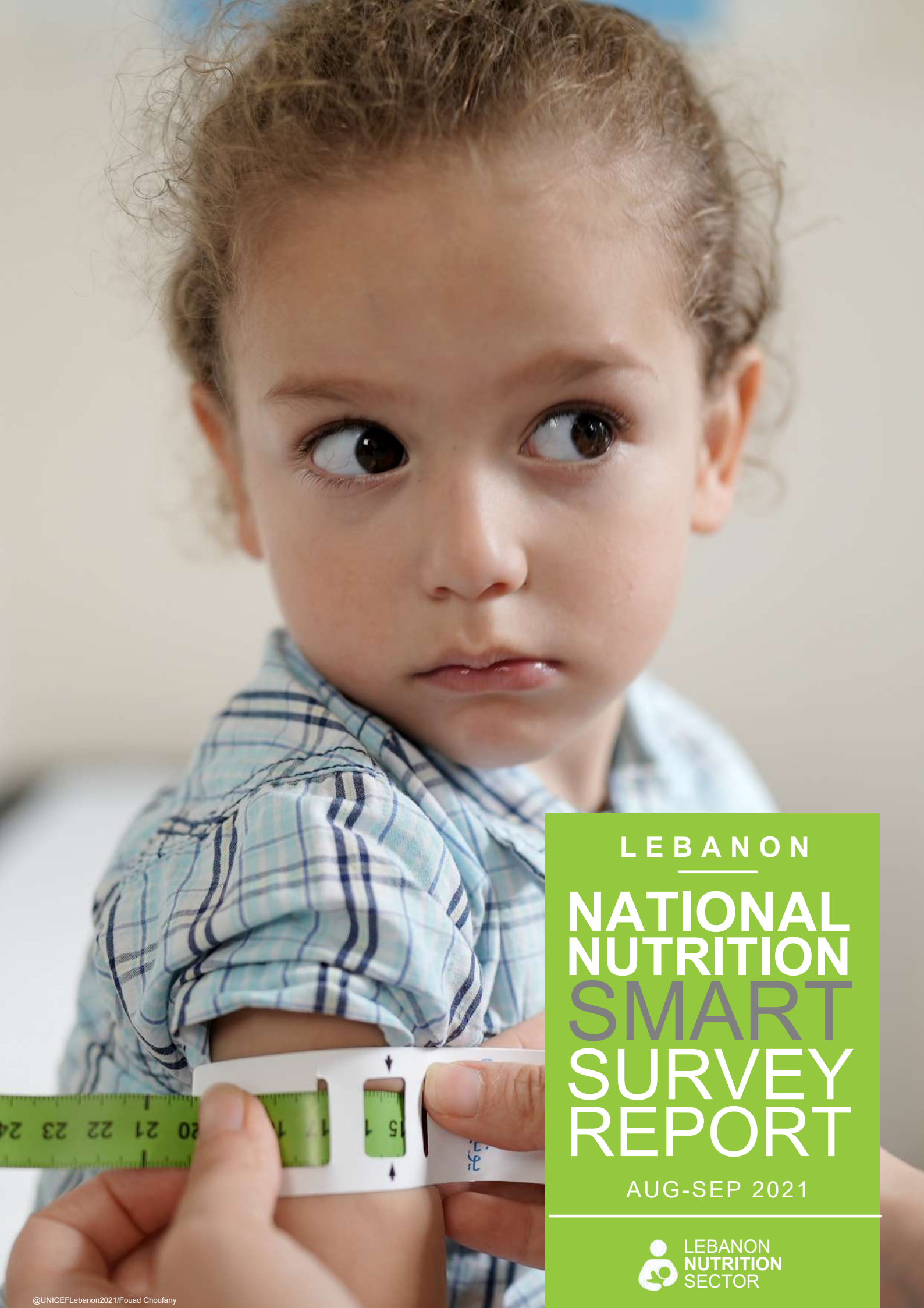

LEBANON

NATIONAL NUTRITION SMART SURVEY REPORT

AUG-SEP 2021

LEBANON NUTRITION SECTOR

ACKNOWLEDGEMENT

We would like to acknowledge all persons who participated in the Lebanon National Nutrition Survey 2021.

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To all mothers and children
who are part of this survey

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LIST OF ABBREVIATIONS

AAH	Action Against Hunger
ARI	Acute Respiratory Infection
BSU	Basic Sampling Unit
CBF	Continued Breast Feeding
DEFF	Design Effect
DP	Desired Precision
EBF	Exclusive Breastfeeding
ENA	Emergency Nutrition Assessment
EPI	Expanded Program on Immunization
GAM	Global Acute Malnutrition
HAZ	Height for Age Z-Score
HF	Health Facilities
HH	Households
ID	Identity
IDP	Internal Displaced populations
IOCC	International Orthodox Christian Charities
IPC-AFI	Integrated Food Security phases classification
IPC	Infection Prevention Control
IPD SAM	Inpatient Department for Severe Acute Malnutrition
ISSSF	Introduction of Solid, Semi-solid or Soft Foods
ITS	Informal Tented Settlements
IYCF	Infant and Young Child Feeding
MAD	Minimum Acceptable Diet
MAM	Moderate Acute Malnutrition

LIST OF ABBREVIATIONS

MM	Millimetre
MMF	Minimum Meal Frequency
MoPH	Ministry of Public Health
MUAC	Mid Upper Arm Circumference
MW	Mean Weight
NNF	National Nutrition Survey
OPD MAM	Outpatient Department for Moderate Acute Malnutrition
OPD SAM	Outpatient Department for Severe Acute Malnutrition
OW	Observed weight
PLW	Pregnant and Lactating Women
PPS	Probability Proportional to Size
RC	Reserve cluster
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SMART	Standardized Monitoring and Assessment of Relief and Transition
U5DR	Under-Five Death Rate
UN-OCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children's Emergency Fund
UNRWA	United Nations Reliefs and Works Agency for Palestine Refugees
WFP	World Food Program
WHO	World Health Organization
WHZ	Weight for Height Z-Score

EXECUTIVE SUMMARY

UNICEF and MoPH in collaboration with Action Against Hunger Canada SMART team, successfully conducted a National survey, that had ten SMART surveys in it from July-September 2021. The National survey targeted the 8 Governorates with weighted analysis done for national estimates, and two camp surveys that targeted Syrian refugees residing in informal settlements and Palestine refugees in camps.

The main goal of the survey was to determine under 5 and maternal nutrition and health status.

The specific objectives of the survey were:

1
To estimate the prevalence of acute malnutrition (Weight for Height) among children aged 6 to 59 months.

2
To estimate the prevalence of stunting (Height for Age) in children aged 6-59 months.

3
To estimate the prevalence of underweight (Weight for Age) in children aged 6-59 months.

4
To estimate morbidity rates (ARI, acute flaccid paralysis, diarrhoea) among children 6-59 months; two weeks prior to the survey.

5
To estimate the proportion of children 0-59 months who received polio and measles containing vaccines.

6
To assess selected infant and young child feeding indicators among children 0 – 24 months; Exclusive Breast Feeding (EBF), Ever breastfed (EvBF), Mixed milk feeding (MixMF) Continued Breast Feeding (CBF), ISSSF, Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF) and Minimum Acceptable Diet (MAD).

7
To assess nutritional status of pregnant and lactating women by MUAC.

8
To estimate the prevalence of anaemia among children 6 to 59 months and women of reproductive age.

9
To formulate recommendations to guide nutrition programming in Lebanon.

Standardized Monitoring Assessment for Relief and Transition Method (SMART) was used to conduct the surveys.

The methodology is a cross-sectional study design with 2-stage sampling approach. Stage 1 involved Sampling of clusters in every governorate/camp, while stage 2 involved segmentation of clusters and Simple Random sampling of household in selected clusters.

Household was used as the basic sampling unit. Data collection tools were based on national and global guidelines and approved by the Technical Committee. Standard SMART questionnaire in ODK collect was used in tablets to collect data in 8 strata while hard copy questionnaire was employed in two strata (South and El Nabatieh). ENA for SMART was used in the analysis of anthropometric indicators while EPI-Info software for analysis of the additional indicators.

Table 1, 2 and 3 show the summary of the survey findings Nationally, Palestinian and Syrian respectively.

TABLE 1: Summary of findings, National

Demographics	
Total number of households surveyed	10,158
Average household size	3.9
Total number of women surveyed	7851
Mean age (years) of women 15-49	31.4
Total number of children surveyed 0-5, 6-23, 6-59 and 0-59 months respectively	213, 793, 2658 and 2,871

INDICATOR	FREQUENCY/ TOTAL	% (95% CI)
Women or Reproductive Age		
Marital Status	n=7851	
Divorced	(151)	1.9 [1.6 - 2.3])
Married	4631	59.0 [57.9– 60.1])
Separated	19	0.2 [0.2– 0.4]),
Single	2957	37.7 [36.6 – 38.7])
Widowed	93	1.2 [1.0 – 1.5]),
School attendance	N=7851	
Ever attended school	7515	95.7[95.3 – 96.2])
Physiological status		
Lactating	263/7851	3.4% [3.0 – 3.8]),
Not pregnant/Not lactating	7328/7851	93.3% [92.8- 93.9]),
Pregnant	254/7851	3.2% [2.9 – 3.7]),
Pregnant and Lactating	6/7851	0.1% [0.0 – 0.2]),
Maternal nutrition	n=523	
Moderate acute malnutrition (MUAC 18.5 - 22.9)	26/523	5.0% [3.4 - 7.2]),
Normal (MUAC>23)	497/523	95.0% [92.8 – 96.6]),
Anaemia consent given	6892/7851	87.8% [87.0– 88.5]),
Non-pregnant women Anaemia	n=6642	

Total Anaemia (<12.0 g/dL)	2422/6642	41.9% [40.7 – 43.1]),
Mild Anaemia (11.0-11.9 g/dL)	1340/2422	52.9% [51.0 – 54.8]),
Moderate Anaemia (8.0-10.9 g/dL)	1024/2422	44.8% [43.0 – 46.7]),
Severe Anaemia (<8.0 g/dL)	58/2422	2.3% [1.8 – 2.9]),
Child Anthropometric results		
Prevalence of GAM (WHZ) – National	n=2592	
Prevalence of global malnutrition (<-2 z-score and/or oedema)		1.8% [1.2 – 2.7]),
Prevalence of severe malnutrition (<-3 z-score and/or oedema)		0.3% [0.2 – 1.8]),
Prevalence of underweight (WAZ) – National	n=2604	
Prevalence of underweight (<-2 z-score)		3.7% [95% CI: 2.9 – 4.8]),
Prevalence of severe underweight (<-3 z-score)		0.5% [0.3 – 1.0]),
Prevalence of Stunting (HAZ_ - National	n=2598	
Prevalence of stunting (<-2 z-score)		7.0% [6.0 - 8.3]),
Prevalence of Overweight (WHZ)	N=2598	
Prevalence of overweight (>2 z-score)	95	3.7% [3.0 – 4.4]),
Prevalence of severe overweight (>3 z-score)	31	1.2% [0.9 – 1.7]),
Anaemia 6-59 Months		
Consent given	2200	83.1% [81.6 – 84.5]),
Total anaemia	761	41.3% [39.3 – 43.4]),
Mild anaemia	444	54.4% [51.1 – 57.6]),
Moderate anaemia	306	43.9% [40.7 - 47.2]),
Severe anaemia	11	1.8% [1.1 – 2.8]),
Childhood illness		
Ill in past 2 weeks	734/2647	27.7% [26.1 – 29.5]),

Fever	419	57.1% [53.5 – 60.6]),
Cough	224	30.5% [27.3 – 33.9]),
Diarrhoea	271	36.9% [33.5 – 40.5]),
Acute flaccid paralysis	4	0.5% [0.2 – 1.4]),
Fever & rash (measles)	9	1.2% [0.7 - 2.3]),
Jaundice & fever (hepatitis)	1	0.1% [2.6 - 7.3]),
Other illnesses	24	3.3% [95% CI: 2.2 – 4.8]),
Immunization Coverage		
IPV (Inactivated Polio Vaccine) - 1st dose	1888/1996	94.0% [92.8 – 94.9]),
Oral Polio vaccine -3rd dose	1588/1903	83.2% [81.5 - 84.8]),
Measles - 1st dose	1107/1819	59.5% [57.3 - 61.8]),
MMR - 1st dose	1357/1742	78.8% (76.9-80.7)
MMR - 2nd dose	954/1539	61.2% (58.8-63.6)
Infant and Young Child Feeding		
Ever breastfed (EvBF)	816/961	84.6% (82.2-86.8)
Early initiation of breastfeeding (EIBF)	561/816	63.0% (59.7-66.3)
Exclusive breastfeeding under 6 months (EBF)	76/197	32.4% (25.6-39.8)
Mixed milk feeding under six 6 months (MixMF)	63/184	39.0% (31.5-46.8)
Continued breastfeeding 12-23 months (CBF)	135/553	21.9% (18.7-25.6)
Introduction of solid, semi- solid or soft foods 6–8 months (ISSSF)	82/111	78.5% (70.0-86.1)
Minimum meal frequency 6-8 months	23/111	23.7% (16.2-32.9)
Minimum meal frequency 9-23 months	123/657	18.4% (15.6-21.5)
Minimum meal frequency 6-23 months	351/768	46.7% (43.2-50.2)
Minimum dietary diversity 6-23 months	167/768	23.0% (20.2-26.1)
Minimum acceptable diet 6-23 months	46/768	6.0% (4.6-7.9)
Minimum milk feeding for non-breastfed children 6-23 months	126/145	90.5% (84.6-94.7)

TABLE 2: Summary of findings, Palestinian Camps

Demographics	
Total number of households surveyed	998
Average household size	4.2
Total number n surveyed	882
Mean age (years) of women 15-49	31.2
Total number of children surveyed 0-5, 6-23, 6-59 and 0-59 months respectively	16, 107, 312, and 328

INDICATOR	FREQUENCY/ TOTAL	% (95% CI)
Women or Reproductive Age		
Marital status		
Divorced	27	3.1% (21.-4.4)
Married	574	65.1% (61.9-68.2)
Separated	1	0.1% (0.0-0.6)
Single	275	31.2% (28.2-34.3)
Widowed	5	0.6% (0.2-1.3)
School attendance		
Ever attended school	860	97.5% (96.3-98.4)
Physiological Status		
Lactating	35	4.0% (2.9-5.5)
Not pregnant/Not lactating	808	91.6% (89.6-93.3)
Pregnant	38	4.3% (3.2-5.9)
Pregnant and Lactating	1	0.1% (0.0-0.6)
Maternal nutrition		
Moderate acute malnutrition (MUAC 18.5 - 22.9)	7	9.5% (3.9-18.5)
Normal	67	90.5% (81.5-96.1)
Anaemia consent given	644	73.02% (69.9-75.8)

Non-pregnant women		
Total Anaemia (<12.0 g/dL)	159	26.0% (22.7-29.6)
Mild Anaemia (11.0-11.9 g/dL)	88	55.4% (47.3-63.2)
Moderate Anaemia (8.0-10.9 g/dL)	69	43.4% (35.6-51.5)
Severe Anaemia (<8.0 g/dL)	2	1.3% (0.2-4.5)
Child Anthropometric results		
Prevalence of GAM (WHZ)	N=298	
Prevalence of global malnutrition (<-2 z-score and/or oedema)	12	4.0% (2.1-7.4)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	5	1.7% (0.7-3.8)
Prevalence of underweight (WAZ)	N=298	
Prevalence of underweight (<-2 z-score)	17	5.7% (3.3-9.6)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	14	4.7% (2.6-8.2)
Prevalence of severe underweight (<-3 z-score)	3	1.0% (0.3-3.0)
Prevalence of Stunting (HAZ)	N=298	
Prevalence of stunting (<-2 z-score)	30	10.1% (6.7-14.9)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	22	7.4% (4.7-11.4)
Prevalence of severe stunting (<-3 z-score)	8	2.7% (1.2-5.9)
Prevalence of Overweight (WHZ)	N=299	
Prevalence of overweight (>2 z-score)	12	4.0% (2.2-7.2)
Prevalence of severe overweight (>3 z-score)	4	1.3% (0.5-3.6)
Anaemia 6-59 Months		
Consent given	153	51.0% (45.4-56.5)
Total anaemia	45	28.3% (21.5-36.0)

Mild anaemia	36	80.0% (65.4-90.4)
Moderate anaemia	8	17.8% (8.0-32.1)
Severe anaemia	1	2.2% (0.1-11.8)
Childhood illness		
Ill in past 2 weeks	87	27.9% (23.2-33.1)
Fever	48	55.2% (44.1-65.9)
Cough	41	47.1% (36.3-58.1)
Diarrhoea	22	25.3% (16.6-35.8)
Immunization		
IPV (Inactivated Polio Vaccine) - 1st dose or 1st dose of Hexaxim or Pentaxim or Infanrix-IPV-HIB	241	96.4% (93.3-98.3)
3rd dose of OPV (Oral Polio Vaccine) or 3rd dose of Hexaxim or Pentaxim or Infanrix-IPV-HIB	225	94.1% (90.4-96.8)
Measles - 1st dose or A dose of Priorix or ROR or Rouvax given below the age of 12 months	197	88.7% (83.8-92.6)
MMR - 1st dose or A dose of Priorix or ROR or Rouvax given between the age of 12 and below 18 months	175	83.3% (77.6-88.1)
MMR - 2nd dose or A dose of Priorix or ROR or Rouvax given above the age of 18 months	121	65.4% (58.1-72.2)

TABLE 3: Summary of findings, Syrian Informal Tented Settlements

Demographics	
Total number of households surveyed	455
Average household size	5.3
Total number of women surveyed	481
Mean age (years) of women 15-49	29.1
Total number of children surveyed 0-5, 6-23, 6-59 and 0-59 months respectively	23, 111, 336 and 359

INDICATOR	FREQUENCY/ TOTAL	% (95% CI)
Women or Reproductive Age		
Marital status		
Divorced	10	2.1% (1.1-3.8)
Married	334	69.4% (65.2-73.4)
Separated	10	2.1% (1.1-3.8)
Single	113	23.5% (19.9-27.5)
Widowed	14	2.9% (1.7-4.8)
School attendance		
Ever attended school	345	71.7% (67.5-75.6)
Physiological Status		
Lactating	54	11.2% (8.7-14.4)
Not pregnant/Not lactating	375	78.0% (74.0-81.4)
Pregnant	51	10.6%
Pregnant and Lactating	1	0.2% (0.0-1.2)
Maternal nutrition		
Moderate acute malnutrition (MUAC 18.5 - 22.9)	8	7.6% (3.3-14.3)
Normal	98	92.5% (85.7-96.7)
Anaemia consent given	472	98.13% (96.5-99.0)

Non-pregnant women		
Total Anaemia (<12.0 g/dL)	132	31.4% (27.2-36.0)
Mild Anaemia (11.0-11.9 g/dL)	76	57.6% (48.7-66.1)
Moderate Anaemia (8.0-10.9 g/dL)	55	41.7% (33.2-50.6)
Severe Anaemia (<8.0 g/dL)	1	0.8% (0.0-4.2)
Child Anthropometric results		
Prevalence of GAM (WHZ)	N=329	
Prevalence of global malnutrition (<-2 z-score and/or oedema)	9	2.7% (1.5-4.9)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	0	0.0% (0.0-0.0)
Prevalence of underweight (WAZ)	N=329	
Prevalence of underweight (<-2 z-score)	44	13.4% (9.5-18.4)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	41	12.5% (9.2-16.6)
Prevalence of severe underweight (<-3 z-score)	3	0.9% (0.2-4.0)
Prevalence of Stunting (HAZ)	N=329	
Prevalence of stunting (<-2 z-score)	85	25.8% (20.1-32.5)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	65	19.8% (15.0-25.5)
Prevalence of severe stunting (<-3 z-score)	20	6..1% (3.7-9.7)
Prevalence of Overweight (WHZ)	N=329	
Prevalence of overweight (>2 z-score)	4	1.2% (0.4-3.3)
Prevalence of severe overweight (>3 z-score)	1	0.3% (0.0-2.3)
Anaemia 6-59 Months		
Consent given	305	90.8% (87.2-93.4)

Consent given	305	90.8% (87.2-93.4)
Total anaemia	100	32.8% (27.8-38.2)
Mild anaemia	64	64% (54-73)
Moderate anaemia	34	34% (25-44)
Severe anaemia	2	2% (0.0-7)
Childhood illness		
Ill in past 2 weeks	95	28.3% (23.7-33.3)
Fever	55	57.9% (47.3-68.0)
Cough	23	24.2% (16.0-34.1)
Diarrhoea	18	19.0% (11.6-28.3)
Acute flaccid paralysis	1	1.1% (0.0-5.7)
Immunization		
IPV (Inactivated Polio Vaccine) - 1st dose or 1st dose of Hexaxim or Pentaxim or Infanrix-IPV-HIB	196	96.6% (93.0-98.6)
3rd dose of OPV (Oral Polio Vaccine) or 3rd dose of Hexaxim or Pentaxim or Infanrix-IPV-HIB	147	73.9% (67.2-79.8)
Measles - 1st dose or A dose of Priorix or ROR or Rouvax given below the age of 12 months	96	50.8% (43.4-58.1)
MMR - 1st dose or A dose of Priorix or ROR or Rouvax given between the age of 12 and below 18 months	126	70.4% (63.1-77.0)
MMR - 2nd dose or A dose of Priorix or ROR or Rouvax given above the age of 18 months	79	52.7% (44.4-60.9)

CONCLUSIONS

In 2012, the World Health Assembly Resolution 65.6 endorsed a "Comprehensive implementation plan on maternal infant and young child nutrition", which specified six global nutrition targets for 2025. Part of the six targets includes achieving a 40% reduction in the number of children under-5 who are stunted, achieving a 50% reduction of anaemia in women of reproductive age, ensuring that there is no increase in childhood overweight, increasing the rate of exclusive breastfeeding in the first 6 months up to at least 50% and reducing and maintaining childhood wasting to less than 5%.

Wasting in all survey strata was observed to be very low to low, <5% across all strata, and within the global nutrition targets of less than 5% and below the global prevalence of 6.7%. Children 6-17 months are more malnourished compared to the other age categories.

According to UNICEF conceptual framework of malnutrition, drivers of malnutrition are an inadequate diet, poor practices, inadequate services, and disease. From the survey findings, over 70% of the children are missing their best start in life- exclusive breast feeding, 90% of children are at least missing a dimension of quality and nutritious diet, and 27.8 % of children were sick two weeks prior to the survey, 28.3% Syrian and 27.9% Palestinians.

According to VAM report 2020, 87% of Lebanese households resorted to at least one food consumption-based coping strategy, with 54 percent of respondents reducing portions of meals when not having enough food. Reducing consumption of adult members in favour of children, – the most severe among consumption-based coping mechanisms – but might have shielded children against malnutrition, thus acute malnutrition status remaining low to very low among children under-fives nationally and in all governorate.

Although the drivers of malnutrition in Lebanon have not yet resulted in a spike in acute malnutrition rates, this may change soon if the political and economic situation continues to deteriorate. As a consequence of prolonged economic depression, high inflation rates, and poverty rising sharply, families' capacity for consumption-based coping mechanism will be stretched. In absence of accelerated multi-system preventive response, acute and chronic malnutrition levels are likely to increase in Lebanon from the current levels. Thus, there is need for the government, donors and partners to put in place and accelerate a multi-system nutrition response engaging five delivery systems; health, food, social protection, WASH and Education to shield the community from any potential shocks and gradual determination. There is also a need to closely monitor the nutrition situation through routine data as this can give an indication of the trends.

Compared to national stunting prevalence, only Beirut had medium levels of stunting, the levels were almost similar and categorized as low across all the other governorates. With that, stunting is still an unfinished agenda in Lebanon, although the levels were low nationally, among Syrian refugees in tented settlements 1 in 4 children is stunted (25.8%). According to nutrition assessment report conducted in January 2013 covering Syrian refugees in tented settlements in Lebanon, stunting levels were 8.9 % (6.6 - 11.9 95% C.I.). This indicates the deterioration of the chronic malnutrition, perhaps an indication of chronic vulnerabilities among the Syrian refugees in tented settlements in Lebanon.

The prevalence of overweight in children 6 to 59 months of age was ranging from low to medium across survey strata. At national level, the prevalence of overweight was low at 3.7 %, including 1.2% % of severe overweight. Mount Lebanon, South and El Nabatieh had medium levels of overweigh according to WHO cut-offs, and within the same level with global prevalence of 5.7%.All the other governorates had low levels of overweight.

