 (16.8%)
>35.5	Good food consumption Cereal, legumes, milk, condiment, flesh meat, vegetable, oil, sugar	556	89.0%	462 (76.0%

Food consumption Micronutrients Grouping

Further analysis was done on the specific nutrient's rich foods namely, the staples, oils and fats, proteins, fruits and vegetables, iron rich foods such as meats and green leafy vegetables as well as vitamin A rich foods (orange fruits and vegetables).

This analysis showed that staples (cereals and white roots and tubers) were consumed frequently (consumed by almost all households in Wajir County). A large proportion of households (89.9%) frequently consumed oils and fats with almost three quarters (73.6%) frequently consuming protein rich foods such as legumes and pulses, milk and milk products as well as meats and eggs. The frequency of consumption of vitamin A rich foods was very low with only 5.9% of the households consuming vitamin A rich foods. Similarly, the consumption of iron rich foods was low with only 10.1% of the households frequently consuming iron rich foods. The proportion of

households that consumed none of both vitamin A and iron rich foods was very high at 84.2% and 63.8% respectively as illustrated in the figure below.



	Staples	Oils and fats	Proteins	Fruits and vegetables	Iron rich foods	Vitamin A rich foods
Frequent (6-7 days	95.80%	89.90%	73.60%	31.80%	10.10%	5.90%
Some (1-5 days	4.00%	8.80%	24.00%	30.10%	26.10%	9.90%
None (0 days)	0.20%	1.30%	2.40%	38.10%	63.80%	84.20%

Figure 15: Micronutrients rich foods consumption

Individual Dietary Diversity

Individual dietary diversity scores aim to reflect nutrient adequacy. Studies in different age groups have shown that an increase in individual dietary diversity score is related to increased nutrient adequacy of the diet. Dietary diversity scores have been validated for several age/sex groups as proxy measures for macro and/ or micronutrient adequacy of the diet. Scores have been positively correlated with adequate micronutrient density of complementary foods for infants and young children (FAO 2013).

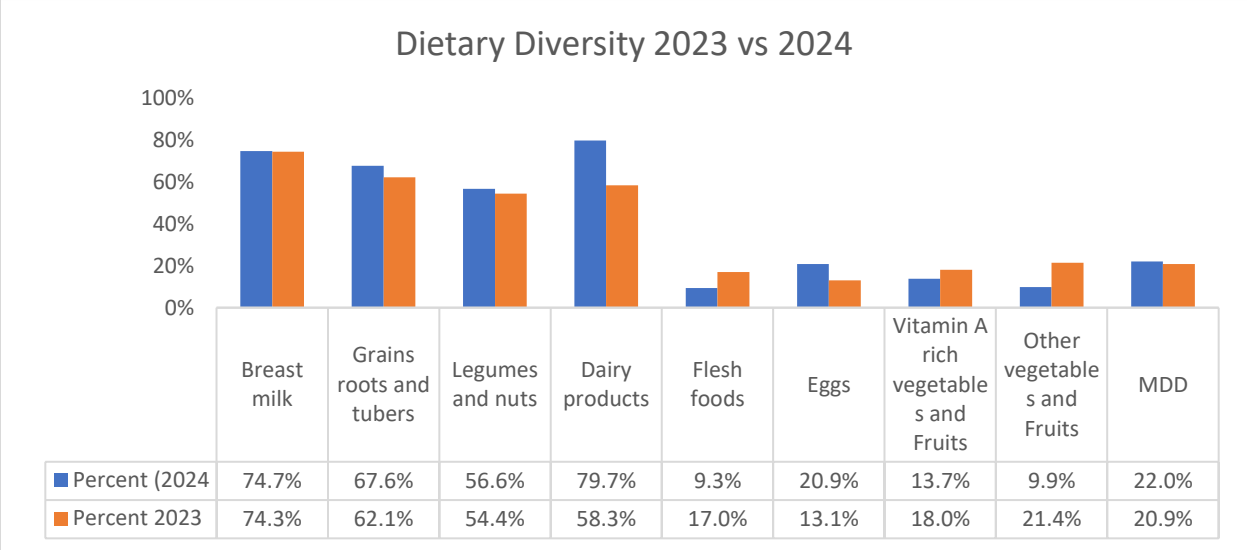
Wajir Integrated SMART survey collected data on two indicators on individual dietary diversity i.e. Children dietary diversity and Women Dietary Diversity.

