BANGLADESH

BASELINE INTEGRATED NUTRITION SURVEY IN DHAKA URBAN SLUMS

22ND MAY – 16th JUNE 2022

[Dhaka North and South City Corporations]

DHAKA DISTRICT, BANGLADESH

FINAL SURVEY REPORT

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ACRONYMS

AAH/ ACF	Action Against Hunger/ Action Contre La Faim
ANC	Antenatal Care
BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
BSU	Basic Sampling Unit
CDR	Crude Death Rate
cGAM	Combined Global Acute Malnutrition
cSAM	Combined Severe Acute Malnutrition
CI	Confidence Interval
CMAM	Community Based Management of Acute Malnutrition
COVID-19	Corona Virus Disease-19
DEFF	Design Effect
DSCC	Dhaka South City Corporation
DNCC	Dhaka North City Corporation
ECHO	European Union Civil Protection and Humanitarian Aid Operations
ECD	Early Childhood Development
ENA	Emergency Nutrition Assessment
EPI	Expanded Program on Immunization
Epi	Epidemiological Information
FAO	Food and Agriculture Organization
GAM	Global Acute Malnutrition
HAZ	Height-for-Age z-score
HH	Household
HQ	Head Quarter
IDDS	Individual Dietary Diversity Score
IFA	Iron Folic Acid
IMCI	Integrated Management of Childhood Illness
IPC	Infection, Prevention and Control
IPHN	Institute of Public Health Nutrition
IYCF	Infant and Young Child Feeding
MAM	Moderate Acute Malnutrition
MHCP	Mental Health and Care Practice
MICS	Multiple Indicator Cluster Survey
MNP	Micronutrient Powder
MIYCF	Maternal, Infant and Young Child Feeding
MoHFW	Ministry of Health and Family Welfare
MUAC	Mid-Upper Arm Circumference.
NCA	Nutrition Causal Analysis
NNS	National Nutrition Services
NGO	Non-Governmental Organization
NRR	Non Response Rate
OTP	Outpatient Therapeutic Program
ODK	Open Data Kit
PHC	Primary Health Care
PLW	Pregnant and Lactating Women
PNC	Postnatal Care
PPEs	Personal Protective Equipment's
PPS	Probability Proportional to Size
KAP	Knowledge Attitude and Practice
SAM	Severe Acute Malnutrition
SEEP	Social and Economic Enhancement Programme
SD	Standard Deviation
SFP	Supplementary Feeding Program
SMART	Standardized Monitoring and Assessment of Relief and Transitions

SRS	Simple Random Sampling
TSFP	Targeted Supplementary Feeding Program
U5	Under Five
U5DR	Under 5 Death Rate
UNICEF	United Nations Children's Fund
WASH	Water Sanitation and Hygiene
WAZ	Weight-for-Age Z-score
WFH	Weight For Height
WFP	World Food Programme
WHO	World Health Organization
WHZ	Weight-for-Height Z-score
WSB	Wheat Soy Blend

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EXECUTIVE SUMMARY

Background and Objectives

In Bangladesh, the urban context has its unique characteristics and complexities. Considering the basic causes and underlying causes of malnutrition, there would be differences between children residing in rural households compared to a household in congested slums or on a pavement. The malnutrition levels among children and PLW living in extreme poor households in urban slums are expected to be high. Meanwhile, the Covid-19 pandemic not only affected the health situation, but will also had a profound impact on many spheres: political, social, human, environmental, economic and infrastructural. There is a high risk of further deterioration of health and nutrition situation, access to health and nutrition services because of the COVID-19 pandemic and increased cost of living and the potiential impact on food security and nutrtion.

However, there is a lack of nutritional data for children under five and pregnant and lactating women (PLW) living in the urban slums. Previous national level surveys also focused on rural and urban areas; hence, there is data paucity specifically for urban slums

Therefore, it was essential to evaluate its adverse effect on health and nutrition that will support the identification of a potential deterioration of access to and / or coverage of nutrition services, and deterioration of nutrition outcomes due to specific factors linked to Covid-19 epidemics.

In May-June 2022, the Action Against Hunger Bangladesh in partnership with Concern Worldwide and World Food Programme conducted two independent integrated nutrition surveys in Dhaka North City Corporation (DNCC) and South City Cooperation (DSCC) slums. National Nutrition Services (NNS), the Institute of Public Health Nutrition (IPHN), MoHFW and respective City Corporations authorized these assessments.

The main objective of these assessments was to determine nutrition status (e.g. wasting/acute malnutrition, stunting and underweight) of children of 5 years of age, pregnant and lactating women (PLWs). The study also aimed to determine possible causal factors for better understanding of the malnutrition situation in the slums that might have deteriorated due to the impact of COVID-19. The collected data included: household demography, anthropometry, morbidity, mortality, infant and young child feeding practices (IYCF), vitamin A, measles vaccination, and deworming coverage among children, access to antenatal care (ANC) and iron supplementation among pregnant women including ANC and post-natal care (PNC) checkups during the last pregnancy, food security, and Water Sanitation and Hygiene (WASH).

The assessment findings and recommendations will inform timely and effective multi-sectoral interventions as well as support stakeholders for necessary changes in their programme policies or interventions.

Methodology:

Two population representative cross-sectional household surveys following SMART methodology was conducted which included two-stage cluster sampling (e.g. stage 1: selection of cluster using PPS sampling; stage 2: random selection of households) to achieve the desired outcomes of the survey.

The sample size in number of children was calculated using ENA software [version January 11th, 2020] which was then converted into number of households to provide a representative sample for the anthropometric and mortality indicators in DSCC [Children-387, households-1336] and DNCC [Children-387, households- 1336].

A total of 56 clusters for each corporation were selected using PPS method using the ENA software. Each selected cluster included 24 households and measured all eligible children for anthropometric measurements. The study finally surveyed all targeted clusters covering minimum number of households and children 6-59 months of age.[1]

[1] The minimum percentages of clusters surveyed [≥90%] and children measured [≥80%] stipulated by the SMART methodology to ensure representativeness were achieved for this survey.

The sample size for anthropometric indicator was determined to achieve adequate precision for acute malnutrition and was used as reference sampling of all other indicators for this survey. No additional sample size was calculated for IYCF. All children 0-23 months found in the enumerated households were included to assess the IYCF practices.

Finally, children aged 0-23 months included for IYCF indicators were 213 in DSCC and 245 in DNCC. It should be noted **that IYCF indicators require a larger sample size for results** to be representative which is is difficult to achieve through SMART sampling frame due to narrow age specific IYCF indicators (e.g. 0-5 months for exclusive breastfeeding, 12-15 and 20-23 months for continuation of breastfeeding etc.). Therefore, the results of the IYCF indicators are only provided as indicative information and are not representative for the whole population.

SUMMARY FINDINGS

Table 1: Key findings of Nutrition, Mortality and Diarrhea indicators, SMART survey, DSCC and DNCC Slum, Bangladesh, May-June 2022

Indicator	Sample	DSCC Slum			DNCC Slum			P-Value[2]
		N	n	% 95% CI	N	n	% [95% CI]	[DSCC VS DNCC]
CDR [/10,000/Day]	Population	-	-	0.19 [0.10-0.38]	-	-	0.12 [0.05-0.27]	**-**
U5DR [/10,000/Day]		-	-	0.63% [0.20-1.93]	-	-	0.16% [0.02-1.17]	**-**
GAM [WHZ]	Children 6-59 months	456	84	18.4% [14.7- 22.9]	531	68	12.8 % [10.1 - 16.1]	**0.027**
SAM [WHZ]		456	7	1.5% [0.8 - 3.1]	531	12	2.3% [1.4 - 3.7]	**0.279**
GAM [MUAC]		458	9	2.0% [1.1-3.6]	532	15	2.8% [1.7 - 4.7	**0.383**
SAM [MUAC]		458	3	0.7% [0.2 - 2.0]	532	0	0.0% [0.0 - 0.0]	**0.111**
cGAM [WHZ & MUAC]		458	86	18.8% [15.1-23.1]	532	73	13.7 % [10.9-17.1]	**0.046**
cSAM [WHZ & MUAC]		458	9	2.0% [1.1 - 3.6	532	12	2.3% [1.4 - 3.7]	**0.715**
Stunting [HAZ]		457	164	35.9% [31.0-41.1]	528	135	25.6% [22.0–29.5]	**0.001**
Underweight [WAZ]		455	170	37.4% [32.7-42.3]	531	155	29.2% [25.0-33.8]	**0.013**
Diarrhea		458	92	20.1% [16.2-24.7]	532	82	16.0% [12.8–19.7]	**0.137**
Low Women's MUAC [<210mm]	PLW with 0-23 month children	266	9	3.4% [1.6-7.0]	306	12	3.9% [2.3-6.7]	**0.759**
	PLW with o-5 month children[3]	**98**	**5**	**5.1% [2.1-11.7]**	**343**	**3**	**7.0% [3.0-15.2]**	**0.578**

[2] P-value is a number obtained using statistical test, which indicates the strength of findings. P value < 0.05 indicates a significant difference between the two parameters.
[3] Exclusively among women who were pregnant or lactating with an infant <6 months, as this subset was eligible for ongoing humanitarian programmes such as TSFP, IFA supplementation, and IYCF.

Table 2: Key findings of IYCF, ANC/PNC, FSL and WASH, SMART survey, DSCC and DNCC, Bangladesh, May-June 2022

IYCF Indicator	Sample	DSCC Slum			DNCC Slum			P-Value
		N	n	% [95% CI]	N	n	% [95% CI]	[DSCC VS DNCC]
Early Initiation of breastfeeding for children	0-23 months	213	118	60.1 % [51.9 - 67.7	245	160	65.3% [59.1-71.0]	0.297
Exclusive Breastfeeding with six months	0-5 months	37	11	29.7 % [15.7 - 49.0]	43	20	46.5% [5.6-92.3]	0.076
Exclusive breastfeeding within two days of delivery	0-23 months	213	113	53.1 % [45.6 - 60.6]	245	112	45.7 % [38.8 - 52.9]	0.152
Continuation of Breastfeeding at 12- 23 months	12- 23 months	113	104	92.0 % [87.6-96.4]	118	107	90.6 % [85.4-95.8]	0.681
Bottle feeding for children	(0-23 months)	213	61	28.6 % [22.9-35.1]	245	78	31.8 % [25.9-38.6]	0.465
Minimum Dietary Diversity [>=5 food groups]	6-23 months	176	91	51.7 % [42.9-60.4]	202	91	45.0 % [63.1-54.5]	0.508
Minimum Meal Frequency – non breastfed children [>=4 full meals]	6-23 months	176	7	4.0 % [0.6-20.0]	202	6	3.0 % [0.4-20.9]	0.833
Minimum Meal Frequency – breastfed children [>=2 full meals]	6-8 months	38	32	84.2 % [48.7-96.7]	48	37	77.1 % [18.7-98.0]	0.787
Minimum Meal Frequency – breastfed children [>=3 full meals]	9-23 months	138	107	77.5 % [36.9-95.3]	154	100	64.9 % [35.8-86.1]	0.542
Overall Minimum Meal Frequency (6-23 months)	6-23 months	176	146	83.0 % [75.9-88.3]	202	143	70.8 % [63.2-77.4]	0.011
Minimum Acceptable Diet	6-23 months	176	79	44.9 % [36.5-53.6]	202	73	36.1 % [28.4-44.8]	0.141

Source of Antenatal Care services	DSCC Slum			DNCC Slum		
	N	n	% [95% CI]	N	n	% [95% CI]
% Of pregnant women accessing ANC services from any sources	62	55	88.7% [77.0-94.9]	69	58	84.1% (73.3-91.1]
Antenatal care (ANC) check-up during pregnancy by any health care provider either at health facilities or home	204	181	88.7% [83.0-92.7]	237	212	89.5% (82.6-93.9]
Postnatal care (PNC) check-up within 42 days of delivery by any health care provider either at health facilities/ home	204	135	66.2% [69.0-72.7]	237	152	64.1% (57.1-70.7]
Intake of Iron Folic Acid	62	40	64.5% [52.4-75.1]	69	47	68.1% [54.6-79.2]

Reduced Coping Strategy Index [rCSI]	DSCC Slum	DNCC Slum	P value
No or low coping (0-3)	**72.9%** [66.8-78.2] [919/1261]	**78.3%** [75.0-81.3] [1031/1317]	0.101
Medium coping (4-9)	**15.1%** [11.7-19.1] [190/1261]	**13.9%** [11.7-16.6] [183/1317]	0.590
High coping (>=10)	**12.1%** [9.2-15.6] [152/1261]	**7.8%** [6.3-9.8] [103/1317]	0.020
FIES Category	**DSCC Slum**	**DNCC Slum**	
Moderate or severe	**32.1%**	**32.3%**	
Severe	**2.1%**	**4.2%**	

Source of drinking water	DSCC Slum	DNCC Slum	P value
Direct WASHA's supplied water	**68.8%** [56.6-78.9] [868/1261]	**77.9%** [66.8-86.1] [1026/1317]	0.222
Deep Tube well	**27.4%** [17.4-40.3] [345/1261]	**16.3%** [9.1-27.7] [215/1317]	0.134
Top challenges reported by HH			
Bad smell and waste particles present in the water	**45.5%** [36.6-54.8] [230/505]	**53.1%** [44.4-61.6] [390/735]	0.230
Inadequate water supply as per demand	**18.6%** [13.0-25.9] [94/505]	**33.5%** [25.7-42.4] [246/735]	0.006
Household Access to Toilets			
Piped with sewerage system	**90.3%** [81.2-95.3] [1139/1261]	**49.4%** [36.5-62.4] [650/1317]	0.000
Mixed with nearby drain or water body	**3.6%** [1.1-10.9] [45/1261]	**46.6%** [34.3-59.4] [614/1317]	0.000

The executive summary report can be source online

Key Highlights

- **Global Acute Malnutrition** (GAM) rate among children was found to be above the emergency thresholds **("Very High")** of >15% in DSCC slums (18.4%) and remained in the second highest category **("High")** in DNCC slums (12.8%).
- **Chronic malnutrition** (stunting) among children was found to be above the Very High/Critical WHO/UNICEF thresholds of >30% in DSCC slums and remained in the second highest category of >20% **("High")** in DNCC slums.
- While comparing the gender, **boys** were more undernourished in all forms of malnutrition (e.g. wasting, stunting and underweight) compared to girls
- Looking at the age groups older children (24-59 months) were more undernourished in all forms of malnutrition (e.g. wasting, stunting and underweight) younger children (6-23 months).
- **Diarrhoea prevalence** (DSCC- 20.1%, DNCC- 16.0%) **a**mong children 6-59 months was **relatively high** compared to the national average rate of 5.0% and was more prevalent among younger children (0-23 months).
- **Poor infant and young child feeding (IYCF) practices** varied with optimal (breastfeeding) and sub-optimal (Complementary feeding) levels in both locations.
- **Vitamin A** supplementation coverage found to be **below the national average (79**%), except for measles vaccination (>85.0%) and deworming coverage (>64%) were found to be above the national average
- **Less intake of micronutrient powder (MNP)** among children 6-59 months during previous days (<1.0%).
- **Crude and under-five mortality rates** are well below emergency levels.

- **Accessing Antenatal Care (ANC) services** among pregnant women were found to be relatively high (>=85%) but i**ron folic acid intake was reported low.**
- **ANC and PNC checkups** were optimal for at least one visit but were reported **very low for at least four visits** in both locations.
- Prevalence of acutely malnourished among pregnant and lactating women was found low.
- **Majority** of the households had adopted no or low coping strategy in DSCC (72.9%) and DNCC (78.3%) Slum based on Reduced Coping Strategy Index (rCSI)
- **However, One-third households** [DSCC: 32.1%; DNCC: 32.3%] reported with **medium or severe food insecure based on Food Insecurity Experience Scale (FIES)** who negatively adopted the situation through consumption-based coping strategies to deal with food shortages. This affects both the quantity and quality of food consumed.
- Households (>95.0%) access to drinking water were optimal but there remains concern about the supply of water quality.
- **Poor hand washing practices with soap during critical times expect** after defecation and disposing of child feaces.
- Sanitation continues to be an issue in DNCC slums as contents of latrines are **mixed with nearby drain** or water point with high risk of contamination of water borne disease.
- Unsafe disposal of child feaces also remains a concern in both locations which makes children susceptible to diseases transmitted via the fecal-oral route.

Recommendations and priorities

1. Ensure provision of minimum package of integrated health and nutrition services from Government and NGO primary health care centre for both children and PLWs and established referral system for malnourished cases.
2. Set up community based screening, detection and referral of acute malnourished children and PLWs including routine growth monitoring activities in urban slums area
3. Strengthen the provision of quality nutritional treatment through exiting stabilization center or SAM corner at government health facility.
4. Advocate for necessary revision of the current national CMAM guideline to consider admissions by all criteria (e.g. WHZ, MUAC and Oedema) since national protocol recommendations MUAC based programming only. This will ensure all acute malnourished children are detected and admitted for management.
5. Set up community based management of acute malnutrition programmes (e.g. OTP and TSFP for SAM and MAM respectively) in urban settings with use of context specific appropriate nutrition treatment products.
6. Enhance prevention programming including promotion of infant and young child feeding (IYCF) and care practices to address high levels of undernutrition.
7. Develop a multi-sectoral Social Behaviour Change and Communication (SBCC) strategy for the population living in urban slums across nutrition-specific and sensitive interventions to enhance diversified food consumption in order to address the underlying causes of malnutrition.
8. Strengthen routine Expanded Programme for Immunization (EPI) and ensure sensitization to enhance programmes coverage (e.g. vitamin A, immunization and deworming etc.) through community engagement.
9. Strengthen initiatives at the community and household level which promote personal hygiene and sanitation (handwashing, water treatment, proper disposal of waste, etc.) to minimize the occurrence and severity of diarrhoea in children.
10. Introduce food assistance programmes where needed and expand government safety net programmes for the vulnerable families living in urban slums targeting nutritionally vulnerable groups**.**
11. Scale up WASH programmes in urban areas to help breaking the link between waterborne diseases on malnutrition of children and PLWs
12. Develop nutrition strategy for urban slums under the leadership of Bangladesh National Nutrition Council (BNNC) and bring together all relevant government ministries, key stakeholders and private sectors to establish multi-sectoral linkages on health, agriculture and food, social protection, education and social affairs etc.

1. INTRODUCTION

1.1 Geographic and Demographic Information

Table 3: Summary of Geographic Area and Surveyed Population

Geographic Description of the Survey Area and Population	
Period of survey	May-June 2022
Country, City Corporation	Bangladesh, Dhaka North and South City Corporation
Province/District/Sub-district	Dhaka North and South City Corporation
Type of setting (rural, urban, camp, etc.)	Urban Slums
Season when survey was conducted	Summer
Total number of slums/segmented slums in survey area	**North city-225; South city- 120**
Total estimated number of population living in the selected slums (survey area)	North city corporation slums: 251,774 South city corporation slums: 67,772
Type of population (resident, IDPs, refugees, mixed, ethnic and/or religious groups)	Resident (Bangladeshi nationals)

Bangladesh is divided into 8 Divisions (Dhaka, Chittagong, Khulna, Sylhet, Rajshahi, Barisal, Rangpur, and Mymensingh) which are then divided into 64 Districts comprising 492 Sub districts/Upazilas.[4]
Dhaka is a diverse city and capital of Bangladesh located in central Bangladesh beside the Buriganga River with a population 22,478,116 (BBS 2011 projected to, 2022). Dhaka District shares borders with Narayanganj on the EAST side, Manikganj on the WEST side, Gazipur and Tangail on the NORTH side, Munshiganj and Rajbari on the SOUTH side. Dhaka Metropolitan area consists of 51 thanas under Dhaka City Corporation Area. Dhaka district consists of 5 Upazilas, 2 City Corporation, 3 Municipality (Pourashava), 79 Union Parishads and 1863 Villages.

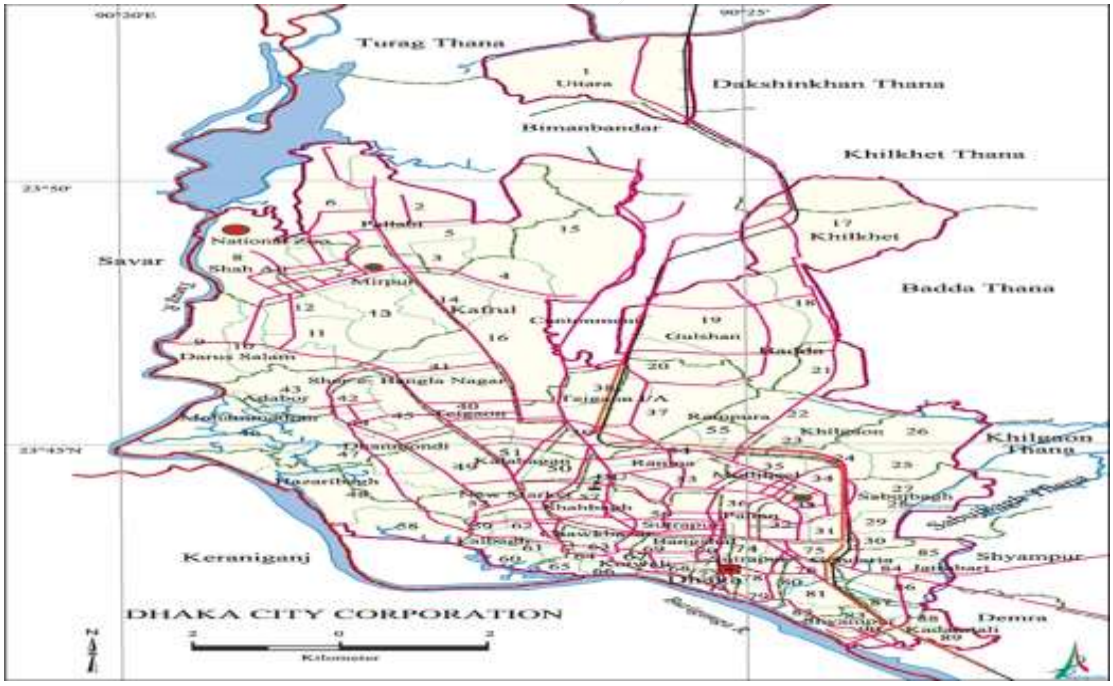


Figure 1 : Dhaka City Corporation

4 http://www.kabirhat.com/bangladesh-district/ http://www.bbs.gov.bd/

1.2 Dhaka North and South City Corporation area

Dhaka North City Corporation (DNCC) area located in between: 90°20 ' and 90°26' north latitudes and in between 23°44 ' and 23°54 'east longitudes with the area of 197.22 square kilometers. DNCC divided into 10 zones, consists of 28 Thana, 54 wards within which there may be one or more villages and 125 villages.

Dhaka South City Corporation (DSCC) with an area of 109.251 sq. km, located in 23° 43' 27" north latitudes and in 90° 24' 29" east longitudes with the area of 109.251 square kilometers. DSCC consists of 23 Thana, 75 wards within which there may be one or more villages and 238 villages. DNCC is inhabited by an approximate 12,000,000 persons.

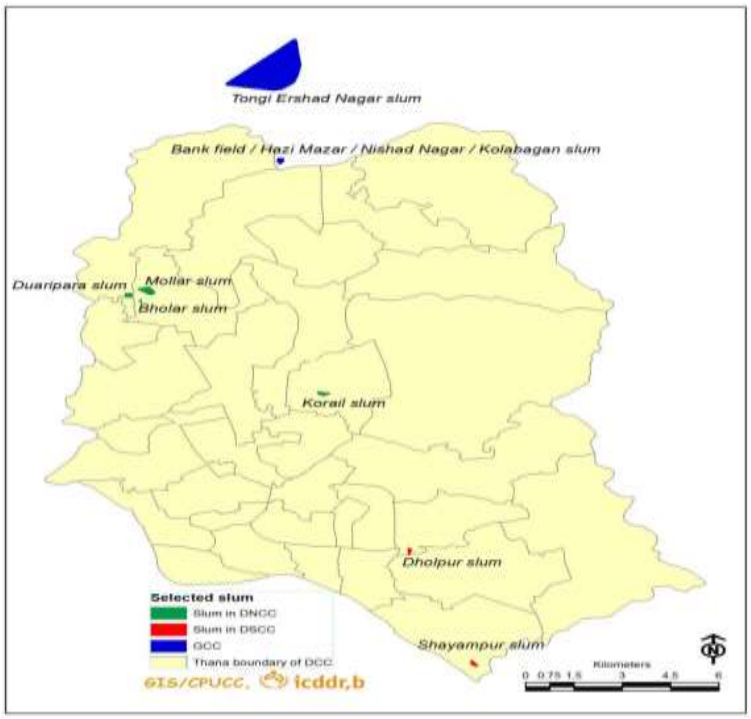


Figure 2 Location of slums in DNCC and DSCC Corporation

In the census of slum Areas 2014, a total of 13,938 slums were counted covering all cities and other urban areas of Bangladesh (BBS 2015). Out of 13,938 slums, 33.62% were counted in Dhaka North (11.80%), Dhaka South (12.59%), and Gazipur (9.23%) City Corporations. During the census of slums, 2,227,754 populations were counted and of these populations, 1,185,875 (53.2%) lived in big slums (100 or more households). A slum is a cluster of compact settlements of 5 or more households which generally grow very unsystematically and haphazardly in an unhealthy condition and atmosphere on government and private vacant land. Slums also exist on the owner-based household premises and generally have the following six characteristics in the context of Bangladesh (for detail, see BBS 2015):

a) Structures of slums are generally very small in terms of geographic area such as jhupri, tong, tin-shed, semi-pucca structures and dilapidated buildings;
b) Population density and the concentration of structures are very high;
c) Slums generally grow on government, semi-government land, private vacant land, abandoned building/houses, and slopes of hill or rail-line and road sides;
d) In slum areas, water supply is insufficient and unsafe, sanitation systems are quite inadequate and very unhygienic environment.
e) Lighting and road facilities are very inadequate or not at all in the slum areas.
f) Socioeconomic status of the slum dwellers is very low, and dwellers are generally engaged in informal non-agricultural jobs.

After extensive field visits and feasibility, population living in pavements, and informal settlements, and slums of Concern and WFP working areas in Dhaka North City Cooperation and Dhaka South City Corporation, were selected for the assessment team (travel time, security, etc.) for data collection. The full scope of the sampling frame was to decide after a full mapping of available data reviewed and agreed by ACF, Concern and WFP.

1.3 Interventions in slums area by Concern Worldwide and WFP

Since 2012, Concern Worldwide has been implementing the Integrated Urban Programme through local implementing partners mainly Sajida Foundation, Nari Maitree, and SEEP where one of the main sectors is nutrition. With the support of Irish Aid, Concern is currently implementing "Improving Lives of the Urban Extreme Poor (ILUEP)", this programme is being implemented in extremely poor areas of Dhaka and Chittagong City Corporations that have the greatest number of squatters and pavement inhabitants in the country. Within these cities, the programme targets the extreme urban poor, living in squatter settlements, underdeveloped slums and

on pavements. The ILUEP programme delivers targeted individual livelihood support mainly through asset transfers, training, and savings. The programme provides nutrition support, addresses gender equality, prevents, and addresses Gender-Based Violence (GBV), facilitates access to improved water and sanitation facilities and promotes improved hygiene practices. At higher level, advocacy efforts are aiming for improved service delivery to meet the entitlements of the Urban Extreme Poor (UEP).

Besides, WFP has been implementing Urban Food Assistance programme in in Dhaka North City Corporation. Under this project, households meeting the targeting criteria receive a monthly stipend of BDT 3,000 using a mobile –bKash –account and nutrition counseling to leverage Social Protection to Promote Diverse and Healthy Diets. This programme collaborates with the Ministry of Social Welfare (MoSW), the Ministry of Women and Children Affairs (MoWCA), the Dhaka North City Corporation (DNCC), FAO and UNFPA. The survey geographical location including partner's mapping is attached as annex 3.

1.4 Survey Justification

In Bangladesh, the urban context has its unique characteristics and complexities. Considering the basic causes and underlying causes of malnutrition, there would be differences between children residing in rural households compared to a household in congested slums or on a pavement. The malnutrition levels among children and PLW living in extreme poor households in urban slums are expected to be high. Meanwhile, the Covid-19 pandemic not only affected the health situation, but also had a profound impact on many spheres: political, social, human, environmental, economic and infrastructural[5]. The Demographic Health Survey for Bangladesh (2017/2018) indicates a Global Acute Malnutrition (GAM) prevalence for under-5 children of 8.8% for Dhaka and 7.9% for Chattogram. The national GAM prevalence for children living in urban households is 8.9% and for children living in households belonging to the lowest wealth quintile is 10.0%. There was a high risk of further deterioration of health and nutrition situation, access to health and nutrition services because of the COVID-19 pandemic and increased cost of living and the potential impact on food security and nutrition.

However, there was a lack of nutritional data for children under five and pregnant and lactating women (PLW) living in the urban slums. Previous national level surveys also focused on rural and urban areas; hence, there was data paucity specifically for urban slums. Therefore, it was essential to evaluate its adverse effect on health and nutrition that will support the identification of a potential deterioration of access to and / or coverage of nutrition services, and deterioration of nutrition outcomes due to specific factors linked to Covid-19 epidemics.

Therefore, Concern Worldwide and World Food Programme wished to enter into a partnership with Action Against Hunger to conduct two independent SMART nutrition surveys in the slums areas of Dhaka North and South City Cooperation. The survey findings and recommendations will be used to inform new programme design, and to advocate for any necessary changes in policy or health and nutrition services.
During survey implementation, necessary technical and operational recommendations will be followed as per interim guideline to ensure adequate safety precautions for the beneficiaries as well as for the survey team . The assessment will be authorised by National Nutrition Services, the Institute of Public Health Nutrition (IPHN), MoHFW and the respective City Corporation.

2. SURVEY OBJECTIVES

2.1 Main Objectives:

The main objective was to determine current nutritional status of children aged under five including mortality status among the population living in the pavements, informal settlements and slums of Dhaka North and South City Corporation. The study was also aim to determine possible causal factors for better understanding of malnutrition situation in the survey areas.

[5] https://reliefweb.int/report/bangladesh/covid-19-impacts-bangladesh-nationwide-survey-livelihoods-nutrition-education-and

2.2 Specific Objectives:

- To determine the prevalence of acute and chronic malnutrition including underweight and overweight among children aged 6-59 months.
- To determine the proxy prevalence of acute malnutrition among children aged 0-5 months.
- To estimate the nutrition status of pregnant and lactating women with child <24 months based on MUAC (<210mm)
- To determine the mortality rate of the population (e.g., crude death rate and under 5 death rate).
- To determine prevalence of early initiation of breastfeeding, exclusive breastfeeding, continuation of breastfeeding including bottle feeding, minimum dietary diversity and acceptable diet among children aged 0-23 months.
- To determine the prevalence of diarrhea among children aged 6-59 months based on two weeks recall method
- To determine the use of oral rehydration salt (ORS) and/or zinc during diarrhea episodes in children aged 6-59 months.
- To determine the coverage of vitamin A supplementation in the last 6 months among children aged 6-59 months.
- To determine the coverage of deworming in the last six months among children aged 24-59 months.
- To assess immunization of measles coverage among 9-59 months children.
- To determine enrolment into antenatal care services and coverage of iron-folic acid supplementation in pregnant women.
- To assess antenatal care status among women aged 15-49 years with a live birth in the last 2 years.
- To assess postnatal care status among women aged 15-49 years who's most recent live-born child received a health check while in facility or at home following delivery, or a post-natal care visit within 2 days after delivery.
- To assess prevalence of household food insecurity status and food based reduced coping strategies (rCSI) are used by households.
- To determine the population's access to safe drinking water, sanitation, and hygiene facilities.

3. METHODOLOGY

This nutrition assessments were conducted by using SMART methodology for cross-sectional surveys. Nutrition surveys based on the SMART methodology are simple, rapid, and transparent to provide nutrition data for immediate action. The standardized procedures and recommendations are given in order to collect timely and reliable data from the field.

3.1 Survey Area

Two population representative cross-sectional surveys have been conducted in the slums of Concern and WFP working areas in Dhaka North City Cooperation and Dhaka South City Corporation (annex 3). The study areas were covered by slums that have a mix of Pucca[6], semi-pucca[7] and kacha houses. There is no organization or pattern in the way households were arranged. However, the slums are defined by the name of the head/representative[8] or smallest geographic areas (like para, mohalla) for each slum. However, due to the unavailability of the complete list of slums with total population until now from the BBS, a total 288 slums' data was collected from NGOs currently working in the Dhaka north and south city corporation notably Concern Worldwide and WFP.

[6] Pucca: It is strong houses. They are made up of wood, bricks, cement, iron rods and steel. Flats and bungalows. Such houses are called permanent houses.
[7] Semi pucca: These are tenements which are generally constructed of katcha or **semi-pucca** materials like mud, bamboo, grass, leaves, reeds, thatch, unburnt bricks etc. and are inhabited by a large number of households.
[8] It is observed that this person controls, represent the total slum population and is assumed to be person who has begun the slum for first time.

Table 4 : Demographic information of selected slums

Name of city corporation	Number settlements/Clusters	Estimated population
Dhaka South City Corporation	120	67,772
Dhaka North City Corporation	225	199,209

The details list of geographical coverage is attached in annex 3

3.2 Type of survey

A population representative cross-sectional household survey following the Standardized Monitoring and Assessment of Relief and Transitions [SMART] methodology was designed. Two-stage cluster sampling was used for sampling and data collection. The interim guidance on resuming population-based surveys during COVID-19 released on October 8th 2020 by the SMART Global Team was referred to these SMART surveys. During survey implementation, necessary technical and operational recommendations were followed as per interim guideline to ensure adequate safety precautions for the beneficiaries as well as for the survey team[9].

3.3 Sample Size Calculation

The sample sizes were designed to achieve reasonable precision for estimates of acute malnutrition as well as mortality separately for two population slum groups: Dhaka North City Corporation slums (DNCC) and Dhaka South City Corporation (DSCC) slums. All calculations were made using ENA for SMART software (version Jan 11th 2020). The purpose of the sample calculation was to get a sample having the optimal units so that results are reliable, with reasonable precision. The following assumptions (based on the given context) were used to calculate the sample size in number of children, later which have been converted into number of households to survey (corresponding to the sample unit).

Table 5: Sample Size Parameters-Anthropometry

Parameters	DSCC Slum	DNCC Slum	Assumptions/Source of Information
Estimated Prevalence of GAM (%)	13.1%	13.1%	According the 2015 SMART survey in Mirpur slums of DSCC, the estimated prevalence of GAM by WHZ was 8.5% (5.5 – 13.1 95% C.I.). The Mirpur slums GAM prevalence was used as proxy indicator for both areas as there is no recent data for urban slums. Considering COVID-19 impact and poor living conditions, the GAM prevalence in urban areas are expected to be high. Therefore, upper confidence level has been used for sampling.
± Desired precision	4%	4%	Precision is based on SMART guidance to allow for reasonably precise estimates for each site where slightly lower precision has been considered to shorten the duration of data collection and as per the new SMART guidance for survey during COVID-19.
Design Effect	1.30	1.30	According to 2015 SMART survey, the design effects of Mirpur slum was 1.01. There could be some heterogeneity due to COVID and other external factors like continuous migration over the past years; design effect should be possible to become higher than the previous survey. Therefore, an adjusted design effect of 1.30 has been used to account for possible heterogeneity among clusters in both the study locations. Since the assessment will be in the selective intervention area of CWW with similar program delivery for nutrition, hence we don't accept high design effect in the study location.

9Interim guidance on restarting population level surveys and household level data collection in humanitarian situations during covid-19 pandemic, SMART, 8th October 2020

Sample size (children)	387	387	Calculated by ENA software
Average HH Size	3.8	3.8	According to Baseline Population and Socioeconomic Census, Slums of Dhaka, ICDDR'B, 2015-2016
% Children under-5	9.2	9.2	
% Non-response Households	8	8	A higher non-response rate has been considered to account for possible household absences as most of the slum dwellers (both men and women) work outside in the city.
Sample size (households)	**1336**	**1336**	**Calculated by ENA software**

Table 6: Sample Size Parameters: Mortality

Parameters	DNCC Slum	DSCC Slum	Assumptions/Source of Information
Estimated death rate per 10,000 /day	0.5	0.5	There is no previous CDR available in the study locations. Hence, according to SMART guideline, the crude death rate of 0.5 has been considered here.
± Desired precision per 10,000/day	0.3	0.3	Precision is based on SMART guidance to allow for reasonably precise estimates. SMART recommend to use a precision of 0.30 for a CDR of 0.50 death per 10,000 per Day.
Design Effect	1.50	1.50	There is no previous CDR and design effect available in the study locations. Hence, according to SMART guideline, the design effect of 1.5 has been considered here.
Recall period in day*	98	112	International Mother Language Day (21st February 2022) has been considered as most memorable recall event. The midpoint of data collection for DNCC and DSCC slum area are **28nd May 2022 (22 May-4 June May) and 11th June 2022 (5 June- 18 June) respectively.**
Sample size (population)	**3,556**	**3,112**	**Calculated by ENA software**
Average HH Size	3.8	3.8	According to Baseline Population and Socioeconomic Census, Slums of Dhaka, ICDDR'B, 2015-2016
% Non-response Households	8	8	A higher non-response rate has been considered to account for possible household absences due to women being busy with housemaids in other families.
Sample size (households)	**1,017**	**890**	**Calculated by ENA software**

Recall period has to be adjusted during analysis based on the actual survey data collection period and therefore, there might be slightly differ from the initial protocol assumed recall period.

Summary: Since anthropometry has the highest estimated sample HH for both city corporation slum areas, therefore highest number of HHs was the final sample size (BSU) for this survey:

DNCC Slums: 1336 households
DSCC Slums: 1336 households

Sample size for additional indicators:

The other individual (e.g. IYCF and PLW's MUAC) and households level indicators (e.g. household food insecurity and copping strategies; and water, sanitation and hygeine) were collected from the same households as calcuated for the anthropometric indicator.

It should be noted that IYCF indicators require a larger sample size for results to be representative which is difficult to achieve through SMART sampling frame due to narrow age specific IYCF indicators (e.g. 0-5 months for exclusive

breastfeeding, 6-23 months for minimum acceptable diet etc.). Therefore, the results of the IYCF indicators in the Integrated SMART survey are only an indication and NOT a representative for the whole population.

3.4 Sampling procedure

The SMART surveys were conducted with the use of two stage cluster sampling procedure to select the targeted population. In the first stage, list of slums (segmented parts of slums) with total population was used to select the clusters. In the second stage, list of households updated by the survey team during enumeration process was used to select household using simple random sampling technique.

Cluster was the Primary Sampling Unit (PSU) while household was Basic Sampling Unit (BSU).The first stage involves selection of clusters from a total list of slum using the Probability Proportion to Size (PPS) method. This was applied prior the data collection. The second stage involves the random selection of households from a complete and updated list of households. That was conducted at field level.