Anaemia is a public health concern nationally, also among Palestinian and Syrian refugees in tented settlements. Almost 42 % of women and 43% of children 6-59 months are suffering from a degree of anaemia, the levels are highest in Mount Lebanon and North. When looking at refugee population, we can see that women and child Anaemia levels are also high in Syrian refugees in tented settlements, at 31.4% and 32.8% respectively. A significant proportion of the anaemia in the country can be resulted due to micronutrient deficiencies because of the poor diets. There is need to scale up both preventive and treatment multi-dimensional and comprehensive approaches to curb medium and severe levels of anaemia in all governorates and among the refugee populations. Following the recommended feeding practices for infants and young children can increase their chances of survival. WHO and UNICEF recommend early initiation of breastfeeding within 1 hour of birth, breastfed exclusively for the first six months of life and continue to be breastfeed up to 2 years of age and beyond. Starting at 6 months, breastfeeding should be combined with safe, age-appropriate feeding of solid, semi-solid and soft foods. However, many infants and children do not receive optimal feeding, with only about 44% of infants aged 0–6 months worldwide being exclusively breastfed over the period of 2015-2020. The global target 2025 is to increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%.

Sub-optimal infant and young child feeding practices was observed nationally, and across Palestinian in refugee camps and Syrian refugees in tented settlements.

RECOMMENDATIONS

Health and Nutrition

- Continued screening in the PHC settings and UNHCR reception centres for timely detection, referral, and treatment of malnutrition to maintain the low levels.
- Increase the capacity of community health workers to identify and refer malnutrition cases to the treatment centres.
- Investment in public health and education programs to promote healthy diet for mothers and children and the healthy start of complementary feeding. This can be done through the 1000 days IYCF campaign (communication for behavior change.
- Expand caregiver access to quality counseling and support on young child feeding.
- Reinforcement of existing activities (e.g. deworming campaigns and antenatal activities) to reduce high levels of anaemia.
- Providing information and education for the community on anaemia and micronutrient Deficiencies. These can be done through social media channels with support of communications teams.
- Strengthening of training of health staff for anaemia detection and treatment as well as investment in equipment for testing anaemia and ensuring adequate supplies and supplements for appropriate treatment.
- Expand support to infant and young child feeding and care practices, and the prevention and management of common childhood illnesses in the PHC.
- Deliver dietary supplements, home fortificants to young children at risk of micronutrient deficiencies, and malnutrition free of charge.
- Reinforcement of existing activities (e.g. deworming within school health program and /or campaigns and targeted campaigns, preconception , antenatal and postnatal care with encouraging birth spacing and ensuring family planning modern methods so that the mothers are capable of taking care of their baby and themselves.
- To consider targeting decision makers in the families (men and mothers in law) in addition to women of reproductive age for awareness on family planning and birth spacing. In addition, use innovative methods to reach all levels of education and remove barriers to access SRH services.
- Improve and market access to primary health care services for child and maternal care and provision of supplements during pregnancy and lactation free of charge.
- Reinforce the implementation of government decision on milk formula distribution in hospitals and to encourage breastfeeding directly after birth.
- Improve the distribution and use of medical records provided to the child at birth in hospitals.

WASH

- Increase the implementation of joint nutrition and WASH programs and increase the coverage of handwashing facilities and WASH services in all households, including the informal settlements (safe water and sanitation).
- Promote the provision of relevant WASH services and hygiene kits (e.g soap) through all food assistance platforms.
- Improved access to clean and sufficient drinking water, proper sanitation, drains for wastewater and proper management of solid waste.
- Expand hygiene promotion, behaviour change for household and child hygiene practices, and prevention of infections, given that diarrheal diseases are a key factor in stunting.

Social protection

- Improve access to age-appropriate nutritious, affordable and sustainable foods through social protection transfers (cash or in kind) targeting at risk children and pregnant and lactating women.
- Design social transfers – cash, food and/or vouchers– that support, and do not undermine, nutritious and safe diets in early childhood, in response to humanitarian crises.
- Use social protection programs to improve caregivers' knowledge about young child feeding and maternal nutrition.
- Use of multi-dimensional approach to food security like fresh food vouchers, income generating activities, cash and food for work programs, and hunger safety net programs for vulnerable groups.
- Create referral pathways to the available community services to assist families with high social vulnerability.

Food Systems

- Advises to the Government on food fortification of items such as bread to curb micronutrients deficiencies.
- Strengthen institutional procurement as part of national and/or large-scale programs (e.g. school meals, cash and vouchers, food assistance) including distribution of nutritious food aid to the diagnosed cases.
- Scaling up unconditional resource transfers to support access to food to the most vulnerable populations.
- Support complementary feeding practices by ensuring access to adequate diet diversity and nutrient-rich foods to families with children under 2 years of age, this can be done through targeted cash transfers.

Education

- Liaise with social media platforms to develop educational courses on proper nutritional practices that are age appropriate and disseminated through relevant channels.
- Improve the use of school platforms to support efforts to reach adolescent girls with school feeding and messaging around nutrition and reproductive health.

Others

- Government, UN agencies and partners to advocacy for enhanced resources allocation in addressing key nutritional issues.
- Advocacy to prioritize children and PLWs in cash transfer and food assistance programs to improve access to and use of preventive services.
- Follow up on fully implementation of IYCF national Policy and policy statement to reinforce IYCF programming.
- Mobilize resources to scale up training of health workers and community health workers on IYCF practices and early childhood development (ECD).
- Dietary supplements and home fortifications interventions.
- Enhanced coordination mechanisms around nutrition information management, including monitoring and evaluation strategies.
- Conduct IYCF surveys for Palestinian refugees and Refugee in non -permanent shelters (ITs, prefab) with representative sample sizes and a survey for refugees living urban/rural settings.
- In-depth assessment/study to understand the possible reasons for high levels of stunting among Syrian refugees in tented settlements, and whether if it is similar in Syrian refugee population living outside ITs.
- With higher levels on anaemia deficiencies, need to conduct micronutrient surveys to establish status of other micronutrients deficiencies.
- Advocate for review of maternity leave policy for working mothers to allow them breastfeeding their babies during the first 6 months and follow up on implementation.
- Support finalization of the national nutrition strategy based on the results of the survey.
- 1000 days IYCF campaign (communication for behaviour change).
- Advocate for evidence informed resources mobilization for multi-system nutrition programming in Lebanon.
- Policy advocacy for legislative system for a conducive enabling environment for regulation of donation of BMS, and Flour Fortification.
- Conduct landscape analysis to understand context-specific barriers, enablers, and pathways to improving the quality of young children's diets with focus on refugee.

1.0 INTRODUCTION

1.1 Background

I.Geographic and demographic Information

Lebanon is located on the eastern coast of the Mediterranean, bordering Palestine to the South and Syria to the North and East. It is the second smallest country in the Middle East with Beirut as its capital city and a total surface area of around 10,452 square kilometres[1]. The country experiences Mediterranean climate that is mild to cool, has wet winters with hot and dry summers. The Lebanon mountains experience heavy winter snows. Arabic is the official language while French, English and Armenian are the other spoken languages. Lebanon is a free market economy.

Before the current economic crisis, it was dominantly service-oriented with banking and tourism as the main growth sectors, currently frozen and contributing to deterioration of the country economy. With the rate of urbanization at 0.75%, the population of Lebanon is mostly urban (88.9%). Majority of the population is literate (95.1%)[2].

Accurate demographic information is lacking in Lebanon due to the fact that a national census has not been conducted since 1932 - prior to the founding of the modern Lebanese state - to preserve the delicate sectarian arrangement in the country.

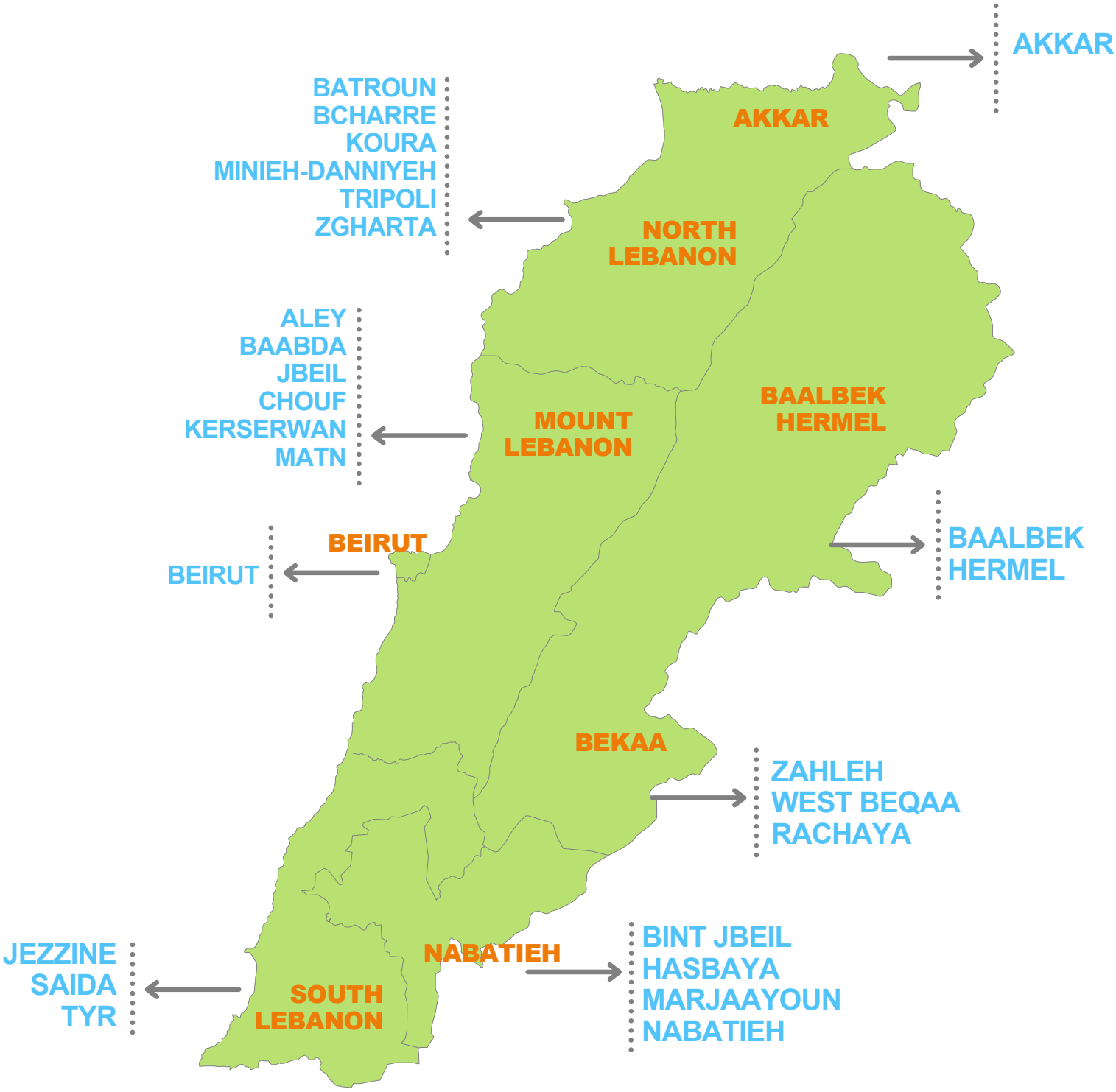
Lebanon is a parliamentary democratic republic with a political system based on a confessional governance structure, wherein its various religious groups are guaranteed representation relative to their percentage of the population.

Over the years, demographics and political dynamics have shifted and sectarian divisions have stocked violence, such as during the 1975-1990 civil war.[3]

Maintaining a religious balance is therefore considered a sensitive political issue in Lebanon but its unfavorable consequences are countless including the absence of accurate data on demography.

With the lack of official statistics, only rough estimates of the population have been published by the government since 1932 and the latest figures from 2021 point to a total population of around 5.5 million[4]. Muslim is the dominant religion at 61.1% distributed as follows; Sunni (30.6%) and Shia (30.5%). Christians account for 33.7% with Maronite Catholics as the dominant group. The minority religious groups are the Druze (5.2%), Jews, Baha'is, Buddhists, and Hindus. On the administrative level, Lebanon has two main levels which are the Mohafazat (governorates) and the caza (districts), followed by municipalities or local governments corresponding occasionally to Lebanese villages.

FIGURE 1:
Map of Lebanon showing Governorates to be covered

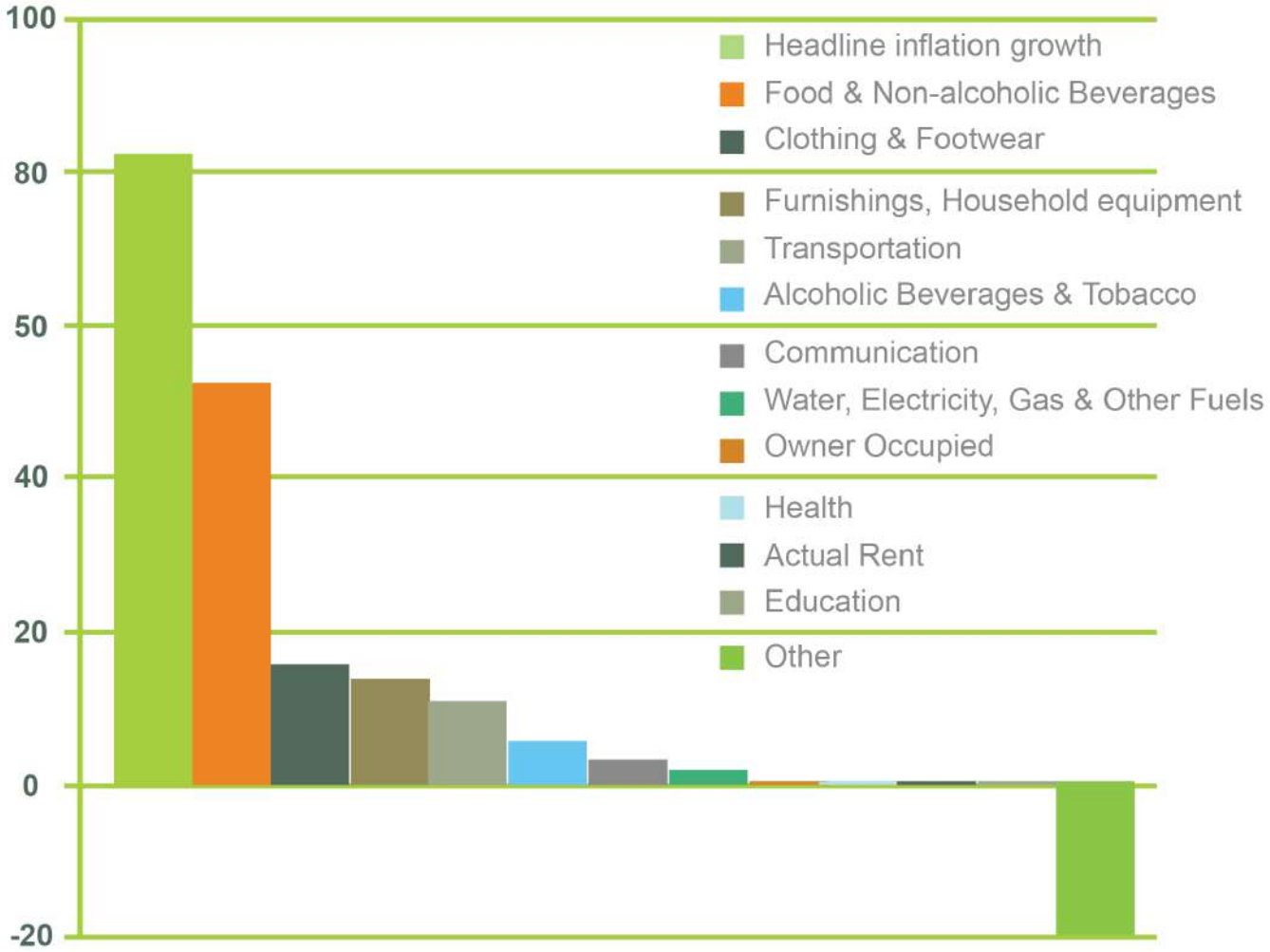


II.Political and Economic Situation

At present, Lebanon is enduring a political gridlock after multiple failed attempts to break the year-long government formation impasse, as well as a severe and prolonged economic depression with inflation reaching triple digit and poverty rising sharply.[5] The country has faced serious challenges following the aftermath of the financial crisis, the devastating effects of the COVID-19 pandemic and the massive Beirut port explosion in August 2020.The country also faces refugee hosting crisis after the onset of the Syrian war in 2011.
Lebanon hosts the largest number of refugees per capita the world. The real Gross Domestic Product (GDP) growth is estimated to have declined by 20.3% in 2020 and continues to contract further in 2021. Additionally, over 50% the population is likely to be below the upper income poverty line, an increased proportion of households are experiencing inadequate access to basic services such as food and healthcare, while unemployment is on the rise.[4]

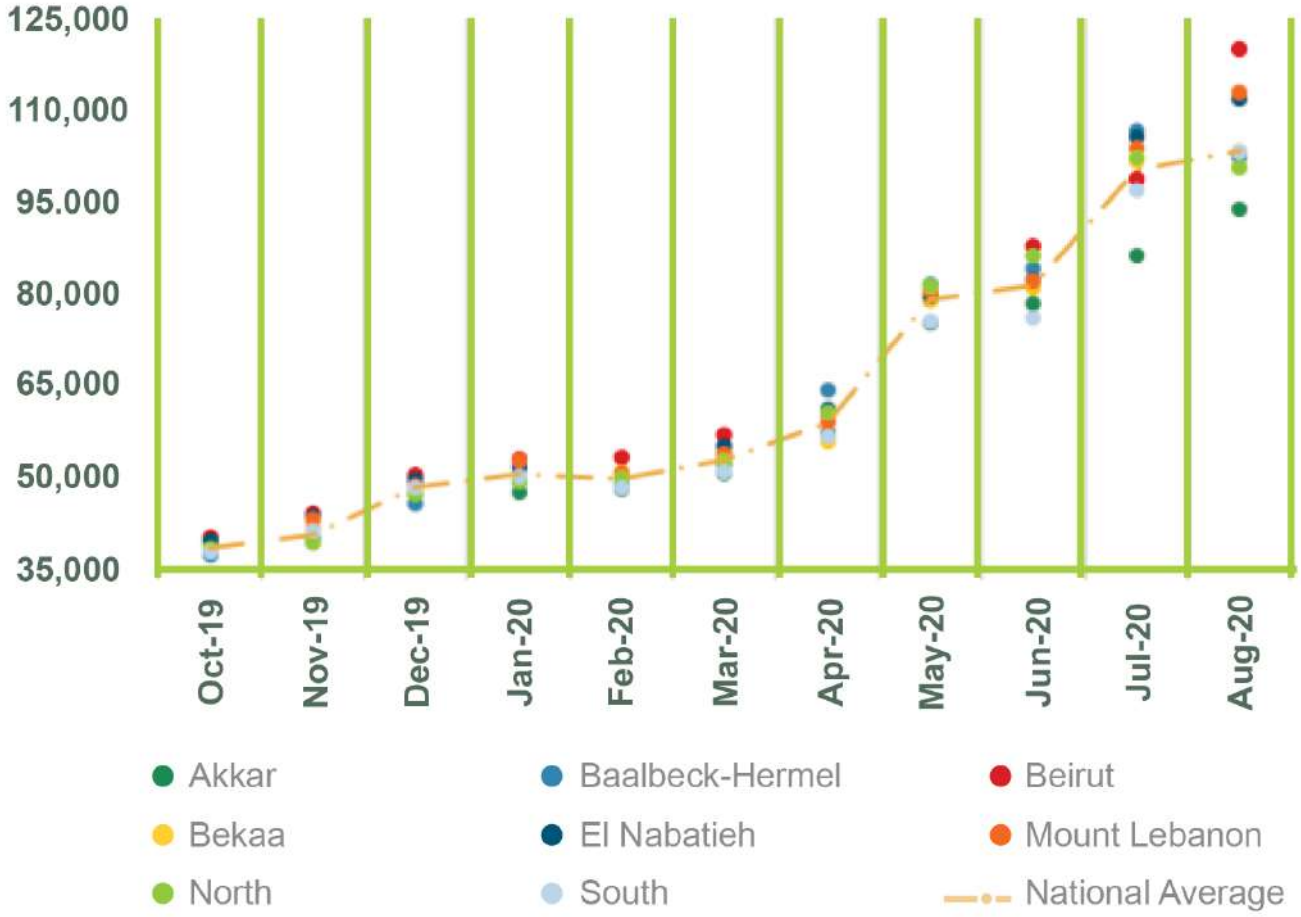
A total of 1,066 protests took place between January and April 2021 (66% of which are peaceful) in response to the removal of subsidies on basic commodities, deterioration in livelihoods, and lack of social safety net according to Vigil Insight Situation Report (2021). The dramatic inflation surge in Lebanon due to the steep currency fall and subsidy cuts is putting the price of many food items out of reach. Inflation in basic items has been a key driver of this overall surge, with a high percent contribution attributed to the food and non-alcoholic beverages category that averaged an inflation of 245% in 2020 (Figure 1)[6] above.
Between October 2019 and August 2020, an alarming 168% increase of the national average cost of the Survival Minimum Expenditure Basket (SMEB) has been reported, with wider variations across governorates mainly noted in the last two months (Figure 2).[7]

FIGURE 2:
Percent contribution of Overall Inflation in 2020



Food inflation and the changes in the ability to meet basic needs is affecting all the residents I Lebanon from all of the nationalities. Given the volatile security situation in the region, Lebanon hosts an estimated 1.5 million Syrian refugees since 2011 making up around 20% of the population - the largest per capita population of Syrian refugees in the world.[8] The country also hosts 476,033 refugees from Palestine[2] and estimated 400,000 migrant workers.[9] A recent study in 2020 found that an estimated 90% of Syrian refugee households live in extreme poverty in Lebanon. Undernutrition is therefore becoming a growing concern in Lebanon for both refugees and host communities as a potential consequence of the diminishing economic resources.

FIGURE 3:
Monthly variation in the cost of SMEB by governorate



III.Nutrition situation

The lack of access to nutritious food is a major cause of malnutrition and obstacle to nutrition security in Lebanon. In 2004, stunting was estimated at 16.5% and wasting at 6.6% among Lebanese children below five years. The 2014 nutrition survey conducted among Syrian refugees reported a Global Acute Malnutrition rate (GAM) of 4.9% in Bekaa valley and 3.9% in Northern Lebanon. A recent WFP survey report indicates that 50% of Lebanese, 63% of Palestinians and 75% Syrians felt worried that they would not have enough food to eat over the past month. In addition, 11% Syrian refugees reported going a whole day and night without eating and 21% reportedly skipped meals.

Sub-optimal breastfeeding practices, poor complementary feeding practices of children under two and lack of adequate of food intake related to poverty and poor access to health and nutrition services are potential drivers of malnutrition in Lebanon.

In 2009, complementary feeding practices were poor in Lebanon, with only 41.6% of infants introduced to complementary foods at six months, this is below the global estimate of 71%. Less than 2% of Syrian refugee children 6-23 months consume a diet that is appropriate for their age, in terms of frequency, quantity, and diversity.

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In Lebanon, the nutrition response to the Beirut Port explosions has been coordinated and implemented as part of the Health and Food Security Sectors through the Nutrition Taskforce from August to September 2020.

The Ministry of Public Health (MoPH) is actively involved in screening and management of acute malnutrition through the primary health care centers. However, there has been no national/regional representative nutrition assessments or surveys conducted to assess and provide updated data on the nutritional status of children and women living in Lebanon since 2009. Several Rapid qualitative assessments led by nutrition partners conducted between June and September 2020 confirmed that infant and young child feeding (IYCF) remains suboptimal across all populations, with the majority (50 to 60 per cent) of women with infants less than six months using infant formula and/or other products that have the potentiality of increasing the risk of malnutrition related mortality among infants and young children.

IV.Overview of COVID-19 situation in Lebanon

As of May 31st, 2021, when the survey design was being developed, Lebanon had dropped to Level 3 of community transmission with regard to COVID-19. Below are the statistics by then on testing, number of cases, deaths, as well as vaccinations.[10]

- 4,169,958 tests administered for COVID-19 since the start of the pandemic.

- The cumulative since the start of the pandemic totals 628241 cases while the number of recoveries was reported to be 517,859.