Minimum Dietary Diversity (children 6-23 months)

According to UNICEF and WHO (2021), children aged 6–23 months should be fed with a variety of foods to ensure that nutrient needs are met. The guidelines further states that food group diversity is associated with improved linear growth in young children. A diet lacking in diversity can increase the risk of micronutrient deficiencies, which may have a damaging effect on children's physical and cognitive development. A study found that little or no consumption of nutrient-dense foods such as eggs, dairy products, fruits and vegetables between six months and 23 months of age was associated with stunting.

In calculating minimum dietary diversity, eight food groups are considered. A child who consumed five out of the eight food groups in the past 24 hours is considered to have met the minimum dietary diversity. The eight food groups includes, breast milk, grains, roots, tubers and plantains, pulses, nuts and seeds, dairy products, flesh foods, eggs, vitamin A rich fruits and vegetables, and other vegetables.

From the analysis, 22.0% of children in Wajir County met the minimum dietary diversity. This is a marginal improvement compared to SMART survey 2023 where 20.9% of children had met the minimum dietary diversity. Almost three quarters of children (74.7%) were breastfed which remained almost the same compared to the same period in 2023. There was significant increase among children who consumed dairy products from 58.3% in 2023 to 79.7% in 2024. The consumption of other food groups remained relatively the same compared to 2023 with marginal but insignificant improvement in the consumption of grains roots, tubers and plantains, legumes and nuts and eggs. There was marginal but insignificant decline in the consumption of flesh foods, vitamin A rich fruits and vegetables as well as other fruits and vegetables as illustrated figure 16.



	Breast milk	Grains roots and tubers	Legumes and nuts	Dairy products	Flesh foods	Eggs	Vitamin A rich vegetables and Fruits	Other vegetables and Fruits	MDD
Percent (2024	74.7%	67.6%	56.6%	79.7%	9.3%	20.9%	13.7%	9.9%	22.0%
Percent 2023	74.3%	62.1%	54.4%	58.3%	17.0%	13.1%	18.0%	21.4%	20.9%

Figure 16: Children Dietary diversity

Child Food Poverty

Child Food Poverty is children's inability to access and consume a nutritious and diverse diet in early childhood (UNICEF 2024). it is measured using the UNICEF and WHO dietary diversity score. Child food poverty is distinct from other measures of child poverty and food poverty because it captures children's direct experience of dietary deprivation. Children are defined as living in severe child food poverty if they consume foods from two or fewer food groups out of eight food groups; and children are defined as living in moderate child food poverty if they consume foods from three or four food groups out of eight food groups. Children consuming 5 or more food groups out of 8 food groups are said to be living out of child food poverty.

It is on this basis that child food poverty for Wajir County was calculated. From the analysis, 27.5% of children in the County were living under severe child food poverty while 50.5% were living under moderate food poverty. Less than a quarter (22.0%) were living out of child food poverty as illustrated in the table 19.

Table 19: Child food poverty classification.

Child Food Poverty Description	n	Percent
≤ 2 Food groups (Severe Child Food Poverty)	50	27.5%
3- 4 Food Groups (Moderate Child Food Poverty)	92	50.5%
≥ 5 Food groups (No Child Food Poverty)	40	22.0%
Total (Children 6-23 months)	**182**	**100.0%**

Other IYCN indicators

A Minimum Meal Frequency

Minimum Meal Frequency is defined as Percentage of children 6–23 months of age who consumed solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more during the previous day. There was a significant increase in the proportion of children who met the minimum meal frequency from 54.4% in 2023 to 69.2% in 2024.