- **First Stage Sampling – Sampling frame and selection of clusters**

Developing Sampling Frame: A valid list of slums with total population was not available and the secondary data available did not include 100% of the slums in Dhaka North and south City Corporation. Besides, there was no organization or pattern in the way households are arranged. Due to the complex nature of the urban slum area and lack of data, some additional steps have been followed to produce a complate list of clusters for each slums through local partners as below:

- Initially, a list of slums under WFP and Concern Worldwide working areas was collected from stakeholder (Concern) that are organized by geographical unit with total number of households and population.
- Each slum was then divided into smallest geographic unit by population (smallest unit considered as cluster normally know as para, moholla, block or lanes etc.) with clear demarcation with support from Concern and its partner agency in the field.
- Each cluster was consisting of minimum 60-80 households. For some clusters with very small number of households (<60 HHs) were merged with adjacent cluster.
- After segmentation into smaller geographical unit, list of clusters for each slums under DNCC and DSCC were combined for create a sampling frame for selecting clusters.

Selection of Clusters: At the first stage, the required number of clusters were assigned randomly using probability proportion to size (PPS) sampling. A list of all updated clusters were uploaded into the ENA for SMART software where PPS was applied. The number of clusters shall be determined by the number of households to be targeted.The number of clusters have been selected to allow for one team to complete one cluster per day.

In some cases, clusters selected randomly might be very large or households very dispersed and sample selection can then become very tedious; teams faced long distances to walk and not enough time to complete one cluster per day. In those scenarios (approximately more than 80 households in the cluster), **segmentation into smaller part (max 80-120 HH each)** were used in order to reduce the area that was covered by the survey teams. The objective of this procedure is to divide the slums into smaller segments and choose one segment randomly to include the cluster.

This division can be done based on existing administrative units **(e.g. neighborhoods, lanes, block, sub-blocks** etc.), natural landmarks **(e.g. river, road, rail line, cannel, etc.)** or public places (**market, shop, schools, churches, mosques, temples, etc.**). Segmentation was done into equal or unequal parts.

Segmentation into equal parts: If the slum area was divided into 2 or more **approximately equal** parts each, the survey team leader was able to write the name of those parts on pieces of paper that he folds and put into a bag or

hat and have the slum leader or his representative choose one part randomly. Therefore, the team goes to that part of the slum area to conduct the survey for that cluster.

Segmentation into unequal parts: In some cases, it might be impossible to divide the slum area into equal parts, as shown on. Therefore, the survey team tried to find some natural landmarks that can help divide the slum into separate clearly defined segments. Once those segments are defined with an approximate population size, one segment was selected randomly using **PPS** as shown in the example below.

Segments	Number of HHs	Cumulative number of HHs	Intervals
A	70	70	1-70
B	100	170	71-170
C	30	200	171-200
D	190	390	201-390

Then the team had used a random number table (here considering three digits numbers) to select a number between 001 and the cumulative total number of households (390) of all the segments. The segment containing this number was the one to survey. In this example, a 3-digit number must be picked from 001- 390. E.g., we picked 167. This number is within the segment B. Survey will therefore be conducted in segment B. For the selection of more than one cluster in each block, the v block will be segmented and then simple random technique using PPS method will be applied for the assigned number of clusters.

Number of cluster and households to be interviewed / per day

During the preliminary household listing process and observatory visits, it was identified that all mothers cannot participate in the survey throughout the day due to their job/work. It was also observed that if survey team arrives early in the morning during **07:00AM to 01:00PM and again during 03:00PM till 07:00PM** then majority of the mothers can participate in the survey. Therefore, survey team's data collection plan and office hours were organized flexibly to include maximum mothers and children in the survey with a longer break time during lunch. This should be noted that security procedures were given priority and put in place during the survey.

A calculation has been done for each team to estimate the number of households to be surveyed per cluster per day at each location. Based on the estimated time to travel to the survey area, select and survey the households, 24 households were feasible to visit and complete the questionnaire by each team in each day.

Table 7 : Calculation of Household to be covered /day/team

Calculation of HH coverage/day/team		
Event/Activity	**Time to dedicate**	**Total time remaining**
Time per day for field work including lunch and refreshment/prayer break.	7:00 -19:00=720 min	720 min
Travel time (including travel time, round trip)	60 min X 2 trip =120 min	720-120=600min
Lunch and prayer break	13:00-15:00= 120 min	600-120= 480 min
Average time allocated for households' interview by one interviewers **(Interview + Travel time between household**	35 min+ 5 min= 40 min	All indicators may not require to collect from all households except demo, food security and WASH. For instance, almost two third of slum's households have no child meaning that team need less time for these households. For the household having children, measurer assistant will move to the next households after completing measurement in previous HH.

Total number of HH's to be covered by each team per day (with one interviewers)	480 min/40 min per HH=12 households	
Total number of HH's to be covered by each team per day (with two interviewers)	12 households*2 interviewer= 24 households	

Therefore **1336** households / 24 households were interviewed per day= 55.7≈ **56 clusters needed from both** dhaka north and south urban slums area. Clusters and reserve clusters were assigned using ENA software. Reserve clusters (RC) will only be implemented if >10% of clusters cannot be included or <80% of sample size of children is not reached.

Table 8: Final targeted households, Dhaka South and North City Corporation

Study Area	Initial Estimated Sample (HH)	Final Targeted Clusters	Final Targeted HH
DSCC Slums	1336	56	1344 (56*24 HH)
DNCC Slums	1336	56	1344 (56*24 HH)

- **Second Stage Sampling – Household Selection**

Households were selected by using simple random sampling. An updated household list was developed by Action Against Hunger and Concern Worldwide' s partners staff 1-2 weeks prior to the data collection with the help of local commuity leaders or community volunteer. On the day of data collection a verification was also be done in case of any changes in the household list was amended. Once the list was updated, the team had used a random number generator to select required number of households from the list. A community worker or volunteer or leader were appointed by Concern worldwide to guide the survey teams to the selected households on the day of the interview. In this case, the team also used a random number generator to select required number of households from the list. All children 6-59 months within selected households were eligible for measurement.

Revisiting excluded/absent households and missing clusters on reserve days to mitigate possible high NRR

Additional two reserve days have been kept for the two survey locations for revisiting non-response/absent household and missing clusters (if any). To ensure reaching maximum number of targeted samples and mitigating the issue of possible high non-response rate (NRR) due to sample exclusion based on COVID health checklist, all the households will be followed-up and accordingly revisited. Households those will be excluded based on child's high fever (>=100.4°F/38°C) confirmed by measuring body temperature or presence of any other sign/symptoms of COVID-19 will be followed up regularly. A child and/or respondent, mother may have high fever during the day of data collection and that could also be due to other morbidity/diseases and not COVID-19. Hence children those were recovered from fever without showing any other sign/symptoms of COVID during the period of data collection in each survey locations were visited again. Same health screening checklist was employed again during revisit to ensure no sick children (with possible sign, symptoms of COVID) are measured. This approach of tracing each child and the corresponding household as well as revisiting of other absent households was expected to minimize the non-response rate.

3.5 Health and Safety Measures during Field Work:

Key technical and operational recommendations that have been followed to ensure all Infection Prevention Control (IPC), health and safety measures for the beneficiary as well as for the survey team are as below:

During data field collection:

- Introduction, consent, interviews, and measurement was done **outside** in an open, shaded area with enough space for proper physical distancing wherever feasible while still respecting a persons' privacy.

- **All survey team members have been** provided with **face masks, hand sanitizers and gloves**. Each team was to carry safety bag and safely dispose of used personal protective equipment at the end of data collection.

- **Household members** who are directly in contact with the survey team (**survey respondent and measured children/adults above 2 years of age**) were requested to **wear a face mask** during the entire household interview process. The survey teams have been offering a face mask to the key household members prior to the start of the interview if they are not available in the household.

- During the interview, the interviewer and respondent **maintained a distance of at least 1-meter even if wearing a mask**

- All team members have been **sanitize their hands immediately before entering a household** using soap and water or alcohol-based hand sanitizer with at least 60% alcohol.

- All surveys had followed the usual methods for measuring oedema, MUAC, weight, height and age using trained measurers as per the SMART guidelines. **Anthropometric equipment's (e.g. scales, height boards, MUAC tape) will be disinfected between households**.

- **Prevent congregation** of others (household or community members) around the place of interview, by asking to respect distance and privacy.

- **Well-functioning vehicles with enough** space for sitting was **hired for survey team and disinfected regularly. All drivers were also provided face mask and hand gloves.**

- Before the interview, the team members were **screening respondents and all measured subjects**. If any individual in the household meets any of the following conditions, the household was excluded from the survey.

    - **Measure temperature** with an infrared thermometer for eligible children and their mothers/caregivers. Exclude household only if the eligible child and respondent/mother have temperature ≥100.4°F /38°C and/or other symptoms of COVID-19 (e.g. dry cough, sneezing, shortness of breath, chest pain or pressure, loss of speech or movement etc.). If there are multiple eligible children in a randomly selected households (for example two children) and if one child has high fever while the other doesn't have fever or other COVID sign/symptoms then only the healthy children were included as well as that corresponding household. Other members of the HH were also asked if anyone has fever or other COVID like symptoms, then that member of the HH was asked to be isolated and kept in distance but that was not considered as the HH exclusion criteria.

    - Inquire about **prior diagnosis of COVID-19**. Exclude if anyone in the household has tested positive test for COVID-19 within the past 14 days.

    - Ask if any household members that have been in **close contact with a confirmed COVID-19 patient** within the last 14 days. A close contact is anyone who was within 2 meters of an infected person for at least 15 minutes. To remind that an infected person can spread COVID-19 starting 48 hours (or 2 days) before the person has any symptoms or tests positive for COVID-19.

    - A suspect case for whom testing for the COVID-19 virus is inconclusive (Inconclusive being the result of the test reported by the laboratory) OR a suspect case for whom testing could not be performed for any reason.

    - Inquire if any of the household's members currently are in home quarantine or quarantine in centre for isolation.

- **Currently the case definitions of COVID 19 in Bangladesh are:**

Suspect case:

- A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), AND residence in Bangladesh or travel to a country reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset.
- OR
- A patient/ health care worker with any acute respiratory illness AND having been in contact (see definition of contact) with a confirmed or probable COVID-19 case in the last 14 days prior to symptom onset.
- OR
- A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath) AND in the absence of an alternative diagnosis that fully explains the clinical presentation
-

Probable case:

- A suspect case for whom testing for the COVID-19 virus is inconclusive (Inconclusive being the result of the test reported by the laboratory).
  OR
- A suspect case for whom testing could not be performed for any reason.

Confirmed case:

- A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms

Related to the survey methodology and human resources management:

- All survey staff who was involved in the field (enumerators including all reserve teams and drivers) was vaccinated for COVID before training. While waiting for test results, team members should self-quarantine if possible or practice strict physical distancing and other protective measures to minimize the risk of COVID-19 infection. Survey data collection will be started once results have been received and all test results are reported as COVID-19 negative.

- Every team member was monitored for his/her symptoms twice a day and report those to the team lead (morning before field work and after return from the field). Self-assessment (ideally supervised by another team member) should at least include reporting of temperature check for fever (i.e. temperature ≥100.4 °F/38 °C) and reporting of new/worsening cough.

- In case a team member develops symptoms that are consistent with the local suspect COVID-19 case definition the survey manager will withdraw the entire team from field work for the remaining duration of survey or until it can be confirmed that all team members are negative for SARS-COV-2 and replace it with a reserve team or other team available.
- Two survey teams (6 enumerators) will be kept as reserve and the necessary supplies for IPCs equipment's will be made available.

- **All survey team members were thoroughly trained on modules necessary for implementing a SMART survey (e.g. Logistics, Objectives etc.) as well as a review of additional field safety procedures during COVID-19 as described above.**

Reference: Interim guidance on restarting population level surveys and household level data collection in humanitarian situations during covid-19 pandemic; Version of October 8th, 2020

3.6 Overview of indicators, Target population, Case Definitions and Thresholds

The anthropometric results for 0-59 months children were based on the WHO 2006 growth standards. All children aged 0-59 months and pregnant and lactating women were included for anthropometric measurement. Infant and Young Child Feeding (IYCF) practices have been assessed by interviewing the mothers or primary care givers and were applicable for children aged below 2 years (under 24 months); diarrhoea for the preceding 14 days and were

applicable for children 6-59 months; vitamin A and measles vaccination were applicable for 6-59 months and 9-59 months respectively, for which the mother/primary care givers recall and the child vaccination card has been used. All eligible children within the same household were included for the survey. If individuals or children are absent, the team had revisited the house at the end of the day before leaving the villageIn case there are no children identified, other household information (e.g. mortality, food security and WASH) has been collected.

Table 9: Overview of survey indicators and their target population

SL	Indicator	Target Population
	Anthropometry and Morbidity	
1.	Acute Malnutrition by WHZ and/or Oedema	Children 6-59 months
2.	Chronic Malnutrition by HAZ	
3.	Underweight by WAZ	
4.	Overweight or obesity by WHZ	
5.	Acute Malnutrition by MUAC and/or Oedema	
6.	Combined Acute Malnutrition (cGAM & cSAM) by both WHZ and/or MUAC and/or Oedema	
7.	Diarrhoea prevalence	
8.	Immunization of Measles	9-59 months
9.	Vitamin A supplementation	6-59 months
10.	MNP supplementation	6-59 months
11.	Low MUAC prevalence among PLWs	All pregnant and lactating women with child <24 months
12.	ANC and PNC check up	lactating women with child <24 months Women of reproductive age 15-49 years
13.	Exclusive breastfeeding (EBF)	0-5 months
14.	Early Initiation of breastfeeding	0-23 months
15.	Bottle feeding	
16.	Minimum dietary diversity (MDD)	6-23 months
17.	Minimum meal frequency (MMF)	
18.	Minimum acceptable diet (MAD)	
19.	Crude Mortality Rate (CDR)	Entire population
20.	Under 5 Children Death Rate (U5DR)	Children under 5 years
21.	Household Food Security	Women who is responsible for cooking
22.	Water, Sanitation and Hygiene	Household Head /Caregiver

Case definitions (related to households)

a) **Households (HH):** A household is defined as a group of people who normally live together and eat from the same pot and resources.

b)

Case definitions (related to children)

c) **Age** was recorded as a date of birth (day/month/year) if the information is available on official written documents such as vaccination or birth registration cards. If documentation is unavailable, age will be recorded in months. A local calendar of events will be used to estimate the age (annex 7).

d) **Weight (in kg):** Children was weighed removing of all clothes to the nearest 100g (0.1 kg) by using a SECA electronic scale. The children who can easily stand are asked to stand on the weighing scale and their weight is recorded. In a situation when the children cannot stand, the double weighing method is applied.

e) **Height/Length (in cm):** A measuring board was used to measure bare headed and barefoot children. The precision of the measurement is 0.1 cm. All children under 2 years were measured lying down (length) and all children over 2 years were measured standing up (height). Two measurers will undertake measurements of each child, with the participation of the caregivers.

f) **Mid Upper Arm Circumference (MUAC)** was measured using a flexible non-elastic tape, midway between the tip of the acromion process and the tip of the olecranon process of the left arm with the arm hanging freely by the child's side. MUAC measurements were recorded in millimeters (precision to the nearest millimeter).

g) **Bilateral Pitting Oedema:** was assessed by applying a moderate thumb pressure on BOTH feet for three seconds. If oedema is present, a shallow pit will remain after releasing pressure from the feet. Only children with bilateral oedema (oedema on both feet) are diagnosed positive for nutritional Oedema. Supervisor confirmed all cases of oedema. However, no oedema case found during the assessment

h) **Crude mortality rate (CDR):** One of the primary goals of humanitarian response to a humanitarian crisis is the prevention and reduction of mortality[10].The CDR is a metric frequently used to gauge the severity of a humanitarian crisis. It is defined as the number of deaths from all causes per 10,000 people per day over a specified period of time. It is calculated from the following formula:

CDR = Number of deaths / (mid-interval population / 10,000) x time interval
= deaths / 10,000 / day

i) **Under five death rate (**U5DR): U5DR is defined as the number of deaths among children under five from all causes per 10,000 people per day over a specific period of time. It is calculated from the following formula:

U5DR = Number of under 5 deaths / (mid-interval population / 10,000) x time interval
= under 5 deaths / 10,000 / day

j) **Diarrhea** was assessed through two weeks recall period. Diarrhea is defined as passage of three or more loose or liquid stools in a day in children aged 6-59 months.

k) **Use of ORS/zinc during a diarrhea episode**: The interviewer was asked the mother/caregiver of the child if he/she received ORS sachets and/or zinc during a diarrhea episode. An ORS sachet and a zinc pill were shown when asked to recall.

l) **Measles vaccination in children 9-59 months:** Measles vaccination were assessed among children aged 9-59 months by checking for the measles vaccine on the EPI card if available or by asking the caregiver to recall if no EPI card is available.

m) **Vitamin A Supplementation in children 6-59 months:** Vitamin A supplementation was assessed among children aged 6-59 months by checking the EPI card if available or by asking the caregiver to recall if no EPI card is available.

n) Case definitions Infant and Young Child Feeding practices:
Only few important IYCF indicators were used to calculate them are detailed below.

- **Exclusively breastfed for the first two days after birth:** Percentage of children born in the last 23 months who were fed exclusively with breast milk for the first two days after birth

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

- **Early Initiation of breastfeeding:** Proportion of children born in the last 24 months who were breastfed within one hour of birth.

Children born in the last 24 months who were put to the breast within one hour after birth
Children born in the last 24 months

- **Exclusive breastfeeding under 6 months:** Percentage of infants 0–5 months of age who were fed exclusively with breast milk during the previous day

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

- **Minimum dietary diversity:** Percentage of children 6–23 months of age who consumed foods and beverages from at least five out of eight defined food groups during the previous day. The eight food groups used for tabulation of this indicator are:

1. breast milk;
2. grains, roots, tubers and plantains;
3. pulses (beans, peas, lentils), nuts and seeds;
4. dairy products (milk, infant formula, yogurt, cheese);
5. flesh foods (meat, fish, poultry, organ meats);
6. eggs;
7. vitamin-A rich fruits and vegetables; and
8. Other fruits and vegetables.

- **Minimum meal frequency:** Proportion of breastfed and non-breastfed children 6–23 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more.

  - Minimum meal frequency for non-breastfed children [6-23 months] [>=4 full meals]
  - Minimum meal frequency for breastfed children [6-8 months] [>=2 full meals]
  - Minimum meal frequency for breastfed children [9-23 months] [>=3 full meals]

- **Minimum acceptable diet:** Percentage of children 6–23 months of age who consumed a minimum acceptable diet during the previous day

Case definitions (women from 15 to 49 years of age)

o) **Age:** The age was recorded in years on the questionnaire.

p) **Pregnant and Lactating Status:** The team leader asked all women if they are pregnant and/or lactating.

q) **Mid-Upper Arm Circumference (MUAC):** The MUAC was measured in millimeters on the left arm, at midpoint between the shoulder's tip and the elbow, on a relaxed arm for all women.

r) **Enrolment in an ANC programme and Iron and folic acid supplementation**: If the woman was pregnant, the team leader asked two additional questions about her enrolment in an antenatal care programme and consumption of iron-folic-acid pills. An iron-folic acid pill image was shown to the pregnant woman when asked to recall.

s) Antenatal Care (ANC): Percentage of women aged 15-49 years with a live birth in the last 2 years who during the pregnancy of the most recent live birth were attended at ANC check-ups. If the women are lactating pregnant having children aged <24 months, the team leader asked if she received ANC check-ups for the younger children.

t) **Postnatal care (PNC):** Percentage of women aged 15-49 years with a live birth in the last 2 years whose most recent live-born child received a health check while in facility or at home following delivery, or a post-natal care visit within 2 days after delivery. If the women is lactating pregnant having children aged <24 months, the team leader asked if she received PNC check-ups for the younger children.

Water, Sanitation and Hygiene (WASH

The table below provides an overview of the definitions of drinking water and sanitation (toilet) facilities used in the survey and available in the Dhaka urban slums.

Table 10 : Table Definitions of drinking water and sanitation (toilet) facilities*

	Protected/treated source	Un-protected/un-treated source
Drinking water	• Deep Tubewell • Collected from Water ATM booth by payment • Bottled/ Jar water	• Supply water (WASHA) • Rainwater collection • Surface water (lake, pond, dam, river) • Other
Latrines/toilets	**Hygiene Latrine**	**Unhygienic Latrine**
	• Piped with sewerage system • Latrine with septic tank • Latrine with water seal/ • Payable public toilet with water seal	• Latrine without water seal Mixed with nearby drain or water body • Communal sharing latrine • Payable public toilet without water seal Open defecation • Plastic bag • Plastic pot/potty • Others (specify)

Table 11: Cut-offs for the Indices for Weight-for-Height z-score (WHZ), Height-for-Age z-score (HAZ), and Weight-for-Age z-score (WAZ) (2006) AND MUAC cut-offs

Status	Malnutrition Status Classification				
	Acute Malnutrition (WHZ)		Chronic malnutrition (HAZ)	Underweight (WAZ)	Overweight (WHZ)
	Weight/ Height [WHZ]	MUAC	Height/Age [HAZ]	Weight/Age [WAZ]	Weight/ Height [WHZ]
Global	WHZ< -2 SD and/or Oedema	MUAC< 125 mm and /or Oedema	HAZ< -2 SD	WAZ< -2 SD	WHZ > 2 SD
Moderate	WHZ <- 2SD to ≥ -3 SD	115 mm≤ MUAC< 125 mm	HAZ <- 2SD to ≥ -3 SD	WAZ <- 2SD to ≥ -3 SD	WHZ > 2SD to ≤ 3 SD
Severe	WHZ < -3 SD and/or Oedema	MUAC< 115 mm and /or Oedema	HAZ < -3 SD	WAZ < -3 SD	WHZ > 3 SD

Table 12: Classification for MUAC in PLW[11]

Severity	Women- MUAC (mm)
GLOBAL	<210 mm
MODERATE	≥ 160 to < 210 mm
SEVERE	<160 mm

Low MUAC in women was defined as a mid-upper arm circumference below 210 mm for the purpose of this assessment in line with the national protocols for community based management of acutely malnourished children and PLWs.

Table 13: WHO and/ UNICEF Classification for the Severity of Malnutrition by Prevalence among Children under Five

Indicators	Prevalence Thresholds Level [%][12]				
	Very high	High	Medium	Low	Very low
Wasting [WHZ]	≥ 15	10 – <15	5 - <10	2.5- <5	<2.5
Overweight [WHZ]	≥ 15	10 – <15	5 -<10	2.5- <5	<2.5
Stunting [HAZ]	≥ 30	20 - <30	10 -<20	2.5- <10	<2.5

Table 14: Sphere Standards CDR and U5DR Emergency Threshold Cut-offs by Region[13]

Indicator	Population	Global Emergency Threshold	Emergency Threshold for South Asia
CDR	Entire population	>1 death/10,000/day	0.40
U5DR	Children Under 5	>2 deaths/10,000/day	0.90

[12] WHO/UNICEF latest public health emergency thresholds for the prevalence of wasting, overweight and stunting in children under 4 years, August 2018

[13] The Sphere Project (2011) Humanitarian Charter and Minimum Standards in Humanitarian Response

The most broadly referenced CDR emergency threshold is >1 death/10,000/day among the entire population and >2 deaths/10,000/day among children under five years. **Sphere standards recommend the interpretation of CDR and U5DR by regional cut-offs, as shown in table 14 above. Bangladesh is situated in South Asia, and therefore results from this assessment will be compared with this region.**

Table 15: Thresholds level for household Coping Strategy Index [CSI]

Reduced Coping Strategy Index [rCSI]	Thresholds
No or low coping	0 - 3
Medium coping	4 - 9
High coping	≥ 10
Source: Technical Guidance, Food and Agricultural Organization.	

3.7 Ethical Considerations

All participants were asked for informed consent verbally. No participant was forced to provide information for the study; all participation was volunteerly. The survey objectives were clearly explained to all the survey participants before gathering data from them. The enumerators were abstain from collecting data from those who will deny or show any kind of disinterest in providing information. The enumerators were highly committed to the respondents to keep the privacy of survey participants' information and sources of data as well as made their heartiest endeavor to be unbiased in collecting data. Survey approval has been taken from NNS, IPHN and Dhaka City Corporation. No sick children as well as the corresponding households especially with COVID-19 sign/symptoms were included in the survey.

In addition to that, a half day preliminary results review, and validation meeting followed by a dissemination workshop was conducted in Dhaka and participated by Government Authorities (e.g. BNNC, NNS-IPHN, City Corporations) and nutrition cluster members partners (e.g. UNICEF, WFP, ACF, BRAC, SEEP, Sajida Foundation and Nari Maitree)

3.8 Referral

MUAC only programing are in place with global MUAC thresholds. Therefore, all children identified as meeting the case definition for severe (<115 mm) and moderate (>= 115 and <125 mm) acute malnutrition have been refered to the nearest nutrition centre (SAM corner or SC) if prgoramme exits. Pregnant and lactating women with MUAC<210mm were also refered to the nearest nutrition centre if they are not admitted yet.-

3.9 Special Cases:

a) **No children in the household:** Households and women questions were administered. Household were not replacex the household with another one!

b) **Abandoned Household:** Generally, abandoned households have not been occupied for a long period of time and was considered as household abandoned if no one lived there last night and no one is coming back. All abandoned households were removed before HH listing and selection.

c) **Absent Household**: Household recently inhabited but is currently empty were considered as absent and not replaced absent household. Skip house and continue to the next household according to the sampling procedure. A household were only marked absent after at least two re-visits to the household have been made. If more than half of the HH are absent, revisit the area at a later date.

d) **Excluded Household**: If any eligible child or other households members in the household meets the exclusion criteria of COVID 19 as per checklist attached in the **annex 1** was excluded from the survey.

e) **Absent children:** If a child is absent at the time of the survey it must be noted. Collect the other household related data. The mother was told that team will return later that day - continue to look for missing children until your departure from the survey area.

f) **Children with disability/handicap:** All data that is not influenced by the disability were collected. Determine if it is possible to measure all anthropometry indicators: If not possible to measure height and weight, then give an ID number, record data as missing and report the reason.

3.10 Survey Equipment:

Weight has been measured with SECA electronic scale. SECA scales allow for double measurement. Weight scales were calibrated nightly through 2 Kg standard weight. Shorr boards were used for measuring height. Shorr boards were calibrated before each survey. **All anthropometric equipment's have been disinfected between each household during the field data collection.** Necessary personal protective equipment (PPE) including 15% additional buffer to account for supplies required during training as well as any damaged supplies were ensured. In addition, teams were given adequate supplies to safely dispose of used personal protective equipment.

3.11 Supervison, Team Composition and Trinning

3.11.1 Supervision

ACF experienced Nutrition Surveillance Head of Department was assigned for overall coordination and implementation of this assessment. There was one Surveillance Manager and two surveryisors who were responsible for operatinal and technical support to the team including field supervision using checklist **(annex 8).** ACF also deployd one regional SMART advisor (ACF Cananda) for overall technical support. The Health and Nutriton Advisor for Asia region, ACF France HQ and the Health and Nutrition Head of Department, Bangladesh Mission, have been overseeing the survey and providing necessary support to the survey team.

3.11.2 Team Composition

The surveys were implemented by 6 teams, each consisting of **4** members: one team leader/measurer, one measurer assistant and two interviewers. Each team member has the following designated roles:

- **Interviewer:** Gain consent and complete household's health screening checklist, create household listing of family members and ask mortality related questions, conduct verbal interview while entering data into the tablet.
- **Team leader measurer:** Introduce the team in the surveyed area, identifiy households, take anthropometric measurements of children 6-59 months, fill up anthropometric and cluster control form; coordinate and supporte the team.
- **Measurer assistant:** Assist in taking anthropometric measurements and confirm household listing of family members by interviewer; disinfect all anthropometric equipments after each households.

Two additional enumerators were kept as reserve. If any individual team member meets the criteria of COVID-19 sign/symptoms as per checklist attached in the annex 1, he/she will be kept in home quarantine.

3.11.3 Training

The survey team had received 4 days residential training from 16th - 20th May 2022. During the training, the field enumerators were trained on survey objectives, household selection techniques, demonstration of anthropometric measurements, mortality questionnaire and use of mobile data collection. The training was consist of both lecture and practical sessions while experienced and skilled surveillance team member acted as measurer. Hence, this

training exlcuded standardization test as recommeded by Interium guideline[14]. All survey team members have also been trained on the module of field safety procedures in the context of COVID-19. All necessary steps were put in place to ensure the IPC health measures during training session. A field test was conducted a day before the actual survey in nearest village. The questionnaire was translated and administered in the local language. Determination of the team composition was done based on performance on a written evaluation (pre and post-test), and field test.

3.12 Electronic data collection, Data Management and Data Analysis

3.12.1 Questionanire Development and Data Collection

The survey questionnaire were developed by surveillance department in close collaboration with Concern and WFP. The paper questionnaire (annex 4) was translated into .xls script by Nutrition Surveillance Head of Department and deployed into Kobo Toolbox. Data was collected on tablets (Lenovo). Data was uploaded daily to a Kobo server to enable remote monitoring of data quality. All teams were provided one back-up tablet and hard copies of the questionnaires in case the tablet fails at any point.

3.12.2 Quality Assurance

Quality of survey data is guaranteed by proper diligence at all stages of the survey. Details in the protocol related to efforts to ensure quality assurance during recruitment, sampling (e.g., efforts to ensure an updated sampling frame), training (e.g., field test, written exams), and field work (e.g., calibration of equipment, supervission) are noted in each respective section above. In addition, a daily check of entered data was conducted by the survey manager to assess compllteness and consistency of data. Data quality was assessed using the ENA plausibility check of anthropometric data. Teams, supervisors, and survey manager have been meeting nightly throughout data collection to review any issues observed during field work as well any issues identified in reviewing the data.

3.12.3 Data Management, Analysis, Dissemination and Report Writing

Data were collected in two forms: a paper copy with anthropometric data for children 0-59 months and PLWs, and an electronic copy of all collected data entered tablets. The data were uploaded daily to a secure server, and paper copies were submitted to the surveillance manager. Daily random checks of entered data were conducted by the survey manager in addition to a daily plausibility check of anthropometric data to assess and assure continued data quality. All anthropometric and mortality data were analyzed using the most recent ENA for SMART software [11th January 2020]; SMART flags were used for exclusion of z-scores out of range values [+/-3 from the observed survey mean]. All other indicators were analyzed using Epi Info version 7.2.3.1. Confidence Interval type “Logit” was used for “Complex Sample Frequencies” in Epi Info for additional non-anthropometric variables. The CDC Statistical Calculator for Two Surveys was used to identify statistical significance of relevant indicators between previous surveys as well as relevant indicators within this assessment. P-value obtained using statistical test indicates the strength of findings. P value < 0.05 indicates a significant difference between the two parameters.

[14] Interim guidance on restarting population level surveys and household level data collection in humanitarian situations during covid-19 pandemic, SMART, 8th October 2020

4. RESULTS

4.1 Sample Achieved

The survey achieved the minimum percentages of clusters surveyed [90%] and children measured [80%] stipulated by the SMART methodology to ensure representativeness for two city corporations. In DSCC, 1,261 households comprising 459 children were enlisted during data collection. In DNCC, 1,317 households comprising 531 children were enlisted and measured. The sample is detailed in the table below.

Table 16: Details of plan and actual sample size achieved, SMART survey, DSCC and DNCC, May-June 2022

Slums	Number of Cluster planned	Number of Cluster surveyed	% of Cluster Surveyed *	Number of households planned	Number of households surveyed	Number of children 6-59 months planned	Number of children 6-59 months enlisted	Number of children 6-59 months measured	% of children measured
DSCC	56	56	100%	1344	1261	387	459	458	118%
DNCC	56	56	100%	1344	1317	387	533	531	137%

4.2 Demography

4.2.1 Household and Family Composition

Under this survey, the average household size was 3.8 members in DSCC and 4.0 in DNCC Slums. The percentage of U5 children was 10.3% in DSCC and 11.0% in DNCC, which is slightly above the ICDDR'B baseline estimates[15] [9.2%].

Table 17: Household and family composition, SMART survey, DSCC and DNCC Slum, May-June 2022

Category/Indicator	DSCC Slum		DNCC Slum	
	Value	Proportion/Mean out of 1261 HH	Value	Proportion/Mean out of 1317 HH
Total Population [current HH members]	4,824	-	5,222	-
Average Household Size	NA	3.8	NA	4.0
% of Male members	2353	48.8%	2559	49.0%
% of Female members	2471	51.2%	2663	51.0%
% of Children 0 to 5 months	37	0.8%	43	0.8%
% of Children 6 to 23 months	176	3.6%	202	3.9%
% of Children 24 to 59 months	283	5.9%	331	6.3%
Children 0-5 years	**497**	**10.3%**	**577**	**11.0%**
Children 5-10 years	637	13.2%	605	11.6%
Children 11-17 years	663	13.7%	750	14.4%
Adult 18-59 years	2717	56.3%	3044	45.3%
Adult 60+ years	310	6.4%	246	4.7%
Pregnant and Lactating Women	**272**	**5.6%**	**308**	**5.9%**
Pregnant women	**66**	1.4%	69	1.3%
Lactating women with children 0-5 months	36	0.7%	44	0.8.%
Lactating women with children 6-23 months	**170**	3.5%	195	3.7%

[15] Baseline Population and Socioeconomic Census Slums of Dhaka (North and South) and Gazipur City Corporations, 2015-16

4.2.2 Age and Sex Distribution in Children 6-59 months

The overall sex distribution [ratio of boys/girl: 0.9 for DSCC and 0.9 for DNCC] of the sampled children has shown equal representation with no significant difference [P= 0.575 for DSCC, P=0.544 for DNCC] of boys and girls ratio. In both locations, younger are significantly higher. P value is less than <0.05 in both location. Possible reasons were: 1) Families living in urban slums have tendency to keep their older kids in grandmother's house since parents work outside. 2) During last 2 years, there might have more child birth since husband stay in home due to COVID-19 restriction.

Table 18: Age and sex ratio, SMART survey, DSCC and DNCC Slums, May-June 2022

	DSCC Slum							DNCC Slum						
	Boys		Girls		Total		Ratio	Boys		Girls		Total		Ratio
AGE	no.	%	no.	%	no.	%	Boy: Girl	no.	%	no.	%	no.	%	Boy: Girl
6-17	57	54.3	48	45.7	105	22.9	1.2	56	41.5	79	58.5	135	25.4	0.7
18-29	56	43.8	72	56.3	128	27.9	0.8	61	44.5	76	55.5	137	25.8	0.8
30-41	47	53.4	41	46.6	88	19.2	1.1	63	52.5	57	47.5	120	22.6	1.1
42-53	46	46.0	54	54.0	100	21.8	0.9	55	59.1	38	40.9	93	17.5	1.4
54-59	17	45.9	20	54.1	37	8.1	0.9	24	51.1	23	48.9	47	8.8	1.0
Total	223	48.7	235	51.3	458	100.0	0.9	259	48.7	273	51.3	532	100.0	0.9

4.3 Overall Data Quality

The SD value for WHZ, HAZ and WAZ fall within the accepted range of 0.80 and 1.20, indicating an adequate distribution of data around the mean and data of acceptable quality. The overall WHZ analysis included 458 children for DSCC and 531 children for DNCC survey. The standard deviation [SD], design effect, missing values, and flagged values are listed for WHZ, HAZ, and WAZ in Table 18 below.

Table 19: Mean z-scores, Standard Deviation, Design Effects, Missing and Flagged Values for Z-scores, SMART survey, DSCC and DNCC Slums, May-June 2022

Indicator	N	Mean z-scores ± SD	Design Effect [z-score < -2]	z-scores not available*	Excluded z-scores [SMART flags]	Excluded z-scores % [SMART flags]
DSCC Slum						
Weight-for-Height	456	-1.10±0.96	1.28	0	2	456
Weight-for-Age	455	-1.64±0.96	1.12	0	3	455
Height-for-Age	457	-1.60±1.03	1.29	0	1	457
DNCC Slum						
Weight-for-Height	531	-1.00±0.94	1.05	1*	0	531
Weight-for-Age	531	-1.48±0.94	1.23	0	1	531
Height-for-Age	528	-1.41±0.97	1.00	1*	3	528

*Height was not taken due to child disability that led the missing of height-based Z-scores [WHZ and HAZ]

The overall percentage of flagged data was well below the SMART Methodology recommendation of less than 5.0% and considered of "excellent" quality by the ENA Plausibility Check, as demonstrated in Table below. The overall data quality for both Slums was "Excellent" as per the SMART plausibility criteria. The complete ENA Plausibility Check report is presented in **Annex 2.**

Table 20: Overall data quality from plausibility check, SMART survey, DSCC and DNCC Slum May-June 2022

	Criteria	Desired	DSCC Slum		DNCC Slum	
			Observed Score	Category	Observed Score	Category
Anthropometry Data Quality as per Plausibility Check	SD WHZ	0.8-1.2	0.96	Good	0.94	Excellent
	Flagged	<5.0%	0.4%	Excellent	0.0%	Excellent
	Sex-ratio	[p>0.05]	p=0.575	Excellent	p=0.573	Excellent
	Age-ratio	[p>0.05]	**p=0.034**	Acceptable	**p=0.015**	Acceptable
	Digit Pref. Weight	< 13	6	Excellent	2	Excellent
	Digit Pref. Height	< 13	4	Excellent	3	Excellent
	Digit Pref. MUAC	< 13	2	Excellent	1	Excellent
	Skewness	< ± 0.6	0.18	Excellent	0.94	Excellent
	Kurtosis	< ± 0.6	-0.14	Excellent	0.0	Excellent
	Poisson Distr.	[p> 0.01]	p=0.04	Excellent	p=0.455	Excellent
	Overall Score	< 15%	5.0%	Excellent	4.0%	Excellent
Food Security	Criteria for FEIS	Desired	DSCC Slum		DNCC Slum	
			Observed from survey	Interpretation	Observed from survey	Interpretation
	Rasch reliability	>0.7	0.81	Acceptable	0.77	Acceptable

4.4 Malnutrition

4.4.1 Prevalence of Acute Malnutrition based on WHZ:

The prevalence of acute malnutrition by WHZ was based on the analysis of 456 children in DSCC and 531 children in DNCC Slum [excluding outliers]. There were no identified cases of Oedema in two Slums.

As seen in table below, the overall GAM prevalence by WHZ among children 6-59 months in DSCC Slum was 18.4% [14.7 – 22.9 95% C.I.] and in DNCC Slum was 12.8% [10.1 - 16.1 95% C.I.]. The overall acute malnutrition situation in DSCC was in the **"Very High or Critical"** category and in DNCC was in the **"High or Serious"** category according to WHO/UNICEF Emergency thresholds[16]. The overall SAM prevalence in DSCC Slum was found to be 1.5 % [0.8 - 3.1 95% C.I.] and in DNCC was 2.3% [1.4 - 3.7 95% C.I.]. Global Acute Malnutrition (GAM) prevalence based on WHZ among children 6-59 months found higher in DSCC slums than in DNCC slums with significant difference [p=0.027] was observed.