- Cumulative deaths since the start of the pandemic was 8,375.

- 1,502,181 individuals were registered for vaccination, of which 45.41% were males and 54.59% were females.

- 742,427 vaccines were administered, out of which 241,322 individuals had received two doses and 501,105 individuals had received only one dose. The majority of those vaccinated (95%) were Lebanese.

Despite the positive progress in addressing and reducing community transmission, high vigilance was recommended with focus on abiding to public health and social measures and increased vaccine coverage.

To adhere to the recommended IPC Covid-19 measures, the following adjustments were done during the survey process:

Measures during the Training:

- Procurement of spacious conference facilities with covid-19 measures in place.
- The training also included a module on Covid-19 to reinforce adherence to prevention protocols by the survey personnel Survey.
- Sufficient and necessary protective material were provided during training. These included hand sanitizers and face masks.
- Additional enumerators were trained to replace positive cases.

Measures during the Data collection

- Sufficient protective materials were provided during data collection. These included hand sanitizers and facemasks. Addition facemasks were provided to be used by the sampled households who did not have them at the time of the visit.
- All enumerators were tested before household visits and additional tests when one exhibited symptom during the data collection process.
- Nurses led compliance to the measures within the teams and during household visits.
- Households with cases, persons with symptoms or recent contact to a case were excluded from the survey.
- The survey teams with a reported covid-19 case were suspended from work and would resume after a repeat negative test.
- Team leader was tasked for immediate reporting of any positive or suspected case within the teams for immediate action.
- The team was required to sanitize their hands from one household to another and sanitize anthropometry and anaemia equipment's from one subject to another.
- Reduce number of survey team going inside the households, measurer would only go in in households with children 6-59 months when anaemia tester would go in when there was an eligible women or child.
- Conduct the interview outside the households where possible.

1.2 Justification of the survey

The loss of livelihoods, compounded by the current COVID-19 outbreak, as well as the financial and economic crises in country, has created an urgent need for continued assistance in terms of food, nutrition, and health. Most recent data is needed to understand the magnitude of the predictable nutrition and health crises in Lebanon; however, no national nutrition and health assessment has been conducted in the country since 2009. The lack of up-to- date data on the nutritional status of the most vulnerable populations is a major barrier to efficient humanitarian response as indicated by Nutrition Sector partners. To respond to the increasing humanitarian needs, and respond to the data gaps, the nutrition task force/sector identified the need and unanimously agreed to conduct a national nutrition survey to address the information gaps for design of relevant response programs and possible scale-up of the existing ones.

The SMART survey results are expected to provide baseline data to further inform the scope and scale of the nutrition response, to support evidence-based advocacy to reposition the nutrition response and support the mobilization of the required resources to support implementation of prioritized nutrition interventions at scale.

MOH, UNICEF, as the sector lead in collaboration with the Global SMART Initiative, and other sector partners have designed and implemented a national survey composed of three sub-surveys to generate fresh evidence on rates of malnutrition by the governorate, weighed prevalence, Palestinian refugee living in the camps and Syrian refugees living in informal settlements.

The objective of this assessment was to generate baseline data to inform the collective nutrition response and programming.

The sampling procedure for Lebanon followed the national SMART survey recommended sampling approach that stratifies geographic areas (e.g. governorates) and provides weighted estimates at national level.

1.3 Survey Objectives

The overall objective of the Lebanon National SMART survey was to determine under 5 and maternal nutrition status at national, governorate levels, within Syrian refugees in tented settlements and Palestinian refugees in camps.

1.3.1 Specific Objectives

1

To estimate the prevalence of wasting (acute malnutrition) among children aged 6 to 59 months.

2

To estimate the prevalence of stunting) in children aged 6-59 months.

3

To estimate the prevalence of underweight (in children aged 6-59 months.

4

To estimate morbidity rates two weeks prior to the survey (ARI, fever, acute flaccid paralysis, diarrhea) among children 6-59 months.

5

To estimate the proportion of children 0-59 months who received polio and measles containing vaccines.

6

To assess the key infant and young child feeding indicators among children 0 – 24 months; Exclusive Breast Feeding (EBF), Ever breastfed (EvBF), Mixed milk feeding (MixMF) Continued Breast Feeding (CBF), ISSSF, Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF) and Minimum Acceptable Diet (MAD).

7

To assess nutritional status of pregnant and lactating women by MUAC.

8

To estimate the prevalence of anaemia among children 6 to 59 months and women of reproductive age.

9

To formulate recommendations to guide nutrition programming in Lebanon.

2.0
METHODOLOGY

2.1 Survey Design

The Lebanon National SMART survey applied a cross-sectional study design involving multi-stage sampling approach based on probability proportional to population size as guided by the SMART Methodology. The study sample sizes were determined at governorate levels followed by weighted analysis for national estimates.

The first stage of sampling involved selection of clusters in each governorate while the second stage constituted simple random sampling of households per cluster.

2.2 Target groups, Inclusion, and exclusion criteria

The three surveys were conducted concurrently in this study: the national survey, survey for refugees residing in informal settlements and Palestinian refugees in camps. The national survey included the 8 governorates in Lebanon targeting all inhabitants irrespective of their residential status Therefore the national survey included host communities (Lebanese), migrant workers and refugees living within the host communities. The sampling approach of the national survey was representative at the governorate level and weighted analysis was done to obtain national estimates.

The second and third surveys strictly targeted Syrian refugees living in tented settlements and Palestinian in Refugee camps respectively.

Determination of sample sizes were representative of the camps' contexts. Approximately 21% (300,000) Syrian refugees lived in tented settlements according to UNHCR[1]. There are 12 Palestinian camps with a population of 194,214 according to UNRWA. The UNHCR and UNRWA sampling frames were utilized in assessing the refugee populations and each group was surveyed separately.

The targeted populations by the survey include children 0-59 months and women of reproductive age (15 – 49 years) as elaborated in the indicator table below.

TABLE 4: Survey indicators and targeted population

	KEY INDICATORS	SURVEY TARGET
1	Prevalence of wasting, stunting and underweight	Children 6 – 59 months
2	Child morbidity	Children 6 – 59 months
3	Polio and Measles containing vaccines	Children 0 – 59 months
4	Anaemia	Children 6 – 59 months Women of reproductive age (15-49 years)
5	IYCF Indicators; - Exclusive breastfeeding under 6 months - Ever Breastfed 0-23 months - Mixed milk feeding under six months (MixMF) - Continued breastfeeding 12-23 months - Introduction of solid, semisolid, or soft foods 6-8 months - Minimum meal frequency 6-23 months - Minimum Dietary Diversity 6-23 months - Minimum Acceptable Diet 6-23 months - Minimum Milk Feeding Frequency for Non-breastfed children 6-23 months (MMFF)	Children 0 – 24 months
6	Pregnant and Lactating Women nutritional status by MUAC	Pregnant and Lactating Women [1]

[1] Lactating women – women with own children below

TABLE 5: Definition of indicators

	INDICTOR	DEFINITION	PREVALENCE CUT-OFFS
1	Global acute malnutrition	WFH <−2 Z score and/or MUAC <12.5cm and/or nutritional oedema	< 2.5 Very low 2.5 - <5 Low 5 - <10 Medium 10 - < 15 High ≥ 15 Very high
2	Moderate acute malnutrition	−3≤ WFH Z score<−2 and/or 11.5≤ MUAC <12.5cm	
3	Severe acute malnutrition	WFH <−3 Z score and/or MUAC <11.5cm and/or nutritional oedema	
4	Underweight	weight for age < –2 standard deviations (SD) of the WHO Child Growth Standards median	< 10%: Low prevalence 10-19%: Medium prevalence 20-29%: High prevalence ≥ 30%: Very high prevalence
5	Stunting	height for age < –2 SD of the WHO Child Growth Standards median	< 2.5 Very low 2.5 - <10 Low 10 - <20 Medium 20 - <30 High ≥ 30 Very high
6	Overweight	weight for height > +2 SD of the WHO Child Growth Standards median	< 2.5 Very low 2.5 - <5 Low 5 - <10 Medium 10 - < 15 High ≥ 15 Very high
7	Child morbidity	Proportion of children below 5 years old who were ill 2 weeks prior to the data collection day	

8	Measles vaccination coverage	Percentage of 1-year-olds who have received at least one dose of measles-containing vaccine in a given year	
9	Aneamia children U5 and pregnant and lactating women	WHO defines this as a haemoglobin concentration < 11.0 g/dl at sea level Mild: 10.0-10.9 Moderate: 7.0-9.9 Severe: < 7.0	≤ 4.9: No public health problem 5.0–19.9: Mild public health problem 20.0–39.9: Moderate public health problem ≥ 40.0: Severe public health problem
10	Aneamia non-pregnant adult females 15-49 years	WHO defines this as a haemoglobin concentration < 12.0 g/dl at sea level Mild: 11.0-11.9 Moderate: 8.0-10.9 Severe: < 8.0	
11	Nutritional status of PLW by MUAC	Pregnant and lactating women with MUAC <23 cm (Lebanon context to apply)	MUAC < 23 cm MUAC 18.5 – 22.9 cm MUAC <18.5cm

	IYCF Indicators	
12	Ever breastfed (EvBF)	Percentage of children born in the last 24 months who were ever breastfed
13	Mixed Milk Feeding under six months	Percentage of infants 0–5 months of age who were fed formula and/or animal milk in addition to breast milk during the previous day
14	Exclusive breastfeeding under 6 months (EBF)	Percentage of infants 0–5 months of age who were fed exclusively with breast milk during the previous day
15	Continued breastfeeding 12 – 23 months (CBF)	Percentage of children 12–23 months of age who were fed breast milk during the previous day
16	Introduction of solid, semisolid or soft foods 6–8 months (ISSSF)	Percentage of infants 6–8 months of age who consumed solid, semi-solid or soft foods during the previous day
17	Minimum dietary diversity 6–23 months (MDD)	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
18	Minimum meal frequency 6–23 months (MMF)	Percentage of children 6–23 months of age who consumed solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more during the previous day
19	Minimum acceptable diet 6–23 months (MAD)	Percentage of children 6–23 months of age who consumed a minimum acceptable diet during the previous day

2.2.1 Indicator measurements

NUTRITION DATA

Age:
Children 6-59 months from the selected households were considered eligible for the survey. Age was recorded as a date of birth (day/month/year) if the information was available on official written documents such as vaccination or birth registration cards. Where documentation was unavailable, age was recorded in months. The Local Calendar of events was used in absence of age documentation.

Sex:
This was recorded as either 'f' for female or 'm' for male.

Weight:
Standardized SECA scales was used for weight measurement for children between 6 to 59 months. The weight was recorded to the nearest 100g (0.1 kg). Direct weighing option was used on older children who can easily stand while double weighing option was applied for younger children or children who cannot stand due to notable reasons.

Height:
standard, height boards was used for taking length and height of children. Children less than 24 months (<87.0 cm) were measured lying down, and children greater than or equal to 24 months (>=87.0 cm) were measured in standing position. The precision of the measurement was 0.1 cm.

Upper Arm Circumference:
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/PLW side. MUAC measurements was recorded to the nearest 0.1 cm or 1.0 mm.

Bilateral Oedema:
Was assessed by applying a minimal thumb pressure on BOTH feet for three seconds. If oedema is present, a shallow pit remains after releasing pressure from the feet. Only children with bilateral oedema (oedema on both feet) were diagnosed positive for nutritional Oedema. The team leader confirmed all cases of oedema and referred the cases for immediate inpatient care.

Maternal Nutrition:
The nutritional status of pregnant and lactating women of reproductive age was assessed using MUAC measurements. The MUAC measurements was recorded to the nearest 0.1 cm or 1.0 mm.

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MORBIDITY, MEASLES VACCINATION AND ANAEMIA PREVALENCE

Retrospective morbidity:
Women of reproductive age (15 – 49 years) were asked about acute illnesses that affected their children (6-59 months) in the past two weeks prior to the survey date.

Measles vaccination status:
information collected from the records on the immunization card, however, recall was used in absence of health records (caregivers/mothers of children aged 9-59 months will be probed). The information was collected on the first and second doses at 9 and 18 months respectively.

Anaemia:
involved assessing haemoglobin concentration in children 6-59 months and women 15-49 years using the portable HemoCue machine. The Hb concentration was recorded in gram per decilitre (g/dL).

INFANT AND YOUNG CHILD FEEDING PRACTICES

The IYCF practices were based on the caregivers' recall of feeding practices of infants and children 0 – 24 months.
In estimation of the feeding practices, the caregivers were asked questions on four broader sections.

- Questions about feeding immediately after birth
- Questions about current breast / and bottle feeding
- Questions about liquids
- Questions about semi-solid and solid foods in the last 24 hours

2.3 Sample size estimation

The sample sizes for 10 strata (8 governorates and 2 refugee camps) were calculated using the ENA for SMART software based on the most recent population parameters for each stratum as demonstrated in the table below.

TABLE 6: Anthropometry sample size estimation

PARAMETERS FOR ANTHROPOMETRY	GOVERNORATES/CAMPS				
	AKKAR	BAALBEK-EL HERMEL	BEIRUT	BEKAA	MOUNT LEBANON
Estimated Prevalence of GAM (%)	5.9	5.9	5.9	5.9	5.9
± Desired precision	3.5	3.5	3.5	3.5	3.5
Design Effect (DEFF)	1.5	1.5	1.5	1.5	1.5
Average HH Size	4.8	4.2	3.4	3.4	3.4
% Children under-5	10.7	8.6	6.6	8	7.2
% Non-response Households	20	20	20	20	20
Children to be included	284	284	284	284	284
Households to be included	769	1093	1760	1452	1613
Number of clusters	52	73	118	97	107
Households per cluster	15	15	15	15	15
Teams	6	6	6	6	6
Data Collection Days	9	13	20	17	18

PARAMETERS FOR ANTHROPOMETRY	GOVERNORATES/CAMPS				
	EL NABATIEH	NORTH	SOUTH	SYRIA ITS[2]	PALESTINIAN CAMPS
Estimated Prevalence of GAM (%)	5.9	5.9	5.9	5.9	7.64
± Desired precision	3.5	3.5	3.5	3.5	3.5
Design Effect (DEFF)	1.5	1.5	1.5	1.5	1.5
Average HH Size	3.6	3.4	3.3	5	4.7
% Children under-5	8.1	8	8.1	16	10.5
% Non-response Households	20	20	20	20	20
Children to be included	284	284	284	284	361
Households to be included	1354	1452	1477	494	1017
Number of clusters	91	97	99	33	68
Households per cluster	15	15	15	15	15
Teams	6	6	6	6	6
Data Collection Days	16	17	17	6	12

[2] This survey will include only Syrian refugees -living in Informal Tented settlements (ITs)

NOTES:

I. An estimated prevalence of 5.9% was used. The process of identifying the estimated prevalence involved a review of multiple data sources between 2004 (Lebanon GAM 6.6%)[14], 2012 (Syrian refugees in tented settlements GAM 4.4% [95% CI: 2.6 - 7.3]), 2013 (Syrian refugees in tented settlements GAM 5.9 % [95%CI: 4.8 - 7.1][15], and 2018 (Lebanon GAM 7%)[16]. An average of the four available prevalence estimates of 5.9% was identified to be used for the sample size calculation for both host and refugee populations to give optimal sample size when all other parameters are held constant. The Palestine camps used the 2020 Annual Health Report GAM of 7.64.

II. As guided by SMART Methodology, a precision 3% is recommended for estimated prevalence rates below 10%. However, the level of precision was reduced to 3.5% for all governorates as recommended in the SMART guidance on resuming surveys during COVID-19[17] to allow for reasonably precise estimates.

III. A design effect of 1.5 was used for all governorates. This assumes that there could be some level of heterogeneity within each governorate and also the rule of thumb as recommended by SMART methodology.

IV. Average HH Size was based on the findings of the Labour Force and Household Living Conditions (LFHLCS) 2018–2019 (CAS, ILO) and varies across the different governorates.[18]

For the survey in the refugee settlement for Syrian population, the average household size was based on the 2019 Vulnerability Assessment of Syrian refugees in tented settlements in Lebanon survey.[19] The average household size for Palestine refugees in camps was obtained from the 2019 Annual Health Report.

V. % Children under-5 was based on the findings of the Labour Force and Household Living Conditions Survey (LFHLCS) 2018–2019 (CAS, ILO) and varies across the different governorates. For the survey in the refugee settlement for Syrian population, the % children Under-5 was based on the UNHCR Registration and Assistance Databases March 2020 and estimated at 16%. This is estimated at 10.5% for Palestine camps according to the 2020 Annul Health Report.

VI. A higher Non-Response Households of 20% was used because the assessment is being conducted during covid-19 context and includes blood sample collection among children 6-59 months.

VII. Since anthropometry indicators were the main objective for the survey, sample size calculation was based on that. All the other the additional indicators were anchored on that such as IYCF, Child Health and Pregnant and Lactating Women MUAC. Therefore, no additional sampling procedure was done.

2.3.1 Number of Households per Cluster

HOUSEHOLD DEFINITION

In Lebanon, a household was defined as a group of people who live under the same roof, share the same expenses, and eat from the same pot. The number of households to be visited per cluster was 15. This was estimated based on the field related logistics such as estimated amount of time that a team would spend in the field, excluding travels, initial introduction, and selection of households, and breaks where applicable.

TABLE 7: Calculation of HH coverage/day/cluster

EVENT	TIME TO DEDICATE	TOTAL TIME ASSIGNED AND BALANCE
Total working time	7:30 am - 5:30 pm	600 minutes
Travel time (to and from)	Estimated at 2 hours. Might differ by governorate	600 – 120 = 480 min
Introduction, selection of first household	15 minutes	480 – 15 = 465 min
Lunch and other breaks	15 minutes	465 – 15 = 450 min
Average time allocated for household interview (interview + travel time between households + disinfection)	Interview – 20 minutes Travel between households – 5 min (on average) Disinfection – 5 minutes	Total available time to do survey per cluster = 450 min Total survey time/hh = (20+5+5) = 30 min
Number of households to be visited per day	Number of households per cluster = 450/30 =15	15 households is representative of a household

2.3.2 Number of Clusters per Governorate

A cluster is defined as simplest geographical unit in a governorate or a refugee camp. The cadastres or municipalities where applicable represented clusters. The number of clusters per governorate was determined by dividing the total estimated number of households (sample size) to be included in the survey for each governorate zone by the estimated number of households per cluster (15 households).

2.4 Sampling in Lebanon Urban Context

Given the predominantly urban context in Lebanon, sampling in urban context approaches were applied. Survey sampling methods and guidelines[20] generally do not differentiate between urban and rural contexts.

However, urban areas are large and access to up-to-date population figures for primary and basic sampling units can be challenging. Hence, multi-stage sampling is often required in urban settings.

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2.4.1 First Stage: Cluster Selection

In stage one, an updated sampling frame with all municipalities in Lebanon was developed with the support of the relevant government departments and humanitarian actors. The municipalities were divided into smaller possible geographic units such as neighbourhoods, blocks, clusters. The sub-division mapping relied on existing physical futures such as roads/streets. The new sub-units were considered the Primary Sampling Units (PSU). With their estimated population estimates, the PSUs were entered into ENA software and required number of clusters selected based on probability proportion to size.

Prior to the selection of clusters, inaccessible clusters due to insecurity or abandonment were excluded from the sampling. In addition to the selected clusters, the reserve clusters (RCs) were assigned for each stratum in this stage of sampling. The reserve clusters were used in the event that 10% or more of the original clusters were impossible to accomplish or if the final sample size was less than 80% of the targeted number. The reserve clusters were assessed in Mount Lebanon and Palestine Refugee camps.

2.4.2 Second stage: Selection of Households

The second stage involved simple random sampling of 15 households per selected cluster. The selection was done from an updated list of households obtained with the assistance of municipality or local administrations.

Given the dominant urban contexts in Lebanon, challenges that would impede the selection of the 15 households were anticipated. These include.

1. Two or more clusters assigned to a large cluster
2. Selected cluster is too large (>100HHs)

Segmentation was based on existing administrative units (e.g., neighbourhoods), natural landmarks (e.g., rivers, roads, mountains) or public places (e.g., market, schools, mosques, temples, churches). In urban settings it is most likely to that segments will be of unequal size.

To facilitate selection of 15 households per cluster, household listing was conducted a priori.

Household listing:
This involved listing of all households in all sampled cluster (selected in stage 1) through enumeration. The survey teams with the help of cluster administration or assigned key informants, developed the list prior to the survey and selected 15 households per cluster through simple random sampling. The abandoned households will be excluded from the list. The household list included household heads' full names, contact details and description of the type of residence. Where contact details were available, the households were notified ahead of time and if possible, agreed on convenient time to visit and re-visits where applicable.

2.5 Organization of the survey

2.5.1 Coordination of the survey

UNICEF and MoPH in collaboration with SMART team from Action Against Hunger Canada led the survey implementation process with the support of other UN agencies, Nutrition sector partners, and donors. The Nutrition Sector established a Technical Committee whose main roles included managing, coordinating, and monitoring the key steps of the survey implementation. The Technical Committee was composed of representatives from the Ministry of Public Health, UNICEF, WFP, WHO, UNHCR, UNRWA, IOCC, FAO, Action Against Hunger Lebanon, Save the Children and America University of Beirut.

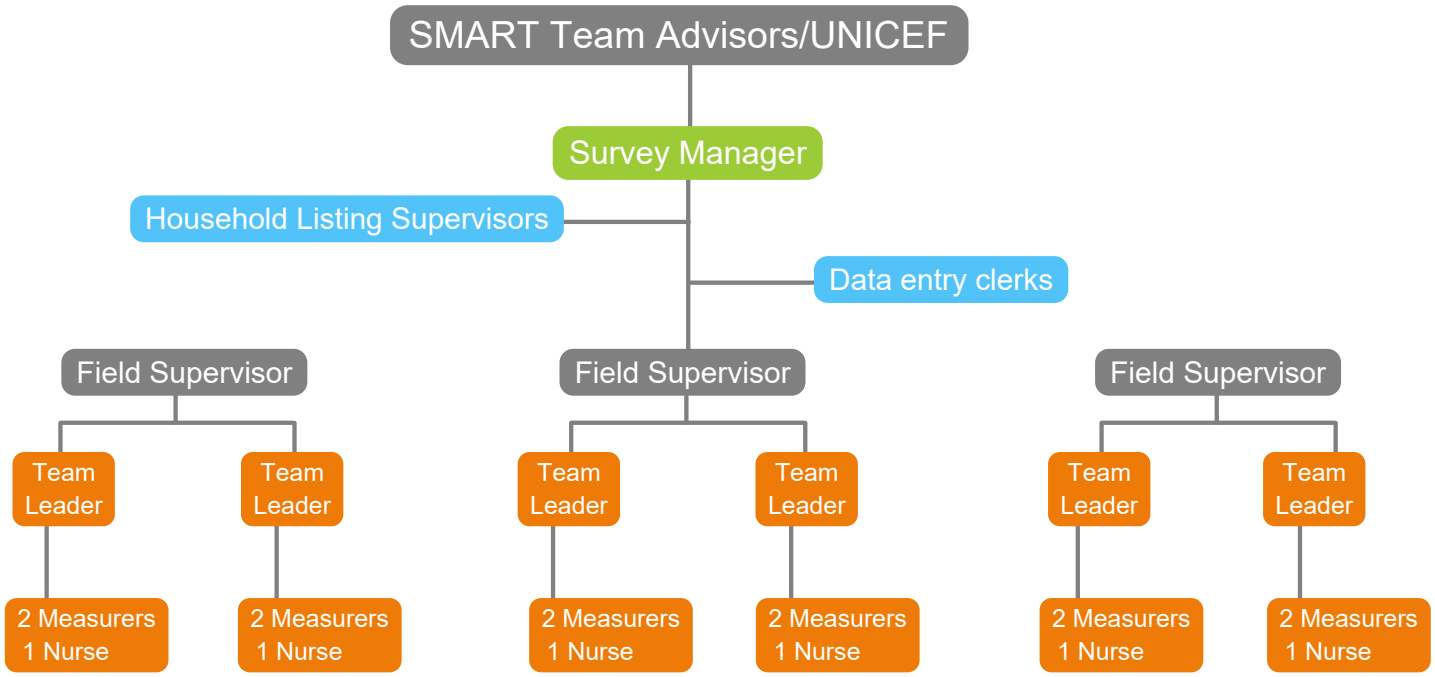
As part of the implementation of the national nutrition survey, a survey manager training on SMART methodology and the adaptation of SMART methodology to Lebanon context and with the current Covid-19 pandemic was conducted for 22 survey managers before the survey. One of the trained survey managers was not able to proceed with field implementation of the survey.