Overall, the minimum acceptable diet for children 6- 23 months marginally improved from 17.7% in 2023 to 20.9% in 2024 as illustrated in table 20.

Table 20: Minimum meal frequency, Minimum Dietary Diversity and Minimum Acceptable Diets 2024 vs 2023.

Indicator	Age Group	Frequency	Percent (2024)	Percent (2023
Minimum Meal Frequency	6.0 – 8.9 Months – Breastfed, N=21	15	71.4%	63.33%
	9.0 – 23.9 Months – Breastfed, N=115	90	78.2%	60.98%
	6.0 – 23.9 Months – Non-Breastfed, N=46	17	37.0%	33.96%
Combined – Minimum Meal Frequency (6.0 – 23.9 Months), N=182		126	**69.2%**	**54.37%**
Minimum Dietary Diversity (5 FG/8)	All children 6.0- 23.9m (N= 182)	40	22.0%	20.87%

Minimum Acceptable Diet	6-23 Months, N=182	38	**20.9%**	**17.96%**

Continued breastfeeding among children 12- 23 was 67.2%. Consumption of eggs and/or flesh foods increased marginally from 23.8% to 25.8% in 2024 while zero vegetable or fruit consumption increased from 71.8% to 79.1% in 2024 as illustrated in the table below. There was notable reduction in the consumption of sweet foods from 43.7% to 15.4% in 2024 a sign of improvement in good dietary practices.

Table 21: Continued breastfeeding and other IYCF indicators.

Indicator	Frequency	Percent 2024	Percent (2023)
Eggs and /or flesh food consumption	47	25.8%	23.79%
Zero vegetable or fruit consumption	144	79.1%	71.84%
Sweet food consumption	28	15.4%	43.69%
Continued breastfeeding (12-23 months. N= 131)	88	67.2%	

Women Dietary Diversity

MDD-W is a dichotomous indicator of whether or not women 15 to 49 years of age have consumed at least five out of ten defined food groups the previous day or night (FAO 2021). It is an indicator that reflect diet quality (micro nutrient adequacy). The proportion of women of reproductive age (WRA) who achieve this minimum of five food groups out of ten in a population can be used as a proxy indicator for higher micronutrient adequacy. In other words, a higher prevalence of MDD-W among a group of WRA is a proxy for better micronutrient adequacy in a given population. The 10 food groups used for calculation of MDD-W (and was used in this survey include; grains, white roots and tubers and plantains, Pulses (beans, peas and lentils), nuts and seeds, milk and milk products, meats, poultry and fish, Eggs, dark green leafy vegetables, other vitamin A rich fruits and vegetables, other vegetables and other fruits.

The proportion of women who met minimum dietary diversity score reduced significantly (p= 0.000) from 21.9% to 10.1% in 2024 as illustrated in the table below.