Table 21: Prevalence of Acute Malnutrition disaggregated by Slums, based on WHZ and /or Oedema, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum n = 456	DNCC Slum n = 531	P-value [DSCC vs DNCC]
Global acute malnutrition [WHZ<-2 SD and/or oedema]	(84) 18.4 % (14.7 - 22.9 95% C.I.)	(68) 12.8 % (10.1 - 16.1 95% C.I.)	0.027
Moderate acute malnutrition [WHZ<-2 SD and >=-3 SD, no oedema]	(77) 16.9 % (13.5 - 21.0 95% C.I.)	(56) 10.5 % (8.4 - 13.2 95% C.I.)	0.004
Severe acute malnutrition [WHZ<-3 SD and/or oedema]	(7) 1.5 % (0.8 - 3.1 95% C.I.)	(12) 2.3 % (1.4 - 3.7 95% C.I.)	0.279

[16] WHO/UNICEF Cut Off Points using Z-Score (-2 Z scores in populations: <2.5% - Very low; 2.5-<5% - Low; 5-<10% - Medium; 10-<15% - High; ≥15% - Very High)

Table 22: Prevalence of Acute Malnutrition disaggregated by sex, based on WHZ and /or Oedema, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [Boys vs Girls]
	Boys n = 222	Girls n = 234	Boys n = 259	Girls n = 272	
Global acute malnutrition [WHZ<-2 SD and/or oedema]	(44) 19.8 % (14.5 - 26.5 95% C.I.)	(40) 17.1 % (12.7 - 22.7 95% C.I.)	(36) 13.9 % (10.2 - 18.7 95% C.I.)	(32) 11.8 % (8.3 - 16.3 95% C.I.)	DSCC: 0.487 DNCC: 0.474
Moderate acute malnutrition [WHZ<-2 SD and >=-3 SD, no oedema]	(39) 17.6 % (12.9 - 23.4 95% C.I.)	(38) 16.2 % (12.1 - 21.5 95% C.I.)	(26) 10.0 % (6.9 - 14.3 95% C.I.)	(30) 11.0 % (7.8 - 15.3 95% C.I.)	DSCC:0.691 DNCC: 0.701
Severe acute malnutrition [WHZ<-3 SD and/or oedema]	(5) 2.3 % (1.0 - 5.2 95% C.I.)	(2) 0.9 % (0.2 - 3.4 95% C.I.)	(10) 3.9 % (2.2 - 6.8 95% C.I.)	(2) 0.7 % (0.2 - 2.9 95% C.I.)	DSCC: 0.231 DNCC: 0.008

Further gender-based analysis indicated that the prevalence of global acute malnutrition by WHZ and/or Oedema was relatively higher among boys in both locations, but the differences were not statistically significant [P>0.05].

Table 23: Prevalence of acute malnutrition disaggregated by age group, based on WHZ and/or edema, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [6-23 vs 24-59]
	Younger [6-23 months] n = 161	Older [24-59 months] n = 275	Younger [6-23 months] n = 134	Older [24-59 months] n = 291	
Prevalence of global acute malnutrition [WHZ<-2 SD and/or oedema]	(27) 15.5 % (10.8 - 21.7 95% C.I.)	(57) 20.2 % (15.3 - 26.2 95% C.I.)	(26) 12.9 % (15.3 - 26.2 95% C.I.)	(42) 12.8 % (9.5 - 16.9 95% C.I.)	DSCC:0.223 DNCC: 0.973
Prevalence of moderate acute malnutrition [WHZ<-2 SD and >=-3 SD, no oedema]	(23) 13.2 % (9.0 - 18.9 95% C.I.)	(54) 19.1 % (14.7 - 24.6 95% C.I.)	(21) 10.4 % (7.1 - 14.9 95% C.I.)	(35) 10.6 % (7.8 - 14.3 95% C.I.)	DSCC: 0.091 DNCC: 0.937
Prevalence of severe acute malnutrition [WHZ<-3 SD and/or oedema]	(4) 2.3 % (0.9 - 6.0 95% C.I.)	(3) 1.1 % (0.3 - 3.2 95% C.I.)	(5) 2.5 % (1.0 - 5.9 95% C.I.)	(7) 2.1 % (1.0 - 4.3 95% C.I.)	DSCC: 0.351 DNCC: 0.771

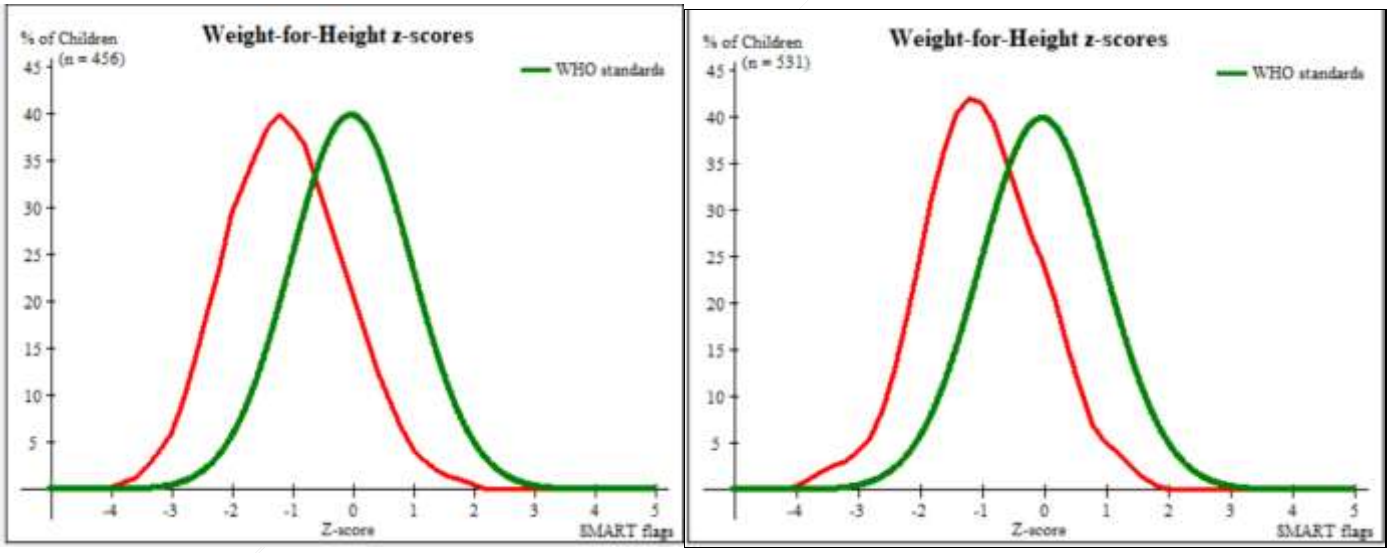
When comparing the prevalence of acute malnutrition in younger children [6-23 months] vs older children [24-59 months]; in DSCC older children had higher prevalence of GAM [20.2%], while in DNCC younger children had prevalence of GAM 12.9% which was almost similar [12.8%] in older children. However, no significant differences observed in GAM and SAM prevalence [p>0.05] between younger and older children in two Slums.

Table 24: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or edema, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

	DSCC Slum									DNCC Slum								
Age groups	Sample	Severe wasting		Moderate wasting		Normal		Oedema		Sample	Severe wasting		Moderate wasting		Normal		Oedema	
Age [mo.]	Total no.	No.	%	No.	%	No.	%	No.	%	Total no.	No.	%	No	%	No.	%	No.	%
6-17	103	3	2.9	14	13.6	86	83.5	0	0	135	2	1.5	12	8.9	121	89.6	0	0
18-29	128	1	0.8	17	13.3	110	85.9	0	0	137	4	2.9	17	12.4	116	84.7	0	0
30-41	88	0	0.	18	25	70	79.5	0	0	119	3	2.5	12	10.1	104	87.4	0	0
42-53	100	1	1.0	20	20.0	79	79.0	0	0	93	3	3.2	7	7.5	83	89.2	0	0
54-59	37	2	5.4	8	21.6	27	73.0	0	0	47	0	0.0	8	17.0	39	83.0	0	0
Total	456	7	1.5	77	16.9	372	81.6	0	0	531	12	2.3	56	10.5	463	87.2	0	0

When data was further disaggregated by age group, the prevalence of SAM and MAM was highest among the age group of 54-59 months [5.4% and 21.6%] respectively in DSCC Slum. Though, the highest SAM and MAM prevalence was observed among the age group of 42-53 months [3.2%] and age group of 54-59 [17. 0%] months in DNCC Slum.

Figure 3: The distribution of WHZ sample curve [red] compared to the WHO 2006 WHZ reference curve [green]



DSCC Slum **DNCC Slum**

The sampled population Gaussian curve [red curve] shows a shift to the left [with mean WHZ of -1.10 in DSCC and -1.00 in DNCC] of the reference curve [green curve] representing the WHO standards. This is an indication of poor nutritional status. The overall standard deviation [SD] for WHZ [DNCC-0.96, DNCC—0.94] falls within the acceptable range of 0.8-1.2.

4.4.2 Prevalence of Acute Malnutrition based on MUAC

Using MUAC as an indicator for acute malnutrition, the prevalence of GAM was 2.0% [1.1 - 3.6 95% C.I.] in DSCC and in DNCC, 2.8% [1.7 - 4.7 95% C.I.] with no significant difference. There were no SAM cases found in DNCC Slum, while in DSCC Slum the SAM prevalence was 0.7 % [0.2 - 2.0 95% C.I.].

Table 25: Prevalence of acute malnutrition by Slums, based on MUAC cut offs [and/or oedema], SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum n = 458	DNCC Slum n = 532	P-value [DSCC vs DNCC]
Prevalence of global acute malnutrition [<125 mm and/or oedema]	(9) 2.0 % (1.1 - 3.6 95% C.I.)	(15) 2.8 % (1.7 - 4.7 95% C.I.)	0.383
Prevalence of moderate acute malnutrition [< 125 mm and >=115 mm, no oedema]	(6) 1.3 % (0.6 - 2.8 95% C.I.)	(15) 2.8 % (1.7 - 4.7 95% C.I.)	0.082
Prevalence of severe acute malnutrition [<115 mm and/or oedema]	(3) 0.7 % (0.2 - 2.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	0.111

Table 26: Prevalence of acute malnutrition based on MUAC cut offs [and/or oedema] and by sex, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [Boys vs Girls]
	Boys n = 223	Girls n = 235	Boys n = 259	Girls n = 273	
Prevalence of global acute malnutrition [<125 mm and/or oedema]	(3) 1.3 % (0.4 - 4.0 95% C.I.)	(6) 2.6 % (1.2 - 5.4 95% C.I.)	(5) 1.9 % (0.8 - 4.5 95% C.I.)	(10) 3.7 % (1.9 - 6.8 95% C.I.)	DSCC: 0.302 DNCC: 0.222
Prevalence of moderate acute malnutrition [< 125 mm and >=115 mm, no oedema]	(2) 0.9 % (0.2 - 3.5 95% C.I.)	(4) 1.7 % (0.7 - 4.4 95% C.I.)	(5) 1.9 % (0.8 - 4.5 95% C.I.)	(10) 3.7 % (1.9 - 6.8 95% C.I.)	DSCC: 0.428 DNCC: 0.222
Prevalence of severe acute malnutrition [<115 mm and/or oedema]	(1) 0.4 % (0.1 - 3.3 95% C.I.)	(2) 0.9 % (0.2 - 3.4 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	0) 0.0 % (0.0 - 0.0 95% C.I.)	DSCC: 0.493 DNCC: N/A

Further analysis disaggregated by sex reveals that the prevalence of global acute malnutrition by MUAC was comparatively higher among girls compared to boys in DSCC Slum [1.3% vs 2.6%] and same for DNCC Slum [1.9% vs 3.7%] but the difference was not statistically significant [p=0.302 for DSCC, p=0.222 for DNCC].

Table 27: Prevalence of acute malnutrition disaggregated by age group, based on MUAC cut offs [and/or oedema], SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [6-23 vs 24-59]
	Younger [6-23 months] n = 176	Older [24-59 months] n = 282	Younger [6-23 months] n = 202	Older [24-59 months] n = 330	
Prevalence of global acute malnutrition [<125 mm and/or oedema]	(7) 4.0 % (2.0 - 7.7 95% C.I.)	(2) 0.7 % (0.2 - 2.8 95% C.I.)	(14) 6.9 % (4.0 - 11.6 95% C.I.)	[1] 0.3 % [0.0 - 2.2 95% C.I.]	DSCC: 0.023 DNCC: 0.000
Prevalence of moderate acute malnutrition [< 125 mm and >=115 mm, no oedema]	(4) 2.3 % (0.9 - 5.9 95% C.I.)	(2) 0.7 % (0.2 - 2.8 95% C.I.)	(14) 6.9 % (4.0 - 11.6 95% C.I.)	[1] 0.3 % [0.0 - 2.5 95% C.I.]	DSCC: 0.168 DNCC: 0.000

Indicators	DSCC Slum		DNCC Slum		P-value [6-23 vs 24-59]
	Younger [6-23 months] n = 176	Older [24-59 months] n = 282	Younger [6-23 months] n = 202	Older [24-59 months] n = 330	
Prevalence of severe acute malnutrition [<115 mm and/or oedema]	(3) 1.7 % (0.6 - 5.0 95% C.I.)	(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.]	DSCC:0.055 DNCC: N/A

When comparing acute malnutrition by MUAC for younger [6-23 months] vs older [24-59 months] children; younger children had significantly higher GAM prevalence in DSCC Slums [4.0% vs 0.7%, p=0.023] and statistically significant higher prevalence among younger children in DNCC Slum [6.9% vs 0.3%, p=<0.05].

Table 28: Prevalence of acute malnutrition by age groups, based on MUAC cut offs [and/or oedema], SMART survey, DSCC Slum and DNCC Slum, May-June 2022

	DSCC Slum									DNCC Slum								
Age groups	Sample	Severe wasting		Moderate wasting		Normal		Oedema		Sample	Severe wasting		Moderate wasting		Normal		Oedema	
month	Total no.	No.	%	No.	%	No.	%	No.	%	Total no.	No.	%	No.	%	No	%	No.	%
6-17	105	3	2.9	3	2.9	99	94.3	0	0	135	0	0	9	6.7	126	93.3	0	0
18-29	128	0	0.0	2	1.6	126	98.4	0	0	137	0	0	5	3.6	132	96.4	0	0
30-41	88	0	0.0	1	1.1	87	98.9	0	0	120	0	0	1	0.8	119	99.2	0	0
42-53	100	0	0.0	0	0.0	100	100.0	0	0	93	0	0	0	0.0	93	100.0	0	0
54-59	37	0	0.0	0	0.0	37	100.0	0	0	47	0	0	0	0.0	47	100.0	0	0
Total	458	3	0.7	6	1.3	449	98.0	0	0	532	0	0	15	2.8	517	97.2	0	0

The prevalence of acute malnutrition per MUAC as disaggregated by age group as presented in above Table demonstrates that all children who were identified as SAM and MAM were in the age group of 6-17 months [2.9% and 2.9%] respectively in DSCC Slum. While their highest MAM prevalence was found among the same age group of 6-17 months [6.7%] and no SAM case was found in DNCC Slum.

4.4.3 Prevalence of Acute Malnutrition by Combined GAM and Combined SAM [WHZ and/or MUAC and/or Oedema]

Combined GAM [cGAM] is an aggregated indicator for acute malnutrition that provides overall prevalence of acute malnutrition based on WHZ and/or MUAC and/or Oedema altogether.

Table 29: Prevalence of combined GAM and SAM by Slums, based on WHZ and MUAC cut off's [and/or oedema] *, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum n = 458	DNCC Slum n = 532	P-value [DSCC vs DNCC]
Prevalence of combined GAM [WHZ <-2 SD and/or MUAC < 125 mm and/or oedema]	(86) 18.8 % (15.1 - 23.1 95% C.I.)	(73) 13.7 % (10.9 - 17.1 95% C.I.)	0.046
Combined Moderate Acute Malnutrition [cMAM- WHZ and/or MUAC and /or oedema]**	(77) 16.8%	(61) 11.4%	NA
Prevalence of combined SAM [WHZ < -3 SD and/or MUAC < 115 mm and/or oedema	(9) 2.0 % (1.1 - 3.6 95% C.I.)	(12) 2.3 % (1.4 - 3.7 95% C.I.)	0.715

*With SMART or WHO flags a missing MUAC/WHZ or not plausible WHZ value is considered as normal when the other value is available.
**Based on manual calculation since Emergency nutrition Assessment (ENA) software only provides point prevalence including confidence internal for combined GAM and combined SAM.

When data were combined for both WHZ and MUAC and Oedema, 18.8% [15.1 - 23.1 95% C.I.] cGAM rate is derived in DSCC and 13.7% [10.9 - 17.1 95% C.I.] in DNCC Slum with a combined SAM rate of 2.0% [1.1 – 3.6 95% C.I] and 2.3% [1.4 - 3.7 95% C.I.] respectively. There was statistically significant difference of cGAM [P=0.046]. However, in cSAM there was no significant difference [P=0.715] between the two Slums.

Table 30: Prevalence of combined GAM and SAM by sex, based on WHZ and MUAC cut off's [and/or oedema]*, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [Boys vs Girls]
	Boys n = 223	Girls n = 235	Boys n = 205	Girls n = 221	
Prevalence of combined GAM [WHZ <-2 SD and/or MUAC < 125 mm and/or oedema]	(45) 20.2 % (14.8 - 26.9 95% C.I.)	(41) 17.4 % (13.0 - 23.0 95% C.I.)	(37) 14.3 % (10.6 - 19.0 95% C.I.)	(36) 13.2 % (9.5 - 18.0 95% C.I.)	DSCC: 0.475 DNCC: 0.712
Prevalence of combined SAM [WHZ < -3 SD and/or MUAC < 115 mm and/or oedema	(6) 2.7 % (0.4 - 4.0 95% C.I.)	(3) 1.3 % (0.4 - 3.9 95% C.I.)	(10) 3.9 % (2.2 - 6.8 95% C.I.)	(2) 0.7 % (0.2 - 2.9 95% C.I.)	DSCC: 0.261 DNCC: 0.008

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

Further disaggregated analysis by sex demonstrates that boys were found with slightly higher cGAM than girls [20.2% vs 17.4% for DSCC; 14.3% vs 13.2% for DNCC] and same for cSAM [2.7% vs 1.3% for DSCC; 3.9% vs 0.7% for DNCC]. There was no statistically significant cGAM prevalence differences found between boys and girls in DSCC and DNCC Slum.

Table 31: Prevalence of combined GAM and SAM disaggregated by age group, based on WHZ and MUAC cut off's [and/or oedema]*, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [6-23 vs 24-59]
	Younger [6-23 months] n = 176	Older [24-59 months] n = 282	Younger [6-23 months] n = 202	Older [24-59 months] n = 330	
Prevalence of combined GAM [WHZ <-2 SD and/or MUAC < 125 mm and/or oedema]	(29) 16.5 % (11.9 - 22.3 95% C.I.)	(57) 20.2 % [7.6 - 15.3 95% C.I.]	[31] 15.3% (11.3 – 20.5 95% C.I.)	(42) 12.7 % (9.5-16.9 95% C.I.)	DSCC: 0.328 DNCC: 0.370
Prevalence of combined SAM [WHZ < -3 SD and/or MUAC < 115 mm and/or oedema	(6) 3.4 % (1.6 - 7.2 95% C.I.)	[1] 0.4 % [0.0 - 2.7 95% C.I.]	(5) 2.5% (1.0-5.9 95% C.I.)	(7) 2.1 % (1.0 – 4. 95% C.I.)	DSCC: 0.116 DNCC: 0.771

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

Further disaggregated analysis by younger vs older indicates that older children [24-59 months] had slightly higher cGAM prevalence [16.5% vs 20.2%, P=0.328] in DSCC Slum. Vice versa in DNCC, younger children [6-23 months] had higher with prevalence of [15.3% vs 12.7%, P=0.370]. However, cSAM prevalence [3.4% and 2.5%] found comparatively higher among younger children in both Slums.

The distribution of total GAM cases by WHZ and MUAC is illustrated in the figure 4 below.

Figure 4: Distribution of total GAM cases by WHZ and MUAC criteria, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

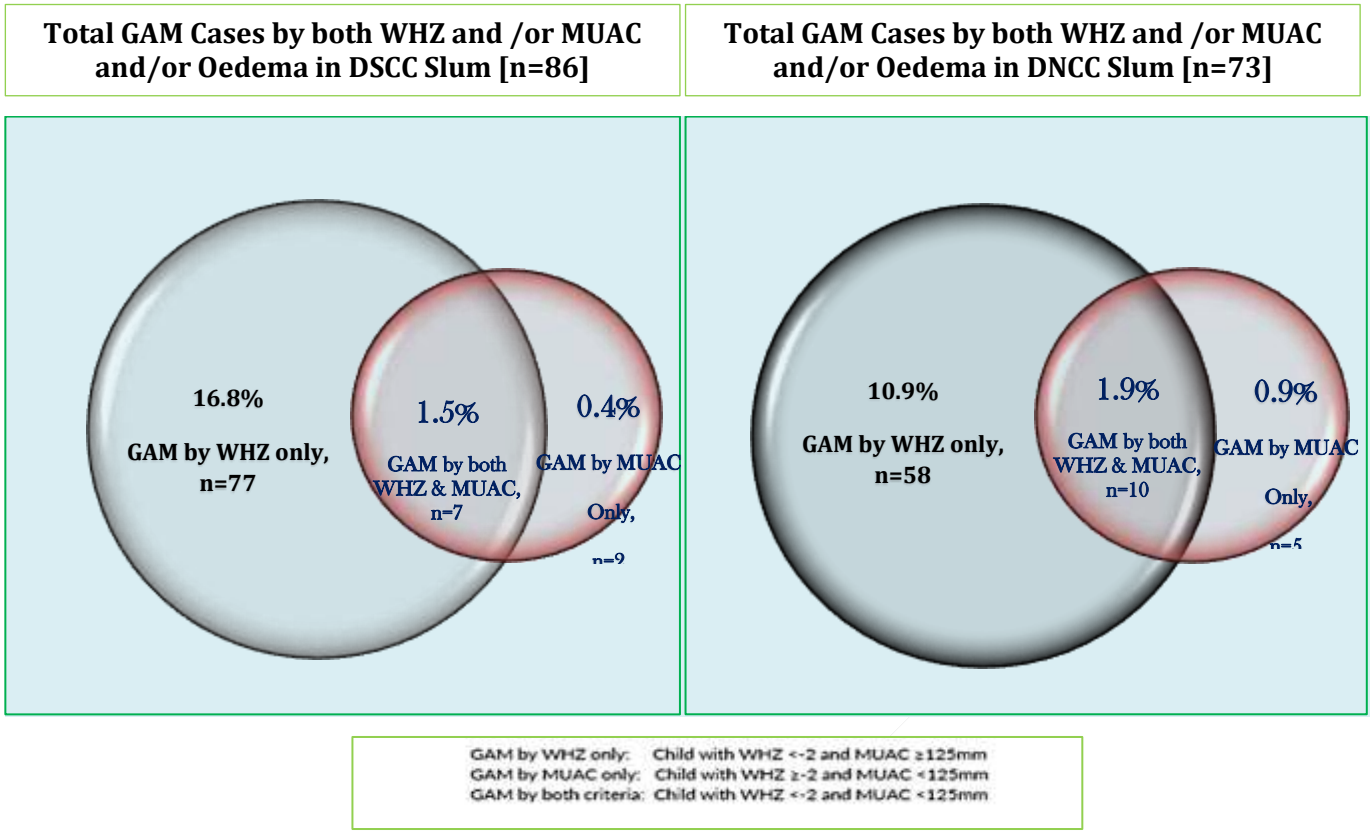


**Figure not to scale. Children with either WHZ or MUAC values included in the analysis.*

The prevalence of acute malnutrition among children 6-59 months was notably different as identified by WHZ and MUAC in DSCC [16.8% vs 0.4%] and DNCC [10.9% vs 0.9%] Slums, meaning majority of children were identified as acutely malnourished by WHZ alone than MUAC.

Based on above Figure 4, the concordance between WHZ and MUAC was very poor in both Slums. Among the total cases of acute malnutrition [DSCC= 86, DNCC=73], only 1.5% and 1.9% GAM cases were identified by both WHZ and MUAC criteria in DSCC and DNCC Slums respectively. However, most of the children [89.5% in DSCC and 79.5% in DNCC] were acutely malnourished by WHZ only criteria [n=77 for DSCC and n=58 for DNCC] whereas only few children [2.3% in DSCC and 6.8% in DNCC] were acutely malnourished by MUAC only criteria [n=2 for DSCC and n=5 for DNCC] Slums.

This also indicates that using only MUAC indicator results in an estimated of 97.7% acutely malnourished children in DSCC and 93.2% in DNCC being undiagnosed or undetected. Therefore, it is important to use both indicators for the diagnosis, treatment, and follow-up of acute malnutrition among children to ensure no wasted child is left behind out of treatment; this is especially of importance where concordance between WHZ and MUAC is poor. Additionally, the Bangladesh national CMAM guideline for outpatient SAM and MAM has the provision of MUAC-only admission and treatment of children with acute malnutrition without medical complications. Hence, it's also important to keep the provision of both WHZ and MUAC in the outpatient CMAM guideline for children under 5 years of age.

4.4.4 Prevalence of Underweight by WAZ

The underweight prevalence by WAZ among children 6-59 months was found 37.4% [32.7 - 42.3 95% C.I.] in DSCC Slum as per WHO classifcation categorized as "Critical "and 29.2% [25.0 - 33.8 95% C.I.] in DNCC categorized as 'High', as presented in table below[17]. There is significant difference in overall underweight prevalence between two Slums [p=0.013]

[17] WHO Classification of Underweight: Low - <10%, Medium – 10 – 19.9%, High – 20 – 29.9%, Alarming/Critical - >30%

Table 32: Prevalence of based on WAZ by Slums, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum n = 455	DNCC Slum n = 531	P-value [DSCC vs DNCC]
Global underweight [WAZ <-2 SD]	(170) 37.4 % (32.7 - 42.3 95% C.I.)	(155) 29.2 % (25.0 - 33.8 95% C.I.)	0.013
Moderate underweight [WAZ <-2SD and >=-3 SD]	(131) 28.8 % (24.6 - 33.4 95% C.I.)	(132) 24.9 % (21.0 - 29.2 95% C.I.)	0.0198
Severe underweight [WAZ <-3 SD]	(39) 8.6 % (6.3 - 11.5 95% C.I.)	(23) 4.3 % (2.9 - 6.4 95% C.I.)	0.007

Table 33: Prevalence of underweight based on WAZ by sex, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Sum		P-value [Boys vs Girls]
	Boys n = 223	Girls n = 235	Boys n = 259	Girls n = 272	
Global underweight [WAZ<-2 SD]	(87) 39.4 % (32.5 - 46.6 95% C.I.)	(83) 35.5 % (29.3 - 42.2 95% C.I.)	(79) 30.5 % (25.0 - 36.6 95% C.I.)	(76) 27.9 % (22.1 - 34.6 95% C.I.)	DSCC: 0.421 DNCC: 0.543
Moderate underweight [WAZ<-2SD and >=-3 SD]	(70) 31.7 % (25.6 - 38.4 95% C.I.)	(61) 26.1 % (21.0 - 31.9 95% C.I.)	(70) 27.0 % (21.4 - 33.5 95% C.I.)	(62) 22.8 % (17.4 - 29.3 95% C.I.)	DSCC: 0.183 DNCC: 0.323
Severe underweight [WAZ<-3 SD]	(17) 7.7 % (4.9 - 11.9 95% C.I.)	(22) 9.4 % (6.2 - 14.1 95% C.I.)	(9) 3.5 % (1.9 - 6.4 95% C.I.)	(14) 5.1 % (3.2 - 8.3 95% C.I.)	DSCC: 0.509 DNCC: 0.313

Further sex based disaggregated analysis found no statistically significant differences [p >0.05] between boys and girls for global, moderate, and severe underweight although it was comparatively more prevalent among boys.

Table 34: Prevalence of underweight based on WAZ by age group, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [6-23 vs 24-59]
	Younger [6-23m] n = 174	Older [24-59m] n = 281	Younger [6-23 months] n = 201	Older [24-59 months] n = 330	
Global underweight [WAZ<-2 SD]	(53) 30.5 % (24.1 - 37.7 95% C.I.)	(117) 41.6 % (35.9 - 47.6 95% C.I.)	(55) 27.4 % (21.5 - 34.1 95% C.I.)	(100) 30.3 % (24.9 - 36.3 95% C.I.)	DSCC: 0.015 DNCC: 0.499
Moderate underweight [WAZ<-2SD and >=-3 SD]	(44) 25.3 % (19.3 - 32.3 95% C.I.)	(87) 31.0 % (25.8 - 36.7 95% C.I.)	(47) 23.4 % (18.2 - 29.6 95% C.I.)	(85) 25.8 % (20.8 - 31.4 95% C.I.)	DSCC: 0.185 DNCC: 0.540
Severe underweight [WAZ<-3 SD]	(9) 5.2 % (2.6 - 10.2 95% C.I.)	(30) 10.7 % (7.5 - 15.0 95% C.I.)	(8) 4.0 % (2.0 - 7.7 95% C.I.)	(15) 4.5 % (2.6 - 7.8 95% C.I.)	DSCC: 0.035 DNCC: 0.785

When comparing the prevalence of underweight for younger children [6-23 months] vs older children [24-59 months]; older children had significantly higher prevalence of global [30.5% vs 41.6%, P=0.015], with no significant difference for moderate underweight [25.3% vs 31.0%; P=0.185] and with significant difference for severe underweight [5.2% vs 10.7%, P=0.035] in DSCC Slum. Likewise, the underweight prevalence was found higher

among older children for global [27.4% vs 30.3%, P=0.499] and moderate [23.4% vs 25.8%, P=0.540] and for severe underweight [4.0% vs 4.5%, P=0.785] with no significant difference observed between younger and older children for underweight in DNCC Slum.

Table 35: Prevalence of underweight based on WAZ by age group, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

	DSCC Slum							DNCC Slum						
Age groups	Sample	Severe underweight		Moderate underweight		Normal		Sample	Severe underweight		Moderate underweight		Normal	
Age [mo]	Total no.	No.	%	No.	%	No.	%	Total no.	No.	%	No.	%	No.	%
6-17	103	4	3.9	21	20.4	103	4	134	3	2.2	23	17.2	108	80.6
18-29	127	13	10.2	41	32.3	127	13	137	8	5.8	38	27.7	91	66.4
30-41	88	10	11.4	21	23.9	88	10	120	6	5.0	33	27.5	81	67.5
42-53	100	8	8.0	38	38.0	100	8	93	5	5.4	22	23.7	66	71.0
54-59	37	4	10.8	10	27.0	37	4	47	1	2.1	16	34.0	30	63.8
Total	455	39	8.6	131	28.8	455	39	531	23	4.3	132	24.9	376	70.8

When data was further disaggregated by age group, both severe and moderate underweight prevalence was highest among the same age group of 30-41 months [11.4%] and 42-53 months [38.0%] respectively] in DSCC Slum. However, the severe and moderate underweight prevalence was highest among the age groups 18-29 months [5.8%] and 54-59 months [34.0%] respectively in DNCC Slum.

4.4.5 Prevalence of Chronic Malnutrition/ Stunting by HAZ

The prevalence of global chronic malnutrition or Stunting per HAZ among children 6-59 months was found 35.9% [31.0 - 41.1 95% C.I.] in DSCC and 25.6% [22.0 - 29.5 95% C.I.] in DNCC Slum that are considered 'very High" and 'High' respectively as per WHO/UNICEF latest classification[18]. The severe stunting prevalence was found 7.9% [5.7 - 10.7 95% C.I.] in DSCC and 5.3% [3.7 - 7.6 95% C.I.] in DNCC. There is significant difference observed in global [35.9% vs 25.6%, P=0.001] and moderate [28.0% vs 20.3%, P=0.009] prevalence of stunting among two slums. However, there was no significant difference observed among severe stunting prevalence between the two slums [P>0.05].

Table 36: Prevalence of Stunting based on HAZ, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum n = 457	DNCC Slum n = 528	P-value [DSCC vs DNCC]
Prevalence of stunting [HAZ<-2 SD]	(164) 35.9 % (31.0 - 41.1 95% C.I.)	(135) 25.6 % (22.0 - 29.5 95% C.I.)	0.001
Prevalence of moderate stunting [HAZ <-2 SD and >=-3 SD]	(128) 28.0 % (23.7 - 32.7 95% C.I.)	(107) 20.3 % (16.9 - 24.0 95% C.I.)	0.009
Prevalence of severe stunting [HAZ<-3 SD]	(36) 7.9 % (5.7 - 10.7 95% C.I.)	(28) 5.3 % (3.7 - 7.6 95% C.I.)	0.103

[18] WHO/UNICEF Cut Off Points for stunting using Z-Score (-2 Z scores in populations: <2.5% - Very low; 2.5-<10% - Low; 10-<20% - Medium; 20-<30% - High; ≥30% - Very High)

Table 37: Prevalence of stunting based on HAZ by sex, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [Boys vs Girls]
	Boys n = 222	Girls n = 235	Boys n = 258	Girls n = 270	
Prevalence of stunting [HAZ<-2 SD]	(93) 41.9 % (35.4 - 48.7 95% C.I.)	(71) 30.2 % (24.3 - 36.9 95% C.I.)	(67) 26.0 % (21.1 - 31.5 95% C.I.)	(68) 25.2 % (20.4 - 30.6 95% C.I.)	DSCC=0.012 DNCC: 0.828
Prevalence of moderate stunting [HAZ <-2 SD and >=-3 SD]	(74) 33.3 % (27.6 - 39.6 95% C.I.)	(54) 23.0 % (17.9 - 29.0 95% C.I.)	(54) 20.9 % (16.2 - 26.6 95% C.I.)	(53) 19.6 % (15.7 - 24.3 95% C.I.)	DSCC: 0.013 DNCC: 0.697
Prevalence of severe stunting [HAZ<-3 SD]	(19) 8.6 % (5.6 - 12.9 95% C.I.)	(17) 7.2 % (4.7 - 11.0 95% C.I.)	(13) 5.0 % (3.0 - 8.3 95% C.I.)	(15) 5.6 % (3.2 - 9.6 95% C.I.)	DSCC: 0.554 DNCC: 0.764

As seen in above table, the prevalence of chronic malnutrition was relatively higher among boys compared to girls for global [41.9% vs 30.2%] and moderate stunting [33.3% vs 23.0%] and for severe stunting [8.6% vs 7.2%] in DSCC Slum. There is significant difference of in global and moderate stunting prevalence in DSCC Slum. Similarly, in DNCC Slum the stunting prevalence was found higher among boys for global [26.0% vs 25.2%], moderate [20.9% vs 19.6%] and vice versa for severe stunting [5.0% vs 5.6%]. However, the differences of stunting rates between boys and girls were not statistically significant [P>0.05] in DNCC Slum.

Table 38: Prevalence of stunting based on HAZ by age group, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum		DNCC Slum		P-value [6-23 vs 24-59]
	Younger [6-23 months] n = 175	Older [24-59 months] n = 282	Younger [6-23 months] n = 131	Older [24-59 months] n = 291	
Prevalence of stunting [HAZ<-2 SD]	(56) 32.0 % (25.5 - 39.3 95% C.I.)	(108) 38.3 % (32.1 - 44.9 95% C.I.)	(49) 24.6 % (18.6 - 31.9 95% C.I.)	(86) 26.1 % (21.9 - 30.9 95% C.I.)	DSCC: 0.185 DNCC: 0.707
Prevalence of moderate stunting [HAZ <-2 SD and >=-3 SD]	(42) 24.0 % (18.6 - 30.4 95% C.I.)	(86) 30.5 % (24.9 - 36.7 95% C.I.)	(36) 18.1 % (13.1 - 24.5 95% C.I.)	(71) 21.6 % (17.5 - 26.3 95% C.I.)	DSCC: 0.123 DNCC: 0.332
Prevalence of severe stunting [HAZ<-3 SD]	(14) 8.0 % (4.9 - 12.9 95% C.I.)	(22) 7.8 % (5.3 - 11.4 95% C.I.)	(13) 6.5 % (3.7 - 11.4 95% C.I.)	(15) 4.6 % (2.9 - 7.1 95% C.I.)	DSCC: 0.934 DNCC: 0.363

When comparing the prevalence of stunting for younger children [6-23 months] vs older children [24-59 months]; older children in DSCC Slum had higher but not significant prevalence of global [32.0% vs 38.3%, P=0.185] and for moderate [24.0% vs 30.5%, P=0.123] stunting and vice versa for severe stunting [8.0% vs 7.8%, P=0.934] with no significant difference. Similarly, the stunting prevalence in DNCC Slum was found higher but not significant among older children for global [24.36% vs 26.1%, P=0.707] and moderate [18.1% vs 21.6%, P=0.332] and vice versa for severe stunting [6.5% vs 4.6%, P=0.363].

Table 39: Prevalence of stunting based on HAZ by age, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Age groups	DSCC Slum							DNCC Slum						
	Sample	Severe stunting		Moderate stunting		Normal		Sample	Severe stunting		Moderate stunting		Normal	
Age [mo]	Total no.	No.	%	No.	%	No.	%	Total no.	No.	%	No.	%	No.	%
6-17	104	9	8.7	17	16.3	78	75.0	133	7	5.3	20	15.0	106	79.7
18-29	128	10	7.8	45	35.2	73	57.0	136	7	5.1	27	19.9	102	75.0
30-41	88	8	9.1	24	27.3	56	63.6	119	10	8.4	29	24.4	80	67.2
42-53	100	7	7.0	34	34.0	59	59.0	93	2	2.2	20	21.5	71	76.3
54-59	37	2	5.4	8	21.6	27	73.0	47	2	4.3	11	23.4	34	72.3
Total	457	36	7.9	128	28.0	293	64.1	528	28	5.3	107	20.3	393	74.4

When data was further disaggregated by age group, the prevalence of severe and moderate stunting was highest among the age group of 30-41 months [9.1%] and 18-29 [35.2%] respectively in DSCC Slum. However, in DNCC Slum the severe and moderate stunting prevalence was highest was among the same age group of 30-41 months [8.4%] and [24.4%] respectively.

4.5.6 Prevalence of Overweight based on WHZ

Overweight or obesity among children is defined as Weight-for-Height Z-score >+2SD from the median according to WHO growth reference standards 2006. The overweight prevalence in DSCC and DNCC Slums found similar at 0.0% as shown in table below.

Table 40: Prevalence of overweight based on WHZ and by sex [no oedema], SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	DSCC Slum			DNCC Slum		
	All n = 456	Boys n = 222	Girls n = 234	All n = 531	Boys n = 259	Girls n = 272
Prevalence of overweight [WHZ > 2 SD]	(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.)	(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.)
Prevalence of severe overweight [WHZ > 3 SD]	(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.)	(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.)

Table 41: Severity of malnutrition as per WHO/UNICEF classification 2018 among Children aged 6-59 months, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicators	Prevalence: DSCC Slum	Prevalence: DNCC Slum	Severity
Wasting [WHZ]	**18.4%**	***12.8%**	**Very high *High**
Overweight [WHZ]	**0.0%**	**0.0%**	**Very Low**
Stunting [HAZ]	**35.9%**	***25.6%**	**Very High *High**
*Underweight [WAZ]	**37.4%**	***29.2%**	**Critical *Serious**

* The severity of underweight is based on WHO classification.