2.5.2 Recruitment and Composition of the survey teams

The surveys in the 10 strata were led by 10 managers. The remaining 11 trained survey managers also participated in the survey as assistant managers as part of their capacity building on SMART methodology and for field support in enhancing data quality.

Additional personnel below the manager included 30 supervisors (3 per survey area), 6 data entry clerks, 60 nurses, and 180 enumerators (1 team leaders and 2 measurers team). The segmentation and household listing were led by a different set of personnel composed of 1 supervisor and 10 listers per stratum.

FIGURE 4:
Team Organization



2.5.3 Training of the Survey Teams

The survey managers and their assistants completed a 10-day SMART survey manager level training in Beirut, Lebanon. The survey managers led the enumerator training for the 10 survey strata. The enumerator trainings involved 30 supervisors (3 per survey area), 60 nurses and 180 enumerators (60 teams each composed of 1 team leader and 2 measurers).

The enumerator training applied the standard training modules for all indicators and mainly focussed on anthropometric measurements, survey teams, indicators and tools, field procedures, special cases, translation, and back-translation of the questionnaires, second stage sampling and data recording. The training also included standardization test and a pilot test.

UNICEF with the field support of IOCC coordinated the selection of 12 health children 6 -59 months for the standardization exercise in each stratum. These children were accompanied by their parents or caregivers with strict observation of Covid-19 measures. The standardization test results were analysed for feedback and formation of the teams.

The pilot test was conducted on the last day of the training in selected nearby clusters, not sampled for the main survey. The pilot test data were analysed and any possible gaps addressed ahead of final fieldlogistics planning and data collection.

2.5.6 Ethical Considerations

The SMART surveys are regarded as part of national programm monitoring strategies to assess nutrition situation in contexts where key determinants of malnutrition are on the rise. The success of this study was anchored on compliance with standard ethical considerations. The ethical considerations were observed in two broad categories:

1- Ethical issues related to survey process

The Technical Committee composed of technical representatives from food security, health and nutrition agencies, and government ministries was involved in regular reviews of the survey protocol, tools, data, and final report to ensure high standards are maintained. The committee also provided field implementation guidance based on contextual information and experience on handling similar or related surveys in Lebanon.

With the support of UNICEF, the final protocol, tools, data, and report were presented to the Ministry of Public Health and key stakeholders for validation, approval, and dissemination. UNICEF also supported in getting the relevant approvals from governorate/camp levels, municipalities/cadastres authorities, and cluster or village leaders. Government/UNICEF provided official identification letters to the team for use during field work.

2-Ethical considerations related to survey subjects

The survey subjects were women aged 15 – 49 years and their children aged 0 – 59 months.
The study ensured voluntary participation and informed consent, no deception, freedom to withdraw, protection from psychological and physical harm, confidentiality, anonymity, and privacy.

i) Voluntary and informed consent

The study subjects were presented with oral consent note, to determine those who voluntary accept to be part of the survey. Prior to consent, the survey team leader would inform the participants about: -

i) The purpose/objectives of this study and how data will be used

ii) The amount of time likely to be spent per household and field procedures involved

iii) Right of participation and freedom to withdraw once study is underway and the associated implications

iv) Confidentiality measures in place

v) Benefits of the study against personal expectations

vi) Researcher's contacts in case of questions

2.6 Data Management, Analysis and Reporting

2.6.1 Data Collection Tools

The survey used the standard questionnaires developed based on national and global indicator guidelines such as the SMART methodology tools and WHO guidelines on child health and infant and young child feeding.

The tools were pre-tested and necessary adjustments made prior to training of the survey teams.

The data collection tool was further designed into an XML form to enable mobile quantitative data collection using the Open Data Kit (ODK) platform on mobile phones and tablets. A mix of mobile and paper data collection tools were used in line with contextual variation. The paper data collection option was used in El Nabatieh and South Governorates.

2.6.2 Data Quality Control Measures

Data quality is critical for release of reliable information and quality reports of decision making in humanitarian contexts. To ensure data quality, the following measures were observed.

- Review and validation of the protocol and tools by the Lebanon National Survey Technical Committee.
- 7 days comprehensive training including standardization test and pilot test.
- Use of quality anthropometric tools and daily standardization assessment to avoid instrument error.
- Field supervision of the survey teams during data collection to ensure adherence to the survey protocols.
- Calibration and standardization of survey equipment.
- Data entry in the field using Mobile Data Collection methods.
- Use of cluster control forms to monitor the survey outcome of sampled households.
- Daily data plausibility checks and sharing feedback with the teams every morning before proceeding to the field. The SMART plausibility check is the tool that analyzes the overall quality of the survey data. Refined over years of use in the field, the plausibility check report shows the distribution of the sample against that expected if the subjects are properly sampled, the amount of missing and implausible data and a series of statistical tests examining the internal structure of the survey data against that which would be expected to occur in a well conducted survey.
- Adequate logistics planning during field work.

2.6.3 Data Collection and supervision

The data collection was conducted for 24 days from August 17th to September 10th, 2021.

The supervision of data collection is a critical component of data quality control and was conducted to reinforce adherence to the survey protocol. The SMART technical team managers led the field technical support and supervision of data collection process.

The supervision exercise mainly focussed on respondents' selection, interviews, data recording and data entry.

Any notable gaps were addressed immediately through the survey management mechanism. Similarly, data entry clerks were supervised to ensure correct entries and highlight data collection mistakes for team feedback.

The data quality checks were run on daily basis for feedback sharing with the teams before proceeding to the field the following day.

2.6.4. Data Analysis

The collected data was downloaded and organised in Ms Excel for daily analysis ENA software (January 2020 version) for data quality reports. This data was merged with the directly entered datasets from paper questionnaires.
At the end of the survey, the datasets were merged for explorative analysis and organised by stratum for national, governorate and refugee camp levels of analysis. The anthropometric data was analysed using ENA for SMART software while the additional variables were analysed using EPI Info 7.

2.7 Survey Limitations

The sample size calculation was based on the main indicator, which is wasting, thus the sample size achieved in other variables like IYCF and maternal nutrition is not adequate to analyse data per governorate level, and only done at national level.

The sample size related to the IYCF indicators for both the Palestinian and Syrian strata is not sufficient to produce representative estimates that can inform programmatic decisions. Therefore, the findings can only be used as a proxy indication of the IYCF situation in these strata.

2.8 Survey Challenges and Mitigations

2.8.1 Security and Access

The survey team faced numerous access challenges during segmentation and listing of households in the sampled clusters/cadastres especially in South and Nabatieh Governorates. This was mainly attributed to political instability, delays in sensitization of the governorate and municipalities administrations and lack of visibility and community mobilization.

UNICEF security team dedicated their effort in seeking survey approvals in the affected governorates and municipalities through official letters, phone calls and face-to-face meetings when needed.

2.8.2 Delays in availability of anaemia supplies

The delivery of anaemia testing kits was delayed by the port clearances processes. This delay affected the practical training sessions on anaemia, pilot test and led to delay in the beginning of data collection by one week.

The delay meant allocation of additional resources for refresher training of nurses and enumerators as well as pilot test of the tool.

2.8.3 Fuel crisis

The survey was planned and implemented during a serious economic crisis in Lebanon. The severe shortage of fuel witnessed at the time affected movement of all survey personnel during training.

The fuel shortage challenge was addressed by adequate planning of activities and giving fuel/transport allowances to enumerators with the option of using their own cars or public transport.

The Nutrition Sector partners such as FAO, WFP, UNICEF, ACF and Mercy-USA also provided additional cars for use in the survey.

2.8.4 Electricity cuts

Fuel crisis also led to electricity cuts that contributed to fluidity in population movement. Most absent households were reported to have changes of residence as it was during summer and there was no electricity, so they moved to cooler places in the mountains. This was common especially in Beirut and Mount Lebanon.

2.8.5 Using a mix of paper and mobile data collection

The survey utilized both paper questionnaires in South and Nabatieh and mobile data collection approaches in other survey strata. This prompted the need for additional resources to develop two sets of survey tools and recruitment and training of data entry clerks. The paper questionnaires for El Nabatieh and South governorates had to be printed, delivered to the teams and filled forms collected on daily basis back to the data entry centre amid a serious fuel crisis. The paper questionnaires are prone to data recording mistakes that would otherwise be prevented by mobile data collection option.

To ensure timely verification of entries and communication of feedback to the teams using paper questionnaire, a WhatsApp group was created. The identified data errors by the data entry team and the SMART team would be communicated via the WhatsApp platform on timely basis. The field supervision cars at times were used for timely delivery of filled questionnaires and cluster control forms.

2.8.6 Covid-19 pandemic

The survey was conducted during of covid-19 pandemic, probably one of the SMART surveys to have been conducted at national level at such a time. This meant putting strict measures in place to protect both enumerators and the community.

As recommended by the MoPH, all enumerators had their tests prior to the training and data collection. UNICEF ensured procurement of spacious conference facilities with covid-19 measures in place and provided all necessary protective items for use in the training venues and during household visits.

The training also included modules on Covid-19 to reinforce adherence to prevention protocols by the survey personnel. The survey teams with a reported covid-19 case were suspended from work and would resume after a repeat negative test as was the case in Beirut governorate and Palestine camps teams.

2.8.7 Team composition / recruitment

The recruitment of survey personnel was led by UNICEF through two key service providers: IPSOS and Grand Thornton (GT). The survey managers, nurses and enumerators were recruited by IPSOS while GT was responsible for household listers and data entry clerks. In both cases the survey personnel complained of low pay, lack of or low transport fees and work without formally signed contracts.

Once the gaps were identified, the SMART team discussed with UNICEF to engage the service providers to ensure reasonable pay to avert possible dropouts.

The IPSOS survey managers were also paired with the UNICEF, Mercy USA and independent staff to enhance team dynamics and improve quality of work. Coordination meetings were also conducted on timely basis that brought together the two service providers, together with UBICEF and SMART team to discuss challenges and way out.

2.8.8 Inadequate visibility items

The survey teams were not provided with sufficient visibility items and this affected access to households and communities. In some cases, the authenticity of their work came under lots of scrutiny leading to non-response, denied access and drop-out of personnel who felt threatened. These cases were escalated to the UNICEF team who provided introductory letters for use by the enumerators.

2.8.9 Accidents

Two road accidents were experienced during the survey training as participants were heading to the venue. One involved Bekaa survey manager who was treated and allowed to go home. Unfortunately, the second accident was fatal and claimed the life of one enumerator from Nabatieh team. This caused delays in starting of the Nabatieh training as the team was traumatised and needed to attend the burial of their colleague and friend. A replacement for the enumerator who passed away was done by IPSOS.

3.0

RESULTS

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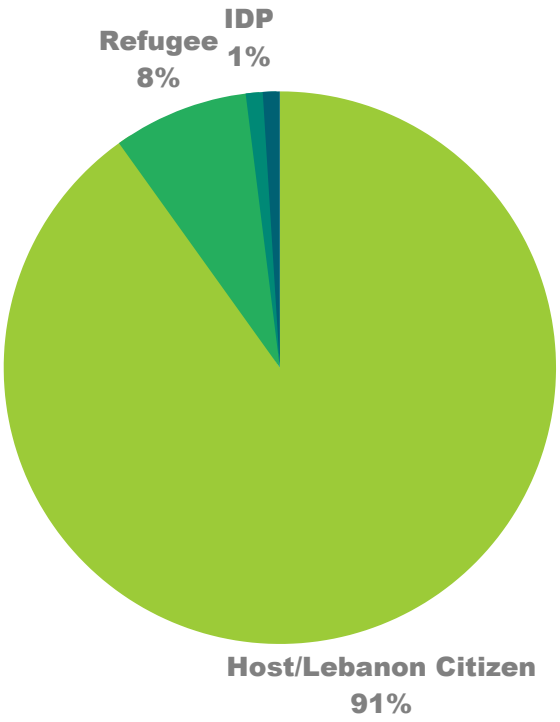
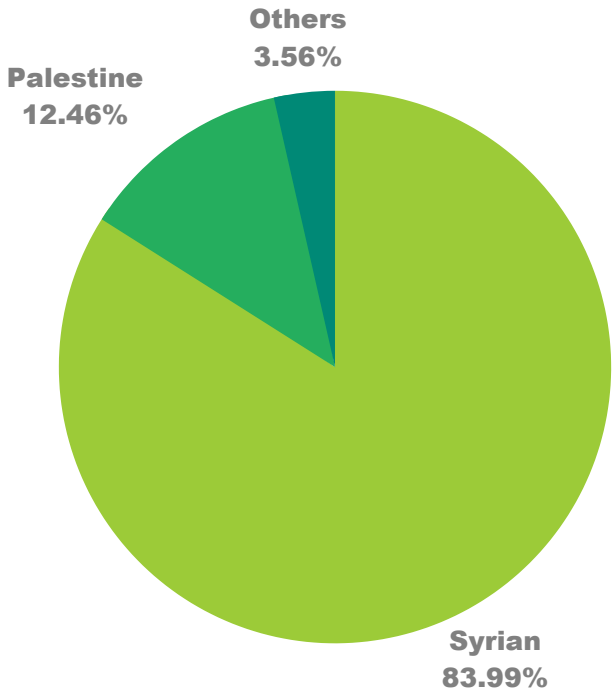
3.1 Demographic characteristics and Residency of the surveyed population

FIGURE 5:
Respondents Residential Status in the 8 governorates



91% of the respondents residing in the eight governorates were residents of Lebanon with 8% being refuges residing outside the camp as shown in figure 5 below.

FIGURE 6:
Refugee Nationality in the 8 governorates



Majority (83.9%) of the refugees residing outside camps s were Syrian in nationality as shown in figure 6 below.

In the Palestinian camps, 95.29% of the respondent were refugees, out of which 92.43% were Palestinian nationality and only 7.57% are Syrian nationals. In the Syrian refugees in tented settlements, all respondents were refugees and all being Syrian nationality.

3.1.1. Geographical Coverage and Response Rate

All the planned clusters selected from the sample frame in the 10 strata were accessible and assessed. Reserve clusters were only activated in two strata (Palestinian camps and Mount Lebanon). The SMART methodology recommends activation of Reserve clusters only when less than 90% of the original number of clusters is accessible or less than 80% of the required sample size in number of children 6-59 months is reached.

This was the case for the two strata mentioned above. The response rate was above 85% in all strata, the highest being Palestinian camp at 97.8% and the lowest being Akkar at 86.5% as shown in Table 8 below. Covid-19, fuel and electricity crisis are among the key factors that contributed to the non-response rate observed.

TABLE 8: Geographical coverage and response rate

	CLUSTERS			HOUSEHOLDS			CHILDREN 0-59 MONTHS	CHILDREN 6-59 MONTHS		
LOCATION	SAMPLED	ASSESSED	%RESPONSE	SAMPLED	ASSESSED	%RESPONSE	ASSESSED	SAMPLED	MEASURED	%RESPONSE
All	835	853	102.2%	12,525	11.611	92.7%	3,558	2,917	3,240	111.1%
Akkar	52	52	100.0%	780	675	86.5%	350	284	329	115.8%
Baalbek-El Hermel	73	73	100.0%	1095	1006	91.9%	384	284	333	117.3%
Beirut	118	118	100.0%	1770	1565	88.4%	254	284	234	82.4%
Bekaa	97	97	100.0%	1455	1416	97.3%	599	284	546	192.3%
El Nabatieh	91	91	100.0%	1365	1220	89.4%	256	284	247	87.0%
Mount Lebanon	107	118	110.3%	1605	1553	96.8%	220	284	195	68.7%
North	97	97	100.0%	1455	1405	96.6%	509	284	467	164.4%
South	99	99	100.0%	1485	1318	88.8%	300	284	261	91.9%
Syrian Camp	33	33	100.0%	495	455	91.9%	359	284	299	105.3%
Palestinian Camp	68	75	110.3%	1020	998	97.8%	328	361	329	91.1%

3.1.2. Average Households Size and Distribution of children 0-59 months and women of reproductive age (15-49 years)

The national mean household size is 3.9 and the mean number of children 6-59 months old per household is 0.28 while the mean number 0-59 months is 0.31. The highest mean household size was in Akkar and Syrian refugees in tented settlements both having a mean of 5.3 while the lowest was Beirut at 3.1.

Syrian refugees in tented settlements had the highest mean number of children 6-59 and 0-59 months at 0.66 and 0.79 respectively while the lowest was Mount Lebanon at 0.13 and 0.14 respectively.

TABLE 9: Average Households Size and Survey Population

STRATUM	AVERAGE HOUSEHOLD SIZE	CHILDREN 0 – 59 MONTHS			WOMEN OF REPRODUCTIVE AGE (15 – 49 YEARS)
		FEMALE	MALE	TOTAL	
National	3.9	1433	1438	2871	7851
Akkar	5.3	160	190	350	811
Baalbek-El Hermel	4.4	205	179	384	867
Beirut	3.1	127	127	254	825
Bekaa	4.2	281	318	599	1317
El Nabatieh	3.6	138	119	257	828
Mount Lebanon	3.3	125	95	220	714
North	4.4	248	261	509	1340
South	3.8	149	149	298	1149
Palestinian camp	4.2	168	160	328	882
Syrian refugees in tented settlements	5.3	172	187	359	481
Total		1773	1785	3558	9214

3.2 Data Quality Report

Overall Anthropometry data quality ranged from excellent to acceptable in all 10 strata. This is an indication of good quality data across the stratums (Table 10).

TABLE 10: Data quality report

STRATUM	DATA QUALITY ANALYSIS CRITERIA					
	Flagged data (% of out of range subjects)	Overall Sex Ratio (Significant Chi square)	Age ratio (6-29 vs 30-59) (Significant Chi square)	Dig preference score - weight	Dig preference score - height	Dig preference score - MUAC
National	0 (1.4 %)	0 (P=0.938)	10 (P=0.000)	0(2)	0(5)	0(6)
Akkar	0 (0.9 %)	0 (P=0.205)	2 (P=0.093)	0 (4)	2 (9)	0 (5)
Baalbek-El Hermel	0 (1.2 %)	0 (P=0.583)	4 (P=0.013)	0 (3)	0 (7)	2 (9)
Beirut	0 (1.3 %)	0 (P=0.513)	0 (P=0.647)	0 (5)	2 (8)	2 (11)
Bekaa	0 (0.9 %)	0 (P=0.171)	4 (P=0.026	0 (4)	0 (7)	0 (5)
El Nabatieh	0 (2.4 %)	0 (P=1.000)	4 (P=0.040)	0 (5)	2 (9)	2 (10)
Mount Lebanon	5 (2.6 %)	2 (P=0.053)	0 (P=0.819)	2 (8)	2 (10)	2 (11)
North	0 (0.9 %)	0 (P=0.547)	2 (P=0.085)	0 (4)	0 (7)	2 (8)
South	5 (2.7 %)	0 (P=0.293)	0 (P=0.909)	0 (7)	2 (8)	2 (9)
Syrian refugees in tented settlements	0 (0.6 %)	0 (P=0.544)	0 (P=0.568)	0 (7)	2 (8)	2 (10)
Palestinian camp	5 (3.0 %)	0 (P=0.772)	0 (P=0.228)	0 (7)	2 (8)	2 (10)

TABLE 10.1: Data quality report

STRATUM	DATA QUALITY ANALYSIS CRITERIA					
	Standard Dev WHZ	Skewness WHZ	Kurtosis WHZ	Poisson distribution WHZ-2	Overall Score WHZ	Data Quality Score
National	0 (0.97)	0 (0.05)	0 (-0.04)	0 (P=0.159)	10%	Good
Akkar	10 (0.81)	0 (0.19)	0 (-0.04)	0 (P=)	14%	Good
Baalbek-El Hermel	0 (0.99)	0 (-0.04)	0 (0.04)	0 (P=0.581)	6%	Excellent
Beirut	0 (0.96)	0 (0.08)	1 (-0.20)	0 (P=0.571)	5%	Excellent
Bekaa	0 (0.94)	0 (0.16)	0 (0.17)	0 (P=0.713)	4%	Excellent
El Nabatieh	0 (1.02)	1 (0.22)	1 (-0.28)	0 (P=0.511)	10%	Good
Mount Lebanon	5 (1.10)	0 (-0.18)	0 (-0.17)	0 (P=0.603)	18%	Acceptable
North	0 (1.00)	0 (-0.13)	1 (-0.21)	0 (P=0.666)	5%	Excellent
South	0 (0.96)	0 (0.14)	0 (0.18)	0 (P=0.510)	9%	Excellent
Syrian refugees in tented settlements	10 (0.84)	0 (0.09)	1 (0.20)	0 (P=0.806)	15%	Acceptable
Palestinian camp	0 (1.00)	1 (0.20)	0 (0.08)	0 (P=0.172)	10%	Good

3.3 Women of Reproductive Age (15 – 49 years)

3.3.1 Marital Status and School Attendance

Nationally, majority (59.0%) of the respondents were married followed by single respondents at 37.7% (Table 11). Similar trend was observed in Palestinian and Syrian refugees in tented settlements with 65.08% and 69.44% respectively being married (Table 12). Of all respondents nationally, 95.7% reported having been to school. Of the women of reproductive age who have been to school, 76.8% had completed either secondary, university or intermediate levels of education, an indication of good literacy level in Lebanon.

However, this was different in Palestinian and Syrian refugees in tented settlements where majority reported to have completed the primary school level, 48.14% in Palestinian and 63.19 in Syrian refugees in tented settlements. School attendance is detailed in Table 13 below.

TABLE 11: Marital status of women of reproductive age, National

MARITAL STATUS	N=7851	% (CI 95%)
Divorced	151	1.9 (1.6-2.3)
Married	4631	59.0 (57.9-60.1)
Separated	19	0.2 (0.2-0.4)
Single	2957	37.7 (36.6-38.7)
Widowed	93	1.2 (1.0-1.5)

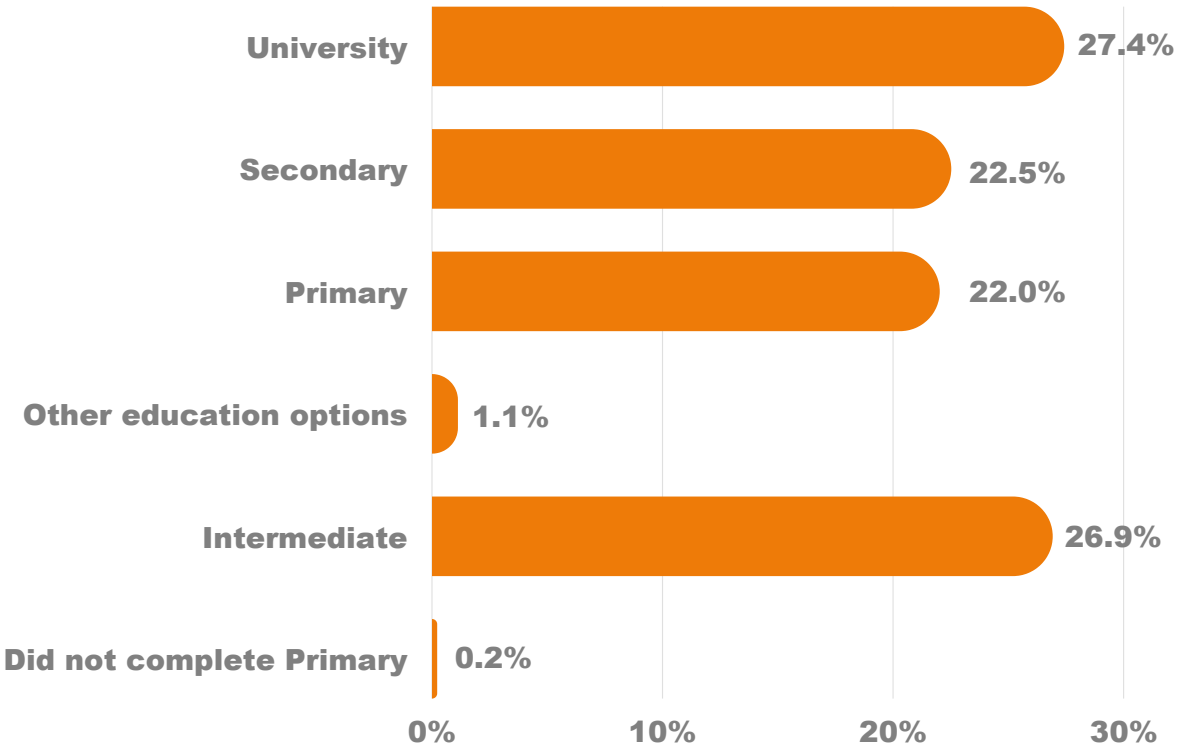
TABLE 12: Marital status of women of reproductive age, Palestinian and Syrian refugees in tented settlements

	PALESTINIAN CAMPS		SYRIAN REFUGEES IN TENTED SETTLEMENTS	
MARITAL STATUS	**N=882**	**% (CI 95%)**	**N=481**	**% (CI 95%)**
Divorced	27	3.06 (11-4.42)	10	2.08 (1.13-3.78)
Married	574	65.08 (61.87-68.15)	334	69.44 (65.18-73.39)
Separated	1	0.11 (0.02-0.64)	10	2.08 (1.13-3.78)
Single	275	31.18 (28.21-34.31)	113	23.49 (19.92-27.48)
Widowed	5	0.57 (0.24-1.320)	14	2.91 (1.74-4.83)

TABLE 13: School attendance of women of reproductive age

	NATIONAL		PALESTINIAN CAMPS		SYRIAN REFUGEES IN TENTED SETTLEMENTS	
School attendance	**N=7851**	**% (CI 95%)**	**N=882**	**% (CI 95%)**	**N=4814**	**% (CI 95%)**
Ever attended school	7515	95.7 (95.3-96.2)	860	97.51 (96.25-98.35)	345	71.73 (67.54-75.57)
Level of education						
	N=7515	**%**	**N=860**	**%**	**N=345**	**%**
Did not complete Primary	12	0.2 (0.1-0.3)	11	1.28 (0.72-2.28)		
Intermediate	2020	26.9 (25.9-27.9)	235	27.33 (24.45-30.40)	88	25.51 (21.19-30.36)
Other education options	81	1.1 (0.9-1.3)	18	2.09 (1.33-3.28)	3	0.87 (0.30-2.53)
Primary	1653	22.0 (21.1-23.0)	414	48.14 (44.82-51.48)	218	63.19 (57.98-68.11)
Secondary	1688	22.5 (21.5-23.4)	115	13.37 (11.26-15.81)	28	8.12 (5.67-11.48)
University	2061	27.4 (26.4-28.5)	67	7.79 (6.18-9.78)	8	2.32 (1.18-4.51)

FIGURE 7:
Completed level of education by women of reproductive age, National



3.3.2 Physiological status of women of reproductive age

Out of 7851 women assessed nationally, 93.3% were not pregnant and/or lactating. Lactating and pregnant women were 3.4% and 3.2% respectively. Same trend was observed in Palestinian and Syrian refugees in tented settlements, with 91.61% and 77.96% of the respondent not pregnant and not lactating.