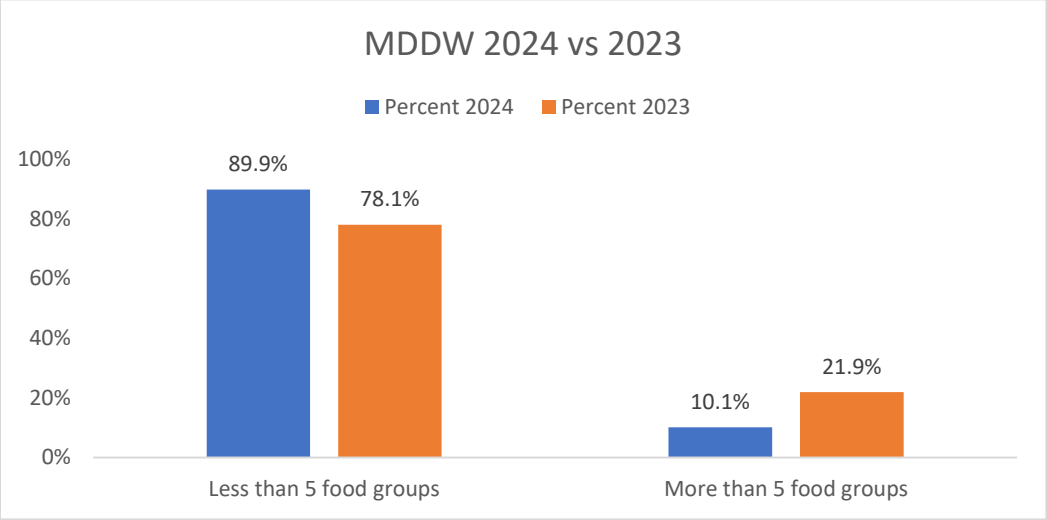


Figure 17: MDD-W, 2024 vs 2023

In terms of specific food groups, majority of women of reproductive age assessed consumed grains, white roots, tubers and plantains (97.0%) and pulses and legumes (88.3%). There was moderate consumption of milk and milk products, even though the consumption remained relatively the same compared to the same period last year. The consumption of other food groups remained low as illustrated in the table 22 below.

Table 22: Specific food groups consumption by WRA (2024 vs 2023)

Food Groups	*N*	*Percent 2024*	*Percent (2023)*
Grains, white roots, tubers and plantains	480	97.0%	94.5%
Pulses and Legumes	437	88.3%	87.5%
Nuts and seeds	10	2.0%	2.5%
Milk and Milk Products	232	46.9%	46.4%
Meats, Poultry and Fish	55	11.1%	24.9%
Eggs	140	28.3%	16.4%
Dark Green Leafy Vegetables	38	7.7%	12.5%
Other vitamin A rich fruits and vegetables	22	4.4%	9.7%
Other Vegetables	140	22.6%	27.9%
Other Fruits	24	4.8%	9.2%

Reduced Coping Strategies (rCSI)

The rCSI is a proxy indicator of household food insecurity that is based on a list of coping strategies or behaviors (USAID 2020). The index reflects both the frequency of each behavior (i.e. how many days over the last 7 days the coping strategy was used by any member of the household) and severity (i.e. how serious the strategy). The rCSI is based on a list of five food-related coping strategies that the household used in the seven days prior to the survey. The rCSI raw scores are calculated by multiplying the frequency with which a behavior was used by the universal severity weight, then summing the weighted scores for each coping strategy. The maximum raw score for the rCSI is 56, i.e. a household that used all five strategies every day for the last 7 days would have a raw score of 56.

In 2024 SMART survey, 46.6% of the household surveyed reported an instance they did not have foods or resources to buy food in the past 7 days prior to the survey. This was an improvement (but not significant p= 0.092) from 51.4% that experience the same in 2023.

Overall, the reduced coping strategy index reduced from 15.4 in 2023 to 11.5 in 2024. This means, the households utilized lesser severe coping strategies such as relying on less preferred or less expensive foods, limited portion sizes or reduced the number of meals or lesser frequently applied severe coping strategies. The table below summarizes the utilization of the selected 5 coping strategies.

Table 23: Reduced coping strategy index.

Coping Strategy (N= 307)	**n**	**Average score (0-7)**	**Severity score (1-3)**	**Weighted Score**
Rely on less preferred or less expensive foods	291	2.14	1	2.14
Borrow foods from relatives or friends	255	1.64	2	3.28
Limit Portion sizes	242	1.30	1	1.30
Restrict consumption by adults so that children can feed	216	1.12	3	3.36
Reduce the number of meals	263	1.46	1	1.46
Total Weighted Coping Strategy Index	11.5			

Household Hunger Scale

Household Hunger Scale (HHS) captures the most extreme manifestations of insufficiency. Essentially it is a behavioral measure. The HHS module consists of three "occurrence" and three "frequency-of-occurrence" questions, that should be answered according to the household food security experience in the previous 30 days. The respondent is first asked if a given condition was

experienced (yes or no) and, if it was, with what frequency (rarely, sometimes, or often). All questions are worded to be as universally relevant as possible, and focus strictly on the hunger-specific experience of insecure access to food.