Table 42: Prevalence of Acute malnutrition among children 0-5 months, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicator	DSCC Slum [%, 95% CI]	DNCC Slum [%, 95% CI]	P value
Global Acute Malnutrition by WHZ	**5.4%** [1.3-20.4] **[N=37]**	**7.1%** [2.2-21.2] **[N=42]**	**0.758**
Stunting by HAZ	**21.6%** [11.2-37.6] **[N=37]**	**14.3%** [6.4-28.7] **[N=42]**	**0.396**
Underweight by WAZ	**13.5%** [5.5-29.5] **[N=37]**	**16.3%** [7.6-31.5] **[N=43]**	**0.734**

As seen in the table above, the overall GAM prevalence by WHZ among children 0-5 months in DSCC Slum was 5.4% [1.3 – 20.4 95% C.I.] and in DNCC Slum was 7.1% [2.2 - 21.2 95% C.I.]. There was no signficant difference with p value=0.758. Similaly, prevalance of Stunting among children 0-5 months shows [DSCC: 21.6%, DNCC: 14.3%] and Underweight [DSCC: 23.5%, DNCC: 16.3%].

4.4.8 Low Women's MUAC

Low MUAC in women was defined as a MUAC below 210 mm for the purpose of this assessment. Following the CMAM guideline MUAC <210 mm was used for the identification of malnourished women since its gives narrower range to identify the women at risk. The prevalence of low MUAC among all pregnant and lactating women with children 0-23 months was 3.4% [1.6-7.0] in DSCC and 3.9% [2.3-6.7] in DNCC Slum as presented in Table below. The low MUAC prevalence for women who were pregnant or lactating with an infant less than 6 months was 5.1% [2.1-11.7] and 7.0% [3.0-15.2] in DSCC and DNCC Slum respectively. There was no significant difference observed in low MUAC prevalence between two Slums.

Table 43: Low women's MUAC [<210 mm], SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Women MUAC	DSCC Slum			DNCC Slum			P value DSCC vs DNCC
	N	n	% 95% CI	N	n	% [95% CI]	
Low MUAC [Among PLW with children 0-23 months]	266	9	3.4% [1.6-7.0]	306	12	3.9% [2.3-6.7]	**0.759**
Low MUAC [Among PLW with children <6 months*]	98	5	5.1% [2.1-11.7]	43	3	7.0% [3.0-15.2]	**0.603**
MEAN MUAC Women 15-49 Years	**N**		**Mean [SD]**	**N**		**Mean [SD]**	
PLWs 's MUAC [All]	**266**	**-**	**258.2 [2.0]**	**306**	**-**	**260.1 [2.0]**	**-**

**Exclusively among women who were pregnant or lactating with an infant <6 months, as this subset was eligible for ongoing humanitarian programs such as TSFP, IFA supplementation and IYCF.*

4.4 Access to ANC (Antenatal Care) Services and Iron Folic Acid pills

Information was collected to understand the health seeking behaviors of pregnant mothers and access to health centers or other programs.

Table 44: Access to ANC (Antenatal Care) Services and Iron Folic Acid pills, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Source of Antenatal Care services	DSCC Slum			DNCC Slum		
	N	n	% [95% CI]	N	n	% [95% CI]
% Of pregnant women accessing ANC services from any sources	62	55	88.7% [77.0-94.9]	69	58	84.1% (73.3-91.1]
Government health centre	62	14	22.6% [12.9-36.5]	69	2	2.9% (00.8-10.9]
Private health centre	62	18	29.0% [19.3-41.2]	69	19	27.5% (16.9-41.7]
NGO health programme	62	28	45.2% [32.5-48.5]	69	39	56.5% (43.2-69.0]
No	62	7	11.3% [03.1-23.0]	69	11	15.9% (09.0-26.8]
Intake of Iron Folic Acid						
Yes	62	40	64.5% [52.4-75.1]	69	47	68.1% [54.6-79.2]

The table shows, majority [88.7% and 84.1%] of pregnant mothers able to access antennal services in DSCC and DNCC slums respectively. Nearly half [45.2%] in DSCC and more than half [56.5%] of pregnant mothers received ANC services from NGO health programs followed by private health centre [DSCC: 29.0% and DNCC: 27.5%]. Moreover, data on intake of Iron folic acid pills by pregnant mothers shows 64.5% in DSCC Slum and 68.1%.in DNCC Slum.

Furthermore, information about total visits of Antenatal Care (ANC) and Postnatal Care (PNC) checkups was also collected, survey findings show, in DSCC Slum [ANC: 88.7% and PNC: 66.2%] mothers had checkups to any health care provider either at health facilities or home, while [ANC: 42.6% and PNC: 8.8%] mothers went for checkup at least 4 times. Similarly, in DNCC Slum [ANC: 89.5% and PNC: 64.1%] mothers had checkups to any health care provider either at health facilities or home, while [ANC: 42.2% and PNC: 13.9%] mothers went for checkup at least 4 times.

Table 45: ANC (Antenatal Care) and PNC (Postnatal Care) checkups, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Source of Antenatal Care services	DSCC Slum			DNCC Slum		
	N	n	% [95% CI]	N	n	% [95% CI]
Antenatal care (ANC) check-up during pregnancy by any health care provider either at health facilities or home	204	181	88.7% [83.0-92.7]	237	212	89.5% (82.6-93.9]
At least 4 ANC check-ups	204	87	42.6% [35.4-50.3]	237	100	33.8% (33.8-51.1]
Postnatal care (PNC) check-up within 42 days of delivery by any health care provider either at health facilities/home	204	135	66.2% [69.0-72.7]	237	152	64.1% (57.1-70.7]
At least 4 PNC check-ups	204	18	8.8% [5.8-13.4]	237	100	13.9% [8.9-21.1]

4.5 Retrospective Prevalence of Diarrhoea

The prevalence of diarrhoea was assessed based on two weeks recall. It is to be noted that, there was no clinical examination performed to confirm the disease condition, rather mothers/caregivers were asked with respective symptoms for the morbidity questionnaires.

Table 46: Prevalence of diarrhoea based on symptoms over a two-week recall period, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Diarrhoea Prevalence [6-59 months]	DSCC Slum				DNCC Slum			
	N	n	% [95% CI]	P value	N	n	% [95% CI]	P value
All	458	92	20.1% (16.2-24.7)		532	85	16.0% (12.8-19.7)	
Boys	223	47	21.1% (16.2-27.0)	**Girls vs Boys 0.608**	260	49	18.8% (7.9-38.9]	**Girls vs Boys 0.581**
Girls	235	45	19.1% (14.1-25.4]		273	36	13.2% (4.5-32.6]	
6-23 months	176	42	23.9% (18.4-30.3]	**6-23 vs 24-59 0.133**	202	45	22.3%[17.3-28.2]	**6-23 vs 24-59 0.002**
24-59 months	282	50	17.7% (12.8-24.1]		330	40	12.1% [8.9-28.2]	

**Diarrhoea defined as the passage of three or more loose or liquid stools in a day.*

The prevalence of diarrhoea among children 6-59 months was 20.1% [16.2-24.7] and 16.0% [12.8-19.7] in DSCC and DNCC Slums respectively as presented in table 44 above. Further disaggregating data by sex and age groups demonstrates that there was no significant difference found between boys and girls [DSCC: 21.1% vs 19.1%, p=0.608; DNCC 18.8% vs 13.2%, p=0.581]. Similarly, there was no significance difference observed among the children aged 6-23 months compared to children 24-59 months [DSSC: 23.9% vs 17.7%, p=0.133] in DSCC, and vice versa in DNCC 22.3% vs 12.1%, p=0.002], indicating younger children were significantly vulnerable and prone to diarrhoea in DNCC Slums.

4.6 Health Seeking Behavior

The children who have suffered from diarrhoea in both slums had taken following treatment, reported by the caregiver.

Table 47: Health seeking behavior of caregivers, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Treatment Sources / Health Seeking Behaviour	DSCC Slum			DNCC Slum		
	N	n	% [95% CI]	N	n	% [95% CI]
Oral Rehydration Solution (ORS)	92	74	80.4% [69.9-87.8]	85	76	89.4% (81.5-94.2]
Zinc tablet or syrup	92	17	18.5% [11.1-28.9]	85	19	22.4% (14.5-32.9]
Homemade saline	92	4	4.3% [01.0-16.9]	85	2	2.4% (00.1-08.8]
Pastor or herbal or religious treatment	92	0	N/A	85	1	1.2% (00.2-08.1]
Syrup or tablet	92	44	47.8% [34.1-68.4]	85	41	48.2% (37.4-59.4]
Treatment from hospital	92	5	5.4% [02.2-12.5]	85	6	7.1% (31.1-15.4]
Others	92	3	3.3% [00.7-09.0]	85	1	1.2% [00.2-08.5]
No treatment	92	5	5.4% [02.2-12.5]	85	1	1.2% [00.2-08.5]

In both Slums DSCC and DNCC, Oral Rehydration Solution (ORS) has been given as a treatment [80.4% and 89.4% respectively] by majority of caregivers when their children were suffering from diarrhoea.

4.7 Supplementation and Immunization

Table 48 : Supplementation and Immunization coverage, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Supplementation and Immunization coverage	DSCC Slum			DNCC Slum		
	N	n	% [95% CI]	N	n	% [95% CI]
Measles immunization by both card and recall (9-59 months)	420	361	86.0% [80.8-89.9]	484	416	86.0% (81.5-89.5]
Yes, by card		242	57.6% [51.1-63.8]		305	63.0% (56.1-68.7]
Yes, by recall		119	28.3% [22.8-34.6]		111	22.9% (18.0-28.7]
Vitamin A (6-59 months)	458	340	74.2% [69.3-78.7]	532	379	71.2% (63.9-77.7]
Deworming (24-59 months)	282	181	64.2% [57.1-70.7]	330	223	67.6% (60.2-74.2]
MNP supplementation (6-59 months)	458	4	0.9% [00.3-02.2]	532	4	0.9% [00.3-02.0]

The proportion of children aged 6-59 months received vitamin A in the last six months in DSCC was 74.2% and DNCC was 71.2%. An estimated 86.0% children aged 9 to 59 months were vaccinated against measles as confirmed by card, [57.6%] and by recall [28.3%] in DSCC Slum. Similarly, in DNCC Slum an estimated 86.0% children aged 9 to 59 months were vaccinated against measles as confirmed by card, [63.0%] and by recall [22.9%]. As shown in the table above, the overall coverage of vitamin A supplementation, deworming and measles vaccination were found to be good but still below the Sphere Standard's recommendation of 95% coverage.

4.8 Infant and Young Child Feeding [IYCF] and Care Practices

It is important to note when interpreting the IYCF indicators from this assessment, that the survey sample sizes were calculated based on anticipated prevalence of GAM for children 6-59 months. The sample size and precision were not calculated for IYCF indicators, leading to lower precision and larger confidence intervals for some of the results as it was difficult to get adequate sample for IYCF indicators. The IYCF results of this survey should therefore be interpreted with caution and in consideration of the width of their associated confidence intervals as presented results provide an overview of the situation on IYCF practices, but the results cannot be generalized.

The table below presents the overall sample for the IYCF component. In total, 213 and 245 children aged 0-23 months were included in the survey for DSCC and DNCC Slum respectively.

The table below presents the summary findings of IYCF indicators

Table 49: Summary Findings of IYCF practices, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicator	Sample Age Group	DSCC			DNCC			P-Value
		N	n	% [95% CI]	N	n	% [95% CI]	[DSCC VS DNCC]
Early Initiation of breastfeeding	0-23 months	213	118	60.1 % [51.9 - 67.7	245	160	65.3% [59.1-71.0]	0.297
Exclusive Breastfeeding	0-5 months	37	11	29.7 % [15.7 - 49.0]	43	20	46.5% [5.6-92.3]	0.076
Exclusive breastfeeding within two days of delivery	0-23 months	213	113	53.1 % [45.6 - 60.6]	245	112	45.7 % [38.8 - 52.9]	0.152
Continuation of Breastfeeding at 12- 23 months	12- 23 months	113	104	92.0 % [87.6-96.4]	118	107	90.6 % [85.4-95.8]	0.681

Indicator	Sample Age Group	DSCC			DNCC			P-Value
		N	n	% [95% CI]	N	n	% [95% CI]	[DSCC VS DNCC]
Bottle feeding for children	(0-23 months)	213	61	28.6 % [22.9-35.1]	245	78	31.8 % [25.9-38.6]	0.465
Minimum Dietary Diversity [>=5 food groups]	6-23 months	176	91	51.7 % [42.9-60.4]	202	91	45.0 % [63.1-54.5]	0.508
Minimum Meal Frequency – non breastfed children [>=4 full meals]	6-23 months	176	7	4.0 % [0.6-20.0]	202	6	3.0 % [0.4-20.9]	0.833
Minimum Meal Frequency – breastfed children [>=2 full meals]	6-8 months	38	32	84.2 % [48.7-96.7]	48	37	77.1 % [18.7-98.0]	0.787
Minimum Meal Frequency – breastfed children [>=3 full meals]	9-23 months	138	107	77.5 % [36.9-95.3]	154	100	64.9 % [35.8-86.1]	0.542
Overall Minimum Meal Frequency (6-23 months)	6-23 months	176	146	83.0 % [75.9-88.3]	202	143	70.8 % [63.2-77.4]	0.011
Minimum Acceptable Diet	6-23 months	176	79	44.9 % [36.5-53.6]	202	73	36.1 % [28.4-44.8]	0.141

4.8.1 Early Initiation of Breastfeeding

The early initiation of breastfeeding rate in DSCC Slum was 60.1% [51.9-67.7] which is below the national rate of 69.0% and comparatively lower than DNCC Slum which was found at 65.3% [59.1-71.0] with no significant difference [p=0.297] between two Slums.

4.8.2 Exclusive Breastfeeding

The exclusive breastfeeding rate in DSCC Slum was 29.7% [15.7-49.0] which is below the national rate of 65.0% and comparatively lower than DNCC Slum which was found at 46.5% [5.6-92.3] with significant difference [p=0.076] between both locations.

4.8.3 Exclusive Breastfeeding within 2 days of delivery

The exclusive breastfeeding within 2 days of delivery in DSCC Slum was 53.1% [45.6-60.6] while in DNCC Slum it was bit lower compared to both slums with rate of 45.7% [38.8-52.9]. However, there was no significant difference [p=0.152].

4.8.4 Bottle Feeding for Children

Findings revealed that the rate of bottle feeding among children 0-23 months in DSCC Slum was 28.6% [22.9-35.1] which is comparatively lower than DNCC Slum which was found at 31.8% [25.9-38.6] with no significant difference [p=0.465] between two Slums. Bottle feeding rate was significantly high in both slums compared to national rate of 16%.

4.8.5 Continued Breastfeeding among children 12-23 months

The Continuation of breastfeeding among children aged 12-23 was reported 92.0% [87.6-96.4] in DSCC and 90.6% [85.4-95.8] in DNCC Slum showing no significant difference [p=0.681] higher in DSCC compared to DNCC Slum.

4.8.6 Minimum Dietary Diversity

The minimum dietary diversity [>=5 food groups] was reported at 51.7% [42.9-60.4] in DSCC and 45.0% [36.1-54.5] in DNCC Slum showing no significant difference [p=0.508] higher in DSCC compared to DNCC Slum. This also indicates that nearly half of the children in DSCC and more than half DNCC Slum did not receive at least five categories of food groups as recommended.

4.8.7 Minimum Meal Frequency

The minimum meal frequency for breastfeed children aged 6-8 months [>=2 full meals per day] and 9-23 months [>=3 full meals per day] were reported as 84.2% [48.7-96.7] and 77.5% [36.9-95.3] respectively in DSCC Slum and 77.1% [18.7-97.0] and 64.9% [35.8-86.1] respectively in DNCC Slum. Conversely, only 4.0% [00.6-02.2] of non-breastfed children aged 6-23 months in DSCC Slum and 3.0% [00.4-20.9] in DNCC Slum received recommended meal frequency [>= 4 full meals per day] during previous day or in past 24 hours. Similarly, the overall minimum meal frequency (breastfed and non-breastfed children) aged 6-23 months was found 83.0% [75.9-88.3] in DSCC and 70.8% [63.2-77.4] in DNCC Slum. This indicates significant difference [p=0.011] among both locations.

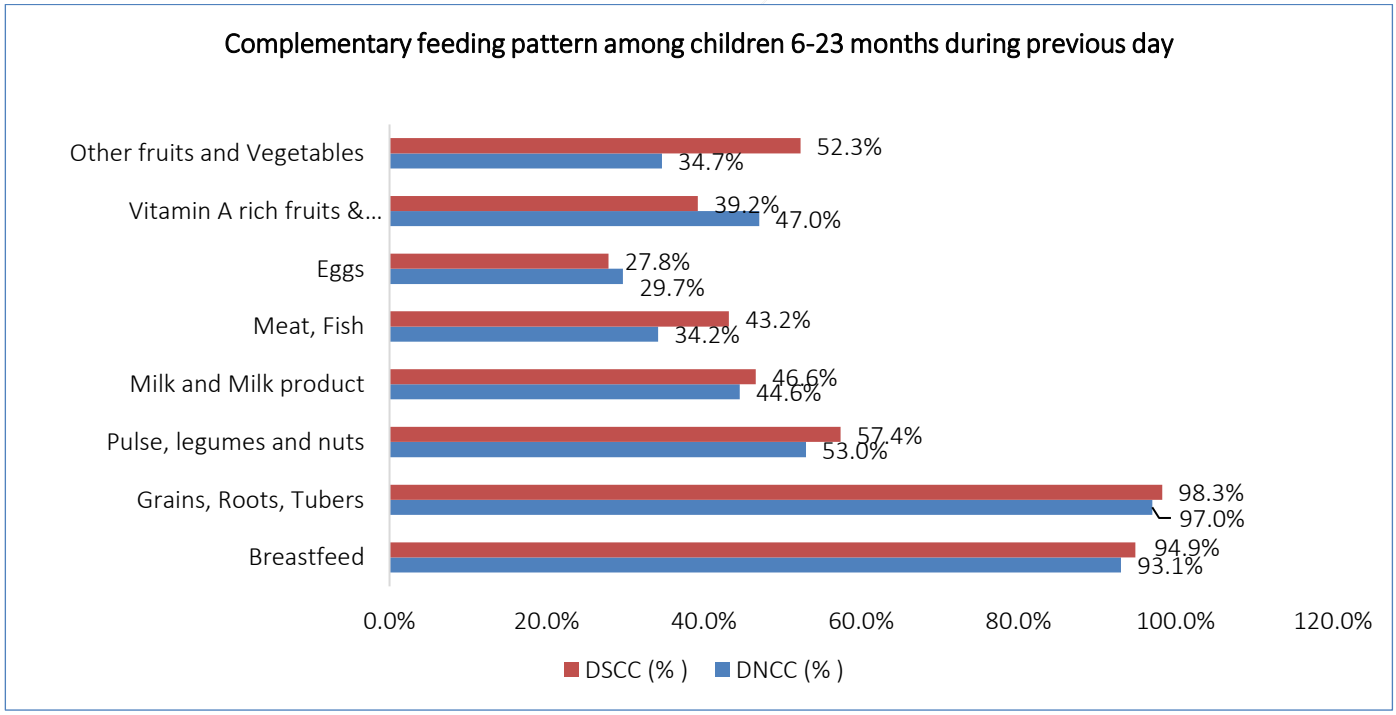
4.8.8 Minimum Acceptable Diet

The minimum acceptable diet was 44.9% [36.5-53.6] in DSCC and 36.1% [28.4-44.8] in DNCC Slum among children aged 6-23 months who fed with minimum five food groups and adequate number of meals according to their age and if they were breastfed or not. There was no significant difference in minimum acceptable diet with [p=0.141] among DSCC and DNCC Slum.

4.8.9 Consumption of Diversified of Food Groups in the Previous Day

Figure 5 below shows what categories of food were being consumed at the highest frequency. The category most frequently consumed was "grain or carbohydrate rich foods" in both [DSCC-97.0%, DNCC- 98.3%] and the category second most frequently consumed was "pulses, legumes and nuts" [DSCC-53.0%, DNCC-57.4%]. The "milk and milk product" category was the third most frequently consumed food group at 44.6% in DSCC and 46.6% in DNCC. The intake of eggs, fruits, vegetables, meat, fish and eggs were very low meaning that children were not receiving adequate diversified foods essential for proper growth and development. However, complementary feeding patterns were found comparatively higher in DSCC than DNCC Slum.

Figure 5: Diet in the previous day [6-23 months], SMART survey, DSCC Slum and DNCC Slum, May-June 2022



4.9 Food Security and Livelihood

4.9.1 Household Reduced Coping Strategy Index [rCSI]

Reduced Coping Strategy Index was expressed to understand the different behaviors related to food consumption as a coping strategy when food shortage occurs. Table 50 shows the level of coping strategies for the surveyed households in both Slums.

Table 50: Reduced Coping Strategy Index [rCSI], SMART survey, DSCC Slum and DNCC Slum, May-June 2022

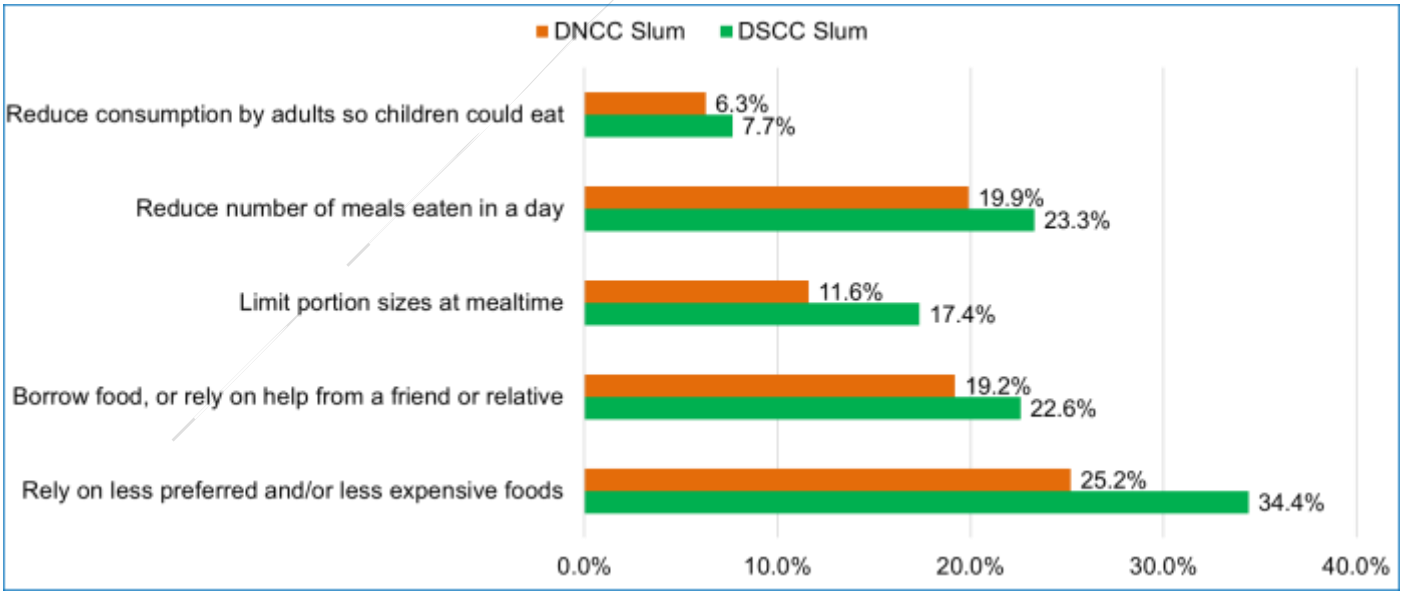
Reduced Coping Strategy Index [rCSI]	DSCC Slum	DNCC Slum	P value
No or low coping (0-3)	**72.9%** [66.8-78.2] [919/1261]	**78.3%** [75.0-81.3] [1031/1317]	0.101
Medium coping (4-9)	**15.1%** [11.7-19.1] [190/1261]	**13.9%** [11.7-16.6] [183/1317]	0.590
High coping (>=10)	**12.1%** [9.2-15.6] [152/1261]	**7.8%** [6.3-9.8] [103/1317]	0.020
R value (Correlation between Acute Malnutrition and rCSI)	**0.14** **Positive relation**	**-0.08** **Negative relation**	NA

As seen in above table, majority of the households had adopted no or low coping strategy in DSCC and DNCC Slum. Furthermore, Medium coping strategy was found [DSCC: 15.1%, DNCC: 13.9%] and High coping strategy was found [DSCC: 12.1%, DNCC: 7.8%] with no significant difference of [p=0.590 and 0.020] respectively.

Further correlational analysis revealed that there is a week but positive relationship observed in DSCC slums between rCSI and acute malnutrition cases meaning households more experienced with food based copping strategies are more tends to have malnourished children. However, no positive relation was observed in DNCC slums.

Data was further disaggregated by different food-based coping strategies during last seven days as presented in below figure-6. The most frequent coping strategy as experienced by the household members in both Slums was reported "rely on less preferred and/or less expensive food with" at [DSCC: 34.4%, DNCC: 25.2%], followed by "reduce the number meal eaten per day" at [DSCC: 23.3%, DNCC: 19.9%].

Figure 6: Food based coping strategies, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



4.9.2 Food Insecurity Experience Scale

Food insecurity experience scale data was collected from the survey population of both DSCC and DNCC Slum. This scale explains what it means to measure food security in a population, and what experience-based food security scales are. Findings are presented in the table below.

Table 51: Food Insecurity Experience Scale, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

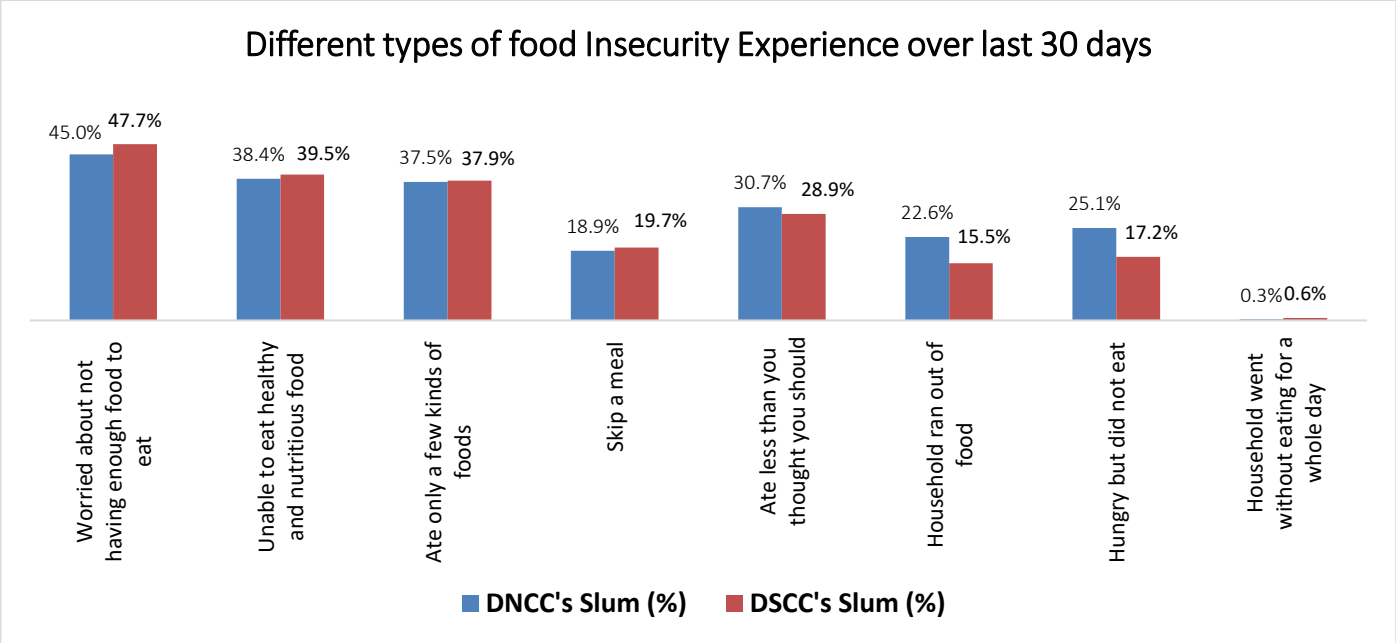
FIES Category	DSCC Slum	DNCC Slum
Moderate or severe	**32.1%**	**32.3%**
Severe	**2.1%**	**4.2%**

Note: Calculation was done using FIES calculator: https://fies.shinyapps.io/ExtendedApp/

Approximately one third households [DSCC: 32.1%; DNCC: 32.3%] experienced moderate or severe level and only few households [DSCC: 2.1%; DNCC: 4.2%] of food insecurity over last 30 days due to lack of money or lack of other resources to buy food.

Furthermore, the data was disassembled by difference food insecurity experiences over last 30 days by the population of both DSCC and DNCC Slum. The most frequent food insecurity experience by the household members in both Slums was reported "worried about not having enough food" at [DSCC: 47.7%, DNCC: 45.5%], followed by "unable to eat healthy food" at [DSCC: 39.5%, DNCC: 38.4%].

Figure 7: Types of Food Insecurity Experience, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



4.10 Water, Sanitation and Hygiene

4.10.1 Main source of drinking water

Survey findings indicated that, more than 95% households reported accessing drinking water either from WASHA supply or deep tube well (DSCC-68.8%, 27.4% and DNCC-77.9%, 16.3% respectively). Other drinking water sources were water ATM booth, bottled or jar water and NGO supply water etc.

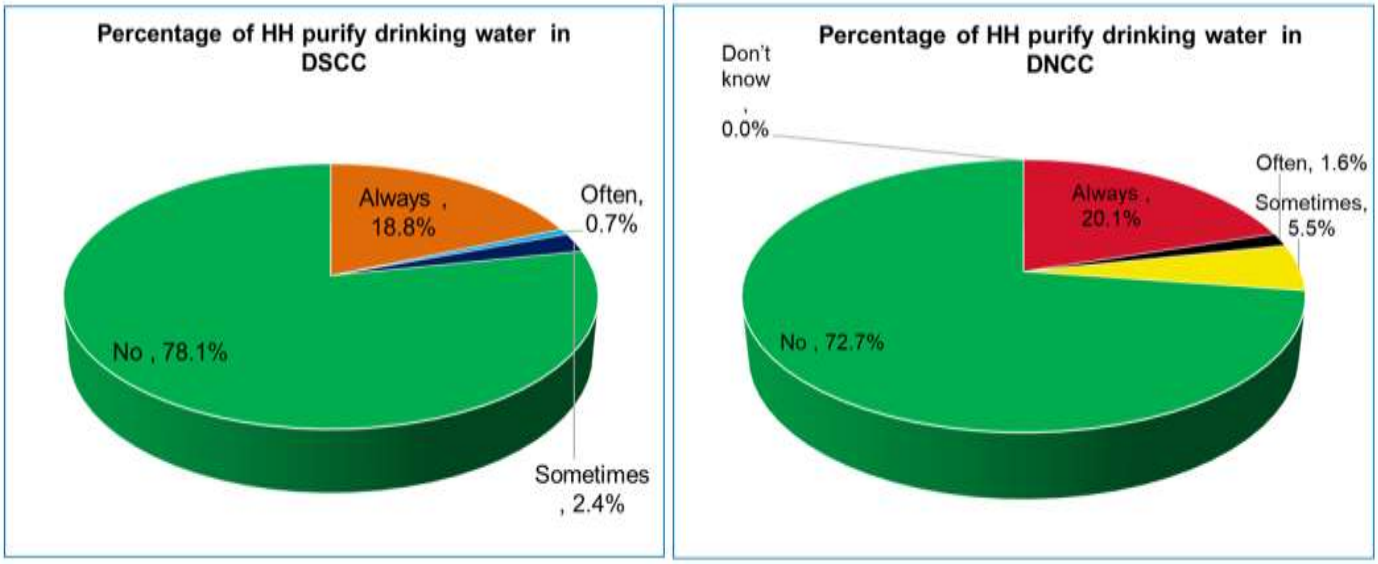
Table 52: Food Insecurity Experience Scale, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Source of drinking water	DSCC Slum	DNCC Slum	P value
Direct WASHA's supplied water	**68.8%** [56.6-78.9] [868/1261]	**77.9%** [66.8-86.1] [1026/1317]	0.222
Deep Tube well	**27.4%** [17.4-40.3] [345/1261]	**16.3%** [9.1-27.7] [215/1317]	0.134
Collected from Water ATM booth by payment	**1.7%** [0.8-3.4] [21/1261]	**0.7%** [0.3-2.1] [9/1317]	0.157
Bottled/ Jar water	**2.0%** [0.8-5.1] [25/1261]	**0.5%** [0.3-1.4] [7/1317]	0.105
Others	**0.2%** [0.02-1.2] [2/1261]	**4.6%** [1.6-12.5] [60/1317]	0.068

4.10.2 Purification of drinking water

The household practices regarding purification of drinking water also reported as almost equal to 3 parts [DSCC: 78.1%, DNCC: 72.7%] of household are drinking water without any purification or treatment. Only few households [DSCC: 18.8%, DNCC: 20.1%] responded that they always purify the water before drinking.

Figure 8: Purification of drinking water, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



4.10.3 Main Challenges of drinking water

Household reported challenges of drinking water in both Slums were [DSCC: 40.0%, DNCC: 55.8%]. The most frequent challenge regarding drinking water experienced by the household members in both Slums was reported "Bad smell and waste particles present in the water" at [DSCC: 45.5%, DNCC: 55.8%], followed by "Inadequate water supply as per demand" at [DSCC: 18.6%, DNCC: 33.5%].

Table 53: Main Challenges of drinking water, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicator	DSCC Slum	DNCC Slum	P value
Households reported having problem with drinking water	**40.0%** [32.0-48.6] [505/1261]	**55.8%** [48.3-63.2] [735/1317]	0.006
Top five challenges reported by HH			
Bad smell and waste particles present in the water	**45.5%** [36.6-54.8] [230/505]	**53.1%** [44.4-61.6] [390/735]	0.230
Inadequate water supply as per demand	**18.6%** [13.0-25.9] [94/505]	**33.5%** [25.7-42.4] [246/735]	0.006
Long waiting time at water point	**13.3%** [6.7-24.6] [67/505]	**3.4%** [1.0-11.5] [25/735]	0.042
Lack of water storage utensils	**9.5%** [5.2-16.7] [48/505]	**2.4%** [1.5-4.2] [18/735]	0.014
Drinking water sources is long distance from household	**9.3%** [5.1-16.5] [47/505]	**5.0%** [1.9-13.1] [37/735]	0.236

4.10.4 Household's Toilet Faculties and Management of Child Feces

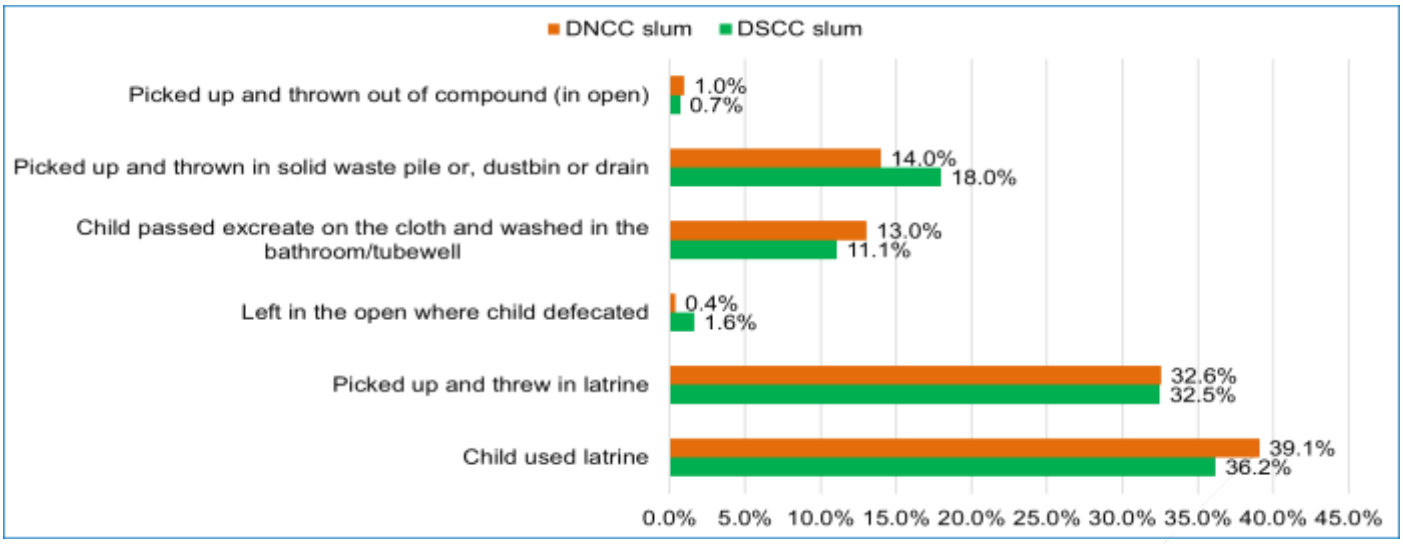
As seen in the below Table, Approximately 90.0% households in DSCC have access toilets that are piped with sewerage system while this percentage was significantly low about 49.4% in DNCC slum. Besides that, nearly fifty percentage households (46.6%) in DNCC used latrine that are mixed with nearby drain or water point that are alarming for contamination of water borne disease.

Table 54: Main Challenges of drinking water, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Indicator	DSCC Slum	DNCC Slum	P value
Piped with sewerage system	**90.3%** [81.2-95.3] [1139/1261]	**49.4%** [36.5-62.4] [650/1317]	0.000
Latrine with septic tank	**1.7%** [0.5-5.2] [21/1261]	**3.9%** [1.4-11.3] [52/1317]	0.323
Payable public toilet with water seal	**3.5%** [0.8-13.4] [44/1261]	**0.0%** [**0**.0-0.0] [0/1317]	0.155
Latrine without water seal	**0.2%** [0.02-1.2] [2/1261]	**0.0%** [**0**.0-0.0] [0/1317]	0.385
Mixed with nearby drain or water body	**3.6%** [1.1-10.9] [45/1261]	**46.6%** [34.3-59.4] [614/1317]	0.000
Communal sharing latrine	**0.2%** [0.03-1.7] [3/1261]	**0.0%** [**0**.0-0.0] [0/1317]	0.293
Payable public toilet without water seal	**0.4%** [0.1-2.0] [5/1261]	**0.0%** [**0**.0-0.0] [0/1317]	0.150
Plastic bag	**0.2%** [0.03-0.6] [2/1261]	**0.1%** [0.01-0.6] [1/1317]	0.652

The management of child feces in the surveyed area was good but one third of the caregiver didn't dispose child feaces properly as presented in below figure 9. In both Slum majority of the caregivers reported that child used latrine and feces picked up and threw in latrine at [DSCC: 36.2% and 32.5%] while [DNCC: 39.1% and 32.6%] respectively. Second highest response was reported "feces thrown in solid waste, dustbin or drain" in DSCC and DNCC Slums. However, about one-third of households with a child under five did not dispose child feaces safely, which makes children susceptible to diseases transmitted via the fecal-oral route.