Syrian refugees in tented settlements had the highest number of women who were pregnant at 11.23%, and who were lactating at 10.60% as shown in Table 14 below.

TABLE 14: Physiological status of women of reproductive age

	NATIONAL		PALESTINIAN CAMPS		SYRIAN REFUGEES IN TENTED SETTLEMENTS	
Physiological status	N=7851	% (CI 95%)	N=882	% (CI 95%)	N=481	% (CI 95%)
Lactating	263	3.4 (3.0-3.8)	35	3.97 (2.87-5.47)	54	11.23 (8.71-14.36)
Not pregnant/Not lactating	7328	93.3 (92.8-93.9)	808	91.61 (89.59-93.26)	375	77.96 (74.04-81.44)
Pregnant	254	3.2 (2.9-3.7)	38	4.31 (3.15-5.86)	51	10.60 (8.16-3.67)
Pregnant and Lactating	6	0.1 (0.0-0.2)	1	0.11 (0.02-0.64)	1	0.21 (0.04-1.17)

3.3.3. Maternal Nutrition

Maternal nutrition was assessed by measuring MUAC of all pregnant and lactating women in all sampled household. Based on the survey findings, Palestinian had the highest rate of moderate malnutrition among pregnant and lactating women at 9.46%, followed by Syrian at 7.55% and nationally at 5.0%.

There was no case of severe malnutrition reported among PLW across all survey strata. Table 15 below show the prevalence of acute malnutrition among PLW.

TABLE 15: Pregnant and lactating women, prevalence of malnutrition by MUAC

	NATIONAL		PALESTINIAN		SYRIAN	
Maternal nutrition	**N=523**	**%**	**N=74**	**% (CI 95%)**	**N=106**	**% (CI 95%)**
Moderate acute malnutrition (MUAC 18.5 - 22.9)	26	5.0 (3.4-7.2)	7	9.46(3.89-18.52)	8	7.55 (3.31-14.33)
Normal	497	95.0(92.8-96.6)	67	90.54(81.48-96.11)	98	92.45 (85.67-96.69)

3.3.4 Women Anaemia

Anaemia is a condition caused by a reduced Hb concentration in the blood (i.e. decrease in number of red blood cells). This results in reduced oxygen-carrying capacity and may lead to reduced aerobic activity in the body's cells. Women who are underweight and anaemic during pregnancy are more likely to have stunted children, perpetuating the inter-generational transmission of stunting. Iron deficiency anaemia and poor maternal nutrition during pregnancy and breastfeeding may increase the risk of preterm delivery or low birth weight baby and lead to stunted growth of the child.

Maternal anaemia was assessed by taking aHb concentration from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre (g/dL) using the portable HemoCue machine. The sample was taken from 87.8% of WRA who consented for anaemia test in sampled household (Table 16).

TABLE 16: Women Anaemia, Consent

Anaemia Consent	N=7851	%
No	959	12.2
Yes	6892	87.8

The survey findings reflected a severe level of anaemia in Lebanon based on WHO classification of public health significance, with 41.9% WRA being anaemic. Out of these, 44.8% have moderate anaemia while 2.3% had severe anaemia.

Mount Lebanon and North had the highest total anaemia categorised as high, while all the other governorates, including Palestinian and Syrian refugees in tented settlements having medium levels of anaemia. Anaemia prevalence is detailed in Table 17 and 18 below.

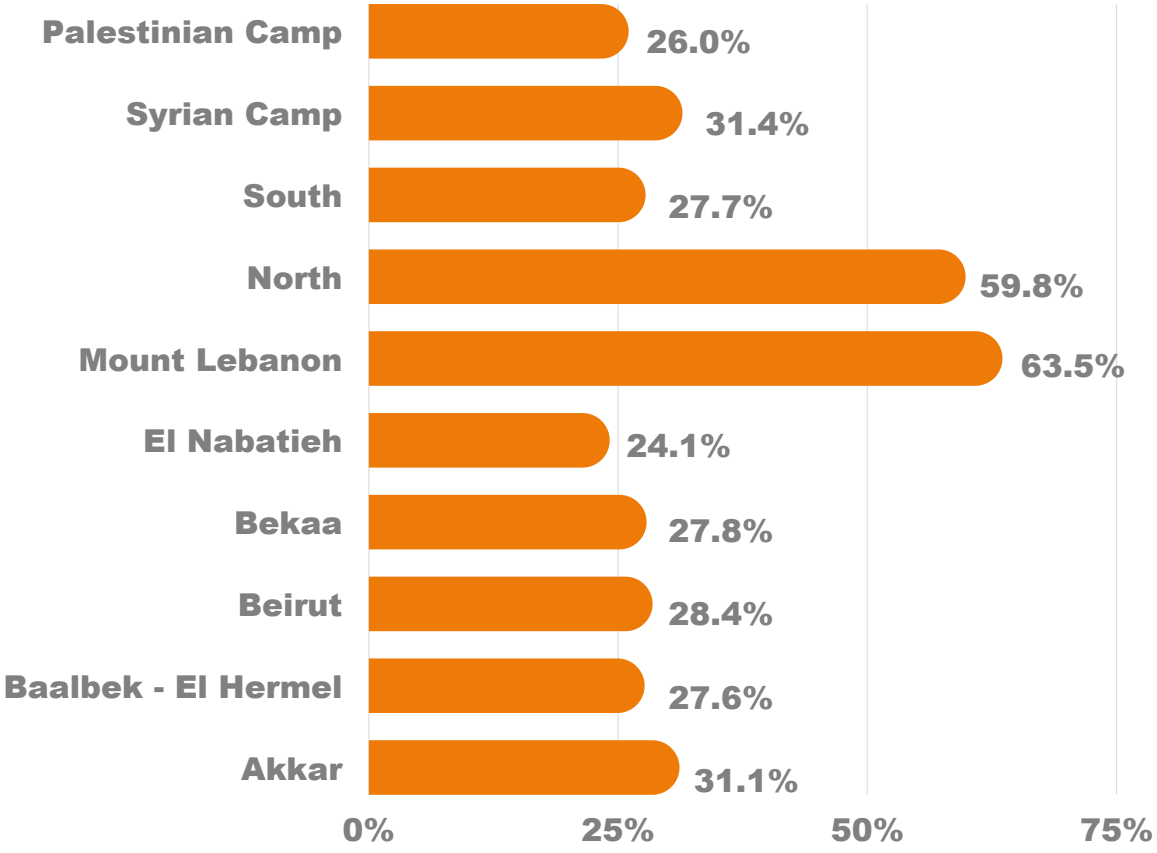
TABLE 17: Prevalence anaemia in non-pregnant women, National

Non-pregnant women	N=6642	% (WT) (CI 95%)
Total Anaemia (<12.0 g/dL)	2422	41.9 (40.7-43.1)
Anaemia Classifications	**N=2422**	**%**
Mild Anaemia (11.0-11.9 g/dL)	1340	52.9 (51.0-54.8)
Moderate Anaemia (8.0-10.9 g/dL)	1024	44.8 (43.0-46.7)
Severe Anaemia (<8.0 g/dL)	58	2.3 (1.8-2.9)

TABLE 18: Prevalence of total anaemia by stratum

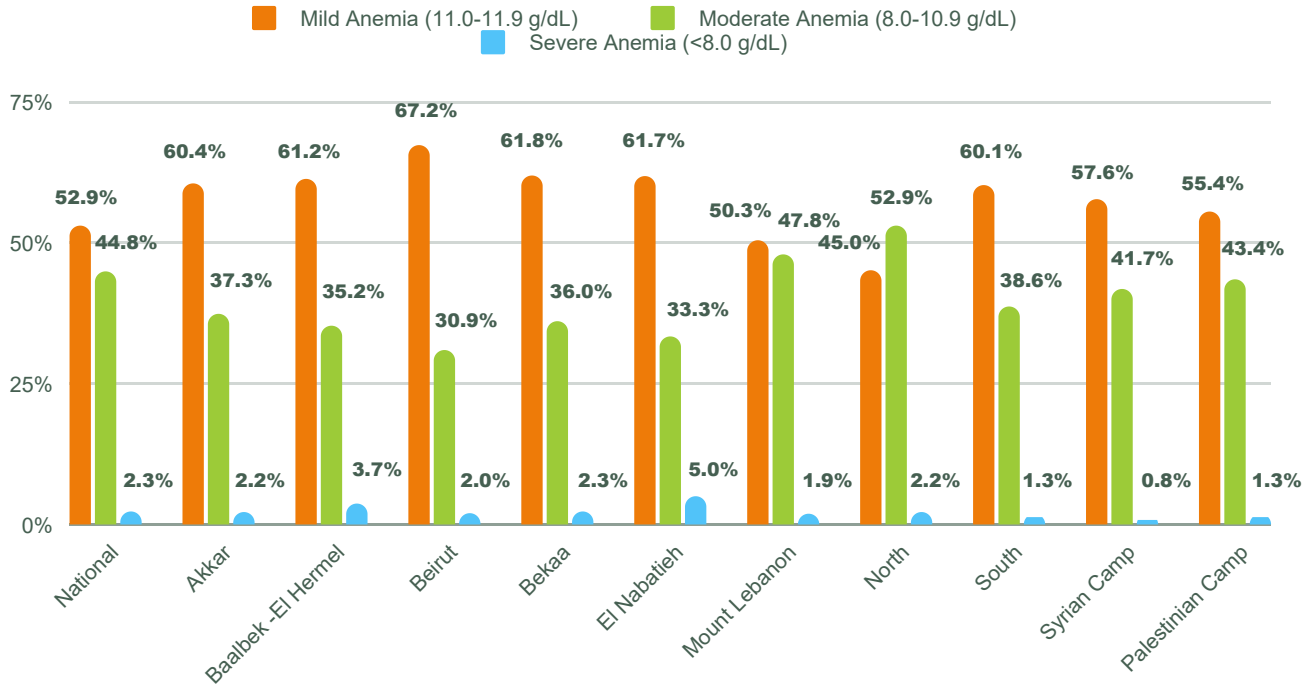
Total Anaemia (<12.0 g/dL)	Frequency/n	% (CI 95%)
Akkar	225/723	31.1 (27.9-34.6)
Baalbek-El Hermel	219/794	27.6 (24.6-30.8)
Beirut	201/707	28.4 (25.2-31.9)
Bekaa	309/1113	27.8 (25.2-30.5)
El Nabatieh	180/746	24.1 (21.2-27.3)
Mount Lebanon	364/573	63.5 (59.5-67.4)
North	696/1164	59.8 (57.0-62.6)
South	228/822	27.7 (24.8-30.9)
Syrian	132/420	31.4 (27.2-36.0)
Palestinian	159/611	26.0 (22.7-29.6)

FIGURE 8:
Total anaemia by stratum



Apart from North that recorded more of the moderate anaemia, other governorates recorded mostly mild anaemia. Nabatieh recorded the highest of severe anaemia at 5%, all the other reported severe cases of less than 5%. (Figure 9).

FIGURE 9:
Non-pregnant women anaemia by stratum



3.4 Anthropometric results, children 6 -59 months (based on WHO standards 2006)

Nationally, the anthropometric survey reached 2,611 children (6-59 months). The survey recorded sex ratio of 1.0 (1308) boys and (1303) girls, no statistically significant difference between boys and girls observed (p=0.922), implying that both girls and boys were equally represented. The age ratio of ratio of 6-29 months to 30-59 months children was 0.73.

In Palestinian and Syrian refugees in tented settlements, the anthropometric survey reached 299 and 329 children (6-59 months) respectively.

Both Palestinian and Syrian refugees in tented settlements recorded sex ratio of 1.0, with no statistically significant difference between boys and girls observed (p=0.772) and (p=0.544) respectively implying that both girls and boys were equally represented. The age ratio of ratio of 6-29 months to 30-59 months children was 0.74 in Palestinian and 0.80 in Syrian.

TABLE 19: Distribution of age and sex of sample, National

	BOYS		GIRLS		TOTAL		RATIO
AGE (mo)	NO.	%	NO.	%	NO.	%	BOY:GIRL
6-17	232	47.2	260	52.8	492	18.8	0.9
18-29	291	47.6	320	52.4	611	23.4	0.9
30-41	328	51.3	311	48.7	639	24.5	1.1
42-53	316	52.5	286	47.5	602	23.1	1.1
54-59	141	52.8	126	47.2	267	10.2	1.1
Total	1308	50.1	1303	49.9	2611	100.0	1.0

TABLE 20: Distribution of age and sex of sample, Refugee camps

	BOYS		GIRLS		TOTAL		RATIO
AGE (mo)	NO.	%	NO.	%	NO.	%	BOY:GIRL
Palestinian							
6-17	31	50.8	30	49.2	61	20.4	1.0
18-29	34	51.5	32	48.5	66	22.1	1.1
30-41	37	45.7	44	54.3	81	27.1	0.8
42-53	34	54	29	46	63	21.1	1.2
54-59	11	39.3	17	60.7	28	9.4	0.6
Total	147	49.2	152	50.8	299	100	1.0
Syrian							
6-17	37	52.1	34	47.9	71	21.6	1.1
18-29	33	44	42	56	75	22.8	0.8
30-41	45	54.9	37	45.1	82	24.9	1.2
42-53	40	54.1	34	45.9	74	22.5	1.2
54-59	15	55.6	12	44.4	27	8.2	1.3
Total	170	51.7	159	48.3	329	100	1.1

3.4.1 Prevalence of Acute Malnutrition based on Weight –for- Height Z Scores

Global acute malnutrition (GAM) is defined as <-2 z scores weight-for-height and/or oedema and severe acute malnutrition (SAM) is defined as <-3z scores weight-for-height and/or oedema). The analysis was done by exclusion of WHO flags (WHZ -5 to 6; HAZ -6 to 5; WAZ -6 to 6) as recommended by SMART methodology for national level assessments.

The survey recorded a national Global Acute Malnutrition (GAM) prevalence by Weight-for-height Z scores (WHZ<-2and/or oedema) of 1.8 % (95%CI: 1.2-2.7) and the severe acute malnutrition (SAM) of 0.3%(95% CI: 0.2-1.8). No oedema cases were observed during the assessment.

The findings indicate very low malnutrition situation (GAM rate of <2.5%) according to WHO classification. The GAM levels across governorate ranged from low to very low, with Mount Lebanon leading with 3.1% GAM and Akkar with the lowest of 0.6%. In Bekaa, El Nabatieh and North, there was no reported case of severe malnutrition.

In the refugee camps, Palestinian recorded low GAM 4.0%, 95% CI: 2.1-7.4 and SAM (1.3%, 95% CI: 0.5-3.4) while Syrian refugees in tented settlements recorded very low GAM at 2.4%, (95%CI: 1.3-4.5) with no case of SAM reported (Table 21).

TABLE 21: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema)

GOVERNORATE/STRATUM	PREVALENCE OF ACUTE MALNUTRITION (WHZ) (GAM) % (CI 95%)	PREVALENCE OF SEVERE ACUTE MALNUTRITION (WHZ) % (CI 95%)
National (2592)	1.80 (1.2-2.7)	0.30 (0.1-0.8 95)
Akkar	0.6 (0.1 - 2.5)	0.3 (0.0 - 2.3 95)
Baalbek-El Hermel	1.8 (0.8 - 3.9)	0.6 (0.1 - 2.4 95)
Beirut	2.1 (0.9 - 4.9)	0.4 (0.1 - 2.9 95)
Bekaa	1.6 (0.9 - 3.1)	0.0 (0.0 - 0.0 95)
El Nabatieh	0.8 (0.2 - 3.3)	0.0 (0.0 - 0.0 95)
Mount Lebanon	3.1 (1.4 - 6.6)	0.5 (0.1 - 3.7 95)
North	1.9 (1.1 - 3.5)	0.0 (0.0 - 0.0 95)
South	1.2 (0.4 - 3.6)	0.4 (0.1 - 2.8 95)
Palestinian (299)	4.0 (2.1 - 7.4)	1.3 (0.5 - 3.4 95)
Syrian (329)	2.4(1.3 - 4.5)	0.0 (0.0 - 0.0 95)

At the national level, children 6-17 months were found to be more malnourished (3.80% 95% CI: 1.9 - 7.3) compared to other age categories (Table 22).

TABLE 22: Prevalence of acute malnutrition by age, based on weight-for-height Z scores and/or oedema, National

AGE Groups	N	WEIGHT-FOR-LENGTH/HEIGHT (%)				
		% < -3SD	(95% CI)	% < -2SD	(95% CI)	MEAN±SD
Total	2592	0.30%	0.1 - 0.8	1.80%	1.2 - 2.7	0.21±1.10
(6-17)	481	0.60%	0.2 - 1.8	3.80%	1.9 - 7.3	0.10±1.14
(18-29)	628	0.60%	0.1 - 4.0	1.40%	0.5 - 4.3	0.27±1.10
(30-41)	625	0.00%	0.0 - 0.0	1.50%	0.5 - 4.1	0.20±1.02
(42-53)	593	0.00%	0.0 - 0.0	0.90%	0.4 - 2.1	0.21±1.08
(54-59)	263	0.20%	0.0 - 1.6	2.40%	0.7 - 7.6	0.25±1.27

Nationally, boys had slightly higher GAM (2.0, 95% CI: 1.1-3.4) than girls 1.7%, 95% CI 1.0-1.3. SAM prevalence was higher in girls (0.40, 95% CI: 0.1-1.6) than boys (0.2%, 95% CI: 0.1-0.6), but the difference in GAM and SAM was not statistically significant. (Table 23).

TABLE 23: Prevalence of acute malnutrition by sex, based on weight-for-height Z scores and/or oedema, National

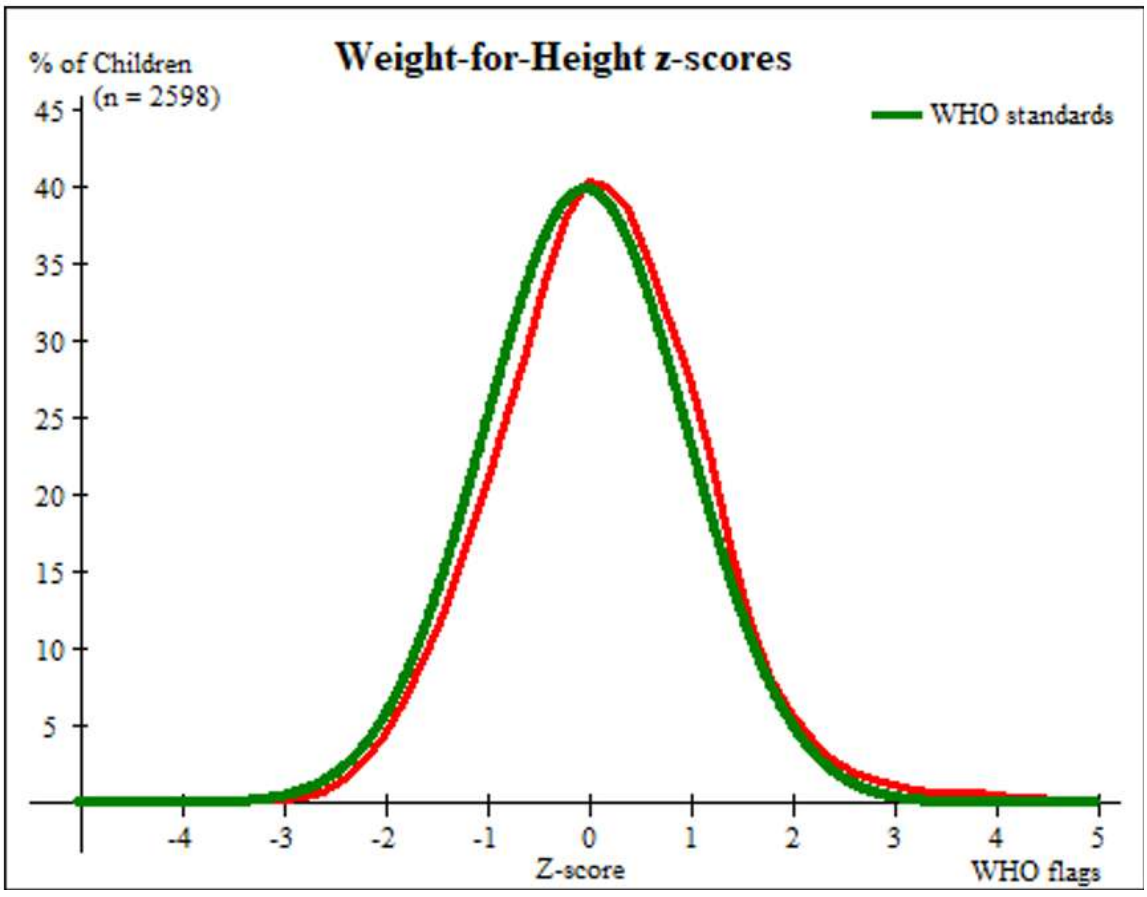
Girls

	FREQUENCY	% < -3SD	(95% CI)	% < -2SD	(95% CI)	MEAN±SD
Total	1332	0.40%	0.1 - 1.6	1.70%	1.0 - 3.1	0.20±1.07
(6-17)	255	0.60%	0.1 - 2.5	3.20%	1.2 - 8.1	0.08±1.08
(18-29)	341	1.10%	0.1 - 7.1	1.20%	0.2 - 6.4	0.25±1.17
(30-41)	307	0.00%	0.0 - 0.0	1.00%	0.4 - 2.6	0.29±0.99
(42-53)	298	0.00%	0.0 - 0.0	0.90%	0.3 - 2.9	0.24±1.02
(54-59)	130	0.00%	0.0 - 0.0	4.00%	1.0 - 15.0	-0.02±1.09

Boys

	FREQUENCY	% < -3SD	(95% CI)	% < -2SD	(95% CI)	MEAN±SD
Total	1260	0.20%	0.1 - 0.6	2.00%	1.1 - 3.4	0.21±1.13
(6-17)	227	0.70%	0.2 - 3.1	4.40%	1.8 - 10.6	0.12±1.21
(18-29)	287	0.00%	0.0 - 0.0	1.60%	0.4 - 7.2	0.30±1.03
(30-41)	318	0.00%	0.0 - 0.0	2.00%	0.6 - 6.5	0.12±1.04
(42-53)	295	0.00%	0.0 - 0.0	0.90%	0.2 - 3.1	0.18±1.14
(54-59)	134	0.40%	0.1 - 3.1	0.80%	0.2 - 3.3	0.51±1.37

FIGURE 10:
Graphical presentation of WHZ distribution, national



Similar to the national trend, the levels of malnutrition were found to be the highest among the age group of 6-17 months in both Palestinian and Syrian camps (Table 24). In addition, GAM prevalence was higher in boys than girls in Palestinian camps, while the opposite was observed in Syrian camps.