The approach used by the HHS is based on the idea that the experience of household food deprivation causes predictable reactions that can be captured through a survey and summarized

Household hunger analysis showed that a third of households (33.3%) had a hunger incident in the past 30 days prior to the survey date. At one point in the reference period, they did not have food or enough resources to acquire food. Household members went to sleep hungry or members of the household went the whole day without eating because there was no food to eat. As illustrated in the table below, two thirds (66.7%) of the households experienced little or no hunger. This was a deterioration compared to the same period in 2023 where 82.5% of the household experienced little or no hunger. While the proportion of households that experienced moderate hunger increased, the proportion that experienced severe hunger marginally reduced from 1.15% to nil in 2024.

Table 24: household hunger scale.

HH Hunger scale	Frequency		% (2023)
Little or no hunger (0-1 HHS)	417	66.7%	82.54%
Moderate hunger (2-3 HHS)	208	33.3%	16.31%
Severe hunger (4-6 HHS)	0	0.0%	1.15%

Food Fortification

According to WHO, fortification is the practice of deliberately increasing the content of one or more micronutrients (i.e., vitamins and minerals) in a food or condiment to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health. In addition to increasing the nutritional content of staple foods, the addition of micronutrients can help to restore the micronutrient content lost during processing.

WHO further recommends fortification of wheat flour with highly bioavailable iron as a public health strategy to improve hemoglobin concentrations and iron status and to prevent anemia and iron deficiency in populations, particularly in vulnerable groups such as children and women.

In Kenya, food fortification was made mandatory for wheat and maize flour, vegetable fats and oil through the amendment of the Regulations on Foods Drugs and Chemical Substance Act on 4th June 2012. The Regulations were later revised through legal notice number 157 of 24th July 2015. The revised regulations require that all packaged wheat flour and milled maize products to be fortified and conform to the food requirements specified. The regulation further direct that vegetable fats and oils to be fortified with vitamin A in accordance with the Kenya Standard for

edible fats and oils. Finally, the regulations states that labelling of fortified products shall be done in accordance with the relevant East Africa Standards relating to nutrition (Technoserve 2016).

The affordability, availability and awareness of fortified food affect the consumption of fortified foods. This survey assessed the food fortification status in Wajir County in the lens of these three factors.

In terms of awareness, only 4.8% of the respondents interviewed stated that they have heard about food fortification. Despite low awareness, there was a marginal increment when compared to the same period in 2023 where the awareness was 1.3%. Among those respondents who stated that they have ever heard of food fortification, 59.1% heard the information on food fortification from the radio. The proportion of those who received the same information from the TV was 22.7%. Similar proportion of respondents received fortification information from training sessions. On awareness of fortification logo, only 8.2% of the respondents stated that they were aware of the logo.

Table 25: Food fortification awareness.

Heard about food fortification, N=607	n	Percent 2024	Percent 2023
Yes	30	4.8%	1.3%
No	595	95.2%	73.0%
Don't know	0	0%	25.7%
Source of the information, N=8	n		Percent
Radio	13	43.3%	75.0%
TV show	8	26.6%	0.0%
Training session	7	23.3%	12.5%
Other sources	4	13.3%	0.0%

Despite low awareness, majority of the respondents indicated that they sourced their maize flour from the supermarkets (99.7%). Therefore, almost every household consumed branded maize flour. Top brands consumed included Cosmos (80.4%), Dola (22.2%) and Jogoo (15.6%). All the mentioned brands are fortified as they all had a fortification logo.