Figure 9: Management of Child Feces, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

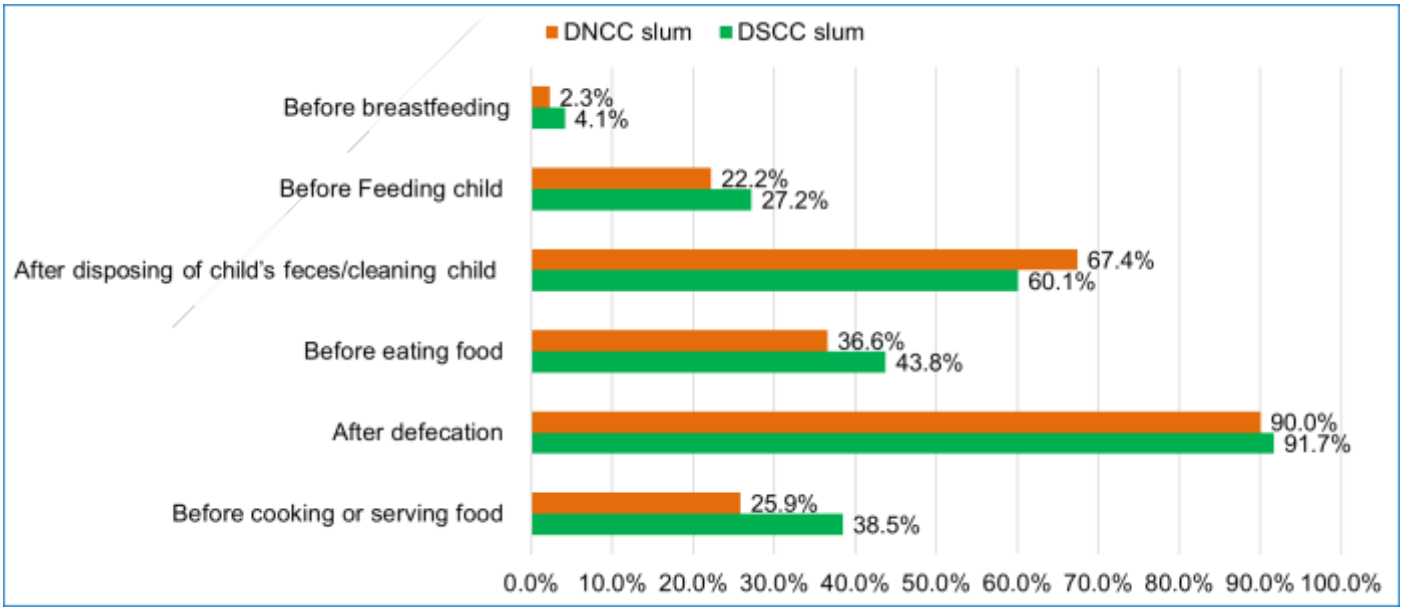


4.10.5 Handwashing Behaviour

Handwashing with soap at "critical moments" during the day prevents the spread of many diseases, for example diarrhoea and cholera that are transmitted through fecal–oral route. There are five critical times during the day where washing hands with soap is important to reduce fecal-oral transmission of disease: **before cooking or preparing food, after defecation, before eating food, after disposing of child's feces, before child feeding /breastfeeding**. Other occasions when correct handwashing technique should be practiced in order to prevent the transmission of disease include after working with animals, crops, after sneezing, after handling money, after daily domestic work etc.

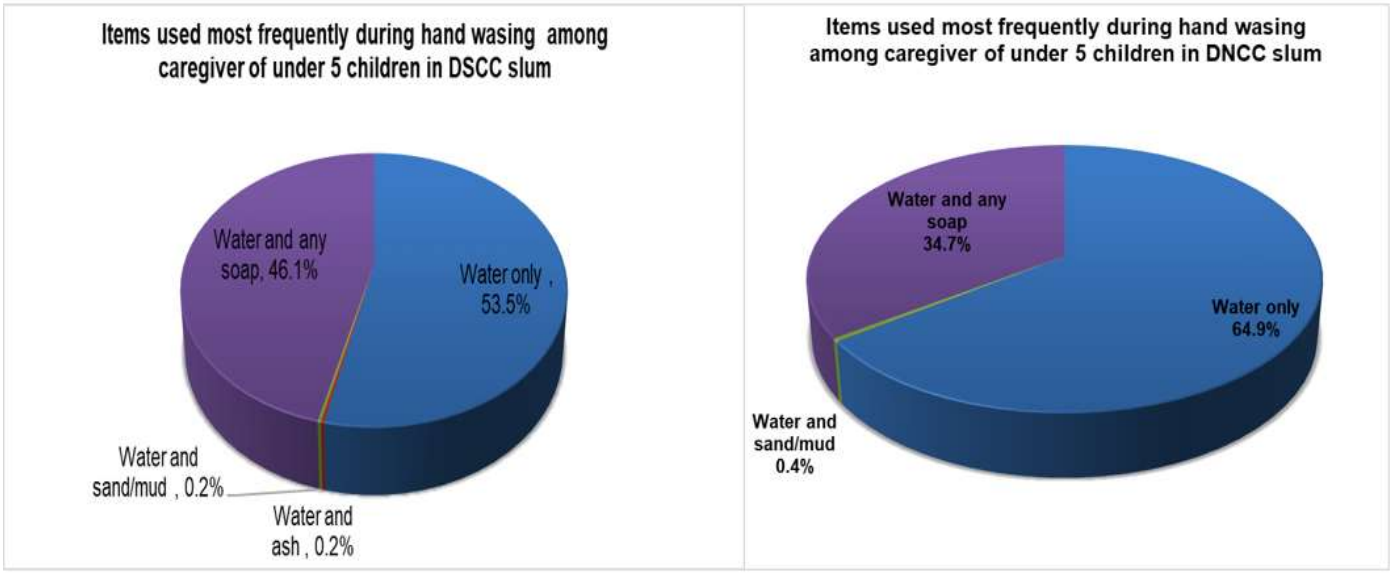
The survey findings revealed that almost all respondents, Handwashing behaviour with soap during critical times is also alarming. Despite good practices of handwashing among caregiver reported after defecation (>90%) and disposing of child feces (>60%), other hand washing practices for example, before cooking or serving, eating, and feeding or breast feeding was reported low in DSCC and DNCC Slum as presented in figure 10 below.

Figure 10: Handwashing practices with Soap during critical times, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



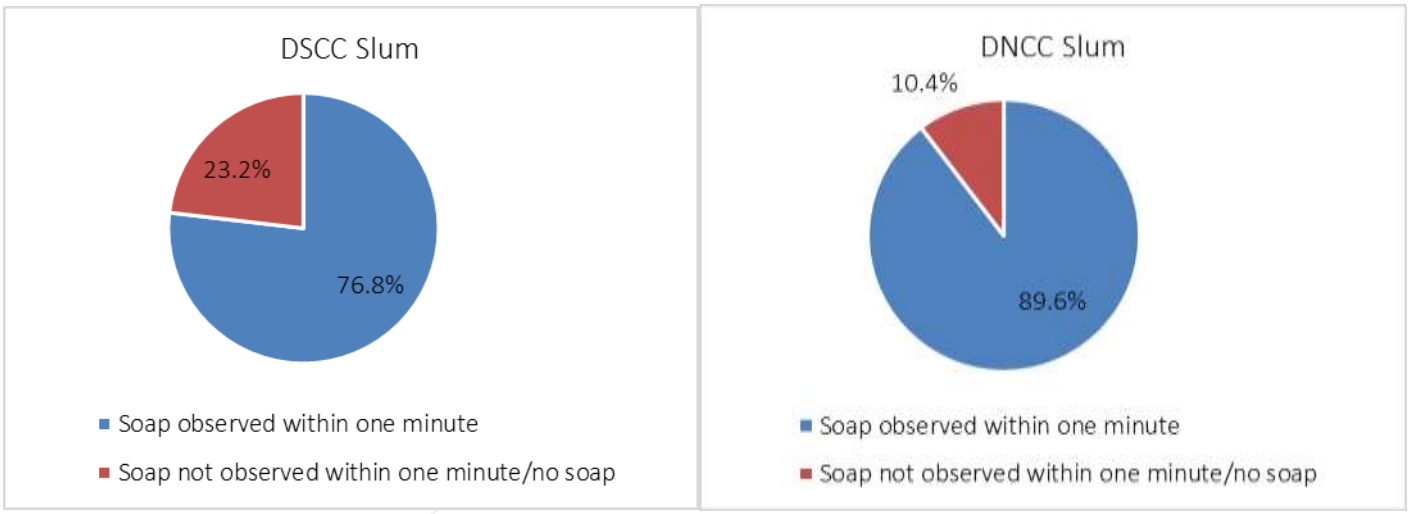
Information about handwashing items was also collected, frequent hand washing behaviour among caregiver of under 5 children with soap reported very low in both locations. It was also described that most of the caregivers reported washing their hands most frequently with water only (DSCC-53.5%; DNCC-64.9%) while less than half of the caregiver wash their hand with water and soap (DSCC-46.1%; DNCC-34.7%). See figure 11 below:

Figure 11: Frequently used items for handwashing, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



Furthermore, survey findings revealed that, all the households don't have access to soap which was comparatively low in DSCC (76.8%) compared to DNCC (89.6%). As presented in figure 12 below.

Figure 12: Household Access to Soap, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



4.11 Retrospective Mortality

The overall Crude Death Rate found in DSCC 0.19% (0.10-0.38) and in DNCC 0.12% (0.05-0.27) at 10,000/Day which shows almost the similar rates in both slums. However, Under 5 death rate was comparatively higher in DSCC than DNCC (0.63 vs 0.16 death/10,000/day). Both the CDR and U5DR are well below the public health emergency thresholds of 1 and 2 deaths/10,000/day respectively[19]. Household level questions were asked to determine the cause of each death, under the broad categories of illness or injury/trauma.

[19] https://emergency.unhcr.org/entry/38763/mortality-surveillance-threshold

Table 55: Retrospective Mortality and Cause of Death, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

Population	DSCC Slum			DNCC Slum		
	Death Rate [/10,000/Day]	95% CI	Design Effect	Death Rate [/10,000/Day]	95% CI	Design Effect
Overall*	**0.19**	**[0.10-0.38]**	**1.06**	**0.12**	**[0.05-0.27]**	**1.18**
By Sex						
Male	0.26	[0.12-0.57]	1.00	0.11	[0.03-0.33]	1.00
Female	0.13	[0.04-0.39]	1.00	0.14	[0.05-0.36]	1.00
By Age Group [in years]						
Under 5 children [0-4 years]	**0.63**	**[0.20-1.93]**	**1.00**	**0.016**	**[0.02-1.17]**	**1.00**
5-11 Years	0.00	[0.00-0.00]	1.00	0.13	[0.02-0.95]	1.00
12-17 Years	0.00	[0.00-0.00]	1.00	0.00	[0.00-0.00]	1.00
18-49 Years	0.09	[0.02-0.35]	1.00	0.03	[0.00-0.24]	1.00
50-64 Years	0.73	[0.23-2.24]	1.00	0.00	[0.00-0.00]	1.00
65-120 Years	0.59	[0.08-4.40]	1.00	2.44	[0.89-6.48]	1.00
Cause of death		**Sample**	**Rate**	**Sample**		**Rate**
Illness		Household member deaths [n=9]	100.0%	Household member deaths [n=9]		85.7%
Injury			0.0%			14.3%

**International Mother Language day (21st of February 2022] was used as the beginning of the mortality recall period. All household members present during recall period adjusted for in and out-migration.*

5. DISCUSSION

The results of this SMART survey provide a snapshot of the situation; it tells us what is happening at the given moment. This cross-sectional survey collected some additional information that potentially explains the immediate and underlying causes of malnutrition and eventually will support to make programmatic decisions.

5.1 Malnutrition

The survey findings revealed that Global Acute Malnutrition (GAM) prevalence based on WHZ among children 6-59 months found "Very High or Critical" in DSCC slums (18.4%) which is significantly higher than in DNCC slums (12.8%) that is also considered as "High or Serious". The general observations and informal discussion with community people depicted that most of the slums in DSCC are disorganized having more pavement and informal settlements with high family migration. The WASH and food security situation including NGO assistance programmes (e.g. GMP, Food assistance, health support) found relatively poor in DSCC slums compared to DNCC. These factors might lead to a high level of acute malnutrition in DSCC.

However, a higher SAM in North compared to South, which is a bit surprising. However, this situation is of great concern in both slums and requires an adequate response as children under five who suffer from severe wasting have a 12 times higher risk of death compared to healthier children [Lancet, 2013]. Acute malnourished children are also in need of life-saving treatment to prevent risk of death. When comparing the prevalence of acute malnutrition in younger children [6-23 months] vs older children [24-59 months]; in DSCC older children had higher prevalence of GAM [20.2%], while in DNCC younger children had prevalence of GAM [12.9%] which almost similar [12.8%] with older children].

Using MUAC as an indicator for acute malnutrition, the GAM prevalence was 2.0% [1.1-3.6 95% C.I.] in DSCC Slum which is comparatively lower than DNCC Slum, with a rate at 2.8% [1.7-4.7 95% C.I.]. The SAM prevalence was found 0.7% [0.2-2.0 95% C.I.] in DSCC with no SAM cases found in DNCC Slum. Poor concordance in wasting case detection between WHZ and MUAC. WHZ identified more wasted children than by MUAC. The study also revealed that GAM by WHZ found more prevalent among boys and older children while MUAC were more among girls and younger children. It is likely that MUAC based community screenings using global thresholds are not enough to detect all acutely malnourished children eligible for treatment as per WHO recommendation.

Moreover, disaggregated analysis indicates that the concordance between WHZ and MUAC was very poor in both Slums. Among the total cases of acute malnutrition [DSCC= 86, DNCC=73], only 1.5% and 1.9% GAM cases were identified by both WHZ and MUAC criteria in DSCC and DNCC Slums respectively. However, the majority of the children [89.5% in DSCC and 79.5% in DNCC] were acutely malnourished by WHZ only criteria [n=77 for DSCC and n=58 for DNCC] whereas only few children [2.3% in DSCC and 6.8% in DNCC] were acutely malnourished by MUAC only criteria [n=2 for DSCC and n=5 for DNCC] Slums. **Therefore, it is important to use both indicators for the diagnosis, treatment, and follow-up of acute malnutrition to ensure no wasted child left behind treatment program especially where the concordance between WHZ and MUAC is very poor.**

The overall combined GAM [cGAM] prevalence found 18.8% [15.1 - 23.1 95% C.I.] in DSCC with a combined SAM (cSAM) rate of 2.0% [1.1 - 3.6 95% C.I.] and in DNCC slum cGAM 13.7% [10.9 - 17.1 95% C.I] and cSAM 2.3% [1.4 - 3.7 95% C.I.] respectively. There was statistically significant difference of cGAM [P=0.046]. However, in cSAM there were no significant difference [P=0.715] between the two Slums. The cGAM and cSAM is an aggregated indicators which provides overall acute malnutrition prevalence based on WHZ and/or MUAC and/or Oedema altogether. Looking at combined prevalence, it is clear that the cGAM and cSAM rates were notably different by WHZ and MUAC which suggests that use of only MUAC or only WHZ based rates might lead to under estimation as well as of caseload when it comes to programming. Therefore, it is recommended to use cGAM estimate from routinely reported population-representative nutrition surveys globally, in addition to WHZ and MUAC, to enable context-specific decision-making, caseload calculation and Joint Response Planning [JRP][20]

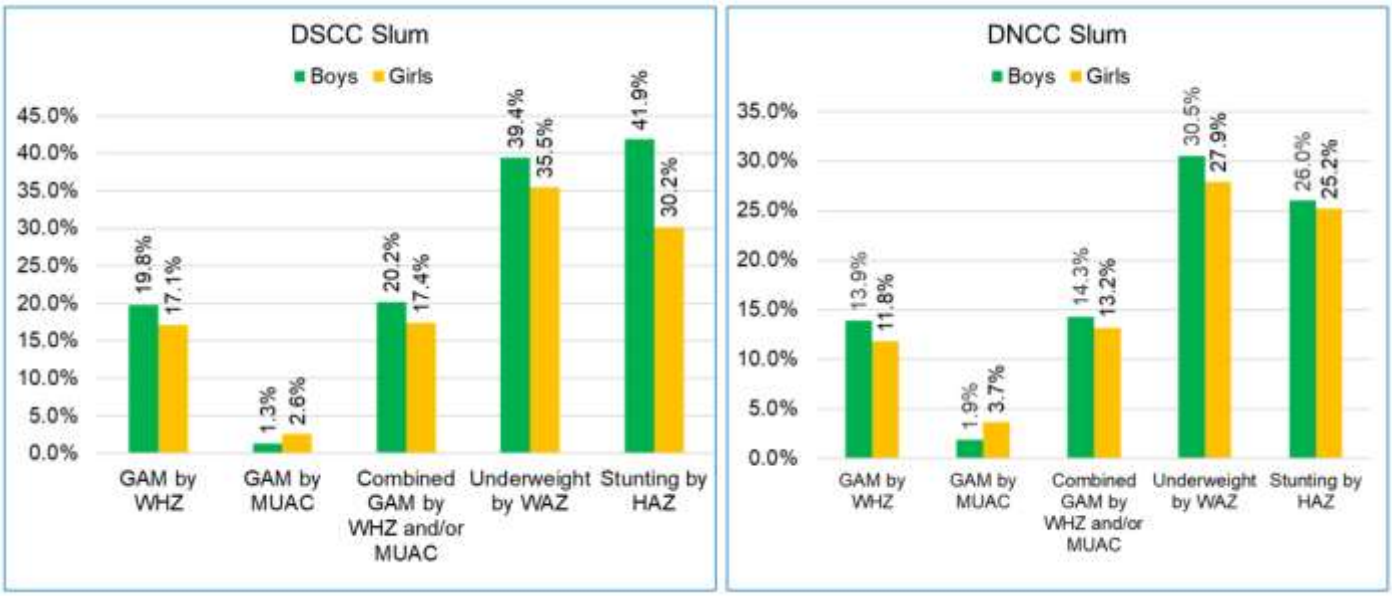
In Bangladesh, despite WHO recommendation to use both WHZ and or MUAC as admission and treatment criteria for acute malnourished children, MUAC is the primary admission criteria for nutrition treatment for children aged 6-59 months. In this regard, exploring innovative methods of community detection and screening should be considered. The admission criteria in nutrition programme based on MUAC should also be revised, with consideration of WHZ criterion for both admission and discharge.

The overall underweight prevalence by WAZ was found 37.4% [32.7 - 42.3 95% C.I.] in DSCC which categorized as "Critical" and 29.2% [25.0 - 33.8 95% C.I.] in DNCC Slum which is below the critical mark of 30% but still considered "Serious" as per WHO thresholds for nutritional emergency. There was significant difference observed in underweight prevalence between two Slums [p=0.013]. When comparing the prevalence of underweight for younger children [6-23 months] vs older children [24-59 months]; older children had significantly higher prevalence of global [30.5% vs 41.6%, P=0.015], with no significant difference for moderate underweight [25.3% vs 31.0%; P=0.185] and with significant difference for severe underweight [5.2% vs 10.7%, P=0.035] in DSCC Slum. Likewise, the underweight prevalence was found higher among older children for global [27.4% vs 30.3%, P=0.499] and moderate [23.4% vs 25.8%, P=0.540] and for severe underweight [4.0% vs 4.5%, P=0.785] with no significant difference observed between younger and older children for moderate underweight in DNCC Slum.

The overall stunting prevalence among children 6-59 months was found 35.9% [31.0 - 41.1 95% C.I.] in DSCC and 25.6 % [20.0 - 29.5 95% C.I.] in DNCC Slum which is considered 'very High" and 'High" respectively as per WHO/UNICEF lastest classification. There was significant different observed in global stunting prevalence between two Slums [p=0.001]. This indicates that large population of children in both Slums are suffering from chronic malnutrition and many of them are probably at risk of permanently damaging their mental and physical health, and undermining their future productivity and development. When comparing the prevalence of stunting for younger children [6-23 months] vs older children [24-59 months]; older children in DSCC Slum had higher but not significant prevalence of global [32.0% vs 38.3%, P=0.185] and for moderate [24.0% vs 30.5%, P=0.123] stunting and vice versa for severe stunting [8.0% vs 7.8%, P=0.934] with no significant difference. Similarly, the stunting prevalence in DNCC Slum was found higher but not significant among older children for global [24.36% vs 26.1%, P=0.707] and moderate [18.1% vs 21.6%, P=0.332] and vice versa for severe stunting [6.5% vs 4.6%, P=0.363].

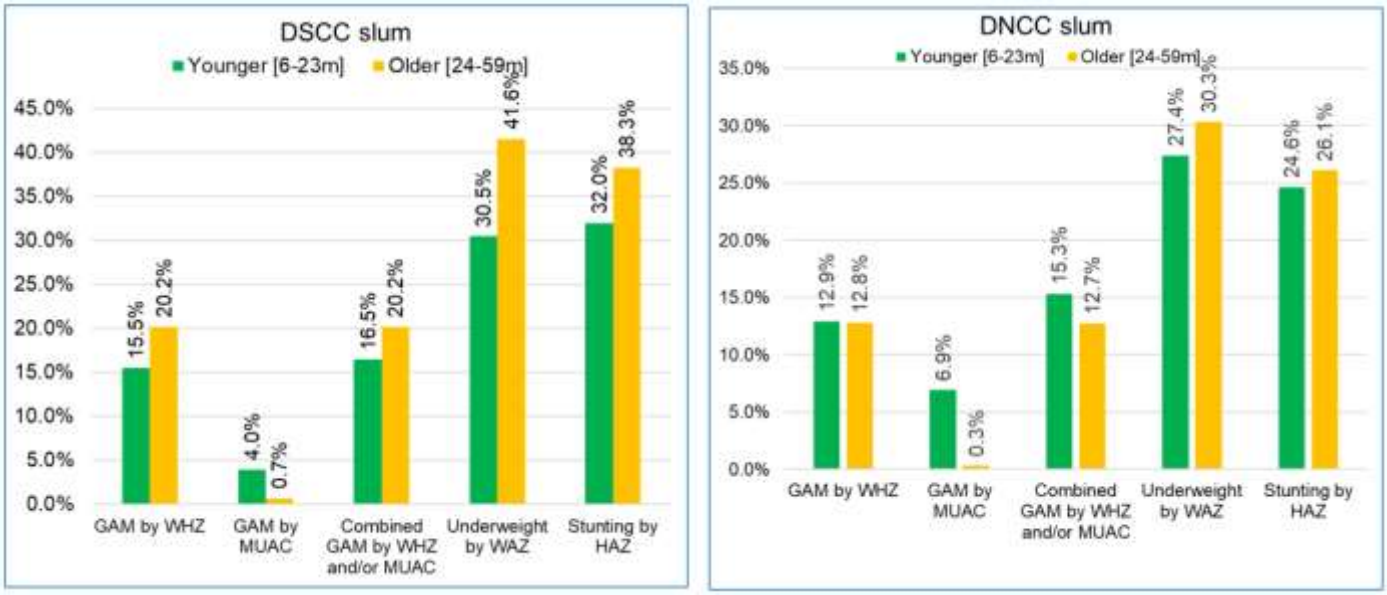
[20] https://www.ennonline.net/fex/61/gamafghanistan

Figure 13: Prevalence of wasting, underweight and stunting disaggregated by sex, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



Further gender-based analysis as seen in above figure 13 indicates that boys are more likely to be undernourished compared to girls in all forms of malnutrition except GAM by MUAC in both locations. The undernutrition was also found higher among boys for wasting [by WHZ and cGAM] and vice versa for MUAC based GAM and underweight prevalence in DNCC Slum**.** Although the point prevalence indicates boys are likely to be more undernourished compared to girls, but the difference is not significant difference [p>0.05].

Figure 14 : Prevalence of wasting, underweight and stunting by age, SMART survey, DSCC Slum and DNCC Slum, May-June 2022



As seen in the above figure 14, the prevalence of wasting was further disaggregated by age group, which demonstrated that older children aged 24-59 months are more likely to be acutely undernourished in DSCC Slum and vice versa for MUAC based GAM prevalence. Similarly, wasting prevalence by all indicators was found higher among older children in DSCC Slum. When comparing the prevalence of underweight and stunting by age group, older children aged 24-59 months found to be more underweight and stunted in both [30.5% vs 41.6%, p=0.015 for Underweight; 32.0% vs 38.3%, p=0.185 for Stunting] DSCC Slum and [27.4% vs 30.3%, p=0.499 for Underweight; 24.6% vs 26.1%, p=0.707 for Stunting] DNCC Slum.

This study suggested special attention is required for male and older children aged 24-59 months who are more prone to be undernourished and being undetected and untreated as acutely malnourished due to MUAC only programming. Probable factors could be the female and younger children stays at home and take proper food with adequate frequency along with breastmilk while male and older children are always busy playing outside and food intake being compromised. However, these are just assumptions a deeper study and causal analysis will provide the better picture. Being an absolute measure, MUAC mostly detects younger children. This discrepancy has been reported as a general phenomenon by Grellety and M. H Golden[21] based on survey data from 47 countries. The discrepancy of rates of GAM across age groups and sex supports the conclusion that MUAC is dependent on age and sex. MUAC overestimates acute malnutrition among younger children and underestimates among older children[22]. Low MUAC for girls compared to boys was observed and reported by LT Hop, R Gross, S Sastroamidjojo, T GiaY and W Schultink[23], which is similar to this survey finding.

5.2 Nutrition Status of PLWs and Access to ANC/PNC Services

The study also revealed that acute malnutrition prevalence among PLWs found very low. This prevalence found also low while comparing with MICS 2019 findings which highlights 17.6% women are being married before the age of 15 years. This prevalence among women of reproductive age was 3.4% [1.6-7.0] in DSCC and 3.9% [2.3-6.7] in DNCC Slum whereas pregnant and lactating women [with infant< 6 months child] were found to be more malnourished with low MUAC [<210 mm] classification in DNCC Slum 7.0% [3.0-15.2] compared to DSCC 5.1% [2.1-11.7].

The study revealed that majority [88.7% and 84.1%] of pregnant mothers able to access antennal services in DSCC and DNCC slums respectively. Nearly half [45.2%] in DSCC and more than half [56.5%] of pregnant mothers received ANC services from NGO health programs followed by private health centre [DSCC: 29.0% and DNCC: 27.5%]. Moreover, data on intake of Iron folic acid pills by pregnant mothers shows, in DSCC Slum 64.5% and in DNCC Slum 68.1% mothers in-taken Iron folic acid pills. Furthermore, information about total visits of checkups of Antenatal Care (ANC) and Postnatal Care (PNC) was also collected, survey findings show, in DSCC Slum [ANC: 88.7% and PNC: 66.2%] mothers had checkups to any health care provider either at health facilities or home, while [ANC: 42.6% and PNC: 8.8%] mothers went for checkup at least 4 times.

5.3 Diarrhoea and Treatment Source

Two weeks prevalence of diarrhoea among children 6-59 months was 20.1% [16.2-24.7] and 16.0% [12.8-19.7] in DSCC and DNCC Slums respectively. Further disaggregating data by sex and age groups demonstrates that there was no significant difference found between boys and girls [DSCC: 21.1% vs 19.1%, p=0.608; DNCC 18.8% vs 13.2%, p=0.581]. However, the results indicates that younger children aged 6-23 months were more vulnerable and prone to diarrhoea in both slums compared to older children aged 24-59 months, with a significant difference was observed in DNCC slums [DSSC: 23.9% vs 17.7%, p=0.133; DNCC 22.3% vs 12.1%, p=0.002].

The literature also confirmed that children between 6–23 months are associated with the highest risk of diarrhoea [Diana at al.2014]. Consistent with other studies, child's age is a significant risk factor for diarrhoea with the highest risk group identified as children 6–11 months. Unhygienic food preparation, food storage and feeding of infants may explain the increase in diarrhoea in this age cohort as weaned foods get exposed to contamination [Samwel et al., 2014, Maponga et al., 2013, Bezatu et al., 2013, Thiam et al., 2017]. Naturally, most children start crawling and teething from six months and this predisposes many infants to frequent infections as they wander into unhygienic environments [Budhathoki et al., 2016, Quigley et al., 2006]. Future studies should attempt to investigate the association.

[21] Emmanuel Grellety and M H Golden: Weight-for-height and mid-upper-arm circumference should be used independently to diagnose acute malnutrition: policy implications

[22] de Onis M., Yip R., and Mei Z., "The development of MUAC-for-age reference data recommended by a WHO Expert Committee," Bull World Health Organization, vol. 75, pp. 11–8, 1997. PMID: 9141745

[23] Hop le T., Gross R., Sastroamidjojo S., Giay T., and Schultink W., "Mid-upper-arm circumference development and its validity in assessment of undernutrition.

For the treatment given to the children who have suffered from diarrhoea, caregivers reported in both Slums DSCC and DNCC reported that, Oral Rehydration Solution (ORS) has been given as a treatment [80.4% and 89.4% respectively] by majority of caregivers when their children were suffering from diarrhoea.

5.4 Supplementation and Immunization coverage

Survey results discovered that vitamin A supplementation within the last six months (verified by card and recall by the mother in children aged 6-59 months) was below the national average (79.0%) in both DSCC (74.2%) and DNCC (71.2%) slums. Deworming coverage among children 24-59 months within the last six months was also found lower in the slums settings (DSCC-64.2%; DNCC-67.6%) above the national rate of 46.0%. Similarly, measles vaccination coverage among children 9-59 months confirmed by card and caregivers' recall was above (86.0% in both location) the national average of 83.1%. The overall coverage of vitamin A supplementation, deworming and measles vaccination were found to be good but still below the Sphere Standard's recommendation of 95% coverage. It was observed that majority of caregivers are not aware about vaccination campaign schedule which needs to be widely announced through different channels.

5.5 Infant and Young Child Feeding Practices

The exclusive breastfeeding rate in DSCC Slum was (29.7%) which is below the national rate of 65.0% and MICS 2019 results of (62.2%) and comparatively lower than DNCC Slum which was found at 46.5% with significant difference [p=0.076] between two Slums. Addition to that, continuation of breastfeeding among children aged 12-23 months was reported more than 90% in both slums.

The minimum dietary diversity [>=5 food groups] was reported at 51.7% [42.9-60.4] in DSCC and 45.0% [63.1-54.5] in DNCC Slum showing no significant difference [p=0.508] higher in DSCC compared to DNCC Slum. MDD results in both slums were high while comparing with MICS 2019 results (34.6%). This also indicates that nearly half of the children in DSCC and more than half DNCC Slum did not receive at least five categories of food groups as recommended. The minimum meal frequency for breastfeed children aged 6-8 months [>=2 full meals per day] and 9-23 months [>=3 full meals per day] were reported as 84.2% [48.7-96.7] and 77.5% [36.9-95.3] respectively in DSCC Slum and 77.1% [18.7-97.0] and 64.9% [35.8-86.1] respectively in DNCC Slum. The minimum acceptable diet was 44.9% [36.5-53.6] in DSCC and 36.1% [28.4-44.8] in DNCC Slum among children aged 6-23 months who fed with minimum five food groups and adequate number of meals according to their age and if they were breastfed or not. There was no significant difference in minimum acceptable diet with [p=0.141] among DSCC and DNCC Slum. MAD results were high in both slums while comparing with MICS 2019 results (27.8%).

The overall IYCF results in DSCC and DNCC Slums suggested a context with inadequate complementary feeding practices although breastfeeding among infants and young children was found relatively lower compared to the national prevalence of some IYCF indicators [e.g. exclusive breastfeeding rate- 65%, Early Initiation of breastfeeding-69%, continued breastfeeding up to 2 years- 87% and minimum acceptable diet 34%][24]. Adequate complementary feeding from 6 months following recommended dietary diversity and meals frequency prevent undernutrition and decrease the risk of infectious diseases, such as diarrhoea and pneumonia. Therefore, an in-depth IYCF study with representative sample is recommended to explore the actual scenario of IYCF status in these slums that may help to adjust IYCF interventions with the framework of nutrition programme.

5.6 Food Security and Livelihood

Food security indicators and other livelihoods related parameters used in the survey indicate a moderate food security situation in DSCC and DNCC Slum. However, the COVID-19 crisis that has immediately changed the situation. The crisis severely impacted the livelihoods of all categories of the income groups relying on daily basis earning options. The current food security and livelihood situation in both Slums is of major concern while food

[24] Bangladesh Demographic Health Survey 2017

security is essential to ensure adequate nutrition and prevent hunger; the concepts of food security, optimal nutrition, and lack of hunger and undernutrition are interlinked but not synonymous.

The study revealed that majority of the households had adopted no or low coping strategy in DSCC and DNCC Slum. Furthermore, Medium coping strategy was found [DSCC: 15.1%, DNCC: 13.9%] and High coping strategy was found [DSCC: 12.1%, DNCC: 7.8%] with no significant difference of [p=0.590 and 0.020] respectively. The most frequent coping strategy as experienced by the household members in both Slums was reported "rely on less preferred and/or less expensive food with" at [DSCC: 34.4%, DNCC: 25.2%], followed by "reduce the number meal eaten per day" at [DSCC: 23.3%, DNCC: 19.9%]. The study also revealed that there is a positive relationship observed in DSCC slums between rCSI and malnutrition cases meaning households more experienced with food based copping strategies are more tends to have malnourished children. However, no positive relation was observed in DNCC slums. It was also observed that household income is low in DSCC compared to DNCC. Nutrition in Bangladesh cities survey conducted by WFP in 2017 shows 33% of the household reported under severe food insecure with Hunger. Moreover, Food insecurity experience scale data was collected from the survey population of both DSCC and DNCC Slum. Approximately two third households [DSCC: 32.1%; DNCC: 32.3%] experienced moderate or severe level and only few households [DSCC: 2.1%; DNCC: 4.2%] of food insecurity over last 30 days due to lack of money or lack of other resources to buy food. The most frequent food insecurity experience by the household members in both Slums was reported "worried about not having enough food" at [DSCC: 47.7%, DNCC: 45.5%], followed by "unable to eat healthy food" at [DSCC: 39.5%, DNCC: 38.4%].

It should be noted that the survey team faced some challenges while administering food-based questionnaires. For instance, some respondents tried to prove themselves as vulnerable families especially while asking food insecurity-related questions due to the expectation of getting aid or support. We also observed that some families provided information that are not coherent with other responses.

5.7 Water, Sanitation and Hygiene

Water, sanitation, and hygiene are the key determinant of undernutrition that affects all four pillars of nutrition and food security including food availability, food access, food stability and [most importantly] utilization of nutrients. The latter has particular consequences when discussing the ways in which infectious disease is related to changes in gut health, and in turn, the nutrition of infant and young child.

The study depicted that more than 95% households reported accessing drinking water either from WASHA supply or deep tube well (DSCC-68.8%, 27.4% and DNCC-77.9%, 16.3% respectively). The household practices regarding purification of drinking water also reported as almost equal to two third [DSCC: 78.1%, DNCC: 72.7%] of household are drinking water without any purification or treatment. Only few households [DSCC: 18.8%, DNCC: 20.1%] responded that they always purify the water before drinking. Household reported challenges of drinking water in both Slums were [DSCC: 40.0%, DNCC: 55.8%]. The most frequent challenge regarding drinking water experienced by the household members in both Slums was reported "Bad smell and waste particles present in the water" at [DSCC: 45.5%, DNCC: 55.8%], followed by "Inadequate water supply as per demand" at [DSCC: 18.6%, DNCC: 33.5%].

It was also reported that, approximately 90.0% households in DSCC have access toilets that are piped with sewerage system while this percentage was significantly low about 49.4% in DNCC slum. Besides that, nearly fifty percentage households (46.6%) in DNCC used latrine that are mixed with nearby drain or water point that are alarming for contamination of water borne disease. The management of child feces in the surveyed area was satisfactory. In both Slum majority of the caregivers reported that child used latrine and feces picked up and threw in latrine at [DSCC: 36.2% and 32.5%] while [DNCC: 39.1% and 32.6%] respectively.

For handwashing behaviour, the survey findings revealed that almost all respondents, Handwashing behaviour with soap during critical times is also alarming. Despite good practices of handwashing among caregiver reported after defecation (>90%) and disposing of child feces (>60%), other hand washing practices for example, before cooking or serving, eating, and feeding or breast feeding was reported low in DSCC and DNCC Slum. It was also

reported that most of the caregivers reported washing their hands most frequently with water only (DSCC-53.5%; DNCC-64.9%) while less than half of the caregiver wash their hand with water and soap (DSCC-46.1%; DNCC-34.7%).

5.8. Mortality

The overall crude and under 5 death rates [CDR and U5DR] were well below the emergency thresholds with no major concern. However, Under 5 death rate was comparatively higher in DSCC than DNCC (0.63 vs 0.16 death/10,000/day)

6. LIMITATION OF THE ASSESSMENT

The SMART applied cross-sectional survey methodology that provides a snapshot of the prevalence of malnutrition and other indicators collected during the data collection period. However, the prevalence of malnutrition cannot be entirely understood without an in-depth analysis of the underlying causes of malnutrition, including the socio-economic context, childcare practices, food security and livelihoods environment, WASH assessment, market analyses etc. as typically found in a 6-month Nutrition Causal Analysis [NCA]. This report provides a general overview and analysis of the context in DSCC and DNCC Slums during the period from **22rd May- 16th June 2022.** However, additional information as assessed during this study can potentially explains the immediate and underlying causes of malnutrition that eventually will support to make programmatic decisions.

SMART methodology recommends calculating sample size based on children's anthropometry and mortality. The sample size is determined to achieve adequate precision for acute malnutrition. For some additional indicators these sample sizes were not specifically calculated to achieve high precision in estimation. No additional sample was calculated for IYCF, FSL and WASH sample size as the anthropometric indicators were used as reference. It is to be noted that, IYCF indicators usually require higher sample size and may not be able to achieve required optimal precision with these estimated number of samples based on Anthropometry. Hence, it should be noted that the results of the IYCF indicators in the integrated nutrition survey is only an indication and NOT a representative for the whole population.

The survey achieved the minimum percentages of clusters surveyed [90%] and children measured [80%] stipulated by the SMART methodology to ensure representativeness for two city corporations. In DSCC, 1,261 households comprising 459 children were enlisted during data collection. In DNCC, 1,317 households comprising 531 children were enlisted and measured.

More younger children included in the sample might have an influence on some specific indicators associated with age. No trend analysis as no baseline data were available, however triangulation with existing data can be done.

Additional stress also fell into the entire survey management and execution team to strictly ensure the health and IPC guidelines throughout the training and data collection period. All the survey enumerators were highly experienced and had been involved in previous surveys. Exclusion criteria of household based on COVID-19 checklist might introduced some selection bias although finally exclusion due to COVID-19 related issues were very minimal. However, finally, there was no exclusion due to fever or COVID-19 sign symptoms. Some of the IPC safety procedures were incredibly challenging to adhere [e.g. Physical distancing, putting mask to children].