TABLE 24: Prevalence of acute malnutrition by age, based on weight-for-height Z scores and/or oedema, National

		SEVERE WASTING (<-3 Z-SCORE)		MODERATE WASTING (>= -3 AND <-2 Z-SCORE)		NORMAL (> = -2 Z SCORE)		OEDEMA	
Palestinian									
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	61	2	3.3	4	6.6	55	90.2	0	0
18-29	66	0	0	2	3	64	97	0	0
30-41	81	0	0	2	2.5	79	97.5	0	0
42-53	63	2	3.2	0	0	61	96.8	0	0
54-59	28	0	0	0	0	28	100	0	0
Total	299	4	1.3	8	2.7	287	96	0	0
Syrian									
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	71	0	0	4	5.6	67	94.4	0	0
18-29	75	0	0	1	1.3	74	98.7	0	0
30-41	82	0	0	2	2.4	80	97.6	0	0
42-53	74	0	0	0	0	74	100	0	0
54-59	27	0	0	1	3.7	26	96.3	0	0
Total	329	0	0	8	2.4	321	97.6	0	0

3.4.2 Prevalence of acute Malnutrition based on Mid Upper Arm Circumference (MUAC)

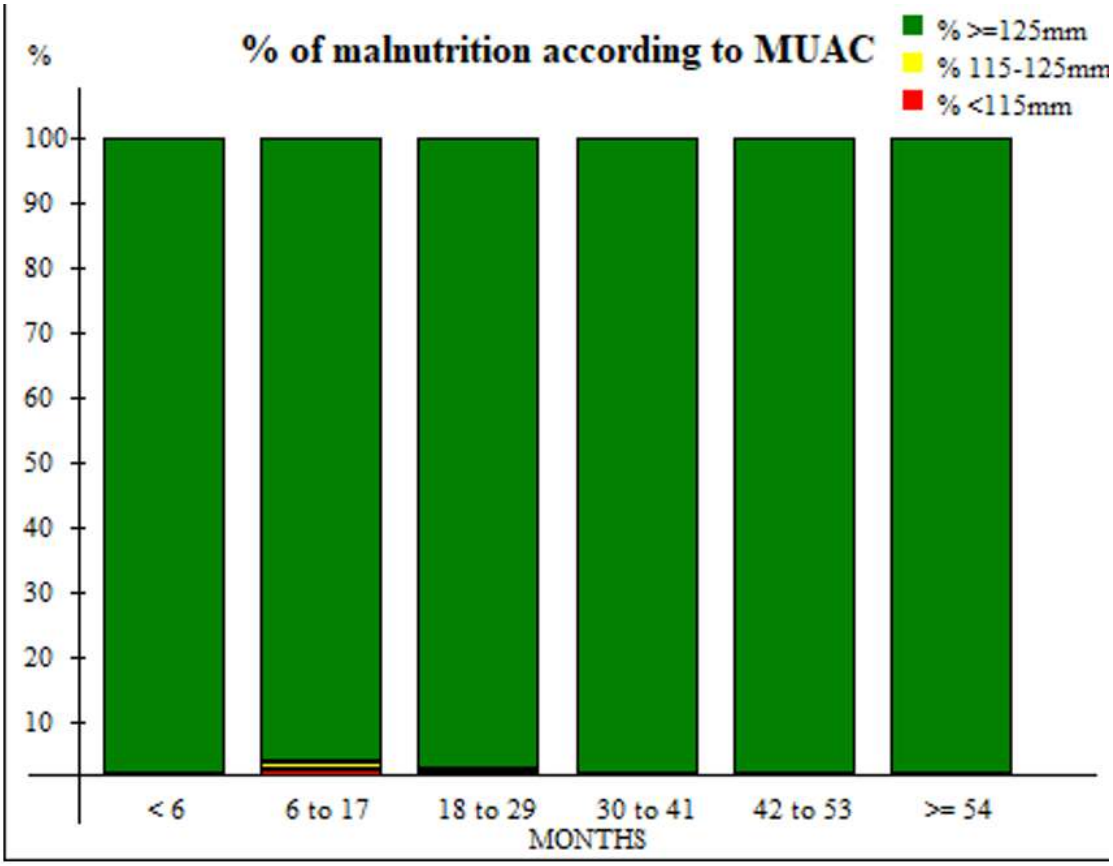
The mid-upper arm circumference (MUAC) is an anthropometric measurement used to evaluate wasting in children aged 6 to 59 months. It is widely used in nutrition programs to determine child admission to feeding programs. It is also a good predictor of mortality among children under five. The analysis was carried out using the MUAC cut-offs used in Lebanon (SAM < 115 mm and 115 mm≤ MAM < 125 mm).

The prevalence of acute malnutrition by MUAC did not use exclusion, so the analysis was performed on 2609 children. The survey reported a national GAM prevalence by MUAC of 0.4% (0.2-0.8, 95% CI) and SAM prevalence was 0.2% (0.1-0.7, 95% CI) as shown in Table 25.

TABLE 25: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex, National

	ALL N = 2609	BOYS N = 1306	GIRLS N = 1303
Prevalence of global malnutrition (< 125 mm and/or oedema)	(11) 0.4 % (0.2 - 0.8 95% C.I.)	(5) 0.4 % (0.2 - 0.9 95% C.I.)	(6) 0.5 % (0.2 - 1.0 95% C.I.)
Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)	(7) 0.3 % (0.1 - 0.6 95% C.I.)	(2) 0.2 % (0.0 - 0.6 95% C.I.)	(5) 0.4 % (0.2 - 0.9 95% C.I.)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	(4) 0.2 % (0.1 - 0.4 95% C.I.)	(3) 0.2 % (0.1 - 0.7 95% C.I.)	(1) 0.1 % (0.0 - 0.6 95% C.I.)

FIGURE 11:
Distribution of malnutrition by MUAC and age



Nationally, GAM cases by MUAC were only observed among children 6-29 months of age with zero cases reported in children 30-59 months. The most affected age group was found to be between 6 and 17 months of age. (Table 26).

TABLE 26: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema, National

		SEVERE WASTING (< 115 MM)		MODERATE WASTING (>= 115 MM AND < 125 MM)		NORMAL (> = 125 MM)		OEDEMA	
Age (mo)	Total no.	No.	%	No.	%	No.	%	No.	%
6-17	492	2	0.4	6	1.2	484	98.4	0	0.0
18-29	610	2	0.3	1	0.2	607	99.5	0	0.0
30-41	639	0	0.0	0	0.0	639	100.0	0	0.0
42-53	602	0	0.0	0	0.0	602	100.0	0	0.0
54-59	266	0	0.0	0	0.0	266	100.0	0	0.0
Total	2609	4	0.2	7	0.3	2598	99.6	0	0.0

There were 2 malnutrition cases (one MAM and one SAM) identified by MUAC in Palestinian Camp, reflecting a GAM prevalence by MUAC of (0.7%, 95% CI: 0.2-2.5). Both reported cases were girls. As for Syrian camps, only one MAM case was observed, reflecting a prevalence of (0.3%, 95% CI: 0.0-2.4). (Table 27).

TABLE 27: Prevalence of acute malnutrition based on MUAC cut offs (and/or oedema) and by sex, Refugee camps

	PALESTINIAN CAMPS		
	ALL N = 299	BOYS N = 147	GIRLS N = 152
Prevalence of global malnutrition	(2) 0.7 % (0.2 -2.5 95% C.I.)	(0) 0.0 %	(2) 1.3 % (0.3 - 4.9 95% C.I.)
Prevalence of moderate malnutrition	(1) 0.3 % (0.0 - 2.3 95% C.I.)	(0) 0.0 %	(1) 0.7 % (0.1 - 4.5 95% C.I.)
Prevalence of severe malnutrition	(1) 0.3 % (0.0 - 2.3 95% C.I.)	(0) 0.0 %	(1) 0.7 % (0.1 - 4.5 95% C.I.)

	SYRIAN REFUGEES IN TENTED SETTLEMENTS		
	ALL N = 329	BOYS N = 170	GIRLS N = 159
Prevalence of global malnutrition	(1) 0.3 % (0.0 - 2.4 95% C.I.)	(1) 0.6 % (0.1 - 4.4 95% C.I.)	(0) 0.0 %
Prevalence of moderate malnutrition	(1) 0.3 % (0.0 - 2.4 95% C.I.)	(1) 0.6 % (0.1 - 4.4 95% C.I.)	(0) 0.0 %
Prevalence of severe malnutrition	(0) 0.0 %	(0) 0.0 %	(0) 0.0 %

3.4.3 Prevalence of combined GAM and SAM based on WHZ and MUAC cut offs (and/or oedema) and by sex

Prevalence of combined GAM and SAM by WHZ and MUAC was 1.8%, (95% CI: 1.3-2.3), Table 28. The prevalence was slightly higher in boys than in girls though not statistically significant.

The prevalence of combined GAM by WHZ and MUAC in refugee camps is illustrated in Table 29.

The prevalence was higher among the Palestinian refugees as compared to Syrian, though it increased in Syrian from 0.24 (GAM by WHZ) to 0.27 (cGAM). Detailed cases identified by WHZ, MUAC and both is shown in Table 30 and 31.

Table 28: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex, National

	ALL N = 2610	BOYS N = 1307	GIRLS N = 1303
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(46) 1.8 % (1.3 - 2.3 95% C.I.)	(25) 1.9 % (1.3 - 2.8 95% C.I.)	(21) 1.6 % (1.1 - 2.5 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(8) 0.3 % (0.2 - 0.6 95% C.I.)	(5) 0.4 % (0.2 - 0.9 95% C.I.)	(3) 0.2 % (0.1 - 0.7 95% C.I.)

TABLE 29: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex, Refugee camps

PALESTENIAN	ALL N = 299	BOYS N = 147	GIRLS N = 152
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(12) 4.0 % (2.1 - 7.4 95% C.I.)	(7) 4.8 % (2.1 - 10.4 95% C.I.)	(5) 3.3 % (1.2 - 8.7 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(5) 1.7 % (0.7 - 3.8 95% C.I.)	(3) 2.0 % (0.7 - 6.2 95% C.I.)	(2) 1.3 % (0.3 - 4.9 95% C.I.)
SYRIAN	**ALL N = 329**	**BOYS N = 170**	**GIRLS N = 159**
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(9) 2.7 % (1.5 - 4.9 95% C.I.)	(4) 2.4 % (0.9 - 6.1 95% C.I.)	(5) 3.1 % (1.4 - 7.0 95% C.I.)
Prevalence of combined SAM (WHZ < -3 and/or MUAC < 115 mm and/or oedema	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)	(0) 0.0 % (0.0 - 0.0 95% C.I.)

TABLE 30: Detailed numbers for combined GAM and SAM, National

	GAM		SAM	
	NO.	%	NO.	%
MUAC	4	0.2	2	0.1
WHZ	35	1.3	4	0.2
Both	7	0.3	2	0.1
Edema	0	0.0	0	0.0
Total	46	1.8	8	0.3

TABLE 31: Detailed numbers for combined GAM and SAM, National

	PALESTINE				SYRIAN			
	GAM		SAM		GAM		SAM	
	NO.	%	NO.	%	NO.	%	NO.	%
MUAC	0	0	1	0.3	1	0.3	0	0
WHZ	10	3.3	4	1.3	8	2.4	0	0
Both	2	0.7	0	0	0	0	0	0
Edema	0	0	0	0	0	0	0	0
Total	12	4	5	1.7	9	2.7	0	0

TABLE 32: Mean z-scores, Design Effects and excluded subjects, National

Indicator	N	MEAN Z-SCORES ± SD	DESIGN EFFECT (Z-SCORE < -2)	Z-SCORES NOT AVAILABLE*	Z-SCORES OUT OF RANGE
Weight-for-Height	2598	0.14±1.05	0.14±1.05	9	4
Weight-for-Age	2608	-0.11±1.09	-0.11±1.09	0	3
Height-for-Age	2601	-0.37±1.20	-0.37±1.20	4	6

* contains for WHZ and WAZ the children with edema.

TABLE 33: Mean z-scores, Design Effects and excluded subjects

Indicator	N	MEAN Z-SCORES ± SD	DESIGN EFFECT (Z-SCORE < -2)	Z-SCORES NOT AVAILABLE*	Z-SCORES OUT OF RANGE
Palestinian					
Weight-for-Height	299	-0.11±1.17	1.23	0	0
Weight-for-Age	298	-0.42±1.06	1.28	0	1
Height-for-Age	298	-0.57±1.15	1.35	0	1
Syrian					
Weight-for-Height	329	-0.23±0.88	1	0	0
Weight-for-Age	329	-0.90±0.93	1.33	0	0
Height-for-Age	329	-1.34±1.10	1.61	0	0

3.4.4 Prevalence of Underweight based on Weight-for-Age Z scores (WAZ)

Underweight is defined as inadequate low weight relative to age (weight-for-age z-scores-WHO 2021). Underweight depicts both acute and chronic forms of malnutrition hence referred to as a compound index for both WHZ (wasting) and HAZ (stunting). Underweight prevalence analysis included 2604 children 6-59 months in the governorates. The survey recorded underweight prevalence of 3.7% (2.9-4.8, 95% CI) and prevalence of severe underweight of 0.5% (0.3-1.0, 95% CI).

Nationally, the results depicted low level of underweight according to WHO 2010 thresholds of (<10%). Compared to national underweight prevalence, only Akkar, Bekaa and South had lower prevalence. In the refugee camps, Syrians was categorized as medium while Palestinian was categorized as low.

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TABLE 34: Prevalence of underweight by Governorate, based on weight-for-age z-scores

GOVERNORATE/STRATUM	PREVALENCE OF UNDERWEIGHT (WAZ)	PREVALENCE OF SEVERE UNDERWEIGHT
National (Weighted)	3.7% (2.9-4.8, 95% CI)	0.5% (0.3-1.0, 95% CI).
Akkar	2.1 % (1.0 - 4.3 95% C.I.)	0.3% (0.0- 2.3 95% CI
Baalbek-El Hermel	5.7 % (3.4 - 9.4 95% C.I.)	2.4% (1.2- 5.0 95% CI)
Beirut	6.4 % (3.7 - 10.8 95% C.I.)	0.4% (0.1- 2.9 95% CI)
Bekaa	2.6 % (1.5 - 4.2 95% C.I.)	0.4% (0.1- 1.5 95% CI)
El Nabatieh	4.0% (2.1- 7.6 95% CI)	0.4% (0.1- 3.0 95% CI)
Mount Lebanon	4.1 % (2.0 - 8.2 95% C.I.)	0.5% (0.1- 3.7 95% CI)
North	3.9 % (2.3 - 6.5 95% C.I.)	0.0% (0.0- 0.0 95% CI)
South	2.7 % (1.2 - 5.9 95% C.I.)	1.5% (0.6- 4.0 95% CI)
Palestinian	(17) 5.7 % (3.3 - 9.6 95% C.I.)	(3) 1.0 % (0.3 - 3.0 95% C.I.)
Syrian	(44) 13.4 % (9.5 - 18.4 95% C.I.)	(3) 0.9 % (0.2 - 4.0 95% C.I.)

Nationally, underweight prevalence was almost equally distributed among the age groups with children 54-59 months old recording the highest (Table 35). Analysis by sex showed no statistically significant difference ($p>0.05$) between boys 4.4% (3.0-6.3, 95% CI), and girls 3.1% (2.1-4.4, 95% CI).

TABLE 35: Prevalence of acute malnutrition by age, based on weight-for-height Z scores and/or oedema, National

AGE Groups	N	WEIGHT-FOR-LENGTH/HEIGHT (%)				
		% < -3SD	(95% CI)	% < -2SD	(95% CI)	MEAN±SD
Total	2592	0.30%	0.1 - 0.8	1.80%	1.2 - 2.7	0.21±1.10
(6-17)	481	0.60%	0.2 - 1.8	3.80%	1.9 - 7.3	0.10±1.14
(18-29)	628	0.60%	0.1 - 4.0	1.40%	0.5 - 4.3	0.27±1.10
(30-41)	625	0.00%	0.0 - 0.0	1.50%	0.5 - 4.1	0.20±1.02
(42-53)	593	0.00%	0.0 - 0.0	0.90%	0.4 - 2.1	0.21±1.08
(54-59)	263	0.20%	0.0 - 1.6	2.40%	0.7 - 7.6	0.25±1.27

Children aged 6-29 months were more malnourished compared to other age categories in both camps (Table 36).

TABLE 36: Prevalence of underweight by age, based on weight-for-age z-scores, Refugee camps

		SEVERE UNDERWEIGHT (<-3 Z-SCORE)		MODERATE UNDERWEIGHT (>= -3 AND <-2 Z-SCORE)		NORMAL (> = -2 Z SCORE)		OEDEMA	
PALESTENIAN									
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	61	2	3.3	2	3.3	57	93.4	0	0
18-29	66	0	0	4	6.1	62	93.9	0	0
30-41	80	0	0	3	3.8	77	96.3	0	0
42-53	63	1	1.6	3	4.8	59	93.7	0	0
54-59	28	0	0	2	7.1	26	92.9	0	0
Total	298	3	1	14	4.7	281	94.3	0	0
SYRIAN									
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	71	2	2.8	9	12.7	60	84.5	0	0
18-29	75	0	0	14	18.7	61	81.3	0	0
30-41	82	1	1.2	6	7.3	75	91.5	0	0
42-53	74	0	0	11	14.9	63	85.1	0	0
54-59	27	0	0	1	3.7	26	96.3	0	0
Total	329	3	0.9	41	12.5	285	86.6	0	0

3.4.5 Prevalence of Stunting based on Height-for-Age Z scores (HAZ)

Stunting is a chronic form of malnutrition that refers to children's inadequate height in relation to their ages (WHO). The analysis of stunting prevalence included 2598 children (14 excluded outliers based on the WHO flags). The reported national stunting prevalence was 7.0% (6.0-8.3, 95% CI) and is classified as low according to WHO cut-offs.

Stunting prevalence was categorised high among the Syrian refugees in tented settlements at 25.8%, 95% CI: 20.1-32.5 while medium in Palestinian refugee camps at 10.1%, 95% CI: 6.7-14.9 (Table 37), based on WHO classifications. Compared to national stunting prevalence, only Beirut had medium levels of stunting (11.6 % (7.7 - 17.1 95% C.I.), the levels were almost similar and categorized as low across all the other governorates.

TABLE 37: Prevalence of stunting based on height-for-age z-scores and by Governorate

GOVERNORATE/STRATUM	PREVALENCE OF STUNTING (HAZ)	PREVALENCE OF SEVERE STUNTING (HAZ)
National (2598)	7.0% (6.0 – 8.3 95% C.I.)	1.5(1.0-2.2 95% C.I.)
Akkar	8.5 % (5.4 - 13.2 95% C.I.)	1.2% (0.5- 3.1 95% CI)
Baalbek-El Hermel	7.3 % (4.7 - 11.1 95% C.I.)	0.9% (0.3- 2.8 95% CI)
Beirut	11.6 % (7.7 - 17.1 95% C.I.)	1.3% (0.3- 5.4 95% CI)
Bekaa	4.9 % (3.3 - 7.5 95% C.I.)	1.1% (0.5- 2.4 95% CI)
El Nabatieh	6.1 % (3.9 - 9.5 95% C.I.)	0.8% (0.2- 3.2 95% CI)
Mount Lebanon	6.7 % (4.0 - 10.9 95% C.I.)	2.1% (0.8- 5.1 95% CI)
North	6.9 % (4.9 - 9.6 95% C.I.)	1.5% (0.7- 3.0 95% CI)
South	7.4 % (4.2 - 12.6 95% C.I.)	1.2% (0.4- 3.4 95% CI)
Palestinian (298)	10.1 % (6.7 - 14.9 95% C.I.)	2.7% (1.2 - 5.9 95% C.I.)
Syrian (329)	25.8% (20.1 - 32.5 95% C.I.)	6.1% (3.7 - 9.7 95% C.I.)

Nationally, stunting levels was higher in children 18-29 months as compared to other age categories (Table 38).

TABLE 38: Prevalence of stunting based on height-for-age z-scores and by age, National

AGE Groups	N	LENGTH/HEIGHT-FOR-AGE (%)				
		% < -3SD	(95% CI)	% < -2SD	(95% CI)	MEAN±SD
Total	2598	1.50%	1.0 - 2.2	7.00%	6.0 - 8.3	-0.35±1.22
(6-17)	481	1.20%	0.5 - 2.4	5.70%	4.0 - 8.1	-0.13±1.28
(18-29)	628	2.80%	1.4 - 5.5	10.30%	7.1 - 14.7	-0.34±1.41
(30-41)	625	0.70%	0.3 - 1.5	5.70%	3.8 - 8.3	-0.38±1.11
(42-53)	596	0.80%	0.3 - 1.9	6.30%	4.3 - 9.0	-0.47±1.04
(54-59)	268	2.90%	1.0 - 7.9	6.70%	4.0 - 11.2	-0.39±1.17

In both camps, Stunting prevalence was observably higher among children aged 30-59 months (Table 39).

TABLE 39: Prevalence of stunting based on height-for-age z-scores and by age, Refugee camps

		SEVERE STUNTING (<-3 Z-SCORE)		MODERATE STUNTING (>= -3 AND <-2 Z-SCORE)		NORMAL (> = -2 Z SCORE)	
PALESTENIAN							
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	61	3	4.9	2	3.3	56	91.8
18-29	66	4	6.1	7	10.6	55	83.3
30-41	81	1	1.2	7	8.6	73	90.1
42-53	62	0	0	3	4.8	59	95.2
54-59	28	0	0	3	10.7	25	89.3
Total	298	8	2.7	22	7.4	268	89.9
SYRIAN							
Age (mo)	**Total no.**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	71	4	5.6	11	15.5	56	78.9
18-29	75	6	8	18	24	51	68
30-41	82	5	6.1	13	15.9	64	78
42-53	74	4	5.4	19	25.7	51	68.9
54-59	27	1	3.7	4	14.8	22	81.5
Total	329	20	6.1	65	19.8	244	74.2

3.4.6 Prevalence of Overweight of children (6-59) based on Weight-for-Height Z scores (WHZ)

Nationally, overweight levels of children (6-59) was categorized as low at 3.7 % (3.0 - 4.4 95% C.I.). Boys had slightly higher overweight levels than girls but not statistically different (Table 40).

TABLE 40: Prevalence of overweight based on weight for height cut offs and by sex (no oedema)

	ALL (95% C.I.) N = 2598	BOYS (95% C.I.) N = 1299	GIRLS (95% C.I.) N = 1299
Prevalence of overweight (WHZ > 2)	(95) 3.7 % (3.0 - 4.4)	(55) 4.2 % (3.2 - 5.5)	(40) 3.1 % (2.3 - 4.2)
Prevalence of severe overweight (WHZ > 3)	(31) 1.2 % (0.9 - 1.7)	(19) 1.5 % (0.9 - 2.3)	(12) 0.9 % (0.5 - 1.6)

Mount Lebanon, South and El Nabatieh had medium levels of overweight according to WHO cut-offs while all the other governorates had low levels of overweight (Table 41).