Table 26: Main source of maize flour used at the households

Main source of maize flour	n	Percent	Percent
Bought from the shops, supermarket e.t.c	623	99.7%	91.8%
Maize is taken for milling at a nearby Posho Mill	1	0.2%	1.2%

Bought from a nearby Posho Mill	0	0.0%	0.3%
Others	1	0.2%	6.8%

In regard to the wheat flour, the main brands consumed in the households included, Ajab (40.4%), Dola (29.1%), Ndovu (27.9%) and Cosmos (22.6%). All the mentioned brands had fortification logo and therefore fortified.

Maternal Health and Nutrition

According to UNICEF, women have distinct nutritional requirements throughout their life – especially before and during pregnancy and while breastfeeding, when nutritional vulnerability is greatest. Ensuring women have nutritious diets and adequate services and care is fundamental for the survival and well-being of mothers and their children. During pregnancy, poor diets lacking in key nutrients – like iodine, iron, folate, calcium and zinc – can cause anemia, pre-eclampsia, hemorrhage and death in mothers. They can also lead to stillbirth, low birthweight, wasting and developmental delays for children.

Overall, 495 Women of reproductive age were assessed during the survey. In terms of physiological status, majority of them (51.1%) were not pregnant or lactating. The proportion of breastfeeding women were 38.6% while 9.7% were pregnant. There were marginal and insignificant decline or increase in all physiological status categories as illustrated in the figure below.

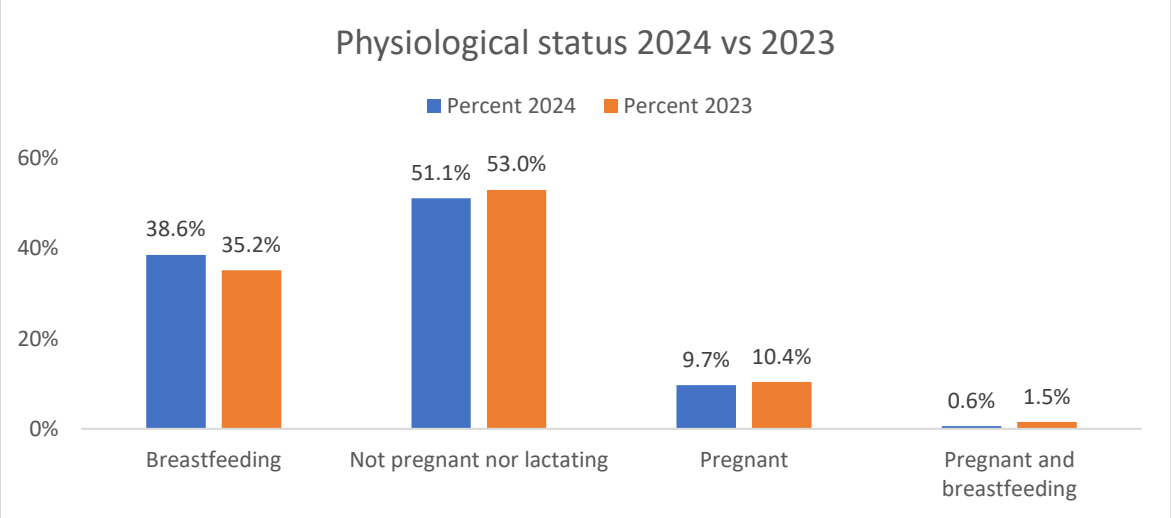


Figure 18: Physiological status of WRA

SPHERE (2018) classified pregnant and lactating women with a MUAC less than 23 cm to be acute malnourished. However, in some context like Kenya, WRA with MUAC 21 to 22.9 cm are classified as at risk while those with MUAC < 21 cm are classified as acutely malnourished. With the above

reference, the proportion of acutely malnourished WRA (ALL) was 2.6% while 3.3% of PLW were malnourished. The difference was not significant (p= 0.515)