Challenges encountered during data collection:

- Hot weather, no ventilation for air circulation and limited space at household's level.
- Inadequate volunteer support-Team faced difficulties to identify households
- Difficult to access some cluster due to heavy rainfall
- Long waiting time for the absent households since they work outside
- Difficulties in data collection in pavements due to absence of household's member during daytime. It took one extra day to complete these clusters in the pavements.

- Expectation of getting aid or support among respondents- Tried to prove them as vulnerable families especially while asking food insecurity related questions.
- Difficult to manage secured place for interview that might lead to get bias information since some families are not comfortable to share about their food crisis in front of others.
- Difficult to make the respondent clear understanding on food security related questions. Some families provided information that are not coherent with other responses.

Table 56: Some essential field observation, SMART survey, DSCC Slum and DNCC Slum, May-June 2022

	DSCC Slum	DNCC Slum
Slum settings	Disorganized but less slum found upon waterbodies/upon spoilage pond. More pavement and informal settlements	Established and more organized but most of the slums found on waterbodies or spoilage ponds.
Population stability	Frequent family movement to other places	Less family movement to other places. They are living for a long time in that slum area.
Household Income	Comparatively low	Comparatively bit higher than DSCC
Main Income sources	CNG driver, rickshaw-puller, garments worker, day labor, maid worker, small tea or vegetable shopkeeper, beggar, etc.	
NGO assistance (e.g. GMP, Food assistance, health support**)**	Comparatively low	Comparatively good than DSCC
General observation	- Education status found comparatively low in DSCC than DNCC. - Mothers are not well aware about vaccination and campaign schedule. - Extra cost for vaccination that demotivates most of the families. - No one else in the households to bring their child to campaign center. - Some children were found eating unhygienic street food. - Early marriage among mother and more cesarean case - Lack of awareness among mother about critical hand washing practices. - Hygiene condition in DSCC was found bad compared to DNCC. - Lack of knowledge about positive health and nutrition behaviour. - No systematic health and nutrition programme existing in the slum. - Lack of awareness programme exits in both slum. - No NGO is providing MNP support in both area.	

7. RECOMMENDATIONS AND PRIORITIES

The recommendations drawn from the findings of this assessment are based on the relevant stakeholders and partner's consultations are as follows:

Thematic Area	Key findings	Recommended action
Child Undernutrition (e.g. wasting, underweight and Stunting)	• **Global Acute Malnutrition** (GAM) rate among children was found to be above the emergency thresholds **("Very High")** of >15% in DSCC slums and remained in the second highest category **("High")** in DNCC slums. • **Chronic malnutrition** (stunting) among children was found to be above the Very High/Critical WHO/UNICEF thresholds of >30% in DSCC slums and remained in the second highest category of >20% **("High")** in DNCC slums. • **Boys and older children** (24-59 months) were more undernourished in all forms of malnutrition (e.g. wasting, stunting and underweight) compared to girls and younger children (6-23 months).	• Ensure provision of minimum package of integrated health and nutrition services from Government and NGO primary health care centre for both children and PLWs and established referral system for malnourished cases. • Set up community based screening, detection and referral of acute malnourished children and PLWs including routine growth monitoring activities in urban slums area. • Strengthen the referral system and the linkage between the community and the health facilities. • Strengthen the provision of quality nutritional treatment through exiting stabilization center or SAM corner at government health facility. • Advocate for necessary revision of the current national CMAM guideline to consider admissions by all criteria (e.g. WHZ, MUAC and Oedema) since national protocol recommendations MUAC based programming only. This will ensure all acute malnourished children are detected and admitted for management. • Set up community based management of acute malnutrition programmes (e.g. OTP and TSFP for SAM and MAM respectively) in urban settings with use of context specific appropriate nutrition treatment products. • Enhance prevention programming including promotion of infant and young child feeding (IYCF) and care practices to address high levels of undernutrition. • Develop nutrition strategy for urban slums under the leadership of Bangladesh National Nutrition Council (BNNC) and bring together all relevant government ministries, key stakeholders and private sectors to establish multi-sectoral linkages on health, agriculture and food, social protection, education and social affairs etc.

Thematic Area	Key findings	Recommended action
Infant & Young Child Feeding Practices	• **Poor infant and young child feeding (IYCF) practices** varied with optimal and sub-optimal levels in both locations. Timely initiation of breastfeeding found closer to the national average. - Only approximate half of children exclusively breastfeed within two days of delivery. - Very low percentage of exclusive breastfeeding in DSCC slums compared to DNCC slums. Both rates are below the national average. - Bottle feeding practice is also a great concern in both locations (DSCC 28.6%; 31.8 %) and higher than national rate of 16.0%. - More than half of the children didn't meet minimum acceptable diet (DSCC 44.9% DNCC 36.1%)	• Integration of IYCF counseling in nutrition-sensitive and specific interventions run by GO and NGOs. • Improve dietary diversity through the proper counselling on food & nutrition including introduction of or expansion of urban safety net programme targeting children and women of reproductive age. • Implementation of Baby-Friendly Hospital Initiatives (BFHI) and Baby -friendly community initiatives (BFCI).
Childhood diarrhoea, MNP, vitamin A, deworming and measles vaccination coverage and mortality	• Diarrhoea prevalence (DSCC- 20.1%, DNCC-16.0%) was relatively high compared to the national average rate of 5.0% and was more prevalent among younger children • **Less intake of micronutrient powder (MNP)** among children 6-59 months during previous days (<1.0%). • Vitamin A supplementation coverage found to be below the national average (79%), except for measles vaccination (>85.0%) and deworming coverage (>64%) were found to be above the national average.	• Strengthen routine Expanded Programme for Immunization (EPI) and ensure sensitization to enhance programmes coverage (e.g. vitamin A, immunization etc.) through community engagement. • Ensure adequate supplementation of micronutrient power through government and NGO programmes • Strengthen community initiatives at the community and household level which promote personal hygiene and sanitation (handwashing, water treatment, proper disposal of waste, etc.) to minimize the occurrence and severity of diarrhoea in children.

Thematic Area	Key findings	Recommended action
	• Both crude and under 5 death rate were well below the SPHERE thresholds with no major concern	
Maternal Malnutrition and care during and after pregnancy	• Low malnutrition rates observed among PLWs in urban slum area. • **Accessing Antenatal Care (ANC) services** among pregnant women were found to be relatively high (>=85%) but i**ron folic acid intake was reported low.** • ANC and PNC checkups were optimal for at least one visit but were reported very low for at least four visits in both locations.	• Need ANC and PNC awareness program and provide services in the community level • Adequate supplementation of IFA and calcium from Government /NGOs • Provision or expansion of maternity allowance for pregnant women to ensure proper care during pregnancy period.
Food Security	• One-third households reported with medium or severe food insecure based on FIES who negatively adopted the situation through consumption-based coping strategies to deal with food shortages. This affects both the quantity and quality of food consumed. • Positive linkage between high consumption based coping strategies (rCSI) and acute malnutrition in DSCC slum	• Expansion of government safety net programmes in the urban slum targeting nutritionally vulnerable groups. • Develop a multi-sectoral Social Behaviour Change and Communication (SBCC) strategy for the population living in urban slums across nutrition-specific and sensitive interventions to enhance diversified food consumption in order to address the underlying causes of malnutrition.
WASH	• Households (>95.0%) access to drinking water were optimal but there remains concern about the supply of water quality. • Poor hand washing practices with soap during critical times expect after defecation and disposing of child feaces.	• Strengthen initiatives at the community and household level which promote personal hygiene and sanitation (handwashing, water treatment, proper disposal of waste, etc.) to minimize the occurrence and severity of diarrhoea in children. • Scale up WASH programmes in urban areas to help breaking the link between waterborne diseases on malnutrition of children and PLWs • Advocacy with WASA for ensuring supply of safe water minimizing the high risk of water born disease.

Thematic Area	Key findings	Recommended action
	• Sanitation continues to be an issue in DNCC slums as contents of latrines are mixed with nearby drain or water point with high risk of contamination of water borne disease. • Unsafe disposal of child feaces also remains a concern in both locations which makes children susceptible to diseases transmitted via the fecal-oral route.	• Need to increase community awareness (SBCC) program including WASH message and ensure the distribution of Hygiene kit. • Need more water ATM Booth in urban slum area which cheapest price to ensure safe drinking water for all, which will reduce the waterborne disease. • Need to setup more sanitary latrine with proper connection of sewerage line to minimize chances of water borne disease and other health hazard.
Monitoring and Evaluation and further research	- No surveillance system exist to monitor the evaluation of the situation - Study limitation that emphasize in-depth IYCF and other relevant studies	• Endorsement and financing of the BNNC 'Guideline for Developing a Multi-Sectorial National Nutrition Surveillance System in Bangladesh' • In the interim, while the above guideline is being financed, UNICEF, NGO and Government should work together to conduct follow up integrated SMART survey after six or twelve month for close monitoring of nutrition, health, food security and WASH situation in urban slums. • An in-depth assessment on the infant and young child feeding practices is necessary to better inform IYCF programming as a strategy to address undernutrition in general.

8. ANNEXES

Annex 1: Health Screening Checklist

Health screening checklist for household inclusion/exclusion

Conditions	Response [Y/N]
1. Did eligible children [6-59 months] or child's mother or selected women of reproductive age [15-49 years] have high temperature [≥100.4F/38C] and/or others symptoms of COVID-19 [e.g. dry cough, sneezing, shortness of breath, chest pain or pressure, loss of speech or movement etc.?]	
2. Did anyone in this household tested positive for COVID-19 within the past 14 days?	
3. Was anyone in this household in close contact with a confirmed COVID-19 positive patient within at least 14 days?	
4. Is anyone in this household currently in home or centre quarantine for isolation?	

Health screening checklist for survey team

	Conditions	Morning [Y/N]	Evening [Y/N]
Most common and mild symptoms	1. Did the staff and or any of the team member have high temperature [≥100.4F/38C] without dry cough, tiredness?		
	2. Did the staff and or any of the team member have high temperature [≥100.4F/38C] with dry cough, tiredness?		
Mid and less common symptoms [treated from home]	3. Did the staff and or any of the team member have high temperature [≥100.4F/38C] without sore throat, diarrhoea, conjunctivitis, headache, loss of taste or smell, aches and pains?		
	4. Did the staff and or any of the team member have high temperature [≥100.4F/38C] with sore throat, diarrhoea, conjunctivitis, headache, loss of taste or smell, aches and pains?		
Serious symptoms [take immediate medical attention]	5. Did the staff and or any of the team member have running nose, sneezing, shortness of breath, chest pain or pressure, loss of speech or movement?		

Plausibility check for: DSCC__Slums_ENA file_May2022.as

Standard/Reference used for z-score calculation: WHO standards 2006
(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

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=0.575)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**4** (p=0.034)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
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** (2)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (0.96)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.18)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.14)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**1** (p=0.040)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**5** %

The overall score of this survey is 5 %, this is excellent.

There were no duplicate entries detected.

Percentage of children with no exact birthday: 10 %

Anthropometric Indices likely to be in error (-3 to 3 for WHZ, -3 to 3 for HAZ, -3 to 3 for WAZ, from observed mean - chosen in Options panel - these values will be flagged and should be excluded from analysis for a nutrition survey in emergencies. For other surveys this might not be the best procedure e.g. when the percentage of overweight children has to be calculated):

Line=90/ID=3: **WHZ (-4.343)**, WAZ (-5.188), Weight may be incorrect
Line=111/ID=4: WAZ (1.404), Weight may be incorrect

Line=134/ID=4: **WHZ (-4.393)**, WAZ (-4.904), Weight may be incorrect
Line=158/ID=5: HAZ (2.675), Height may be incorrect

Percentage of values flagged with SMART flags:WHZ: 0.4 %, HAZ: 0.2 %, WAZ: 0.7 %

Age distribution:

Month 6 : #########
Month 7 : ######
Month 8 : ################
Month 9 : ##########
Month 10 : ##########
Month 11 : #######
Month 12 : #####
Month 13 : #######
Month 14 : ########
Month 15 : ######
Month 16 : #####
Month 17 : ########
Month 18 : ###############
Month 19 : ############
Month 20 : ################
Month 21 : #########
Month 22 : ###############
Month 23 : ######
Month 24 : ##########
Month 25 : #########
Month 26 : ##########
Month 27 : ########
Month 28 : ##########
Month 29 : #######
Month 30 : #########
Month 31 : ############
Month 32 : ##########
Month 33 : ######
Month 34 : #########
Month 35 : #####
Month 36 : ######
Month 37 : #######
Month 38 : #####
Month 39 : ########
Month 40 : ########
Month 41 : #####
Month 42 : #########
Month 43 : #########
Month 44 : #######
Month 45 : ###############
Month 46 : ####
Month 47 : #######

Month 48 : ##########
Month 49 : #######
Month 50 : #####
Month 51 : ##########
Month 52 : #########
Month 53 : #######
Month 54 : #######
Month 55 : ######
Month 56 : ##########
Month 57 : #########
Month 58 : ##
Month 59 : ###
Month 60 : ###

Age ratio of 6-29 months to 30-59 months: 1.04 (The value should be around 0.85).:
p-value = 0.034 (significant difference)

Statistical evaluation of sex and age ratios (using Chi squared statistic):

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	57/51.9 (1.1)	48/54.7 (0.9)	105/106.5 (1.0)	1.19
18 to 29	12	56/50.0 (1.1)	72/52.7 (1.4)	128/102.8 (1.2)	0.78
30 to 41	12	47/49.0 (1.0)	41/51.6 (0.8)	88/100.7 (0.9)	1.15
42 to 53	12	46/48.2 (1.0)	54/50.8 (1.1)	100/99.1 (1.0)	0.85
54 to 59	6	17/23.9 (0.7)	20/25.1 (0.8)	37/49.0 (0.8)	0.85
6 to 59	54	223/229.0 (1.0)	235/229.0 (1.0)		0.95

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.575 (boys and girls equally represented)
Overall age distribution: p-value = 0.030 (significant difference)
Overall age distribution for boys: p-value = 0.497 (as expected)
Overall age distribution for girls: p-value = 0.024 (significant difference)
Overall sex/age distribution: p-value = 0.004 (significant difference)

Distribution of month of birth

Jan: ##################################
Feb: ############################
Mar: ##############################
Apr: ############################
May: ##############################
Jun: ############################
Jul: ##################################
Aug: ##
Sep: ##
Oct: ##
Nov: ##
Dec: ############################

Digit preference Weight:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ##
Digit .7 : ##
Digit .8 : ##
Digit .9 : ##

Digit preference score: **6** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.151

Digit preference Height:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ##
Digit .7 : ##
Digit .8 : ##
Digit .9 : ##

Digit preference score: **4** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.773

Digit preference MUAC:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ##
Digit .7 : ##
Digit .8 : ##
Digit .9 : ##

Digit preference score: **2** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.986

Evaluation of Standard deviation, Normal distribution, Skewness and Kurtosis using the 3 exclusion (Flag) procedures

.	no exclusion	exclusion from reference mean (WHO flags)	exclusion from observed mean (SMART flags)
WHZ			
Standard Deviation SD:	0.99	0.99	0.96
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:			
calculated with current SD:			
calculated with a SD of 1:			
HAZ			
Standard Deviation SD:	1.05	1.05	1.03
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:	35.8%	35.8%	35.9%
calculated with current SD:	34.8%	34.8%	34.9%
calculated with a SD of 1:	34.0%	34.0%	34.4%
WAZ			
Standard Deviation SD:	0.99	0.99	0.96
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:			
calculated with current SD:			
calculated with a SD of 1:			

Results for Shapiro-Wilk test for normally (Gaussian) distributed data:

WHZ	p= 0.786	p= 0.786	p= 0.431
HAZ	p= 0.194	p= 0.194	p= 0.448
WAZ	p= 0.339	p= 0.339	p= 0.178

(If p < 0.05 then the data are not normally distributed. If p > 0.05 you can consider the data normally distributed)

Skewness

WHZ	0.05	0.05	0.18
HAZ	0.17	0.17	0.06
WAZ	0.10	0.10	0.21

If the value is:
-below minus 0.4 there is a relative excess of wasted/stunted/underweight subjects in the sample
-between minus 0.4 and minus 0.2, there may be a relative excess of wasted/stunted/underweight subjects in the sample.
-between minus 0.2 and plus 0.2, the distribution can be considered as symmetrical.
-between 0.2 and 0.4, there may be an excess of obese/tall/overweight subjects in the sample.
-above 0.4, there is an excess of obese/tall/overweight subjects in the sample

Kurtosis

WHZ	0.14	0.14	-0.14
HAZ	0.25	0.25	-0.14
WAZ	0.34	0.34	-0.08

Kurtosis characterizes the relative size of the body versus the tails of the distribution. Positive kurtosis indicates relatively large tails and small body. Negative kurtosis indicates relatively large body and small tails.
If the absolute value is:
-above 0.4 it indicates a problem. There might have been a problem with data collection or sampling.
-between 0.2 and 0.4, the data may be affected with a problem.
-less than an absolute value of 0.2 the distribution can be considered as normal.

Test if cases are randomly distributed or aggregated over the clusters by calculation of the Index of Dispersion (ID) and comparison with the Poisson distribution for:

WHZ < -2: ID=1.36 (p=0.040)
WHZ < -3: ID=0.89 (p=0.702)
GAM: ID=1.36 (p=0.040)

```
SAM:       ID=0.89 (p=0.702)
HAZ < -2: ID=1.29 (p=0.073)
HAZ < -3: ID=0.93 (p=0.624)
WAZ < -2: ID=1.19 (p=0.163)
WAZ < -3: ID=0.94 (p=0.611)
```

Subjects with SMART flags are excluded from this analysis.

The Index of Dispersion (ID) indicates the degree to which the cases are aggregated into certain clusters (the degree to which there are "pockets"). If the ID is less than 1 and p > 0.95 it indicates that the cases are UNIFORMLY distributed among the clusters. If the p value is between 0.05 and 0.95 the cases appear to be randomly distributed among the clusters, if ID is higher than 1 and p is less than 0.05 the cases are aggregated into certain cluster (there appear to be pockets of cases). If this is the case for Oedema but not for WHZ then aggregation of GAM and SAM cases is likely due to inclusion of oedematous cases in GAM and SAM estimates.

Are the data of the same quality at the beginning and the end of the clusters?
Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.01 (n=56, f=0)  #########
02: 1.02 (n=52, f=1)  #########
03: 1.04 (n=56, f=0)  ##########
04: 1.12 (n=50, f=0)  ###############
05: 0.88 (n=44, f=0)  ###
06: 0.95 (n=43, f=1)  ######
07: 0.97 (n=42, f=0)  #######
08: 0.95 (n=34, f=0)  ######
09: 0.92 (n=27, f=0)  #####
10: 1.04 (n=19, f=0)  ##########
11: 0.96 (n=11, f=0)  OOOOOOO
12: 0.66 (n=10, f=0)
13: 1.09 (n=06, f=0)  ~~~~~~~~~~~~
15: 0.44 (n=02, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Analysis by Team

Team	**1**	**2**	**3**	**4**	**5**	**6**
n =	73	91	84	73	69	68
Percentage of values flagged with SMART flags:						
WHZ:	0.0	1.1	0.0	1.4	0.0	0.0
HAZ:	1.4	0.0	0.0	0.0	0.0	0.0
WAZ:	0.0	1.1	1.2	1.4	0.0	0.0
Age ratio of 6-29 months to 30-59 months:						
	0.97	1.39	0.91	1.03	0.92	1.00
Sex ratio (male/female):						
	0.82	1.07	1.10	0.97	1.03	0.70
Digit preference Weight (%):						
.0 :	10	9	12	7	4	10
.1 :	7	9	10	7	7	12

.2 :	15	10	12	11	14	15
.3 :	12	12	8	11	17	12
.4 :	11	9	10	12	10	10
.5 :	14	13	11	11	17	10
.6 :	12	10	10	11	4	4
.7 :	5	5	11	14	7	7
.8 :	5	12	10	10	13	7
.9 :	8	11	8	7	4	12
DPS:	11	7	4	8	17	9

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference Height (%):

.0 :	5	9	11	8	9	9
.1 :	8	10	10	10	9	9
.2 :	11	10	11	8	14	7
.3 :	12	10	12	8	13	10
.4 :	10	11	12	7	13	16
.5 :	12	11	11	8	13	7
.6 :	12	10	8	14	13	10
.7 :	10	11	10	14	10	12
.8 :	12	9	7	12	3	12
.9 :	7	10	10	11	3	7
DPS:	8	3	5	8	13	9

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference MUAC (%):

.0 :	7	9	14	11	12	7
.1 :	10	9	10	11	12	12
.2 :	14	12	8	8	10	13
.3 :	8	10	12	11	6	9
.4 :	8	11	8	11	6	13
.5 :	12	10	8	8	6	10
.6 :	10	9	10	10	10	12
.7 :	11	13	11	10	16	9
.8 :	10	9	8	11	12	7
.9 :	11	9	11	10	12	7
DPS:	6	5	6	4	10	8

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Standard deviation of WHZ:

SD	0.93	0.96	1.12	0.96	0.95	0.96

Prevalence (< -2) observed:

%	23.8

Prevalence (< -2) calculated with current SD:

%	24.6

Prevalence (< -2) calculated with a SD of 1:

%	22.1

Standard deviation of HAZ:

SD	1.04	1.22	0.99	0.99	1.17	0.80

observed:

%	24.7	38.5			47.8	

calculated with current SD:

%	27.2	39.7			40.5	

calculated with a SD of 1:
% 26.4 37.6 38.9

Statistical evaluation of sex and age ratios (using Chi squared statistic) for:

Team 1:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	11/7.7 (1.4)	6/9.3 (0.6)	17/17.0 (1.0)	1.83
18 to 29	12	7/7.4 (0.9)	12/9.0 (1.3)	19/16.4 (1.2)	0.58
30 to 41	12	7/7.3 (1.0)	4/8.8 (0.5)	11/16.0 (0.7)	1.75
42 to 53	12	5/7.1 (0.7)	13/8.7 (1.5)	18/15.8 (1.1)	0.38
54 to 59	6	3/3.5 (0.8)	5/4.3 (1.2)	8/7.8 (1.0)	0.60
6 to 59	54	33/36.5 (0.9)	40/36.5 (1.1)		0.82

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.413 (boys and girls equally represented)
Overall age distribution: p-value = 0.678 (as expected)
Overall age distribution for boys: p-value = 0.701 (as expected)
Overall age distribution for girls: p-value = 0.130 (as expected)
Overall sex/age distribution: p-value = 0.034 (significant difference)

Team 2:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	12/10.9 (1.1)	14/10.2 (1.4)	26/21.2 (1.2)	0.86
18 to 29	12	15/10.5 (1.4)	12/9.9 (1.2)	27/20.4 (1.3)	1.25
30 to 41	12	7/10.3 (0.7)	9/9.7 (0.9)	16/20.0 (0.8)	0.78
42 to 53	12	9/10.2 (0.9)	7/9.5 (0.7)	16/19.7 (0.8)	1.29
54 to 59	6	4/5.0 (0.8)	2/4.7 (0.4)	6/9.7 (0.6)	2.00
6 to 59	54	47/45.5 (1.0)	44/45.5 (1.0)		1.07

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.753 (boys and girls equally represented)
Overall age distribution: p-value = 0.189 (as expected)
Overall age distribution for boys: p-value = 0.493 (as expected)
Overall age distribution for girls: p-value = 0.391 (as expected)
Overall sex/age distribution: p-value = 0.108 (as expected)

Team 3:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	8/10.2 (0.8)	7/9.3 (0.8)	15/19.5 (0.8)	1.14
18 to 29	12	12/9.9 (1.2)	13/9.0 (1.4)	25/18.9 (1.3)	0.92
30 to 41	12	9/9.7 (0.9)	5/8.8 (0.6)	14/18.5 (0.8)	1.80
42 to 53	12	11/9.5 (1.2)	8/8.7 (0.9)	19/18.2 (1.0)	1.38
54 to 59	6	4/4.7 (0.8)	7/4.3 (1.6)	11/9.0 (1.2)	0.57
6 to 59	54	44/42.0 (1.0)	40/42.0 (1.0)		1.10

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.663 (boys and girls equally represented)
Overall age distribution: p-value = 0.328 (as expected)
Overall age distribution for boys: p-value = 0.857 (as expected)
Overall age distribution for girls: p-value = 0.216 (as expected)
Overall sex/age distribution: p-value = 0.131 (as expected)

Team 4:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	11/8.4 (1.3)	12/8.6 (1.4)	23/17.0 (1.4)	0.92
18 to 29	12	8/8.1 (1.0)	6/8.3 (0.7)	14/16.4 (0.9)	1.33
30 to 41	12	6/7.9 (0.8)	8/8.1 (1.0)	14/16.0 (0.9)	0.75
42 to 53	12	8/7.8 (1.0)	10/8.0 (1.2)	18/15.8 (1.1)	0.80
54 to 59	6	3/3.9 (0.8)	1/4.0 (0.3)	4/7.8 (0.5)	3.00
6 to 59	54	36/36.5 (1.0)	37/36.5 (1.0)		0.97

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.907 (boys and girls equally represented)
Overall age distribution: p-value = 0.296 (as expected)
Overall age distribution for boys: p-value = 0.830 (as expected)
Overall age distribution for girls: p-value = 0.321 (as expected)
Overall sex/age distribution: p-value = 0.183 (as expected)

Team 5:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	11/8.1 (1.4)	3/7.9 (0.4)	14/16.0 (0.9)	3.67
18 to 29	12	7/7.9 (0.9)	12/7.6 (1.6)	19/15.5 (1.2)	0.58
30 to 41	12	8/7.7 (1.0)	10/7.5 (1.3)	18/15.2 (1.2)	0.80
42 to 53	12	7/7.6 (0.9)	6/7.4 (0.8)	13/14.9 (0.9)	1.17
54 to 59	6	2/3.7 (0.5)	3/3.6 (0.8)	5/7.4 (0.7)	0.67
6 to 59	54	35/34.5 (1.0)	34/34.5 (1.0)		1.03

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.904 (boys and girls equally represented)
Overall age distribution: p-value = 0.626 (as expected)
Overall age distribution for boys: p-value = 0.742 (as expected)
Overall age distribution for girls: p-value = 0.149 (as expected)
Overall sex/age distribution: p-value = 0.070 (as expected)

Team 6:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	4/6.5 (0.6)	6/9.3 (0.6)	10/15.8 (0.6)	0.67
18 to 29	12	7/6.3 (1.1)	17/9.0 (1.9)	24/15.3 (1.6)	0.41
30 to 41	12	10/6.2 (1.6)	5/8.8 (0.6)	15/14.9 (1.0)	2.00
42 to 53	12	6/6.1 (1.0)	10/8.7 (1.2)	16/14.7 (1.1)	0.60
54 to 59	6	1/3.0 (0.3)	2/4.3 (0.5)	3/7.3 (0.4)	0.50
6 to 59	54	28/34.0 (0.8)	40/34.0 (1.2)		0.70

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.146 (boys and girls equally represented)
Overall age distribution: p-value = 0.045 (significant difference)
Overall age distribution for boys: p-value = 0.310 (as expected)
Overall age distribution for girls: p-value = 0.022 (significant difference)
Overall sex/age distribution: p-value = 0.001 (significant difference)

Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

Team: 1

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.85 (n=10, f=0)  ##
02: 1.29 (n=09, f=0)  ####################
03: 1.15 (n=10, f=0)  ################
04: 0.90 (n=10, f=0)  ####
05: 0.72 (n=08, f=0)
06: 0.77 (n=06, f=0)
07: 0.91 (n=07, f=0)  #####
08: 1.43 (n=05, f=0)  ############################
09: 0.47 (n=04, f=0)
10: 0.19 (n=02, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 2

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.24 (n=10, f=0)  ###################
02: 1.49 (n=10, f=1)  ##############################
03: 0.86 (n=10, f=0)  ##
04: 0.72 (n=09, f=0)
05: 0.86 (n=08, f=0)  ###
06: 0.70 (n=08, f=0)
07: 0.73 (n=08, f=0)
08: 0.80 (n=07, f=0)
09: 1.01 (n=07, f=0)  #########
10: 1.01 (n=06, f=0)  #########
11: 0.87 (n=04, f=0)  OOO
12: 0.68 (n=03, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 3

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.74 (n=09, f=0)
02: 0.61 (n=08, f=0)
03: 1.20 (n=09, f=0)  ##################
04: 1.77 (n=09, f=1)  ########################################
05: 1.20 (n=08, f=0)  ##################
06: 1.05 (n=07, f=0)  ############
07: 1.24 (n=08, f=0)  ####################
08: 1.31 (n=06, f=0)  ######################
09: 1.04 (n=06, f=0)  ###########
10: 1.36 (n=05, f=0)  ##########################
11: 0.60 (n=03, f=0)
12: 0.15 (n=03, f=0)
```

```
(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 4

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.85 (n=09, f=0)  ##
02: 0.92 (n=08, f=0)  #####
03: 1.43 (n=09, f=0)  ##########################
04: 1.15 (n=06, f=0)  ################
05: 0.60 (n=05, f=0)
06: 1.47 (n=07, f=1)  ############################
07: 0.98 (n=07, f=0)  #######
08: 0.63 (n=06, f=0)
09: 0.48 (n=04, f=0)
10: 0.40 (n=03, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 5

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.24 (n=09, f=0)  ##################
02: 0.95 (n=08, f=0)  ######
03: 0.50 (n=09, f=0)
04: 0.70 (n=07, f=0)
05: 0.92 (n=07, f=0)  #####
06: 0.98 (n=08, f=0)  ########
07: 1.13 (n=07, f=0)  ###############
08: 0.95 (n=05, f=0)  ######
09: 0.53 (n=03, f=0)
10: 2.04 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
11: 1.22 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 6

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.05 (n=09, f=0)  ##########
02: 0.70 (n=09, f=0)
03: 1.08 (n=09, f=0)  ############
04: 1.13 (n=09, f=0)  ###############
05: 0.65 (n=08, f=0)
06: 0.64 (n=07, f=0)
07: 1.12 (n=05, f=0)  #############
08: 0.79 (n=05, f=0)
09: 1.74 (n=03, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

(for better comparison it can be helpful to copy/paste part of this report into Excel)

Plausibility check for: DNCC_Slums_ENA file_May2022.as

Standard/Reference used for z-score calculation: WHO standards 2006
(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

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** (0.0 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0** (p=0.544)
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**4** (p=0.016)
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (2)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (1)
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** (0.94)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.00)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.02)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0** (p=0.455)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**4** %

The overall score of this survey is 4 %, this is excellent.

There were no duplicate entries detected.

Missing or wrong data:

HEIGHT: Line=121/ID=6

Percentage of children with no exact birthday: 4 %

Anthropometric Indices likely to be in error (-3 to 3 for WHZ, -3 to 3 for HAZ, -3 to 3 for WAZ, from observed mean - chosen in Options panel - these values will be flagged and should be excluded from analysis for a nutrition survey in emergencies. For other surveys this might not be the best procedure e.g. when the percentage of overweight children has to be calculated):

Line=48/ID=3: HAZ (-4.687), WAZ (-4.641), Age may be incorrect
Line=314/ID=4: HAZ (2.505), Age may be incorrect
Line=325/ID=3: HAZ (-4.636), Age may be incorrect

Percentage of values flagged with SMART flags:WHZ: 0.0 %, HAZ: 0.6 %, WAZ: 0.2 %

Age distribution:

Month 6 : ##########
Month 7 : #########
Month 8 : ##################
Month 9 : ############
Month 10 : ####################
Month 11 : #######
Month 12 : ######
Month 13 : ######
Month 14 : ########
Month 15 : #########
Month 16 : ##########
Month 17 : ########
Month 18 : ########
Month 19 : #########
Month 20 : ################
Month 21 : ########
Month 22 : ##############
Month 23 : ##########
Month 24 : ##########
Month 25 : ##########
Month 26 : ##########
Month 27 : ########
Month 28 : ################
Month 29 : ############
Month 30 : ##########
Month 31 : ################
Month 32 : #########
Month 33 : #########
Month 34 : #########
Month 35 : ###########
Month 36 : ##########
Month 37 : ########
Month 38 : #########
Month 39 : #########
Month 40 : #######
Month 41 : ##########
Month 42 : ##########
Month 43 : ##########
Month 44 : ##########
Month 45 : #########
Month 46 : ##############
Month 47 : #######
Month 48 : #####
Month 49 : #######

Month 50 : ####
Month 51 : #######
Month 52 : ######
Month 53 : #######
Month 54 : #######
Month 55 : #####
Month 56 : #######
Month 57 : #################
Month 58 : ######
Month 59 : #####
Month 60 : ##

Age ratio of 6-29 months to 30-59 months: 1.05 (The value should be around 0.85).: p-value = 0.016 (significant difference)

Statistical evaluation of sex and age ratios (using Chi squared statistic):

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	56/60.2 (0.9)	79/63.5 (1.2)	135/123.7 (1.1)	0.71
18 to 29	12	61/58.1 (1.0)	76/61.3 (1.2)	137/119.4 (1.1)	0.80
30 to 41	12	63/56.9 (1.1)	57/60.0 (1.0)	120/116.9 (1.0)	1.11
42 to 53	12	55/56.0 (1.0)	38/59.0 (0.6)	93/115.1 (0.8)	1.45
54 to 59	6	24/27.7 (0.9)	23/29.2 (0.8)	47/56.9 (0.8)	1.04
6 to 59	54	259/266.0 (1.0)	273/266.0 (1.0)		0.95

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.544 (boys and girls equally represented)
Overall age distribution: p-value = 0.047 (significant difference)
Overall age distribution for boys: p-value = 0.808 (as expected)
Overall age distribution for girls: p-value = 0.003 (significant difference)
Overall sex/age distribution: p-value = 0.001 (significant difference)

Distribution of month of birth

Jan: ####################################
Feb: ###################################
Mar: ######################################
Apr: ###########################
May: #######################################
Jun: #############################
Jul: ###
Aug: ##
Sep: ##
Oct: ###
Nov: ###
Dec: ###

Digit preference Weight:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ###
Digit .7 : ##
Digit .8 : ##
Digit .9 : ##

Digit preference score: **2** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.984

Digit preference Height:

Digit .0 : ##
Digit .1 : ##
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ##
Digit .7 : ##
Digit .8 : ###
Digit .9 : ###

Digit preference score: **3** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.879

Digit preference MUAC:

Digit .0 : ##
Digit .1 : ###
Digit .2 : ##
Digit .3 : ##
Digit .4 : ##
Digit .5 : ##
Digit .6 : ##
Digit .7 : ###
Digit .8 : ##
Digit .9 : ##

Digit preference score: **1** (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)
p-value for chi2: 0.999

Evaluation of Standard deviation, Normal distribution, Skewness and Kurtosis using the 3 exclusion (Flag) procedures

.	no exclusion	exclusion from reference mean (WHO flags)	exclusion from observed mean (SMART flags)
WHZ			
Standard Deviation SD:	0.94	0.94	0.94
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:			
calculated with current SD:			
calculated with a SD of 1:			
HAZ			
Standard Deviation SD:	1.00	1.00	0.97
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:			
calculated with current SD:			
calculated with a SD of 1:			
WAZ			
Standard Deviation SD:	0.94	0.94	0.94
(The SD should be between 0.8 and 1.2)			
Prevalence (< -2)			
observed:			
calculated with current SD:			
calculated with a SD of 1:			

Results for Shapiro-Wilk test for normally (Gaussian) distributed data:

WHZ	p= 0.469	p= 0.469	p= 0.469
HAZ	p= 0.397	p= 0.397	p= 0.548
WAZ	p= 0.175	p= 0.175	p= 0.162

(If p < 0.05 then the data are not normally distributed. If p > 0.05 you can consider the data normally distributed)

Skewness			
WHZ	0.00	0.00	0.00
HAZ	0.10	0.10	0.12
WAZ	0.12	0.12	0.18

If the value is:
-below minus 0.4 there is a relative excess of wasted/stunted/underweight subjects in the sample
-between minus 0.4 and minus 0.2, there may be a relative excess of wasted/stunted/underweight subjects in the sample.
-between minus 0.2 and plus 0.2, the distribution can be considered as symmetrical.
-between 0.2 and 0.4, there may be an excess of obese/tall/overweight subjects in the sample.
-above 0.4, there is an excess of obese/tall/overweight subjects in the sample

Kurtosis			
WHZ	0.02	0.02	0.02
HAZ	0.48	0.48	-0.02
WAZ	0.24	0.24	0.12

Kurtosis characterizes the relative size of the body versus the tails of the distribution. Positive kurtosis indicates relatively large tails and small body. Negative kurtosis indicates relatively large body and small tails.
If the absolute value is:
-above 0.4 it indicates a problem. There might have been a problem with data collection or sampling.
-between 0.2 and 0.4, the data may be affected with a problem.
-less than an absolute value of 0.2 the distribution can be considered as normal.

Test if cases are randomly distributed or aggregated over the clusters by calculation of the Index of Dispersion (ID) and comparison with the Poisson distribution for:

WHZ < -2: ID=1.01 (p=0.455)
WHZ < -3: ID=0.80 (p=0.856)
GAM: ID=1.01 (p=0.455)
SAM: ID=0.80 (p=0.856)
HAZ < -2: ID=0.80 (p=0.862)

```
HAZ < -3: ID=0.95 (p=0.590)
WAZ < -2: ID=0.92 (p=0.644)
WAZ < -3: ID=0.95 (p=0.572)
```

Subjects with SMART flags are excluded from this analysis.

The Index of Dispersion (ID) indicates the degree to which the cases are aggregated into certain clusters (the degree to which there are "pockets"). If the ID is less than 1 and p > 0.95 it indicates that the cases are UNIFORMLY distributed among the clusters. If the p value is between 0.05 and 0.95 the cases appear to be randomly distributed among the clusters, if ID is higher than 1 and p is less than 0.05 the cases are aggregated into certain cluster (there appear to be pockets of cases). If this is the case for Oedema but not for WHZ then aggregation of GAM and SAM cases is likely due to inclusion of oedematous cases in GAM and SAM estimates.