TABLE 41: Prevalence of overweight by stratum

GOVERNORATE/ STRATUM	PREVALENCE OF OVERWEIGHT (WHZ > 2) (95% C.I.)	PREVALENCE OF SEVERE OVERWEIGHT (WHZ > 3) (95% C.I.)
National	3.7 % (3.0 - 4.4)	1.2 % (0.9 - 1.7)
Akkar	1.5 % (0.5 - 4.4)	0.6 % (0.1 - 2.5)
Baalbek-El Hermel	3.6 % (2.0 - 6.6)	0.3 % (0.0 - 2.2)
Beirut	2.6 % (1.2 - 5.5)	0.9 % (0.2 - 3.3)
Bekaa	3.3 % (1.9 - 5.6)	1.3 % (0.6 - 2.7)
El Nabatieh	5.7 % (3.4 - 9.6)	2.5 % (1.0 - 5.8)
Mount Lebanon	6.7 % (3.8 - 11.5)	2.6 % (1.0 - 6.2)
North	2.8 % (1.5 - 5.0)	0.4 % (0.1 - 1.7)
South	5.5 % (3.3 - 8.8)	2.3 % (1.1 - 5.1)
Palestinian camps	4.0 % (2.2 - 7.2)	1.3 % (0.5 - 3.6)
Syrian camps	1.2 % (0.4 - 3.3)	0.3 % (0.0 - 2.3)

3.5. Children Anaemia

3.5.1. Prevalence of Anaemia, children 6 -59 months

Children anaemia was assessed by taking a Hb concentration from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre (g/dL) using the portable HemoCue machine. The sample was taken from 83.1% (Table 42) of children 6-59 months whose caretaker consented for anaemia test in sampled household.

TABLE 42: Anaemia consent

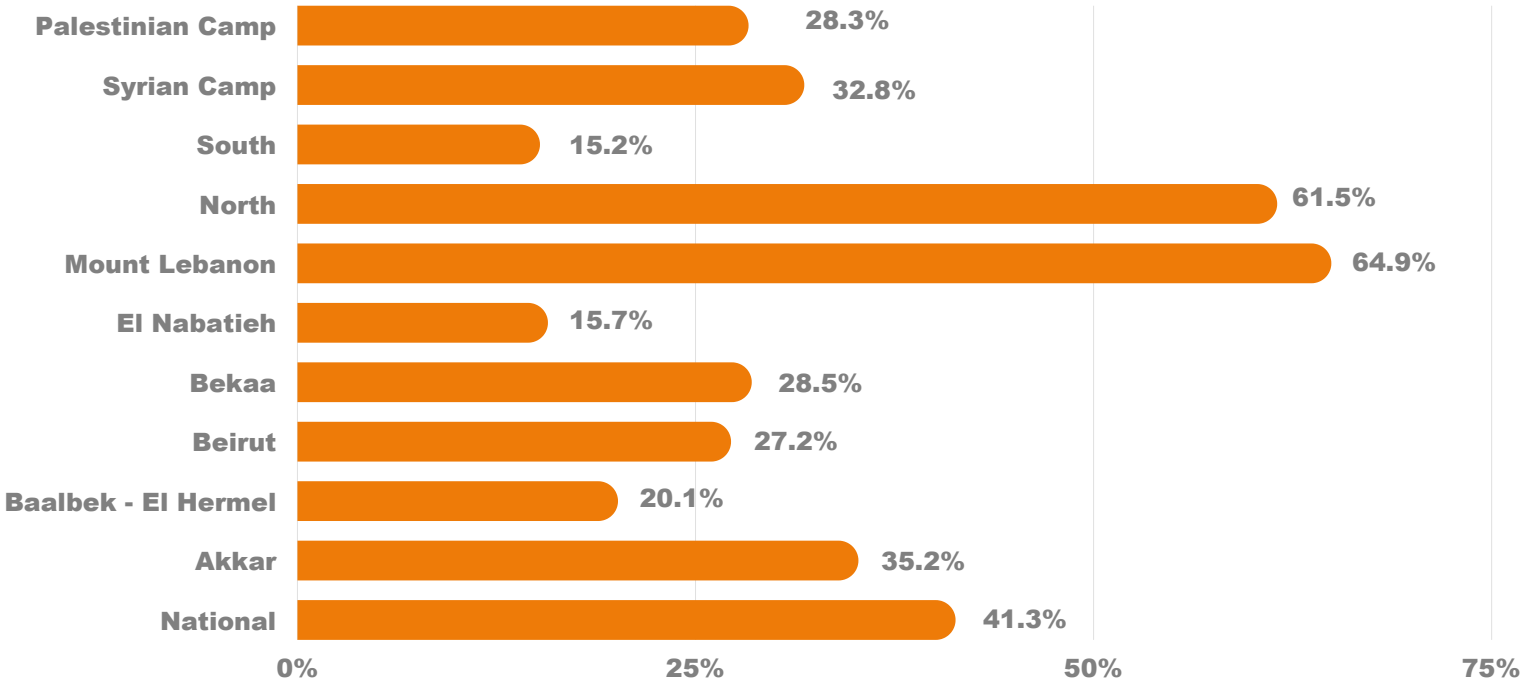
ANAEMIA CONSENT	N=2647	PERCENT
No	447	16.89
Yes	2200	83.11

The national total anaemia for children 6-59 months was 41.3% classified as severe (≥40%) according to WHO classification of public health significance (Table 43). Mount Lebanon and North were classified as severe and was above the national prevalence, all the other governorates, Syrian and Palestinian camps classified as moderate and below the national prevalence.

TABLE 43: Prevalence of Anaemia, children 6 -59 months in different governorates

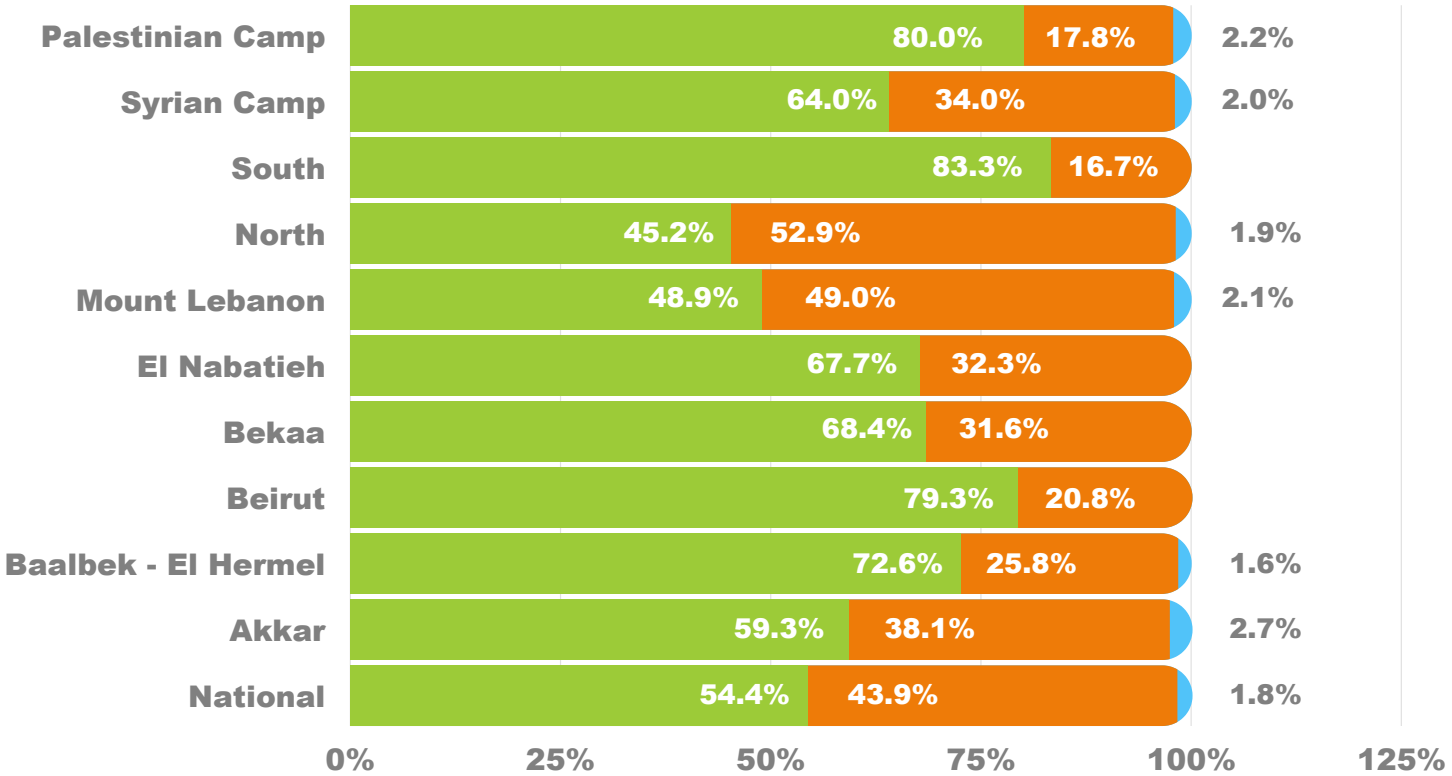
CHILD ANAEMIA (6 -59 MONTHS)	FREQUENCY	TOTAL ANAEMIA (HB<11.0 G/DL)	MILD ANAEMIA (HB 10.0-10.9 G/DL)	MODERATE ANAEMIA (7.0-9.9 G/DL)	SEVERE ANAEMIA (<7.0 G/DL)
National	2422	41.3%	54.4%	43.9%	1.8%
Akkar	113/321	35.2%	59.3%	38.1%	2.7%
Baalbek-El Hermel	62/309	20.1%	72.6%	25.8%	1.6%
Beirut	53/195	27.2%	79.3%	20.8%	0.0%
Bekaa	117/411	28.5%	68.4%	31.6%	0.0%
El Nabatieh	31/198	15.7%	67.7%	32.3%	0.0%
Mount Lebanon	96/148	64.9%	48.9%	49.0%	2.1%
North	259/421	61.5%	45.2%	52.9%	1.9%
South	30/197	15.2%	83.3%	16.7%	0.0%
Syrian camps	100/305	32.8%	64.0%	34.0%	2.0%
Palestinian camps	45/159	28.3%	80.0%	17.8%	2.2%

FIGURE 12:
Total child anaemia by stratum (Hb<11.0g/dL)



Apart from Mount Lebanon and North that recorded more of the moderate anaemia, other governorates recorded mostly mild anaemia. There was no case of severe anaemia in Beirut, Bekaa, Nabatieh and South (Figure 13).

FIGURE 13:
Classification of anaemia prevalence by stratum



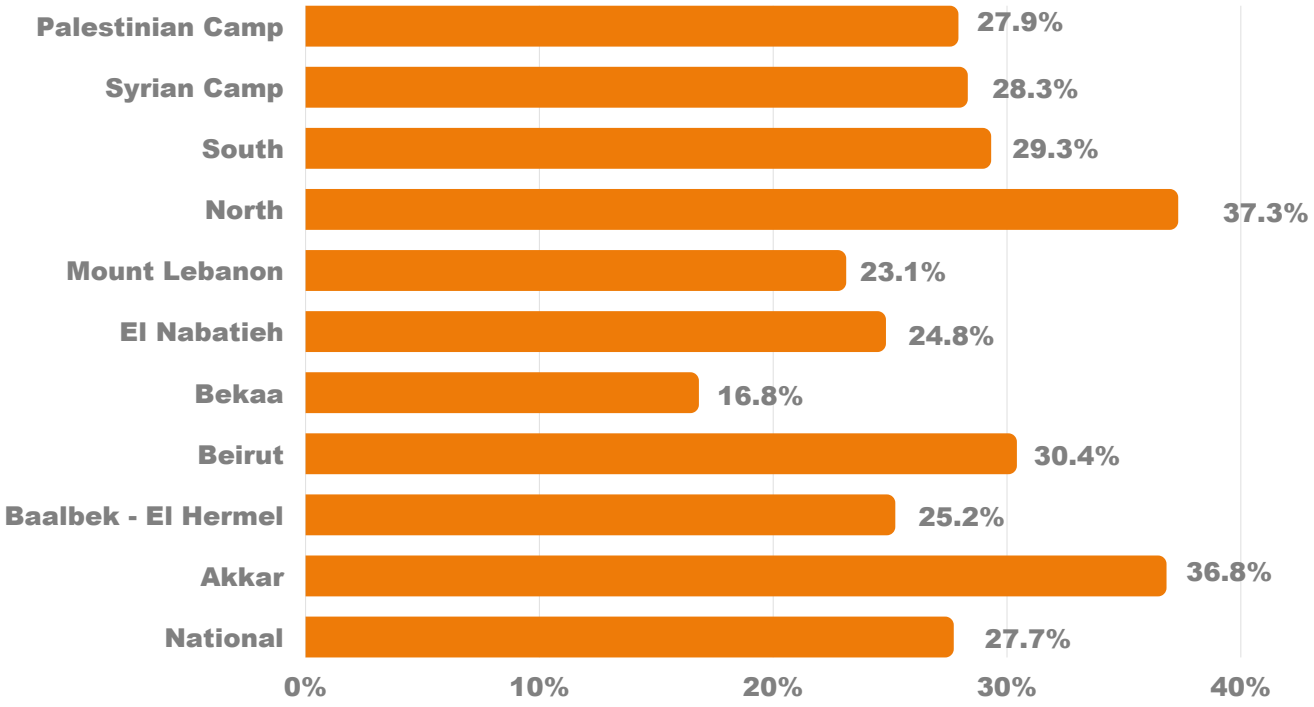
3.6. Childhood Illnesses, 6 – 59 months

According to UNICEF conceptual framework on causes of malnutrition, disease is an immediate cause of malnutrition. It also affects food intake, which is also categorized as an immediate cause. It is important therefore to assess morbidity and whether it had some effect on malnutrition.

To assess child morbidity mothers/caregivers of children aged 6 to 59 months were asked to recall whether their children had been sick with acute conditions in the past 2 weeks. Those who gave an affirmative answer to this question were further probed on what illness affected their children and whether and where they sought any assistance when their child/children were ill.

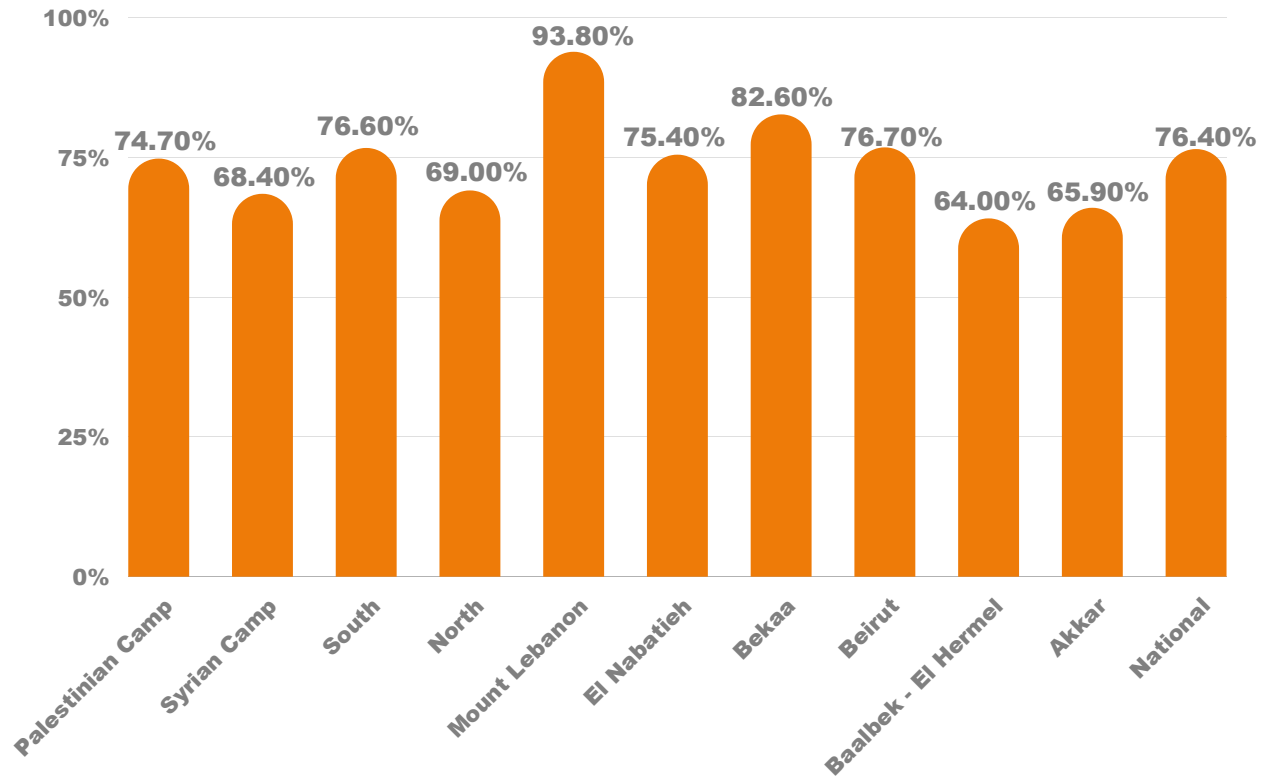
Nationally, 27.8% of the assessed children were reportedly sick in the past two weeks prior to the survey with assistance being sought by caregivers in 76.4% of the cases. North and Akkar led in proportion of children who were sick in the last two weeks with 37.3% and 36.8% respectively. The lowest was Bekaa with 16.8% (Figure 14)

FIGURE 14:
Childhood illness by recall



Mount Lebanon led in terms of health seeking behaviour with 93.8% of the respondent seeking assistance when the child was ill, the lowest being Baalbek and Akkar with 65.9% and 64.0% respectively. Syrians and Palestinians were also lower than the national proportion in terms of health seeking behaviour with 68.4% and 74.7% respectively (Figure 15)

FIGURE 15:
Health Seeking Behavior per Stratum



Fever was the most reported symptom for illnesses across governorates followed by cough and diarrhoea. Only few cases of acute flaccid paralysis were reported in Akkar, Beirut, North and Syrian.

Measles cases were reported in Baalbek, Beirut, Bekaa, Nabatieh and North. Only one case of Hepatitis was reported in North (Table 44).

TABLE 44: Child illnesses by stratum

	ILL IN PAST 2 WEEKS	FEVER	COUGH	DIARRHOEA
National	2647 27.8% (26.2-29.6)	419 57.1% (53.5-60.6)	224 30.5% (27.3-33.9)	271 36.9% (33.5-40.5)
Akkar	334 36.8% (31.8-42.1)	68 55.3% (46.1-64.3)	15 12.2% (7.0-19.3)	39 31.7% (23.6-40.7)
Baalbek-El Hermel	86 25.2% (20.8-30.0)	52 60.5% (49.3-70.9)	30 34.9% (24.9-45.9)	32 37.2% (27.0-48.3)
Beirut	73 30.4% (24.7-36.7)	44 60.3% (48.1-71.6)	36 49.3% (37.4-61.3)	24 32.9% (22.3-44.9)
Bekaa	92 16.8% (13.9-20.2)	73 79.4% (69.6-87.1)	30 32.6% (23.2-43.2)	39 42.4% (32.2-53.1)
El Nabatieh	61 24.8% (19.5-30.7)	23 37.7% (25.6-51.0)	19 31.2% (19.9-44.3)	19 31.2% (19.9-44.3)
Mount Lebanon	48 23.1% (17.5-29.4)	32 66.7% (51.6-79.6)	23 47.9% (33.3-62.8)	
North	174 37.3% (33.0-41.7)	95 54.6% (46.9-62.2)	55 31.6% (24.8-39.1)	85 48.9% (41.2-56.5)
South	77 29.3% (23.9-35.2)	32 41.6% (30.4-53.4)	16 20.8% (12.4-31.5)	18 23.4% (14.5-34.4)
Syrian	95 28.3% (23.7-33.3)	55 57.9% (47.3-68.0)	23 24.2% (16.0-34.1)	18 19.0% (11.6-28.3)
Palestinian	87 27.9% (23.2-33.1)	48 55.2% (44.1-65.9)	41 47.1% (36.3-58.1)	22 25.3% (16.6-35.8)

TABLE 44.1: Child illnesses by stratum

	ACUTE FLACCID PARALYSIS	MEASLES (FEVER & RASH)	HEPATITIS (JAUNDICE & FEVER)	OTHER ILLNESSES
National	4 (0.5% (0.2-1.4)	9 1.2% (0.7-2.3)	1 0.1%	24 3.3% (2.2-4.8)
Akkar	1 0.8% (0.0-4.5)			
Baalbek-El Hermel		2 2.3% (0.3-8.2)		
Beirut		1 1.4% (0.0-7.4)		
Bekaa		1 1.1% (0.0-5.9)		
El Nabatieh		1 1.6% (0.0-8.8)		10 16.4% (8.2-28.1)
Mount Lebanon				
North	2 1.2% (0.1-4.1)	4 2.3% (0.6-5.8)	1 (0.6% (0.0-3.2)	
South				14 18.2% (10.2-28.6)
Syria	1 1.1% (0.0-5.7)			
Palestinian				

3.7. Polio and Measles containing vaccines, children 0 -59 months

The World Health Organization (WHO) established the Expanded Programme on Immunization (EPI) in1974, aiming to ensure that everychild in theworld- regardless of their socio-economic or demographic status- has access to recommended life-saving vaccines against diseases such as diphtheria, pertussis, tetanus, poliomyelitis, and measles. Since its establishment in 1987, the EPI in Lebanon succeeded to introduce most of the WHO recommended antigens in the national immunization calendar, which to date includes: Polio (IPV, OPV), diphtheria, pertussis, measles, mumps rubella, tetanus, Hemophilus, influenza, hepatitis B, and Pneumococcal vaccines. The private sector offers additional vaccines such as: HPV, rota virus, hepatitis A, typhoid, meningitis, seasonal influenza, and benefits from relative flexible regulations facilitating the introduction of new antigens.

A fully immunized child (FIC) in Lebanon is defined as a child who has received at least: a birth dose of Hep B, three doses of polio including one dose of IPV (in addition to two OPV booster doses), three doses of Penta (in addition to one Penta booster + one dpt booster, three doses of PCV, one dose of measles vaccine, two doses of MMR vaccines by the age of five years.

This survey assessed the coverage of measles and polio containing vaccines with timeliness as detailed in Table 45. The immunization questionnaire was administered to eligible children 0-59 months from the sampled households. Since Lebanon's health care system is characterized by a dominant private sector and public-sector, the consideration was made including vaccines administered both in the private and public sector as shown in Annex 2, module 7.0.

IPV (Inactivated Polio Vaccine) was the only vaccine with a proportion of 94% nationally, close to the national target of 95%, followed by 3rd dose of OPV (Oral Polio Vaccine) at 83.2%. Vaccines received after six months seems to be performing poorly and far from the national target. Palestinian camps were leading in terms of vaccine coverage as compared to other strata, perhaps an indication of access to health services (Public Health facilities – MOPH or NGO Clinic).

TABLE 45: National Polio and Measles containing vaccines coverage

VACCINE	TIMELINE	FREQUENCY/TOTAL	PERCENT (WT)
IPV (Inactivated Polio Vaccine) - 1st dose or 1st dose of Hexaxim or Pentaxim or Infanrix-IPV-HIB 3rd dose of OPV (Oral Polio Vaccine) or	2 months	1888/1996	94.0% (92.8-94.9)
3rd dose of Hexaxim or Pentaxim or Infanrix-IPV-HIB	6 months	1588/1903	83.2% (81.5-84.8)
Measles - 1st dose or A dose of Priorix or ROR or Rouvax given below the age of 12 months	9 months	1107/1819	59.5% (57.3-61.8)
MMR - 1st dose or A dose of Priorix or ROR or Rouvax given between the age of 12 and below 18 months	12 months	1357/1742	78.8% (76.9-80.7)
MMR - 2nd dose or A dose of Priorix or ROR or Rouvax given above the age of 18 months	18 months	954/1539	61.2% (58.8-63.6)

TABLE 46: Vaccines Coverage per Stratum

	IPV (INACTIVATED POLIO VACCINE) - 1ST DOSE OR 1ST DOSE OF HEXAXIM OR PENTAXIM OR INFANRIX-IPV-HIB	3RD DOSE OF OPV (ORAL POLIO VACCINE) OR 3RD DOSE OF HEXAXIM OR PENTAXIM OR INFANRIX-IPV-HIB	MEASLES - 1ST DOSE OR A DOSE OF PRIORIX OR ROR OR ROUVAX GIVEN BELOW THE AGE OF 12 MONTHS	MMR - 1ST DOSE OR A DOSE OF PRIORIX OR ROR OR ROUVAX GIVEN BETWEEN THE AGE OF 12 AND BELOW 18 MONTHS	MMR - 2ND DOSE OR A DOSE OF PRIORIX OR ROR OR ROUVAX GIVEN ABOVE THE AGE OF 18 MONTHS
Akkar	90.80%	76.40%	45.50%	70.10%	53.30%
Baalbek	91.60%	78.40%	53.40%	73.70%	55.10%
Beirut	93.20%	79.90%	64.50%	84.10%	60.00%
Bekaa	97.70%	89.40%	76.90%	84.10%	73.60%
El Nabatieh	96.50%	94.10%	62.40%	66.70%	55.00%
Mt Lebanon	92.00%	82.60%	60.50%	85.80%	61.90%
North	96.00%	80.60%	57.30%	77.20%	61.90%
South	96.40%	86.70%	61.60%	81.60%	67.80%
Syrian camps	96.60%	73.90%	50.80%	70.40%	52.70%
Palestinian camps	96.40%	94.10%	88.70%	83.30%	65.40%

3.8 Infant and Young Child Feeding Practices

Infant and young child feeding (IYCF) practices directly affect the health, development, and nutritional status of children less than two years of age and, ultimately, impact child survival. Improving IYCF practices in children 0–23 months of age is therefore critical to improved nutrition, health, and development.