Table 27: Nutrition Status of WRA

	Malnourished (<21CM)		At risk (21-23CM)	
	n	**%**	**n**	**%**
All women (N=495)	**13**	**2.6%**	**50**	**10.1%**
PLW (N=242)	**8**	**3.3%**	**28**	**11.6%**

WHO define Antenatal care (ANC) as the care provided by skilled health-care professionals to pregnant women and adolescent girls in order to ensure the best health conditions for both mother and baby during pregnancy. During ANC visits, pregnancy related risks are identified. Pregnancy- related or concurrent diseases are managed. Further, health education and health promotion are done to the pregnant women.

ANC reduces maternal and perinatal morbidity and mortality both directly, through detection and treatment of pregnancy-related complications, and indirectly, through the identification of women and girls at increased risk of developing complications during labour and delivery, thus ensuring referral to an appropriate level of care. WHO further recommend that pregnant women should at least attend ANC for 4 visits during the pregnancy lifetime.

From the analysis, 40.8% of women carried full term pregnancy in the past two years prior to the survey. Among them 93.1% attended at least one ANC visit. This was a marginal decline compared to the same period in 2023 where the attendance was 98.5%. The proportion of women who attended ANC visit during the first trimester reduced from 31.1% in 2023 to 22.9% in 2023. Majority of women attended ANC in the second trimester as illustrated in the table below.

Table 28: ANC attendance and Timing

FULL TERM PREGNANCY, N=201	n	Percent 2024	Percent 2023
Yes	202	40.8%	47.5%
ANC ATTENDANCE, N=202			
Yes	188	93.1	98.5%
1ST ANC (MONTH)			
First Trimester	43	22.9%	31.1%
Second Trimester	133	70.7%	58.8%
Third Trimester	12	6.4%	7.0%

WHO (Recommendation A.2.1 of 2016) recommends daily oral iron and folic acid supplementation with 30 mg to 60 mg of elemental iron and 400 µg (0.4 mg) folic acid for pregnant women to prevent maternal anemia, puerperal sepsis, low birth weight, and preterm birth. WHO further in Recommendation A.2.2 of 2016 recommend for Intermittent oral iron and folic acid supplementation with 120 mg of elemental iron and 2800 µg (2.8 mg) of folic acid once weekly for pregnant women to improve maternal and neonatal outcomes if daily iron is not acceptable due to side effects, and in populations with an anemia prevalence among pregnant women of less than 20%.

From the analysis, 89.6% of women who carried full term pregnancy consumed iron and folic acid supplements. This was a significant decline (p= 0.016) compared to the same period in 2023 where 95.4% of women consumed the supplements. Majority of the women (67.4%) consumed the supplements for less than 90 days with only 1.1% consuming the same for over 180 days as illustrated in the table below.

Table 29: Iron and Folic Acid supplementation

IRON, IRON SYRUP OR IRON-FOLATE TABLETS, N=202	n	Percent 2024	Percent 2023
Yes	181	89.6%	95.4%
DAY IFAS TAKEN			
Less than 90 days	122	67.4%	54.2%
90-180 days	53	29.3%	40.2%
More than 180 days	2	1.1%	5.6%
Did not consume IFA	4	2.2%	

Family MUAC

Family MUAC is a community-based approach where caregivers, primarily mothers, are trained to measure their children's Mid-Upper Arm Circumference (MUAC) to detect early signs of acute malnutrition. This approach empowers families to monitor their children's nutritional status at home, facilitating early identification of malnutrition before it reaches critical levels. By equipping mothers with the skills and tools needed to assess their children regularly, Family MUAC helps ensure timely referrals to health facilities for treatment, reducing delays that could worsen the condition. Family MUAC effective in areas with limited access to healthcare services, as it allows for continuous monitoring and quicker intervention, which is vital for improving child survival and nutrition outcomes.