Are the data of the same quality at the beginning and the end of the clusters?
Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.09 (n=56, f=0)  ############
02: 0.98 (n=54, f=0)  ########
03: 0.90 (n=52, f=0)  ####
04: 0.95 (n=51, f=0)  ######
05: 0.77 (n=52, f=0)
06: 0.94 (n=48, f=0)  ######
07: 0.89 (n=50, f=0)  ####
08: 1.01 (n=47, f=0)  #########
09: 0.73 (n=40, f=0)
10: 0.81 (n=28, f=0)
11: 1.02 (n=19, f=0)  OOOOOOOOO
12: 1.37 (n=13, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~
13: 1.00 (n=10, f=0)  ~~~~~~~~
14: 0.65 (n=10, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Analysis by Team

Team	**1**	**2**	**3**	**4**	**5**	**6**
n =	82	108	79	91	93	79
Percentage of values flagged with SMART flags:						
WHZ:	1.2	0.0	0.0	0.0	0.0	0.0
HAZ:	2.5	1.9	0.0	0.0	0.0	0.0
WAZ:	0.0	0.9	0.0	0.0	0.0	0.0
Age ratio of 6-29 months to 30-59 months:						
	1.28	1.00	1.03	1.17	1.11	0.76
Sex ratio (male/female):						
	0.95	1.00	0.93	0.90	1.02	0.88
Digit preference Weight (%):						
.0 :	12	14	11	10	8	8
.1 :	9	12	9	11	10	11
.2 :	11	9	9	9	13	15

.3 :	11	8	10	10	12	9
.4 :	9	9	10	8	12	9
.5 :	11	9	11	10	10	10
.6 :	10	8	9	12	6	6
.7 :	12	10	10	8	6	9
.8 :	7	12	10	11	11	10
.9 :	9	7	10	12	13	13
DPS:	5	6	3	5	8	8

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference Height (%):

.0 :	9	12	14	11	11	9
.1 :	7	9	10	12	13	11
.2 :	9	10	11	11	13	11
.3 :	10	12	9	10	11	9
.4 :	11	9	9	10	8	13
.5 :	11	9	8	9	13	9
.6 :	12	8	9	10	12	13
.7 :	10	11	13	10	10	10
.8 :	12	9	10	9	5	8
.9 :	9	9	8	9	5	8
DPS:	5	4	7	3	9	6

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Digit preference MUAC (%):

.0 :	11	10	13	11	10	8
.1 :	11	9	11	10	6	9
.2 :	13	9	10	11	14	5
.3 :	11	9	8	9	13	9
.4 :	11	10	9	11	12	10
.5 :	10	10	6	10	9	11
.6 :	10	10	11	10	10	10
.7 :	10	11	9	9	8	10
.8 :	7	10	11	10	9	15
.9 :	6	10	11	10	11	13
DPS:	7	2	6	3	8	9

Digit preference score (0-7 excellent, 8-12 good, 13-20 acceptable and > 20 problematic)

Standard deviation of WHZ:

SD	0.93	0.74	0.96	0.96	1.01	1.05

Prevalence (< -2) observed:

%					16.1	13.9

Prevalence (< -2) calculated with current SD:

%					17.1	16.4

Prevalence (< -2) calculated with a SD of 1:

%					16.9	15.1

Standard deviation of HAZ:

SD	1.00	0.89	1.08	1.10	0.99	0.96

observed:

%	24.7		32.9	26.4		

calculated with current SD:

%	26.0		31.3	29.8		

calculated with a SD of 1:

%	26.0	29.9	27.9

Statistical evaluation of sex and age ratios (using Chi squared statistic) for:

Team 1:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	10/9.3 (1.1)	12/9.8 (1.2)	22/19.1 (1.2)	0.83
18 to 29	12	12/9.0 (1.3)	12/9.4 (1.3)	24/18.4 (1.3)	1.00
30 to 41	12	7/8.8 (0.8)	9/9.2 (1.0)	16/18.0 (0.9)	0.78
42 to 53	12	8/8.7 (0.9)	4/9.1 (0.4)	12/17.7 (0.7)	2.00
54 to 59	6	3/4.3 (0.7)	5/4.5 (1.1)	8/8.8 (0.9)	0.60
6 to 59	54	40/41.0 (1.0)	42/41.0 (1.0)		0.95

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.825 (boys and girls equally represented)
Overall age distribution: p-value = 0.367 (as expected)
Overall age distribution for boys: p-value = 0.760 (as expected)
Overall age distribution for girls: p-value = 0.390 (as expected)
Overall sex/age distribution: p-value = 0.192 (as expected)

Team 2:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	11/12.6 (0.9)	16/12.6 (1.3)	27/25.1 (1.1)	0.69
18 to 29	12	15/12.1 (1.2)	12/12.1 (1.0)	27/24.2 (1.1)	1.25
30 to 41	12	14/11.9 (1.2)	12/11.9 (1.0)	26/23.7 (1.1)	1.17
42 to 53	12	9/11.7 (0.8)	9/11.7 (0.8)	18/23.4 (0.8)	1.00
54 to 59	6	5/5.8 (0.9)	5/5.8 (0.9)	10/11.6 (0.9)	1.00
6 to 59	54	54/54.0 (1.0)	54/54.0 (1.0)		1.00

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 1.000 (boys and girls equally represented)
Overall age distribution: p-value = 0.715 (as expected)
Overall age distribution for boys: p-value = 0.739 (as expected)
Overall age distribution for girls: p-value = 0.797 (as expected)
Overall sex/age distribution: p-value = 0.456 (as expected)

Team 3:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	7/8.8 (0.8)	11/9.5 (1.2)	18/18.4 (1.0)	0.64
18 to 29	12	9/8.5 (1.1)	13/9.2 (1.4)	22/17.7 (1.2)	0.69
30 to 41	12	10/8.4 (1.2)	8/9.0 (0.9)	18/17.4 (1.0)	1.25
42 to 53	12	8/8.2 (1.0)	6/8.9 (0.7)	14/17.1 (0.8)	1.33
54 to 59	6	4/4.1 (1.0)	3/4.4 (0.7)	7/8.5 (0.8)	1.33
6 to 59	54	38/39.5 (1.0)	41/39.5 (1.0)		0.93

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.736 (boys and girls equally represented)

Overall age distribution: p-value = 0.760 (as expected)
Overall age distribution for boys: p-value = 0.946 (as expected)
Overall age distribution for girls: p-value = 0.513 (as expected)
Overall sex/age distribution: p-value = 0.377 (as expected)

Team 4:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	9/10.0 (0.9)	18/11.2 (1.6)	27/21.2 (1.3)	0.50
18 to 29	12	7/9.6 (0.7)	15/10.8 (1.4)	22/20.4 (1.1)	0.47
30 to 41	12	15/9.4 (1.6)	8/10.5 (0.8)	23/20.0 (1.2)	1.88
42 to 53	12	8/9.3 (0.9)	4/10.4 (0.4)	12/19.7 (0.6)	2.00
54 to 59	6	4/4.6 (0.9)	3/5.1 (0.6)	7/9.7 (0.7)	1.33
6 to 59	54	43/45.5 (0.9)	48/45.5 (1.1)		0.90

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.600 (boys and girls equally represented)
Overall age distribution: p-value = 0.203 (as expected)
Overall age distribution for boys: p-value = 0.361 (as expected)
Overall age distribution for girls: p-value = 0.024 (significant difference)
Overall sex/age distribution: p-value = 0.003 (significant difference)

Team 5:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	9/10.9 (0.8)	13/10.7 (1.2)	22/21.6 (1.0)	0.69
18 to 29	12	14/10.5 (1.3)	13/10.3 (1.3)	27/20.9 (1.3)	1.08
30 to 41	12	10/10.3 (1.0)	11/10.1 (1.1)	21/20.4 (1.0)	0.91
42 to 53	12	12/10.2 (1.2)	8/9.9 (0.8)	20/20.1 (1.0)	1.50
54 to 59	6	2/5.0 (0.4)	1/4.9 (0.2)	3/9.9 (0.3)	2.00
6 to 59	54	47/46.5 (1.0)	46/46.5 (1.0)		1.02

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.917 (boys and girls equally represented)
Overall age distribution: p-value = 0.154 (as expected)
Overall age distribution for boys: p-value = 0.458 (as expected)
Overall age distribution for girls: p-value = 0.311 (as expected)
Overall sex/age distribution: p-value = 0.078 (as expected)

Team 6:

Age cat.	mo.	boys	girls	total	ratio boys/girls
6 to 17	12	10/8.6 (1.2)	9/9.8 (0.9)	19/18.4 (1.0)	1.11
18 to 29	12	4/8.3 (0.5)	11/9.4 (1.2)	15/17.7 (0.8)	0.36
30 to 41	12	7/8.1 (0.9)	9/9.2 (1.0)	16/17.4 (0.9)	0.78
42 to 53	12	10/8.0 (1.2)	7/9.1 (0.8)	17/17.1 (1.0)	1.43
54 to 59	6	6/4.0 (1.5)	6/4.5 (1.3)	12/8.5 (1.4)	1.00
6 to 59	54	37/39.5 (0.9)	42/39.5 (1.1)		0.88

The data are expressed as observed number/expected number (ratio of obs/expect)

Overall sex ratio: p-value = 0.574 (boys and girls equally represented)
Overall age distribution: p-value = 0.729 (as expected)
Overall age distribution for boys: p-value = 0.384 (as expected)
Overall age distribution for girls: p-value = 0.859 (as expected)
Overall sex/age distribution: p-value = 0.230 (as expected)

Evaluation of the SD for WHZ depending upon the order the cases are measured within each cluster (if one cluster per day is measured then this will be related to the time of the day the measurement is made).

Team: 1

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.98 (n=09, f=0)  #######
02: 1.18 (n=08, f=0)  #################
03: 0.94 (n=09, f=0)  ######
04: 0.76 (n=09, f=0)
05: 0.80 (n=08, f=0)
06: 0.70 (n=06, f=0)
07: 0.91 (n=09, f=0)  #####
08: 0.97 (n=08, f=0)  #######
09: 1.06 (n=07, f=0)  ###########
10: 0.57 (n=06, f=0)
11: 1.77 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 2

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 0.67 (n=10, f=0)
02: 0.87 (n=10, f=0)  ###
03: 0.44 (n=08, f=0)
04: 0.78 (n=08, f=0)
05: 0.56 (n=10, f=0)
06: 0.80 (n=10, f=0)
07: 0.62 (n=10, f=0)
08: 0.70 (n=10, f=0)
09: 0.25 (n=08, f=0)
10: 0.87 (n=07, f=0)  ###
11: 0.30 (n=06, f=0)
12: 0.77 (n=04, f=0)
13: 0.48 (n=03, f=0)
14: 1.05 (n=03, f=0)  OOOOOOOOOO
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80% and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)

Team: 3

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.52 (n=09, f=0)  ##############################
02: 0.95 (n=09, f=0)  ######
03: 1.12 (n=09, f=0)  ##############
04: 1.15 (n=07, f=0)  ################
05: 0.61 (n=07, f=0)
06: 0.93 (n=08, f=0)  #####
07: 0.49 (n=08, f=0)
08: 0.78 (n=07, f=0)
09: 0.56 (n=06, f=0)
10: 1.23 (n=04, f=0)  OOOOOOOOOOOOOOOOO
11: 0.95 (n=03, f=0)  OOOOOO
```

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%

```
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 4

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.10 (n=09, f=0)  #############
02: 1.27 (n=08, f=0)  ####################
03: 0.83 (n=09, f=0)  #
04: 1.01 (n=09, f=0)  #########
05: 0.66 (n=09, f=0)
06: 0.72 (n=09, f=0)
07: 0.92 (n=08, f=0)  #####
08: 1.00 (n=08, f=0)  #########
09: 0.56 (n=08, f=0)
10: 0.80 (n=04, f=0)
11: 1.53 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
12: 1.60 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
13: 0.15 (n=03, f=0)
14: 0.39 (n=03, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
 and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 5

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.27 (n=09, f=0)  ####################
02: 0.42 (n=09, f=0)
03: 0.40 (n=09, f=0)
04: 0.84 (n=08, f=0)  ##
05: 1.10 (n=09, f=0)  #############
06: 0.54 (n=07, f=0)
07: 1.32 (n=09, f=0)  ######################
08: 1.40 (n=09, f=0)  ########################
09: 0.84 (n=08, f=0)  ##
10: 0.65 (n=04, f=0)
11: 1.23 (n=03, f=0)  OOOOOOOOOOOOOOOOO
12: 1.94 (n=04, f=0)  OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO
13: 0.69 (n=02, f=0)
14: 0.49 (n=03, f=0)

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
 and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

Team: 6

```
Time                                          SD for WHZ
point                 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3
01: 1.00 (n=10, f=0)  ########
02: 1.08 (n=10, f=0)  ############
03: 1.01 (n=08, f=0)  #########
04: 1.05 (n=10, f=0)  ###########
05: 0.93 (n=09, f=0)  #####
06: 1.20 (n=08, f=0)  ##################
07: 0.97 (n=06, f=0)  #######
08: 1.18 (n=05, f=0)  ################
09: 0.45 (n=03, f=0)
10: 0.57 (n=03, f=0)
11: 0.86 (n=03, f=0)  OO
12: 1.61 (n=02, f=0)  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

(when n is much less than the average number of subjects per cluster different symbols are used: 0 for n < 80%
and ~ for n < 40%; The numbers marked "f" are the numbers of SMART flags found in the different time points)
```

(for better comparison it can be helpful to copy/paste part of this report into Excel)

Annex 3: Survey geographical coverage area with partner's presence

Dhaka South City Corporation				
Thana	**Ward Number**	**Number settlements/Clusters**	**Population**	**Partner's presence**
Badda	21,37,38	13	9779	No
Bangshal	35	1	429	Sajida Foundation
Chok bazar	29,30,31	6	3465	Sajida Foundation
Demra	68,70	2	697	No
Dhanmondi Thana	33	1	460	No
Gendaria	45,51	5	3579	Sajida Foundation
Hazaribagh	55	18	10221	Nari Maitree
Jattrabari	39,49	14	9732	Sajida Foundation
Kalabagan	16,21	5	1608	Sajida Foundation
Kamalapur GRP Thana+ Motijheel thana	8	1	250	Sajida Foundation
Kamrangirchar	56,57	7	3222	Sajida Foundation
Khilgaon	1,2,3	6	3605	Sajida Foundation
Kotwali	32,37,38	2	1277	Sajida Foundation
Lalbagh	24,29, 30	10	5043	Nari Maitree
Mugda	6	1	296	Sajida Foundation
Mugda Thana	7,8,81	4	1396	Sajida Foundation
Paltan	13	2	1940	Nari Maitree
Shahbagh	20	3	1625	Nari Maitree
Shajahanpur	11	1	547	Sajida Foundation
Shampur	45,47,54	11	6247	Sajida Foundation
Sobujbagh	5,73	6	2022	Sajida Foundation
Sutrapur	36	1	332	Sajida Foundation
Grand Total	**42 wards**	**120**	**67772**	
Dhaka North City Corporation				
Thana	**Ward Number**	**Number settlements/clusters**	**Population**	Partner's presence
Bhasantek	15	22	32280	BRAC

Bonani	20	19	22453	No (previously worked by BRAC in Sattola slum)
Darus salam	9,10,11,12	38	32693	SEEP+ BRAC previously worked
Hatirjheel	35,36	13	7692	Sajida Foundation
Mohammad Pur Thana	33	10	5377	Sajida Foundation
Pollobi	2,6	31	29443	BRAC
Rupnagar	6,7	36	34004	BRAC
Shah Alli	7,8	18	8998	SEEP
Tegaoun silponchol	24	31	20835	Sajida Foundation
Tejgaon	24,26	7	5435	Sajida Foundation
Grand Total	**17 wards**	**225**	**199209**	

Annex 4: Questionnaire

Household's Identifier		
1.	Date (তারিখ):	
2.	Name of Enumerator (তথ্য সংগ্রহকারীর নাম)	
3.	Team (টিম): (Valid answers: Numbers between 1 and 6)	
4.	City Corporation Area: (সিটি কর্পোরেশন এলাকা)	1= North City Corporation (ঢাকা উত্তর সিটি কর্পোরেশন) 2= South City Corportation (ঢাকা দক্ষিণ সিটি কর্পোরেশন)
5.	Thana: (থানা)	
6.	Ward	
7.	Name of slum (বস্তির নাম)	
8.	Cluster Number (ক্লাস্টার নাম্বার) Valid answers: Numbers between 1 and 56	
9.	Household Serial Number (খানার সিরিয়াল নাম্বার)	
10.	GPS Coordinate *(Note: Push the 'Record Location' button when the accuracy of the GPS measure is less than 25 m.)*	True
11.	**Consent:** Assalamualaikum / Adab. My name is ------ and my collegue's are ------ -------. We are come from an international humanitarian organization called Action Against Hunger (ACF). With the financial support of Concern World Wide and WFP, and with the approval from the National Nutrition Services, Institute of Public Health Nutrition, the Government of Bangladesh, and Dhaka North and South City Corporation. ACF is conducting a survey to know the nutritional status of people living in slums of Dhaka	1 = Yes (হ্যাঁ) 0 = No (না)

	North and South City Corporation, children and pregnant and lactating women. Your family is being selected randomly for this survey work. We will ask some questions about your family members. I will ask who is in the family, health, nutrition, infant sickness, vaccines, child dietary diversity including breast milk, women's dietary diversity, water, sanitation and hygiene etc. Besides, If there is any children under 5 and pregnant and lactating women in family, we would like to take some measurements (Height, Weight, MUAC, Oedema) to assess their nutritional status. If anyone is suffering from malnutrition, we will refer them to a nutrition centre. All personal information will be kept confidential. Please note that it is not currently known what actions if any will be taken after the results of the survey are finalized. This information will be used to improve the standard living of people. The questions will take about 25-30 minutes. **Do you have any questions? May I begin? Please press "NO" if household is not being selected due to meeting the criteria of health screening checklist.** আস্‌সালামুআলাইকুম/ আদাব। আমি ------ আমার সাথে ------ ------- আছেন। আমরা এ্যাকশন এগেইনস্ট হাঙ্গার(এসিএফ) নামে একটা আন্তর্জাতিক মানবিক সাহায্য সংস্থা থেকে এসেছি। এসিএফ CWW ও WFP এর আর্থিক সহায়তায় বাংলাদেশ সরকারের জাতীয় পুষ্টি সেবা, জনস্বাস্থ্য পুষ্টি প্রতিষ্ঠান এবং ঢাকা উত্তর ও দক্ষিণ সিটি করপোরেশনের অনুমোদন ক্রমে ঢাকা উত্তর ও দক্ষিণ সিটি করপোরেশনের বস্তি এলাকায় বসবাসকারী জনগোষ্ঠীর জীবনমান, শিশু ও গর্ভবতী এবং দুগ্ধদানকারী মহিলাদের পুষ্টির অবস্থা জানার জন্য একটি জরিপ পরিচালনা করছে। আপনার পরিবারটি এই জরিপ কাজের জন্য একটি নির্বাচিত পরিবার। আমরা আপনাদের পরিবারের সদস্যদের বিষয়ে কিছু কথা জিজ্ঞাসা করবো। পরিবারে কে কে আছে, পরিবারের স্বাস্থ্য, পুষ্টি, শিশুর অসুস্থতা, টীকা, বুকের দুধসহ শিশুর খাদ্যাভ্যাস, মহিলাদের খাদ্যাভ্যাস,পানি ও পয়ঃনিস্কাশন, পরিস্কার-পরিচ্ছন্নতা ইত্যাদি বিষয়ে কিছু কথা জিজ্ঞাসা করবো। পাশাপাশি পাচঁ বছরের কম বয়সী শিশু ও গর্ভবতী এবং দুগ্ধদানকারী মহিলা থাকলে আমরা তাদের পুষ্টি অবস্থা মূল্যায়ন করার জন্য ওজন, উচ্চতা এবং হাতের একটা মাপ নিয়ে দেখবো সে অপুষ্টিতে ভূগছে কিনা। কেহ যদি অপুষ্টিতে ভূগে থাকে, আমরা তাকে পুষ্টি কেন্দ্রে রেফার করবো। পাশাপাশি আমরা আপনাদের পরিবার থেকে যে সব তথ্য নিবো তা অন্য কাউকে জানানো হবে না। ইহা শুধুমাত্র গবেষণার কাজে ব্যবহার করা হবে। এই জরিপ কাজ করতে গিয়ে আমরা আপনাকে কিছু দিবো না। কিন্তু সংগৃহিত তথ্য অত্র এলাকার জনগোষ্ঠীর জীবন মান উন্নয়নের কাজে ব্যবহার করা হবে। এই জরিপ কাজ করতে আমাদের 25-30 মিনিট সময় লাগবে। আপনি যদি সময় দিতে রাজী থাকেন, আমরা আপনার সাথে কথা বলবো। হেল্‌থ স্ক্রিনিং চেকলিস্ট অনুসারে পরিবারটি নির্বাচিত না হলে দয়া করে "না" চাপুন।	
12.	Did your household receive any support from BRAC (under WFP) and SEEP, Narimotri, Sajida foundation (under CWW) assisted urban programme? **আপনার পরিবার কি BRAC (WFP), SEEP, Narimotri, Sajida Foundation (CWW) থেকে কোনো সহায়তা পাচ্ছেন বা পেয়েছেন?** **Note:** **BRAC services:** cash transfer, bonus, food purchase from selected shops [currently avaibale in Bashantek and Dowari Para, **Previously in Kollanpur and Sattala Slum)**	1= Yes, WFP (BRAC) supported programme **হ্যাঁ**, WFP (BRAC) **সহায়তাকৃত প্রোগ্রাম** 2= Yes, CWW (SEEP, Nari motri/ Sajida foundation) supported prgoramme **হ্যাঁ**, CWW (SEEP, Nari motri/ Sajida foundation) **সহায়তাকৃত প্রোগ্রাম** 3= Both, WFP and CWW supported programme **উভয়, WFP and CWW সহায়তাকৃত প্রোগ্রাম**

		0= No/**না** 88=Don't know/**জানি না** 99=Refused to answer/**উত্তর দিতে অস্বীকার করেন**
13.	**Beneficiry's ID or card number** **সুবিধাভোগীর আইডি বা কার্ড নম্বর:**	
14.	**Beneficiry's Bkash number (If available)** **সুবিধাভোগীর বিকাশ নম্বর (যদি পাওয়া যায়)**	

Household Demography and Mortality Questionnaire

	List all of the household members that are currently living in this household. (বর্তমানে এই পরিবারে বসবাসকারী সকল সদস্যদের তালিকা করুন) **(Programmed on tablet as a repeat group)**	
15.	First name of the household member (পরিবারের সদস্যের প্রথম নাম) Note: *First name only. Name will not be retained in the final data set. Name is only collected to aid in recall during data collection.* (নোট: শুধুমাত্র প্রথম নাম । চূড়ান্ত ডাটা সেট এ নাম রাখা হবে না । কেবল মাত্র ডাটা সংগ্রহের সময় স্মরণ করার জন্য নাম সংগ্রহ করা হবে)	
16.	Sex (লিঙ্গ)	1 = Male (পুরুষ) 2 = Female (মহিলা)
17.	Age in years (বয়স-বছর) *Note: Children aged 0-11 months should be recorded as '0' years* নোট:০-১১ মাস বয়সী শিশুদের '0' বছর হিসাবে রেকর্ড করুন।	
18.	Did [Name] join the household since **International Mother Language Day (February 21, 2022)?** [নাম] কি আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২) এর পর থেকে পরিবারের সাথে যোগ হয়েছিল?	1 = Yes (হ্যাঁ) 0 = No (না)
19.	Was [Name] born **since International Mother Language Day (February 21, 2022)?** [নাম] কি আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২) এর পর জন্ম গ্রহন করেছিল? (Relevant: Age in years = 0)	1 = Yes (হ্যাঁ) 0 = No (না)
	List all of the household members that left this household since International Mother Language Day (February 21, 2022)? **আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২)পর পরিবার থেকে যারা চলে গিয়েছে তাদের তালিকা করুন।** **(Programmed on tablet as a repeat group)**	
20.	First name of the household member (পরিবারের সদস্যের প্রথম নাম) Note: *First name only. Name will not be retained in the final data set. Name is only collected to aid in recall during data collection.* (নোট: শুধুমাত্র প্রথম নাম । চূড়ান্ত ডাটা সেট এ নাম রাখা হবে না । কেবল মাত্র ডাটা সংগ্রহের সময় স্মরণ করার জন্য নাম সংগ্রহ করা হবে)	
21.	Sex (লিঙ্গ)	1 = Male (পুরুষ) 2 = Female(মহিলা)
22.	Age in years (বয়স-বছর) *Note: Children aged 0-11 months should be recorded as '0' years* নোট: ০-১১ মাস বয়সী শিশুদের '0' বছর হিসাবে রেকর্ড করুন।	

23.	Did [Name] join the household since since **International Mother Language Day (February 21, 2022)?** [নাম] কি আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২) এর পর পরিবারের সাথে যোগ হয়েছিল?	1 = Yes (হ্যাঁ) 0 = No (না)
24.	Was [Name] born since **International Mother Language Day (February 21, 2022)?** [নাম] কি আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২) এর পর জন্ম গ্রহন করেছিল? (Relevant: Age in years = 0)	1 = Yes (হ্যাঁ) 0 = No (না)
	List all of the household members that died since International Mother Language Day (February 21, 2022)? **আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২)পর থেকে পরিবার এ যারা মারা গিয়েছে তাদের তালিকা করুন।** **(Programmed on tablet as a repeat group)**	
25.	First name of the household member (পরিবারের সদস্যের প্রথম নাম) Note: *First name only. Name will not be retained in the final data set. Name is only collected to aid in recall during data collection.* (নোট: শুধুমাত্র প্রথম নাম। নামের চূড়ান্ত ডাটা সেট এ রাখা হবে না। কেবল মাত্র ডাটা সংগ্রহের সময় স্মরণ করার জন্য নাম সংগ্রহ করা হবে)	
26.	Sex (লিঙ্গ)	1 = Male (পুরুষ) 2 = Female (মহিলা)
27.	Age in years (বয়স-**বছর**) *Note: Children aged 0-11 months should be recorded as '0' years* নোট:০-১১ মাস বয়সী শিশুদের '0' বছর হিসাবে রেকর্ড করুন।	
28.	Did [Name] join the household since since **International Mother Language Day (February 21, 2022)?** [নাম]কি আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২) এর পর পরিবারের সাথে যোগ হয়েছিল?	1 = Yes (হ্যাঁ) 0 = No (না)
29.	Was [Name] born since **International Mother Language Day (February 21, 2022)?** [নাম]কি আন্তর্জাতিক মাতৃভাষা দিবস (২১ শে ফেব্রুয়ারী ২০২২) এর পর জন্ম গ্রহন করেছিল? (Relevant: Age in years = 0)	1 = Yes (হ্যাঁ) 0 = No (না)
30.	What was the cause of death? (মৃত্যুর কারণ কি ছিল?)	88 = Don't Know (জানি না)**(skip next question)** 2 = Injury – Trauma / conflict related (আঘাত-ট্রমা বা সংঘর্ষ সম্পর্কিত **skip next question)** 3 = Injury – Other(আঘাত – অন্যান্য) **(skip next question)** 4 = Illness (অসুস্থতা)
31.	During the days before death, did [Name] have any of the following symptoms? (মৃত্যুর আগের দিনগুলোতে, নিম্নলিখিত কি কি লক্ষণ ছিল?) *Note: Select all that apply.*	1 = Diarrhea(ডায়রিয়া) 2 = Fever(জ্বর) 3 = Cough(কাশি) 4 = Rash(রাশ) 5 = COVID positive (কোভিড পজিটিভ) 6 = None of the above(উপরের কোনটিই নয়) 88 = Don't know (জানি না)

Child Level Questionnaire(চাইল্ড লেভেল প্রশ্নাবলী)

Note: Complete the following module for all children in the household between 0-59 months(০-৫৯ মাস বয়সী পরিবারের সকল শিশুদের জন্য নিম্নলিখিত মডিউলটি সম্পূর্ণ করুন)
(Programmed on tablet as a repeat group)

Anthropometry 0-59 months aged child: 0-59 মাস বয়সী শিশুদের শরীর বৃত্তীয় পরিমাপ		
32.	Child [Name]'s শিশুর নাম	
33.	Sex শিশুর লিঙ্গ	1 = Male/ পুরুষ 2 = Female (মহিলা)
34.	Do you know [Name]'s day, month and year of birth? (আপনি কি (নাম)এর জন্ম দিন,মাস এবং জন্ম সন জানেন?)	1 = Yes (হ্যাঁ) 0 = No (না) (skip next question)
35.	[Name]'s date of birth (শিশুর জন্ম তারিখ)- (Age on months calculated on tablet from survey date and DOB)	(Day/Month/Year) (দিন/ মাস/বছর)
36.	[Name]'s age in months (শিশুর বয়স মাসে) *Note: Estimate using event calendar.* (ঘটনা পঞ্জিকার মাধ্যমে বয়স বের করুন)	
37.	Weight (Kg) ±0.1kg (ওজন ±0.1 কেজি) *Note: The child must be weighed naked. Remove diapers, necklaces and other items that could increase the weight before measuring. REMINDER: Always record weight with one digit after the decimal point.* (Relevant for age between 6 and 59 months; valid responses between 0.1 and 54 kg)	
38.	Height or Length[25](cm) ±0.1 cm (উচ্চতা বা দৈর্ঘ্য + 0.1 সেমি) *Note: Height measurement standing when child is ≥24 months and lying down when child is < 24 months* (Relevant for age between 6 and 59 months; valid responses between 30 and 155 cm)	
39.	Record measurement taken: length or height (দৈর্ঘ্য বা উচ্চতা)	1 = Length (দৈর্ঘ্য) 2 = Height (উচ্চতা)
40.	MUAC (mm) (মুয়াক-মিমি)	
41.	Does [Name] have bilateral oedema that is swelling with pitting oedema in both feet? (শিশুর কি উভয় পায়ের পাতায় ইডিমা আছে ?) (If yes, prompt a note: "Notify your supervisor and have him/her confirm whether or not the child has oedema. Children with oedema should be referred for treatment"	1 = Yes (হ্যাঁ) 0 = No (না)
42.	Measurer Comments: Please add any comments that survey managers should know (e.g., children not measured due to disability, exclusion due to Fever or covid symptom; refusal, measured with clothes). If everything is ok, please skip পরিমাপকারীর মন্তব্য: দয়া করে এমন মন্তব্য যুক্ত করুন যা জরিপ পরিচালকদের জানা উচিত (উদাঃ, শারীরিক প্রতিবন্ধকতা, প্রত্যাখ্যান, জরিপ থেকে বাদ, উচ্চ জ্বর বা COVID-19 উপসর্গের কারণে বাদ দেওয়া হয়েছে, অসহযোগীতা, কাপড় সহ পরিমাপ ইত্যাদি কারনে পরিমাপ এবং সাক্ষ্যাৎকার গ্রহন বাধা)। সবকিছু ঠিক থাকলে: "Skip" করুণ	
43.	Is your child [Name] currently enrolled in any nutrition-feeding program? Verify by card / শিশুটি কোন পুষ্টি চিকিৎসা সেবায় ভর্তি আছে কি? শিশুর কার্ড দেখে নিশ্চিত হোন (If the child is malnourished (MUAC <125mm or has oedema) but did not enrolled in any nutrition program, please complete the referral form and refer to nearest nutrition centre)/যদি শিশুটি অপুষ্টিতে আক্রান্ত হয় (মুয়াক<১২৫ মিমি অথবা ইডিমা থাকে) এবং কোন পুষ্টি প্রোগ্রামে ভর্তি না হয় তবে দয়া করে রেফারেল ফর্ম পূরণ করুন এবং নিকটস্থ পুষ্টি কেন্দ্রে পাঠান)	0 = No (না) 1 = Yes, Stabilization centre (হ্যাঁ, এসসি) 2= Yes, SAM corner (**হ্যাঁ**, SAM **কর্নার**) 3= Yes, Cash grant for MAM programme (**হ্যাঁ**, MAM **প্রোগ্রামের জন্য একটি নগদ অনুদান**) 66= Others (**অন্যান্য**) 88= Don't Know (জানি না)

[25]

	Note: This question will be asked for verification and referral purpose only.	
44.	Name of referral centre **(রেফারেল সেন্টার এর নাম):**	
45.	Has (name of child) had diarrhoea in the past 2 weeks? Case definition: three or more loose or liquid stools during 24 hours. **(শিশুর নাম) এর কি গত দুই সপ্তাহের মধ্যে ডায়রিয়া হয়েছিল?** **সংজ্ঞাঃ ২৪ ঘণ্টায় তিন বা ততোধিক পাতলা পায়খানা।** **Valid: 6-59 month**	1 = Yes (হ্যাঁ) 0 = No (না) (Skip next question no 42) 88 = Don't know **(জানি না)** (Skip next question no 42)
46.	What types of treatment were given to your child (child name) when he/she suffered from diarrhoea? **(শিশুর নাম) যখন ডায়রিয়ায় আক্রান্ত হয়েছিল তখন তাকে কী ধরনের চিকিৎসা দেওয়া হয়েছিল?** (Multiple answers possible/ **একাধিক উত্তর হতে পারে।** **Relevant if question diarrhoea is yes**	1 = Yes, ORS **(হ্যাঁ, ওরস্যালাইন)** 2= Yes, Zink tablet/syrup **(হ্যাঁ, জিঙ্ক ট্যাবলেট/সিরাপ)** 3 = Yes, home made saline **হ্যাঁ, বাড়িতে তৈরি খাবার স্যালাইন** 4= Yes, Syrup or tablet (e.g. filmet, metronedajol etc.) **(হ্যাঁ, সিরাপ বা ট্যাবলেট (যেমন ফিলমেট, মেট্রোনেডাজল ইত্যাদি)** 5 = Yes, pastor/Herbal/religious treatment **(হ্যাঁ, কবিরাজী, ভেষজ , ঝাড়ফুক বা ধর্মীয় চিকিৎসা)** 6=Yes, Treatment from hospital/ **হ্যাঁ, হাসপাতাল থেকে চিকিৎসা** 66 = Others **(অন্যান্য)** 0 = No treatment **(কোন চিকিৎসা দেওয়া হয় নি)** 88 = Don't know **(জানি না)**
47.	Has the child received measles immunization? **শিশুটি কি হাম এর টিকা নিয়েছে?** Note: Verify vaccination card **টিকা কার্ড যাচাই করুন** Valid: age 9-59 months **(৯-৫৯ মাস বয়সী শিশু)**	1 = By card **(কার্ড অনুযায়ী)** 2 = By recall **(অনুসরণ করা তথ্য)** 0 = No **(না)** 88 = Don't Know **(জানি না)**
48.	Did the child (Name) receive Vitamin A Capsul in last six months? (শিশুর নাম) কি গত ৬ মাসে ভিটামিন এ ক্যাপসুল (VAC) খেয়েছিল? Note: Last VAC campaign held on 11-14 December 2021. নোটঃ সর্বশেষ ভিটামিন এ ক্যাপসুল ক্যাম্পেইন ২০২১ সালের ১১-১৪ ডিসেম্বর হয়েছিল। Valid: age 6-59 months **(৬-৫৯ মাস বয়সী শিশু)**	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know **(জানি না)**

49.	Did the child (Name) receive dewormimg teblet/syrup in last six months? (Since December 2021 to May 2022 until date)? Show tablet of mebendazole. **[শিশুর নাম] কি গত ছয় মাসে কৃমিনাশক ট্যাবলট/সিরাপ** খেয়েছিল? **[গত ডিসেম্বর** 2021 **থেকে বর্তমান পর্যন্ত]? কৃমিনাশক ট্যাবলট/সিরাপ এর স্যাম্পল দেখান।** Note: Last deworming campaign held on March 2022. **নোটঃ সর্বশেষ কৃমিনাশক ক্যাম্পেইন ২০২২ সালের মার্চে হয়েছিল।** Valid age: 24-59m **(২৪-৫৯ মাস বয়সী শিশু)**	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**)
Infant and Young Child Feeding-IYCF Practices (Only for Children between 0 – 23 Months) **শিশুর খাদ্যাভ্যাস (০-২৩ মাস বয়সী শিশু)**		
50.	How long after delivery was [NAME] put to the breast/nipple? ${_Child_Name} জন্মের কতক্ষন পর শিশুকে (নাম) বুকের দুধ দেয়া হয়েছিল? Valid: age 0-23 months	1 = Less than 1 hour (১ ঘন্টার কম) 2 = 1 - 24 hours (১ থেকে ২৪ ঘন্টার মধ্যে) 3 = More than 24 hours(২৪ ঘন্টার বেশি) 88 = Don't Know (জানি না)
51.	Was [NAME] breastfed yesterday during the day or at night? শিশু**কে** {নাম} কি গতকাল দিনে অথবা রাতে বুকের দুধ খাওয়ানো হয়েছিল? Valid: age 0-23 months	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**)
52.	Was [child_name] given anything other than breast milk to eat or drink in the first two days after delivery [Ask about honey/suger water/mustard oil that usually given just after birth] শিশু**কে** {**নাম**} জন্মের পরবর্তী 2 দিনের মধ্যে তার মুখে কোন তরল/পানীয়/খাবার দিয়েছিলেন? [জন্মের পর মুখে মধু/ চিনির পানি/সরিষার তেল দিয়েছে কিনা সেটাও যাচাই করুন] Valid: age 0-23 months	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**)
53.	Was [child name] bottle fed with nipple yesterday during the day or at night? (নাম) গতকাল সারাদিন অথবা সারারাত নিপলসহ বোতলে (ফিডার) করে কোন কিছু পান করেছিল? Valid: age 0-23 months	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**)
54.	Was [Child name] drink/eat any liquid/water/food rather than breastfeed yesterday during the day or at night? শিশু {**নাম**} কি গতকাল সারাদিন অথবা সারারাত নিম্নলিখিত তরল/পানীয়/খাবার খেয়েছিল? Valid: age 0-5 months (Multiple response)	**1= Water/পানি** **2= Sugar water/ চিনির পানি** **3= Fruit Juice ফলের রস/জুস/ডাবের পানি** **4= Powder milk/animal milk /টিনজাত দুধ, গুড়া দুধ, প্রানীজ দুধ** **5= Curd/দই** **6= Infant formula/ শিশু ফর্মূলা (যেমন : ল্যাকটোজেন, বায়োমিল, বেবিকেয়ার, নান, মাইবয় ইত্যাদি)** **7=Juice, Candy, Biscuit/ বাজারের বোতলের জুস, ক্যান্ডি, বিস্কুট ইত্যাদি** **8=MNP (e.g. monimix, pustikona, sprinkle etc)** /পুষ্টিকনা (যেমন মনিমিক্স, পুস্টি কনা, স্প্রিঙ্কল, ইত্যাদি)

		9=Any liquid/ অন্য যেকোন তরল (যেমন- খাবার স্যালাইন) 10=Bottle feeding/ বোতলে বা ফিডারে করে কোন কিছু পান **11= Honey (মধু)** 66 = Others (অন্যান্য) **88=Don't know (জানি না)**
55.	Did your child [NAME] receive any micro-nutrient powder (e.g. monimix, pusti kona, sprinkle, etc) during the day or at night? গতকাল সারাদিন অথবা সারারাত ${child_name} আপনার সন্তান কি কোনো মাইক্রো-নিউট্রিয়েন্ট পাউডার (যেমন মনিমিক্স, পুস্টি কনা, স্প্রিঙ্কল, ইত্যাদি) খেয়েছে? Valid: age 6-59 months	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (জানি না)
Complementary Feeding Practice (6-23 months) পরিপূরক/বাড়তি খাবার খাওয়ানোর অভ্যাস (৬-২৩ মাস)		
56.	Did [NAME] receive any soft/ semi-solid/ solid food yesterday rather than breast feeding during the day or at night? গতকাল দিনে বা রাতে শিশু (নাম) কি বুকের দুধ এবং পানীয় ছাড়া অন্য কোন বাড়তি খাবার (নরম/অর্ধ শক্ত/শক্ত খাবার) খেয়েছিল কি? Valid: age 6-23 months	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (জানি না)
57.	Did your child eat any of the following food groups *in the previous day and night?* গতকাল সারাদিন অথবা সারারাত শিশুটি (নাম) নিম্নে বর্ণিত কি কি ধরনের খাবার খেয়েছে? 1. Breast Milk (বুকের দুধ) 2. Grains, roots, tubers (nan, chapatti, parata, bread, rice, potato) শর্করা জাতীয়, সাদা শিকড় এবং কন্দ জাতীয় খাবার যেমন-ভাত,রুটি, পাউরুটি, চিড়া,মুড়ি,সুজি, নুডুলস,মিষ্টি, ভুট্টা , সাদা আলু/ কচুমখি ইত্যাদি 3. Pulse, Legumes or nuts (lentils, dried peas) /ডাল, শিম, বাদাম বা বিচি জাতীয় খাবার (যেমন: যেকোন ডাল, মটরশুটি, মিষ্টি-কুমড়া,শিম বা কাঁঠালের বিচি ইত্যাদি 4. Dairy products (milk, yoghurt, cheese, Infant formula) /দুধ বা দুধ দিয়ে তৈরী খাবার যেমন- দই, মিষ্টি, সেমাই, পায়েস, ফিরনি , **শিশু ফর্মূলা (যেমন : সেরেলাক, ল্যাকটোজেন ইত্যাদি)** 5. Flesh foods (meat, fish, dried fish, poultry, liver/organ meat)/ মাছ/মাংস জাতীয় খাবার (যেমন মাছ, মাংস, মুরগির মাংস এবং লিভার / অন্যান্য অঙ্গ যেমন- হৃদপিণ্ড, কিডনি, জিহবা, অগ্ন্যাশয়, মগজ ইত্যাদি) 6. Egg /ডিম 7. Vitamin A rich fruits and vegetables (carrot, pumpkin, orange sweet potato, mango, papaya, spinach, dark green leafy vegetables, long beans)/ ভিটামিন এ সমৃদ্ধ ফলমূল ও শাকসবজি (**ফলমূলঃ** পাঁকা আম, পাঁকা পেঁপে, পাঁকা কাঠাল ইত্যাদি; **শাকঃ** লাল শাক , গাঢ় সবুজ শাক যেমন- কচু শাক, পুই শাক, পালং শাক, কমলি শাক, পাট শাক, ফুল কপির পাতা ইত্যাদি; সবজিঃ গাঁজর, মিষ্টি কুমড়া, কমলা রঙের মিষ্টি আলু, লম্বা শিম ইত্যাদি) 8. Other fruit and vegetables (banana, apples, pineapple, watermelon, eggplant, onion, cucumbers, tomatoes, onion)/ অন্যান্য ফলমূল ও শাকসবজি (**ফলমূল-** পাকা/কাচা কলা,আপেল, কমলা, আনারস, তরমুজ, টক জাতীয় যেকোন ফল, পেয়ারা, কদবেল,ইত্যাদি ; **শাকসবজি-** ফুলকপি, বাধাকপি, শিম, ঢেড়শ, শাল গম, বেগুন, বরবটি, শসা, টমেটো, পটল, চাল কুমড়া,লাউ ইত্যাদি) 0. No Food Taken (কোন খাবার খায়নি) Valid: age 6-23 months	**Tick box (টিক দিন)**
58.	How many times did (NAME) eat solid, semi-solid, or soft foods other than liquids yesterday during the day or at night? গতকাল দিনে এবং রাতে শিশু (নাম) সর্বমোট কতবার বাড়তি খাবার খেয়েছে? Valid: age 6-23 months	Integer (সংখ্যা লিখুন)

59.	Please write if you have comments about the interview of this section (IYCF) " **শিশুর খাদ্যাভ্যাস** " এই বিভাগের সাক্ষাৎকার সম্পর্কে আপনার মন্তব্য থাকলে অনুগ্রহ করে লিখুন	
Women Questionnaire(মহিলার প্রশ্নাবলী) (Include all women aged 15-49 years aged- **১৫-৪৯ বছর বয়সী সমস্ত মহিলাদেরকে অন্তর্ভুক্ত করতে হবে)**		
Anthropometry, ANC, PNC, IFA, **(অ্যানথ্রোপোমেট্রি, এএনসি, পিএনসি, আইএফএ)**		
60.	Name (নাম)	
61.	Age (Years) (বয়স-বছর)	
62.	Are you currently pregnant or lactating? (আপনি কি বর্তমানে গর্ভবতী বা দুগ্ধদানকারী?) *Note: If a women is pregnant and lactating, select pregnant* দ্রষ্টব্য: যদি একটি মহিলা গর্ভবতী হয় এবং দুগ্ধদানকারী হয়, তবে গর্ভবতী মহিলাটি নির্বাচন করুন	1 = Pregnant (**গর্ভবতী**) 2 = Lactating (with child less than 6 months) (**দুগ্ধদানকারী, ৬ মাসের কম বয়সী শিশু**) 3 = Lactating (with child 6-23 months) (**দুগ্ধদানকারী, ৬ মাস বা তার বেশী বয়সী শিশু ৬ থেকে ২৩ মাস**) 88 = Don't Know (**জানি না**)
63.	MUAC (mm) (মুয়াক-মিমি) **Valid if question** women status **is** 1 **or** 2 **or** 3	
64.	Are you currently receving antenatal care (ANC) services from any health centre or programme? আপনি কি বর্তমানে কোনো স্বাস্থ্যকেন্দ্র বা প্রোগ্রাম থেকে প্রসবপূর্ব পরিচর্যা (ANC) সেবা গ্রহণ করছেন? Note: ANC services usually include: Weight measurement, Pressure check-up, Child position in Uterus, Child movement, Anaemia check-up seeing eyes, IFA supplementation, Counseling etc Relevant if women status is pregnant	1 = Yes, Government health centre (**হ্যাঁ, সরকারি স্বাস্থ্য কেন্দ্র**) 2= Yes, Private health centre (**হ্যাঁ, বেসরকারি স্বাস্থ্য কেন্দ্র**) 3= Yes, NGO health programme (**হ্যাঁ, এনজিও স্বাস্থ্য কর্মসূচি**) 0 = No (**না**) 88 = Don't know about ANC services (ANC সেবা **সম্পর্কে জানেন না জানি না**)
65.	Are you [prgenant women] currently receiving iron-folate pills? আপনি কি বর্তমানে আয়রন-ফলিক এসিড ট্যাবলেট বা সিরাপ খাচ্ছেন? (Local name: Looh baranor dawai) show pill. (স্থানীয় নামঃ রক্ত বাড়ানোর ওষুধ) আয়রন-ফলিক এসিড ট্যাবলেট বা সিরাপ দেখান।	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**)

	Relevant if women status is pregnant	
66.	How many times did you receive antenatal care (ANC) checkup during your last pregnancy by any health care provider either at home or health facilties? আপনার সর্বশেষ গর্ভকালীন সময়ে বাড়িতে বা স্বাস্থ্যকেন্দ্র থেকে কোন স্বাস্থ্যসেবা প্রদানকারীর দ্বারা আপনি কতবার প্রসবপূর্ব / গর্ভকালীন চেকআপ /সেবা (ANC) গ্রহণ করেছিলেন? Note: ANC services usually include: Weight measurement, Pressure check-up, Child position in Uterus, Child movement, Anaemia check-up seeing eyes, IFA supplementation, Counseling etc Valid if women status is lactating 2 & 3	Integer (সংখ্যা লিখুন) Number of check up at health facility: Number of check up at home: Total check up either at health facility or home:
67.	How many times did you receive post netal care (PNC) checkup within 42 days of your last delivery by any health care provider either at home or health facilties? আপনার সর্বশেষ প্রসবের 42 দিনের মধ্যে আপনি কতবার বাড়িতে বা স্বাস্থ্যকেন্দ্র থেকে কোন স্বাস্থ্যসেবা প্রদানকারীর দ্বারা প্রসবপরবর্তী চেক আপ/সেবা (PNC) গ্রহণ করেছিলেন ? PNC services usually include Anaemia test, Uterus diameter, weight measurement, pressure check, Bacterial Infection, feeding Vitamin-A, IYCF and other counseling etc. Valid if women status is lactating 2 & 3	Integer (সংখ্যা লিখুন) Number of check up at health facility: Number of check up at home: Total check up either at health facility or home:
68.	Please write if you have comments about the interview of this section (Women Section) " মহিলার প্রশ্নাবলী " এই বিভাগের সাক্ষাৎকার সম্পর্কে আপনার মন্তব্য থাকলে অনুগ্রহ করে লিখুন	[Text]

Reduced Coping Strategy Index

গত সাত দিনে পরিবারের খাদ্য ঘাটতি মোকাবেলার কৌশল

EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.
In the last 7 days, how many days did your family have to…

উত্তরদাতার নিকট ব্যাখ্যা করুন যে, প্রশ্নগুলি পরিবারের সকল সদস্যদের জন্য প্রযোজ্য এবং কেবলমাত্র তার জন্য নয়। গত সাত (৭) দিনের ভেতর খাবারের অভাবের কারণে আপনার ঘরের অধিকাংশ সদস্যকে নিচের কাজগুলো কত দিন করতে হয়েছিল:

69.	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?	|___| RECORD THE NUMBER OF DAYS, FROM 0-7.

	গত ৭ দিনে আপনার পরিবার খাবারের ঘাটতি বা টাকার অভাবে খাবার কিনতে না পেরে, কতদিন কম পছন্দের খাবার বা কম দামী খাবারের উপর নির্ভর করেছিলেন? **Lower limit =0** **Upper limit =7** **LESSEXP**	0-৭ থেকে দিনের সংখ্যা রেকর্ড করুন
70.	In the past 7 days, how many days did your household borrow food or rely on help from a friend or relative for food due to lack of food or money to buy food? গত ৭ দিনে আপনার পরিবার খাবারের ঘাটতি বা টাকার অভাবে খাবার কিনতে না পেরে কতদিন খাবার ধার করে বা প্রতিবেশী/আত্তীয়ের কাছ থেকে নিয়ে খেয়েছিলেন? **Lower limit =0** **Upper limit =7** **BRW**	|___| RECORD THE NUMBER OF DAYS, FROM 0-7. 0-৭ থেকে দিনের সংখ্যা রেকর্ড করুন
71.	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 ? গত ৭ দিনে আপনার পরিবার খাবারের ঘাটতি বা টাকার অভাবে খাবার কিনতে না পেরে কতদিন ৩ বেলার পরিবর্তে কমবেলা খাবার গ্রহন করেছেন? (উদাহারন দিনে ২/১ বেলা খেয়েছে) **Lower limit =0** **Upper limit =7** **LESSMEAL**	|___| RECORD THE NUMBER OF DAYS, FROM 0-7. 0-৭ থেকে দিনের সংখ্যা রেকর্ড করুন
72.	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? গত ৭ দিনে আপনার পরিবার খাবারের ঘাটতি বা টাকার অভাবে খাবার কিনতে না পেরে কতদিন প্রয়োজনের তুলনায় কম পরিমানে খাবার গ্রহন করেছেন?) **Lower limit =0** **Upper limit =7** **REDMEAL**	|___| RECORD THE NUMBER OF DAYS, FROM 0-7. 0-৭ থেকে দিনের সংখ্যা রেকর্ড করুন
73.	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? IN HOUSEHOLDS WITHOUT CHILDREN <5 years, THE ANSWER SHOULD BE '0'. গত ৭ দিনে আপনার পরিবার খাবারের ঘাটতি বা টাকার অভাবে খাবার কিনতে না পেরে কতদিন খাবারের অভাবে বয়স্করা কম খেয়েছেন, যাতে শিশুরা খেতে পারে?) ৫ বছর বয়সী শিশু না থাকলে খানাটির, উত্তরটি '0' হতে হবে। **Lower limit =0** **Upper limit =7** **REDADULT**	|___| RECORD THE NUMBER OF DAYS, FROM 0-7. 0-৭ থেকে দিনের সংখ্যা রেকর্ড করুন

74.	In the past 7 days, how many days did your household Reduce the number of meals eaten due to lack of cooking fuel? গত ৭ দিনে আপনার পরিবারে জ্বালানীর অভাবে রান্না না হওয়ায় কতদিন দৈনিক খাবারের বেলার সংখ্যা কমিয়ে দিয়েছিলেন?	|___| RECORD THE NUMBER OF DAYS, FROM 0-7. 0-৭ থেকে দিনের সংখ্যা রেকর্ড করুন
75.	Please write if you have comments about the interview of this section (Food Based reduced coping Strategy) "পরিবারের খাদ্য ঘাটতি মোকাবেলার কৌশল" এই বিভাগের সাক্ষাৎকার সম্পর্কে আপনার মন্তব্য থাকলে অনুগ্রহ করে লিখুন	[Text]
	FOOD INSECURITY EXPERIENCE SCALE (FIES) ***খাদ্য নিরাপত্তাহীনতার অভিজ্ঞতার স্কেল***	
	Instruction: **Now I would like to ask you some questions about food. During the last 4 weeks (30 days), did you face any of the following events:** এখন আমি আপনাকে খাবার সম্পর্কে কিছু প্রশ্ন জিজ্ঞাসা করতে চাই। গত 4 সপ্তাহে (30 দিনের মধ্যে) আপনি বা আপনার পরিবারের অন্যরা টাকা বা সম্পদের অভাবে নিম্নলিখিত ঘটনার সম্মুখীন হয়েছেন?	
76.	Q1. You or others in your household worried about not having enough food to eat because of a lack of money or other resources? Q1. গত 4 সপ্তাহে (30 দিনের মধ্যে) যখন আপনি বা আপনার পরিবারের অন্যরা টাকা বা সম্পদের অভাবে আপনার পরিবারে পর্যাপ্ত খাবার থাকবে না এই কারনে চিন্তিত ছিলেন?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)
77.	Q2. Still thinking about the last 4 weeks, was there a time when you or others in your household were unable to eat healthy and nutritious food because of a lack of money or other resources? Q2. গত 4 সপ্তাহে (30 দিনের মধ্যে), এরকম কি হয়েছিল যখন আপনি বা আপনার পরিবারের অন্যরা টাকা বা সম্পদের অভাবের কারণে স্বাস্থ্যকর এবং পুষ্টিকর খাবার খেতে পারেন নি?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)
78.	Q3. Was there a time when you or others in your household ate only a few kinds of foods because of a lack of money or other resources? Q3. গত 4 সপ্তাহে (30 দিনের মধ্যে), আপনি বা আপনার পরিবারের অন্যরা কি টাকা বা সম্পদের অভাবের জন্য কখনো কম পদের বা প্রকারের খাবার খেতে হয়েছিল?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)
79.	Q4. Was there a time when you or others in your household had to skip a meal because there was not enough money or other resources to get food?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)

	Q4. গত 4 সপ্তাহে (30 দিনের মধ্যে) এরকম কি হয়েছিল যখন, আপনি বা আপনার পরিবারের অন্যরা পর্যাপ্ত টাকা বা সম্পদ না থাকার কারণে এক বেলা খাবার না খেয়ে থাকতে হয়েছে?	
80.	Q5. Still thinking about the 4 weeks (30 days), was there a time when you or others in your household ate less than you thought you should because of a lack of money or other resources? Q5. গত 4 সপ্তাহে (30 দিনের মধ্যে) এরকম কি হয়েছিল যখন আপনি বা আপনার পরিবারের অন্যরা টাকা বা সম্পদের অভাবের কারণে আপনারা যতটুকু খাবেন বলে চিন্তা করেছিলেন তার চেয়ে কম খেয়েছেন?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)
81.	Q6. Was there a time when your household ran out of food because of a lack of money or other resources? Q6. গত 4 সপ্তাহে (30 দিনের মধ্যে), কখনো কি আপনার পরিবারে টাকা বা অন্যান্য সম্পদের অভাবের কারণে খাবার শেষ হয়ে গিয়েছিল?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)
82.	Q7. Was there a time when you or others in your household were hungry but did not eat because there was not enough money or other resources for food? Q7. গত 4 সপ্তাহে (30 দিনের মধ্যে), এরকম হয়েছে কি, যখন আপনি বা আপনার পরিবারের অন্যরা টাকা বা সম্পদের অভাবে খাবার কিনতে না পেরে ক্ষুধার্ত ছিলেন?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)
83.	Q8. Was there a time when you or others in your household went without eating for a whole day because of a lack of money or other resources? Q8. গত 4 সপ্তাহে (30 দিনের মধ্যে), এরকম কি কখনো হয়েছে যে, আপনি বা আপনার পরিবারের অন্যরা টাকা বা অন্যান্য সম্পদের অভাবের কারণে সারাদিন কিছু না খেয়ে ছিলেন?	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**উত্তর দিতে অস্বীকার করেন**)
84.	Please write if you have comments about the interview of this section "FOOD INSECURITY EXPERIENCE SCALE" "খাদ্য নিরাপত্তাহীনতার অভিজ্ঞতার স্কেল" এই বিভাগের সাক্ষাৎকার সম্পর্কে আপনার মন্তব্য থাকলে অনুগ্রহ করে লিখুন	[Text]
Water, Sanitation and Hygine (WASH) ***পানি, পয়ঃনিষ্কাসন ও পরিষ্কার পরিচ্ছন্নত***		
85.	What is the **main source** of drinking water of your family? আপনার পরিবারের খাবার পানির প্রধান উৎস কি? (একটি উত্তর) **water_source**	**Protected water sourses** (নিরাপদ/সংরক্ষিত পানির উৎস) 1 = Deep Tubewell (গভীর নলকুপ) 2 = Collected from Water ATM booth by payment (ওয়াটার এটিএম বুথ থেকে কিনে আনে) 3 = Bottled/ Jar water (বোতলজাত বা জারের পানি) **Unprotected water sourses** (অরক্ষিত পানির উৎস)

		4= Direct WASHA's supplied water (সরাসরি ওয়াশার সরবরাহ করা লাইনের পানি) 5= Rainwater harvesting (আহরিত/ সংরক্ষিত বৃষ্টির পানি 6= Pond & canal water (পুকুর এবং খালের পানি) 66= Others...(অন্যান্য নির্দিষ্ট করুন) 88 = Don't know (**জানি না**) 99=Refused (**উত্তর দিতে অস্বীকার করেন**)
86.	Does your family again purify collected drinking water? If yes, how frequent? আপনার পরিবার কি সংগৃহীত খাবার পানি পুনরায় বিশুদ্ধ করেন? যদি হ্যাঁ, কত ঘন ঘন? **water_purification**	1 = Yes, always (হ্যাঁ, সব সময়) 2= Yes, often(প্রায়ই) 3 = Yes, sometimes (হ্যাঁ, মাঝে মাঝে) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**উত্তর দিতে অস্বীকার করেন**)
87.	Do your household face any challenges for drinking water? খাবার পানি নিয়ে আপনার পরিবার কি কোন সমস্যা পড়ে? **Water_challenge**	1 = Yes (হ্যাঁ) 0 = No (না) 88 = Don't know (**জানি না**) 99=Refused (**উত্তর দিতে অস্বীকার করেন**)
88.	What is the main challenge of drinking water? আপনার পরিবারে খাবার পানির প্রধান সমস্যা কি? (যেমনঃ খাবার পানি সংগ্রহ, সংরক্ষণ বা অন্যান্য কোন সমস্যা) water_problem **if Water_challenge is yes**	1 = Drinking water source is long distance from household (খাবার পানির উৎস বাড়ি থেকে অনেক দূরে) 2 = Long waiting time at water distribution point (পানি বিতরণ পয়েন্টে দীর্ঘ সময় অপেক্ষা করতে হয়) 3 = Collecting water from ATM point is costly (এটিএম পয়েন্ট থেকে জল সংগ্রহ করা ব্যয়বহুল) 4 = Lack of information about water distribution schedule by WASHA (পানি বিতরণের সময়সূচী সম্পর্কে তথ্যের অভাব) 5 = Lack of water storage utensils (পানি সংরক্ষণের পাত্রের অভাব). 6 = Inadequate water supply as per demand (চাহিদার তুলনায় অপর্যাপ্ত পানি সরবরাহ) 7= Lack of legal drinking water supply connection (খাবার পানির বৈধ সংযোগের অভাব) 8 = During summer time water scarcity is high (গ্রীষ্মকালে পানির সংকট প্রবল হয়) 9=Difficulties in collecting water due to waterlogging during the rainy session (বর্ষাকালে জলাবদ্ধতার কারণে পানি সংগ্রহে সমস্যা) 10 = Unavailability of safe water supply from WASHA, resulting to consume pond & canal water (WASHA থেকে নিরাপদ পানি সরবরাহের অপর্যাপ্ততার ফলে পুকুর এবং খালের পানি পান করে।. 11 = Don't feel safe to drink water due to the bad smell and waste particles present in the water (পানিতে উপস্থিত বাজে গন্ধ এবং বর্জ্য কণার কারণে পানি পান করা নিরাপদ বোধ করেনা না) 12 = No one to collect drinking water (পানি সংগ্রহের কেউ নেই) 66 = Others (specify) অন্যান্য (নির্দিষ্ট করুন)

Household Sanitation and Hygiene *পারিবারিক পয়ঃনিষ্কাসন ও পরিষ্কার পরিছন্নতা*		
89.	Where do the members of your HH defecate? (Observe latrines mentioned to confirm) / আপনাদের পরিবারের লোকজন সাধারনত কোথায় পায়খানা করে থাকে? **toilet_facility**	**Hygenic Latrine** 1 = Piped with sewerage system স্যুয়ারেজ লাইনের সাথে যুক্ত পায়খানা 2 =Latrine with septic tank স্যাপ্টিক ট্যাঙ্কসহ পায়খানা 3 = Latrine with water seal/ওয়াটার সিল সহ পায়খানা 4 = Payable public toilet with water seal (টাকার বিনিময়ে পাবলিক টয়লেট ওয়াটার সিল সহ) **Unhygenic Latrine** 5 = Latrine without water seal/ওয়াটার সিল ছাড়া পায়খানা 6 = Mixed with nearby drain or water body নিকটবর্তী ড্রেন বা জলাশয় মিশ্রিত করা 7 = Communal sharing latrine কমুনিটির যৌথ পায়খানা 8 = Payable public toilet without water seal (টাকার বিনিময়ে পাবলিক টয়লেট ওয়াটার সিল ছাড়া) 9 =Open defecation (খোলা জায়গায়) 10 = Plastic bag (প্লাস্টিক ব্যাগে) 11 =Plastic pot/commode/potty (প্লাস্টিক পট/ কমোড) **66 =** Others (specify) অন্যান্য (নির্দিষ্ট করুন) 88 = Don't know (**জানি না**) 99=Refused (**প্রত্যাখ্যান**)
Hand-washing Behaviour and Management of child Feaces (হাত ধোয়ার অভ্যাস) (শিশুর মার কাছ থেকে তথ্য নিন)		
90.	Most often, what do you use to wash your hands? Ask open ended. Only one answer representing most frequent behaviour / বেশীরভাগ সময় আপনি আপনার হাত ধোয়ার জন্য কী ব্যবহার করেন? খোলা প্রশ্ন. শুধুমাত্র একটি উত্তর যেটি সবচেয়ে বেশি ব্যবহার করে **Handwashing_item**	1 = Water only (শুধু পানি) 2 = Water and ash(পানি ও ছাই) 3 = Water and sand/mud (পানি ও বালি বা কাদা মাটি) 4 = Water and any soap/detergent (পানি এবং যেকোন সাবান/ ডিটারজেন্ট) 66 = Other _____
91.	What times do you wash your hand with water and soap? (multiple answers possible) / Do not prompt. কখন আপনি সাবান দিয়ে আপনার হাত ধুয়ে থাকেন? একাধিক উত্তর হতে পারে। উত্তরসমূহ আগে থেকে বলে দিবেন না। শুধুমাত্র যে উত্তরগুলো বলবে তার ডানপার্শে টিক চিহ্ন দিবেন। **hanwashing_times**	**Put a Tick sign (√) on the correct responses/** **সঠিক উত্তরে টিক চিহ্ন (√) দিন** 1 = Before cooking or serving food (রান্নার আগে বা খাবার পরিবেশনের আগে) 2 = After defecation (মল ত্যাগের পরে) 3 = Before eating food (খাবার আগে) 4 = After disposing of child's feces/cleaning child (বাচ্চার শৌচ কাজ করানোর পরে 5 = Before feeding child (বাচ্চাকে খাওয়ানোর আগে) 6= Before breastfeeding (বুকের দুধ খাওয়ানোর আগে) 7 = After working with animals, crops, etc (গবাদিপশু, শস্য নিয়ে কাজ করার পর) 8= After sneezing (হাচি দেয়ার পর) 9= After handling money (টাকা নারাচারা করার পর) 10= After regular domestic works (সাংসারিক কাজ কর্মের পর) 66 = Others (অন্যান্য)
92.	Do this household have any mother or caregiver of U5 children? এই পরিবারে 5 বছরের কম বয়সী শিশুর মা বা পরিচর্যাকারী আছে কি?	**1=Yes/হ্যাঁ** **2=No/না**

	caregiver_u5	
93.	When your young child defecated Last time, what was done with the feces? (Only one answer) আপনার ছোট শিশুটি সর্বশেষ যখন মল ত্যাগ করেছে তা কি করেছেন? (শুধুমাত্র একটি উত্তর) Ask mother of the children **child_feaces** **if caregiver-U5 is yes**	1 = Child used latrine (শিশুটি পায়খানা ব্যবহার করেছে) 2 = Picked up and threw in latrine (মল নিয়ে পায়খানায় ফেলা হয়েছে) 3 = Left in the open where child defecated (যেখানে মল ত্যাগ করেছে ঐ যায়গাতেই খোলাভাবে ফেলে রাখা হয়েছে) 4 = Child passed excrete on the cloth and washed in the bathroom/tube well (শিশুটি যে কাপড় বা কাঁথায় পায়খানা করেছিল তা গোসলখানায় বা টিউবয়েল পাড়ে পানি দিয়ে ধোয়া হয়েছে) 5 = Buried or covered with soil/ash (মাটি/ছাই দিয়ে ঢেকে দেয়া হয়েছে) 6 = Picked up and thrown solid waste pile, dustbin দী drain (মল নিয়ে ময়লার স্তূপে, ড্রাস্টবিন বা ড্রেনে ফেলা হয়েছে) 7= Picked up and thrown out of compound (in open) মল আংগিনার বাহিরে ছুড়ে ফেলা হয়েছে 66=Others (specify) অন্যান্য (নির্দিষ্ট করুন)
94.	Please show me the soap you have in the household. দয়া করে আমাকে আপনার বাড়িতে যে সাবান (লিকুইড সাবান, গোসল, কাপড়কাচা সাবান) আছে সেটা দেখান । **soap**	**Presented within one minute** **1** এক মিনিটের মধ্যে উপস্থাপন করা হয়েছে **Not presented within one minute/no soap** **2** এক মিনিটের মধ্যে উপস্থাপন করা হয়নি/সাবান নেই
95.	Please write if you have comments about the interview of this section (WASH) "WASH" এই বিভাগের সাক্ষাৎকার সম্পর্কে আপনার মন্তব্য থাকলে অনুগ্রহ করে লিখুন	**[Text]**
96.	**Interview status/সাক্ষাৎকারের অবস্থা**: *Note: A household will only be marked absent after at least two re-visits to the household have been made.* (কোন খানাতে পর পর দুইবার পরিদর্শনের পরও খানা সদস্য পাওয়া না গেলে পরিবারটি জরীপে অনুপস্থিতি বলে বিবেচিত হবে।)	1 = Completed/**সম্পূর্ণ হয়েছে** 2 = Partially completed (survey end)/**আংশিক সম্পূর্ণ হয়েছে (জরিপ শেষে)** 3 = Refused (survey end)/**অস্বীকার (জরিপ শেষে)** 4 = Absent (survey end)/**অনুপস্থিতি (জরিপ শেষে)** 5 = Excluded (survey beginning)/**জরিপ থেকে বাদ (জরিপ শুরুতে)**
97.	Cause of household exclusion **জরিপ থেকে বাদ দেয়ার কারণ**: **If interview status is "5"**	1= All Eligible children, their mother mother or all pregnant and lactating has high temperature (>=100.4F/38C) with/without symptom of COVID-19/ **পরিমাপযোগ্য সকল শিশু, তার মা বা সকল গর্ভবতী ও দুগ্ধদানকারী মহিলাদের উচ্চ তাপমাত্রা সহ** (>= 100.4F / 38C) **বা ছাড়া অন্যান্য** COVID-19 **লক্ষণগুলি ছিল** 2=Household's member has tested positive case for COVID-19 within the past 14 days/ **পরিবারের সদস্য গত ১৪ দিনের মধ্যে কোভিড-১৯ পজিটিভ হিসাবে পরীক্ষিত হয়েছেন**

		3=Household's member's have been close contract with a confirmed COVID-19 positive patient within at least 14-days/ **পরিবারের সদস্য গত ১৪ দিনের মধ্যে কোভিড-১৯ পজিটিভ রোগীর সাথে ঘনিষ্ঠ সংস্পর্শে এসেছিলেন** 4=Household's member is currently in-home quarantine or quarantine in the center for isolation/ **পরিবারের সদস্য বর্তমানে বাড়িতে বা পৃথকীকরণ কেন্দ্রে কোয়ারানটাইন ছিল**
98.	Overall Comments/**সামগ্রিক মন্তব্য:**	

Annex 5: Cluster Control form

HH UNIQUE ID	HH serial	Name of Household Head	Interview Status 1 = Completed 2 = Partially Completed 3 = Refuse (end survey) 4 = Absent (end survey) 5 = Excluded (beginning survey)	Number of eligible children (6-59m)	Number of eligible children Measured (6-59m)	Household needs to be revisited YES/NO	Household revisited YES/NO	Remarks/ Reason for not Measured
	1							
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
	10							
	11							
	12							
	13							
	14							
	15							

Annex 6: Child Anthropometric back up form

HH UNIQUE ID	HH Serial	Child MID	Name of child	Sex (M/F)	Date of Birth (dd-mm-yyyy)	Age (month)	Weight (kg)	Height (cm)	MUAC (mm)	Oedema (Y/N)	Comments/ Reason for not Measured

Annex 7: Event Calendar

Calendar of Local Events Constructed end of ***MAY-2022***

Month	2017		2018		2019		2020		2021		2022	
January (Poush-Magh)			January Winter session,	52	January Winter session,	40	January Winter session,	28	January Winter session,	16	January Winter session, 1 January New Years Day	4
February (Magh-Falgun)			February 21 February Mother Language Day.	51	February 21 February Mother Language Day 28 February DNCC by Election, Elected Mayor Atiqul Islam. 20 February Chowk Bazar fire incidance.	39	February 21 February Mother Language Day, 01 February DNCC & DSCC Election, Elected Mayor Atiqul Islam and Fazle Noor Taposh.	27	February 21 February Mother Language Day,	15	February 21 February Mother Language Day,	3
March (Falgun-Chaitra)			March Hervesting time, work brick field, 17 March Birth day of Bangabandu 26 March Independence Day.	50	March Hervesting time, work brick field 17 March Birth day of Bangabandu, 26 March Independence Day. 28 March FR Tower Banani Fire incidance.	38	March Hervesting time, Work brick field, 17 March Birth day of Bangabandu, 26 March Independence Day. Start COVID Restrition.	26	March 17 March Birth day of Bangabandu, 26 March Independence Day. Start COVID Restrition. Ludirr San, 30 March Shab-e-Barat. 30 March Gulshan Kitchen Market Fire incidance.	14	March Hervesting time, 17 March Birth day of Bangabandu, 26 March Independence Day. Ludirr San, 19 March Shab-e-Barat.	2
April (Chaitra-Baishakh)			April 14 April Bangla New year day (Baishak Mash Start),	49	April 14 April Bangla New year day (Baishak Mash Start), Ludirr San, 21 April Shab-e-Barat.	37	April 14 April Bangla New year day (Baishak Mash Start), Ludirr San, 09 April Shab-E- Barat.	25	April 14 April Bangla New year day (Baishak Mash Start). 23 April Armanitola Fire incidance.	13	April 14 April Bangla New year day (Baishak Mash Start), 29 April Shobe-e Qadar, .	1
May (Baishakh-Jaishtha)	May Summer, Buddho purnima, Ludirr San. 12 May Shab-e-Barat	60	May Summer, Buddho purnima, Ludirr San. 02 May Shab-e-Barat	48	May Summer, 18 May Buddho purnima, 04 May Cyclone Foni.	36	May Summer, 06 May Buddho purnima 21 May Shobe-e Qadar, 25 May Eid-ul Fitre.	24	May Summer, 26 May Buddho purnima 10 May Shobe-e Qadar, 14 May Eid-ul Fitre.	12	May Summer, 3 May Eid-ul Fitre. 15 May Buddho purnima	0
June (Jaishtha-Ashar)	June 22 June Shobe-e Qadar & Jummatul bida, 26 June Eid- ul fitre.	59	June 12 June Shobe-e Qadar & Jummatul bida, 16 June Eid-ul Fitor	47	June 02 June Shobe-e Qadar & Jummatul bida, 05 June Eid-ul Fitre.	35	June Matriculation Exam result, Session.	23	June Start Rainy Session.	11		
July (Ashar-Shrabon)	July Rainy session	58	July Rainy session	46	July Rainy session	34	July Rainy session.	22	July Rainy session, Eid-Ul-Adaha (Qurban Eid).	10		
August (Shrabon-Bhadro)	August Rainy Session, Janmashtami	57	August Rainy Session, 22 August Qurban-Eid Ul Adaha.	45	August Rainy Session, 14 August Qurban-Eid Ul Adaha.	33	August Rainy Session, 01 August Eid-Ul-Adaha (Qurban Eid). 30 August Moharram Ashura,	21	August Rainy Session, 19 August Moharram Ashura,	9		
September (Bhadro-Ashwin)	September 2 September Qurban: Eid Ul Adaha, People could not celebrate. End of long rainy session.	56	September 22 September Moharram Ashura, End of the long rainy session	44	September 10 September Moharram Ashura, End of the long rainy session	32	September End of the long rainy session.	20	September End of the long rainy session.	8		
October (Ashwin-Kartik)	October Durga Puja, 01 October Moharram Ashura,	55	October 19 October Durga Puja,	43	October 08 October Durga Puja,	31	October 26 October Durga Puja, 30 October Eid-E-miladunnobi.	19	October 15 October Durga Puja, 19 October Eid-E-miladunnobi.	7		
November (Kartik-Agrahayan)	November Harvesting time, Start working in brick field, 30 November Mayor Anisul Hoque died.	54	November Harvesting time, Start working in brick field, 21 November Eid-E-miladunnobi.	42	November Harvesting time, Start working in brick field, 10 November Eid-E-miladunnobi.	30	November Harvesting time, Start working in brick field,	18	November Harvesting time, Start working in brick field, 04 November Kamal bagh, Soarighat Fire incidance.	6		
December (Agrahayon-Poush)	December 25 December Christmas, Starting Winter, 01 December Eid-E-miladunnobi,	53	December 25 December Christmas, Starting Winter, 30 December National Parliament Election/BD	41	December 25 December Christmas, Starting Winter, 16 December Victory Day.	29	December 25 December Christmas, Starting Winter, 16 December Victory Day.	17	December 25 December Christmas, Starting Winter, 16 December Victory Day.	5		

Annex 8: Supervision Checklist

Thinks to Look at		Excellent [Always follow the instruction properly]	Good [Follow the instruction but not always]	Fair [Sometimes follow the instruction and sometimes not]	Poor [Don't follow the instruction, need special attention]	Overall Comments
Q. No	**Household consent and health safety measures**					
1.	Do all team carry necessary PPEs supplies according to COVID-19 survey guideline? [e.g. hand held thermometer, mask, hand sanitizer, disinfection solution etc.]					
2.	Are the teams respectful to each households and explain survey objectives properly and asking for consent from every household?					
3.	Do all team members sanitize their hands immediately before entering a household alcohol-based hand sanitizer with at least 60% alcohol?					
4.	Are the teams do health screenings at the beginning for each households?					

	Thinks to Look at	Excellent [Always follow the instruction properly]	Good [Follow the instruction but not always]	Fair [Sometimes follow the instruction and sometimes not]	Poor [Don't follow the instruction, need special attention]	Overall Comments
5.	Are the teams requested respondents to **wear a facemask** during the entire household interview process or offer a face mask to the key household members prior to the start of the interview if they are not available in the household?					
6.	Are the teams measuring temperature for all eligible children and mother in every households?					
7.	Did the interviewer and respondent maintain **a distance of at least 1-meter?**					
8.	**Are the teams disinfect anthropometric equipment's [scales, height boards between households**?					
9.	**Are the teams use new MUAC tapes for each household and left to the household after measurement?**					
10.	Did the team leader conduct health screening of their team member two times [before starting and returning from field]?					
	Demography, mortality and morbidity					
11.	Are teams clearly explaining the household definition to each household and listing current household members?					
12.	Are the teams clearly stating **International mother language day (21st February)** as the beginning of the recall period for joined/Left/births/deaths?					
13.	Are the teams asking every household about Left and deaths?					
14.	Are the interviewer asking caregiver about diarrhoea for every children and explaining about last 14 days?					
	Age determination					
15.	Are the teams writing exact date of birth when documentation is shown?					
16.	Are teams using the event calendar when there is no documentation available?					
17.	Are the teams asking more clarifying questions about children aged 5 years to confirm they aren't less than 5 years?					
18.	Are the teams using correct calendar of events in May & June calendar?					
19.	Are the teams asking verifying mother's current age and marriage age?					
	Weight Measurement					

	Thinks to Look at	Excellent [Always follow the instruction properly]	Good [Follow the instruction but not always]	Fair [Sometimes follow the instruction and sometimes not]	Poor [Don't follow the instruction, need special attention]	Overall Comments
20.	Is the weight scale placed on a flat surface?					
21.	Are all children weighed <u>without</u> clothing?					
22.	Are children/parents who refuse for the child to be weighed naked given the option of being weighed in a more private place?					
23.	Are weight measure always taken at least twice? [3 times if choosing between two close measurements]					
24.	Is the child in the centre of the scale, arms at side, looking straight ahead while being weighed?					
25.	When taking a 2-in-1 [parent/child] measurement, is the woman standing still and is the child handed to her so she doesn't need to move/reach out to be handed her child.					
	Height measurement					
26.	Is the height board clipped together tightly [rear]					
27.	Are children <2 years measured lying down and children >2 years measured standing?					
28.	Is the child perfectly centred on the height board [ankles->hips->shoulders->head]?					
29.	Is there space between the top of the head and the height board cursor? [there should <u>not</u> be]					
	MUAC/edema measurement					
30.	Is the midpoint of the arm marked?					
31.	Do they surveyors talk to the women, explain what they are doing [when taking the MUAC], allow them to feel comfortable and covered aside from their left arm/shoulder?					
32.	Is edema checked for every child?					
	Team dynamics and responsibilities					
33.	Are team members doing their responsibilities properly?					
34.	Are team members supportive and encouraging towards one another?					
35.	Does the team leader stay in the household until the end of the interview?					
36.	Do the interviewer and team leader recheck Kobo questionnaire before leaving the household?					
37.	Do the teams say good-bye and thank you to each household?					