Family MUAC has been rolled out in four of the six sub-counties. Caregivers within facility and outreach sites catchment areas were sensitized and issued family MUAC tapes to be screening

their children at home. During this survey information if they had a MUAC tape, usage and ability to demonstrated were collected. Coverage of family MUAC was observed to be very low with only 22.6% of the caregivers reporting to have seen a MUAC tape, of these 61% had been sensitized on its use however, 32.6% had a MUAC tape with them at the time of the survey. 38.3% (144) of the respondents had actually used the MUAC tape, demonstrating practical uptake among a significant proportion of those who had access. Only 37.0% of the caregivers were able to correctly demonstrate the use of the MUAC tape, indicating a need for enhanced sensitization and extended the same to the community health promoters 55.6% of those who had used the MUAC tape (30) referred cases to a health facility based on the screening, which underscores the critical role of community-based screening in early detection and referral for treatment of malnutrition.

These findings demonstrate the success and challenges on the roll out and uptake of family MUAC. There is need to scale-up family MUAC across the County while ensuring continuous sensitization of caregivers through community health promoters and resupply of MUAC tapes.

Conclusion

The 2024 Wajir County SMART Survey has provided critical insights into the health, nutrition, and overall wellbeing of vulnerable populations, particularly children under five and women of reproductive age. The significant reduction in both Global Acute Malnutrition (GAM) and Severe Acute Malnutrition (SAM) is a testament to the positive impact of ongoing nutrition interventions, though the GAM rate remains above the WHO emergency threshold of 15% in some years. This underscores the need for continued efforts to strengthen nutrition programs in the region.

High immunization coverage rates reflect strong performance in child health services, but the decline in the second dose of the measles vaccine is concerning and requires targeted strategies to ensure complete immunization for all children. Additionally, the high morbidity rates for diarrheal diseases and respiratory infections highlight the need for continued investment in health services and disease prevention, including vaccinations, hygiene promotion, and treatment of common childhood illnesses.

While improvements in household food security were evident, challenges remain in the diversity and nutritional quality of diets, with low consumption of vitamin A and iron-rich foods. Efforts must focus on increasing access to nutrient-dense foods, especially for young children and pregnant and lactating women, to reduce stunting and undernutrition.

The improvements in access to protected water sources and sanitation are encouraging, but the continued reliance on unprotected sources for drinking water, coupled with inadequate water treatment practices, poses a serious risk to public health. Addressing these gaps in water and sanitation infrastructure will be critical to reducing the incidence of waterborne diseases and improving overall health outcomes in the county.

In conclusion, while Wajir County has made measurable progress in several key areas, sustained efforts are needed to build on these gains and address the remaining challenges. Coordinated efforts between the government, development partners, and local communities will be essential to ensure that Wajir continues on its path toward improved health, nutrition, and resilience against future shocks.

Recommendations

The following are the recommendations based on the survey findings

Findings	Activities	Time
Low latrine coverage and Sub-optimal hygiene practices (Hand washing with soap and water – 49.5% and washing at 4 critical times at 44.2%	• Scale up community total led sanitation • Initiate market-based sanitation • Implementation of SANNUT • Strengthen hygiene education at household level and at health facilities	May 2025
Low vitamin A and Deworming coverage	• Strengthen documentation of vitamin supplementation and deworming on the mother child booklet and facility registers • Scale up supplementation during malezi bora and outreach services	Continuous
Sub-optimal infant feeding practices (MAD, MMF)	• Scale of BFCI and PD hearth • Intensify social behaviour change on infant feeding through community dialogue and radio spots	October 2024 – April 2025
Low coverage of family MUAC	• Continuous Sensitization of caregivers • Scale up of family MUAC through community units	October 2024 – April 2025
Low consumption of meat and meat products	• Multisectoral/ nutrition sensitive engagements	Continuous