Ever breastfed (EvBF):
Breastfeeding is recommended for all infants worldwide except, in very few cases, for those with specific medical conditions. 84.6% children 6-23 months were reportedly having ever been breastfeed nationally. In Palestinian and Syrian, the proportion of ever breastfed was 89.3% (82.3-94.2) and 89.2% (89.2-82.6) respectively.

Early initiation of breastfeeding (EIBF):
Nationally, only 63.0% of new-borns were initiated early. Almost same proportion was observed in Palestinian and Syrian with 65.7% (56.0-74.6) and 58.6% (49.1-67.7) respectively.

Exclusive breastfeeding under 6 months (EBF):
Nationally, EBF rates were 32.4%. Compared to national prevalence, Syrian refugee had the highest proportion of children being breastfeed exclusively 65.2% (42.7-83.6). the proportion for Palestinian was at 43.8% (19.8-70.1).

Mixed milk feeding under six 6 months (MixMF):
Nationally, the proportion of children receiving mixed feeding were 39%. Compared to the national rates of mixed feeding, Palestinian recorded a higher rate of 53.3% (26.6-78.7) with Syrian recoding only 9.5% (1.2-30.4).

Continued breastfeeding 12-23 months (CBF):
Nationally, the proportion of children 12-23 months who have continued breastfeeding are 21.9%. The proportion was slightly higher in Palestinian and Syrian at 49.3% (37.2-61.4) and 35.4% (25.0-47.0) respectively.

Introduction of solid, semi- solid or soft foods 6–8 months (ISSSF):
Nationally, 78.5% of children 6-8 months were introduced to solid, semi- solid or soft foods. This was lower at Palestinian and Syrian at 56.5% (34.5-76.8) and 66.7% (38.4-88.2) respectively.

Minimum meal frequency 6-8 months:
Nationally, only 23.7% of children 6-8 months were fed on minimum meal frequency. This was slightly higher in Palestinian and Syrian at 39.1% (19.7-61.5) and 40.0% (163-67.7) respectively.

Minimum meal frequency 9-23 months:
WHO guiding principles for feeding the breastfed child recommend that breastfed infants aged 9–23 months be provided complementary foods 3–4 times per day with additional nutritious snacks offered 1–2 times per day. On children 9-23 months, only 18.4% were fed on recommended minimum meal frequency. This was slightly higher in Palestinian and Syrian with 31% (21.3-42.0) and 28.1% (19.4-38.2) respectively.

Minimum meal frequency 6-23 months (Non-breastfed):
46.7% of the non-breastfed children nationally recorded attaining the minimum meal frequency, with Palestinian and Syrian recording 27.1% (19.0-36.6) and 27.9% (19.8-37.2) respectively.

Minimum dietary diversity 6-23 months:
Nationally, 23.0% of children 6-23 months were fed on minimum dietary diversity, almost half of the children assessed in Palestinian with 46.7% (37.0-56.6) and only 12.6% (7.1-20.3) in Syrian refugees in tented settlements.

Minimum acceptable diet 6-23 months:
Nationally, only 6% of children 6-23 months were fed on minimum acceptable diet, same to Syrian with 6.3% (2.6-12.6) but slightly higher for Palestinian at 21.5% (14.1-30.5) .

Minimum milk feeding for non-breastfed children 6-23 months:
90.5% of non-breastfed children 6-23 months received minimum milk feeding nationally but was lower in Palestinian and Syrian with 84.6% (54.6-98.1) and 71.4% (41.9-91.6) respectively.

Detailed IYCF indicators are shown in Table 47 for national and Table 48 for Palestinian and Syrian.

TABLE 47: IYCF Indicators National

INDICATOR	FREQUENCY	PERCENT (WT) 95%CI
Ever breastfed (EvBF)	816/961	84.6 (82.2-86.8)
Early initiation of breastfeeding (EIBF)	561/816	63.0 (59.7-66.3)
Exclusive breastfeeding under 6 months (EBF)	76/197	32.4 (25.6-39.8)
Mixed milk feeding under six 6 months (MixMF)	63/184	39.0 (31.5-46.8)
Continued breastfeeding 12-23 months (CBF)	135/553	21.9 (18.7-25.6)
Introduction of solid, semi- solid or soft foods 6–8 months (ISSSF)	82/111	78.5 (70.0-86.1)
Minimum meal frequency 6-8 months	23/111	23.7 (16.2-32.9)
Minimum meal frequency 9-23 months	123/657	18.4 (15.6-21.5)
Minimum meal frequency 6-23 months (Non breastfed)	351/768	46.7 (43.2-50.2)
Minimum dietary diversity 6-23 months	167/768	23.0 (20.2-26.1)
Minimum acceptable diet 6-23 months	46/768	6.0 (4.6-7.9)
Minimum milk feeding for non-breastfed children 6-23 months	126/145	90.5 (84.6-94.7)

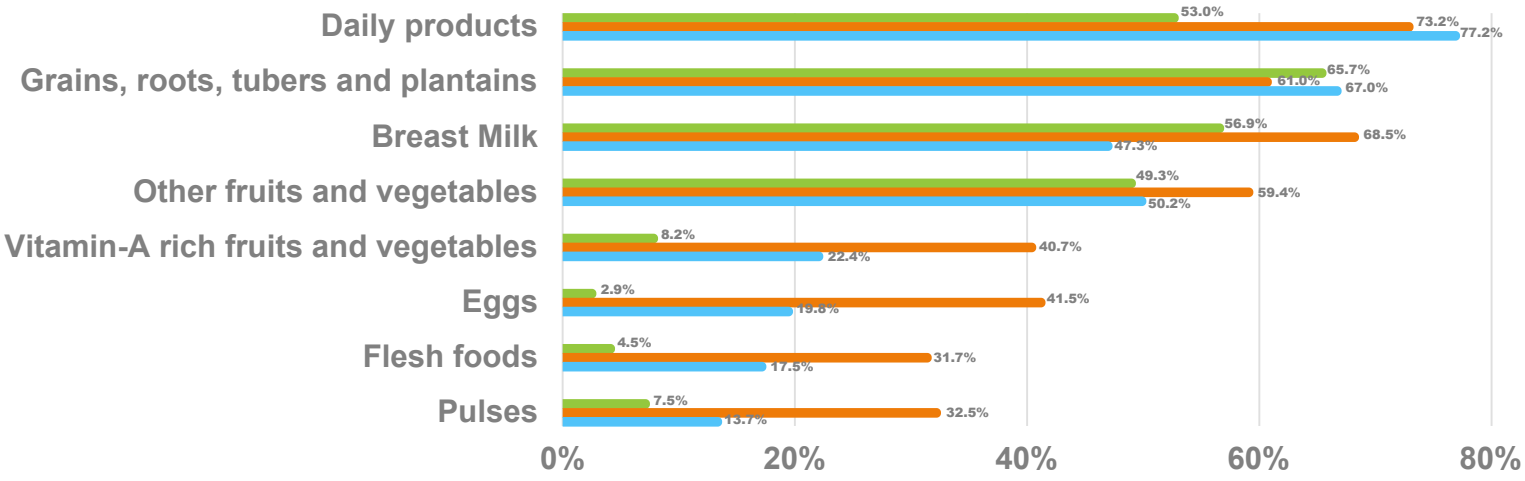
TABLE 48: IYCF Indicators Palestinian and Syrian

INDICATOR	PALESTINIAN	SYRIAN
Ever breastfed (EvBF)	108 89.3% (82.3-94.2)	116 89.2% (89.2-82.6)
Early initiation of breastfeeding (EIBF)	71 65.7% (56.0-74.6)	68 58.6% (49.1-67.7)
Exclusive breastfeeding under 6 months (EBF)	7 43.8% (19.8-70.1)	15 65.2% (42.7-83.6)
Mixed milk feeding under six 6 months (MixMF)	8 53.3% (26.6-78.7)	2 9.5% (1.2-30.4)
Continued breastfeeding 12-23 months (CBF)	35 49.3% (37.2-61.4)	28 35.4% (25.0-47.0)
Introduction of solid, semi- solid or soft foods 6–8 months (ISSSF)	13 56.5% (34.5-76.8)	10 66.7% (38.4-88.2)
Minimum meal frequency 6-8 months	9 39.1% (19.7-61.5)	6 40.0% (163-67.7)
Minimum meal frequency 9-23 months	26 31% (21.3-42.0)	27 28.1% (19.4-38.2)
Minimum meal frequency 6-23 months (Non breastfed)	29 27.1% (19.0-36.6)	31 27.9% (19.8-37.2)
Minimum dietary diversity 6-23 months	50 46.7% (37.0-56.6)	14 12.6% (7.1-20.3)
Minimum acceptable diet 6-23 months	23 21.5% (14.1-30.5)	7 6.3% (2.6-12.6)
Minimum milk feeding milk feeding frequency for non-breastfed children 6-23 months	11 84.6% (54.6-98.1)	10 71.4% (41.9-91.6)

FOOD CONSUMPTION:

The mostly consumed foods across all strata included in this survey are daily products and grains roots and tubers. At least half of the population across all strata consumes fruits and vegetables. Palestinian camps reflected the highest levels of breastmilk consumptions as compared to other strata. Palestinian camps also seem to have more consumption of other food groups like Vitamin A rich fruits and vegetables, eggs, flesh foods and pulses compared to other strata. Syrian refugees in tented settlements have been found to have the least levels of consumption of Vitamin A rich fruits and vegetables, eggs, flesh foods and pulses.

FIGURE 16:
Food groups consumed



4.0
DISCUSSION & CONCLUSION

The nutrition assessment response rate in sampled households was above 85% in all strata. Reserve clusters were covered in Mount Lebanon and Palestinian camps to achieve the desired sample size of >80% of the required number of children 6-59 months. Due to lack of up-to- date data on the nutritional status and demography, the number of children under five-year-old exceeded the target in Akkar, Baalbek, Bekaa, North and Syrian refugees in tented settlements.

WASTING

Wasting, or acute malnutrition, is a reduction or loss of body weight in relation to height. Addressing wasting is of critical importance because of the heightened risk of disease and death for children who lose too much of their body weight. In 2012, the World Health Assembly Resolution 65.6 endorsed a "Comprehensive implementation plan on maternal infant and young child nutrition", which specified six global nutrition targets for 2025. The sixth target is to reduce and maintain childhood wasting to less than 5%.[21] Globally, wasting levels are at 6.7%, and severe wasting at 2.0%.[22]

Wasting very low to low, <5% across all strata, and within the global nutrition targets of less than 5%. Children 6-17 months are more malnourished compared to the other age categories. This is the age category where complementary foods are introduced, with sub optimal IYCF practices probable contributor of the same. Only 6%, 21.5% and 6.3% nationally, in Palestinian and Syrian respectively were consuming minimum acceptable diets (MAD).

According to UNICEF conceptual framework of malnutrition, drivers of malnutrition are an inadequate diet, poor practices, inadequate services, and disease. From the survey findings, over 70% of the children are missing their best start in life- exclusive breast feeding, 90% of children are at least missing a dimension of quality and nutritious diet, and 27.8 % of children were sick two weeks prior to the survey, 28.3% Syrian and 27.9% Palestinians.

According to VAM report 2020, 87% of Lebanese households resorted to at least one food consumption-based coping strategy, with 54 percent of respondents reducing portions of meals when not having enough food. Reducing consumption of adult members in favour of children, – the most severe among consumption-based coping mechanisms –might have shielded children against risks of malnutrition, thus acute malnutrition status remaining low to very low among children under-five nationally and in all governorates.

Inadequate household food security, inadequate care and inadequate health services are also underlying causes of malnutrition. Lebanon has already deteriorated socio-economic situation since October 2019 was worsened by measures implemented to curb the COVID-19 pandemic, further slowing down economic activity.[23] In addition, the Lebanese Pound (LBP) has been sharply depreciating against the U.S. dollar (USD), resulting into a further increase in the cost of living. The report indicated that 40 percent of households across the country had difficulties accessing markets to cover their food and other basic needs due to deteriorated purchasing power with an unemployment rate reaching 49 percent in August 2020, and likely to have worsened by the time SMART survey was being undertaken due to ongoing impacts of Covid-19, economic and fuel crisis, the Beirut blast among others.

Although these drivers have not yet resulted in a spike in acute malnutrition rates, if the political gridlock in Lebanon and the consequent economic crisis is not resolved, prolonged economic depression with inflation reaching triple digit and poverty rising sharply, families' capacity for consumption based coping mechanism will be stretched, and in absence of accelerated multi-system preventive response, acute and chronic malnutrition levels which is an outcome is likely to increase in Lebanon from the current levels. According to WFP Lebanon Country Brief September 2021, 22 percent of Lebanese, 50 percent of Syrian refugees, and 33 percent of refugees of other nationalities are food insecure. Food access and availability have become major issues, with food prices out of reach for most, and retailers facing serious challenges to restock and to keep their businesses afloat.

The ongoing reduction of subsidies, and the imminent discontinuation in the coming months, is likely to make the situation much worse – as affordable food items and fuel become scarce, competition for basic resources and social tensions are on the rise. Thus, there is need for the government, donors, and partners to put in place and accelerate a multi-system nutrition response engaging five delivery systems; health, food, social protection, WASH and Education to shield the community from any potential shocks and gradual determination. There is also a need to closely monitor the nutrition situation through routine data as this can give an indication of the trends.

STUNTING

Childhood stunting is one of the most significant impediments to human development. Stunting, or being too short for one's age, is a largely irreversible outcome of inadequate nutrition and repeated bouts of infection during the first 1000 days of child's life. Stunting has long-term effects on individuals and societies, including diminished cognitive and physical development, reduced productive capacity and poor health, and an increased risk of degenerative diseases such as diabetes. Due to severe and irreversible outcome of stunting, it's one of the key indicators of sustainable development goal (SDG) as part of "ending all forms of malnutrition" by 2030, specifically reducing the prevalence of stunting by 40% (from 2012 levels).

Compared to national stunting prevalence, only Beirut had medium levels of stunting, the levels were almost similar and categorized as low across all the other governorates. With that, stunting is still an unfinished agenda in Lebanon, although the levels were low nationally, among Syrian refugees in tented settlements 1 in 4 children is stunted (25.8%). We expect that these equity gaps are even more significant if the results could be collected and analysed by quantiles of wealth. According to nutrition assessment report conducted in January 2013 covering Syrian refugees in tented settlements in Lebanon, stunting levels were 8.9 % (6.6 - 11.9 95% C.I.). This indicates the deterioration of the chronic malnutrition, perhaps an indication of chronic vulnerabilities among the Syrian refugees in tented settlements in Lebanon. Apart from Syrian camps that were within the same levels with global prevalence of above 20%, all the other survey strata were below.

There is however need for more in-depth assessment/study to see the reasons behind high levels of stunting in Syrian living in informal tents and whether if it is similar in Syrian refugee population living outside ITs.

OVERWEIGHT

Overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health. Overweight and obesity are major risk factors for a number of chronic diseases, including diabetes, cardiovascular diseases and cancer.

The prevalence of overweight in children 6 to 59 months of age was ranging from low to medium across survey strata. At national level, the prevalence of overweight was low at 3.7 %, including 1.2% % of severe overweight.

Mount Lebanon, South and El Nabatieh had medium levels of overweigh according to WHO cut-offs, and within the same level with global prevalence of 5.7%. All the other governorates had low levels of overweight. It worth further analysis, to see if the relatively low rates of obesity could be indeed a consequence of consumption based coping mechanisms of the families, where children have lost weight from the over-weight status, but they are not yet wasted.

INFANT AND YOUNG CHILD FEEDING (IYCF) PRACTICE

Following recommended feeding practices for infants and young children can increase their chances of survival. It can also promote optimal growth and development, especially during the critical "window of opportunity" from pregnancy to 2 years of age. WHO and UNICEF recommend early initiation of breastfeeding within 1 hour of birth, breastfed exclusively for the first six months of life and continue to be breastfeed up to 2 years of age and beyond. Starting at 6 months, breastfeeding should be combined with safe, age appropriate feeding of solid, semi-solid and soft foods.

This is also in line with the National policy on infant and young child feeding in Lebanon updated in November 2018. However, many infants and children do not receive optimal feeding, with only about 44% of infants aged 0–6 months worldwide being exclusively breastfed over the period of 2015-2020[24]. The global target 2025 is to increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%.

Sub-optimal infant and young child feeding practices was observed nationally, and across Palestinian and Syrian refugees in tented settlements.

Ever breastfed (EvBF):
Breastfeeding is recommended for all infants worldwide except, in very few cases, for those with specific medical conditions. 84.6% children 6-23 months were reportedly having ever been breastfeed nationally. In Palestinian and Syrian, the proportion of ever breastfed was 89.3% (82.3-94.2) and 89.2% (89.2-82.6) respectively.

Early initiation of breastfeeding (EIBF):
WHO Global Strategy[25] for Infant and Young Child Feeding recommends that infants be breastfed within one hour of birth. WHO guidelines on maternity care state that "all mothers should be supported to initiate breastfeeding as soon as possible after birth, within the first hour after delivery". Early initiation of breastfeeding confers a host of benefits that includes skin-to-skin contact increasing the bond between mother and baby. Immediate skin-to-skin contact also helps regulate the body temperature of new-borns and allows their bodies to be populated with beneficial bacteria from their mother's skin. Putting babies to the breast within an hour of birth is strongly predictive of future exclusive breastfeeding. Initiation of breastfeeding within the first hour of birth gives the best possible start in life as it increases the chances that new-borns receive the first milk "colostrum", that is rich in antibodies and nutrients, vital in protecting the new-born against infections. Nationally, only 63.0% of new-borns were initiated early. Almost same proportion was observed in Palestinian and Syrian with 65.7% and 58.6% respectively. Compared to global prevalence 44.4%[26] and regional (MENA) prevalence of 36%, the proportion was higher nationally and in the two strata. This indicated the need to scale up baby friendly hospital initiative among other interventions to ensure all children initiate breastfeeding early.

Exclusive breastfeeding under 6 months (EBF):

WHO Global Strategy for Infant and Young Child Feeding recommends that infants be exclusively breastfed until they turn six months of age. Exclusive breastfeeding is the safest and healthiest option for children everywhere, guaranteeing infants a food source that is uniquely adapted to their needs while also being safe, clean, healthy and accessible. Nationally, EBF rates were 32.4%. Compared to national prevalence, Palestinian and Syrian refugee had a higher proportion of children being breastfeed exclusively, at 43.8% and 65.2% respectively. Exclusive breastfeeding under six months was higher globally compared to Lebanon, however, the national prevalence was higher than the regional prevalence as shown in Figure 17.

Mixed milk feeding under six 6 months (MixMF):

Mixed milk feeding with breast milk plus a breast milk substitute is associated with increased risks of early cessation of breastfeeding, reduced breast milk production and altered gut microflora. Nationally, the proportion of children receiving mixed feeding were 39%. Compared to the national rates of mixed feeding, Palestinian recorded a higher rate of 53.3% (26.6-78.7) with Syrian recoding only 9.5% (1.2-30.4). A trend Analysis collected by IOCC on infant and young child feeding habits among their beneficiaries (refugee mothers of Lebanese, Syrian, and Palestinian nationalities) across different parts of Mount Lebanon, Bekaa, North and South between the months of July 2020 up until March 2021 indicates that mixed feeding is the most popular form of feeding provided to infants aged 0-6 months. Proportion of Syrian breastfeeding exclusively is at 65.2%, thus the lower rate of mixed feeding at 9.5%.

Continued breastfeeding 12-23 months (CBF):

WHO Global Strategy for Infant and Young Child Feeding recommends that children continue breastfeeding for two years or beyond. Children who are still breastfed after one year of age can meet a substantial portion of their energy needs with the breast milk in their diet. Continued breastfeeding is also vital during illness: while sick children often have little appetite for solid food, continued breastfeeding can help prevent dehydration while also providing the nutrients required for recovery. Nationally, the proportion of children 12-23 months who have continued breastfeeding are 21.9%. The proportion was slightly higher in Palestinian and Syrian at 49.3% (37.2-61.4) and 35.4% (25.0-47.0) respectively. Compared to global and regional prevalence, the national prevalence was lower. Palestinian camps had slightly higher prevalence than the regional prevalence.

Introduction of solid, semi- solid or soft foods 6–8 months (ISSSF):

WHO Global Strategy for Infant and Young Child Feeding recommends that solid, semi-solid and soft foods be introduced at six months of age. Nationally, 78.5% of children 6-8 months were introduced to solid, semi- solid or soft foods. This was lower at Palestinian and Syrian at 56.5% (34.5-76.8) and 66.7% (38.4-88.2) respectively. The national prevalence was same compared to regional prevalence but higher than the global prevalence. Both Palestinian and Syrian had prevalence lower that global and regional prevalence. According Multi Indicator Cluster Survey Lebanon conducted in Lebanon in 2009; complementary feeding practices were poor in Lebanon, with only 41.6% of infants introduced to complementary foods at six months. The situation has slightly improved with 56.5% of children 6–8 months introduced to solid, semi-solid or soft foods.

Minimum meal frequency 6-8 months (Breastfed):

WHO guiding principles for feeding the breastfed child recommend that breastfed infants aged 6–8 months be provided complementary foods 2–3 times per day with additional nutritious snacks offered 1–2 times per day. Nationally, only 23.7% of children 6-8 months were fed on minimum meal frequency. This was slightly higher in Palestinian and Syrian at 39.1% and 40.0% respectively.

Minimum meal frequency 9-23 months (Breastfed):

WHO guiding principles for feeding the breastfed child recommend that breastfed infants aged 9–23 months be provided complementary foods 3–4 times per day with additional nutritious snacks offered 1–2 times per day.On children 9-23 months, only 18.4% were fed on recommended minimum meal frequency. This was slightly higher in Palestinian and Syrian with 31% and 28.1% respectively.

Minimum meal frequency 6-23 months (Breastfed):

MMF 6-23 breastfed children was at 19%. This was far much lower compared to both regional and global prevalence. As indicated in the VAM and food security report 2020, relying on less expensive and less preferred food is the most frequently reported food-based coping mechanism implemented by 87 percent of households, followed by reducing portion sizes implemented by 56 percent of households with 55 percent of households reporting not to having enough quantity of food. The economic crisis has deteriorated further, and this is a likely contributor of the reduced meal frequencies in the households.

Minimum meal frequency 6-23 months (Non-breastfed):

WHO guiding principles on feeding the non-breastfed childrecommend the increase of complementary foods to 4–5 meals per day for non-breastfed children. Feeding meals/snacks less frequently than recommended can compromise total energy and micronutrient intake, which in turn may cause growth faltering, stunting and micronutrient deficiencies. 46.7% of the non-breastfed children nationally recorded attaining the minimum meal frequency, with Palestinian and Syrian recording 27.1% and 27.9% respectively.

Minimum dietary diversity 6-23 months:

WHO guiding principles for feeding the breastfed child and non-breastfed child recommend that children aged 6–23 months be fed a variety of foods to ensure that nutrient needs are met. A diet lacking in diversity can increase the risk of micronutrient deficiencies, which may have a damaging effect on children's physical and cognitive development. Nationally, 23.0% of children 6-23 months were fed on minimum dietary diversity, almost half of the children assessed in Palestinian with 46.7% and only 12.6% in Syrian refugees in tented settlements. The national prevalence on MDD was lower compared to regional and global prevalence, and the same was observed in Syrian population.

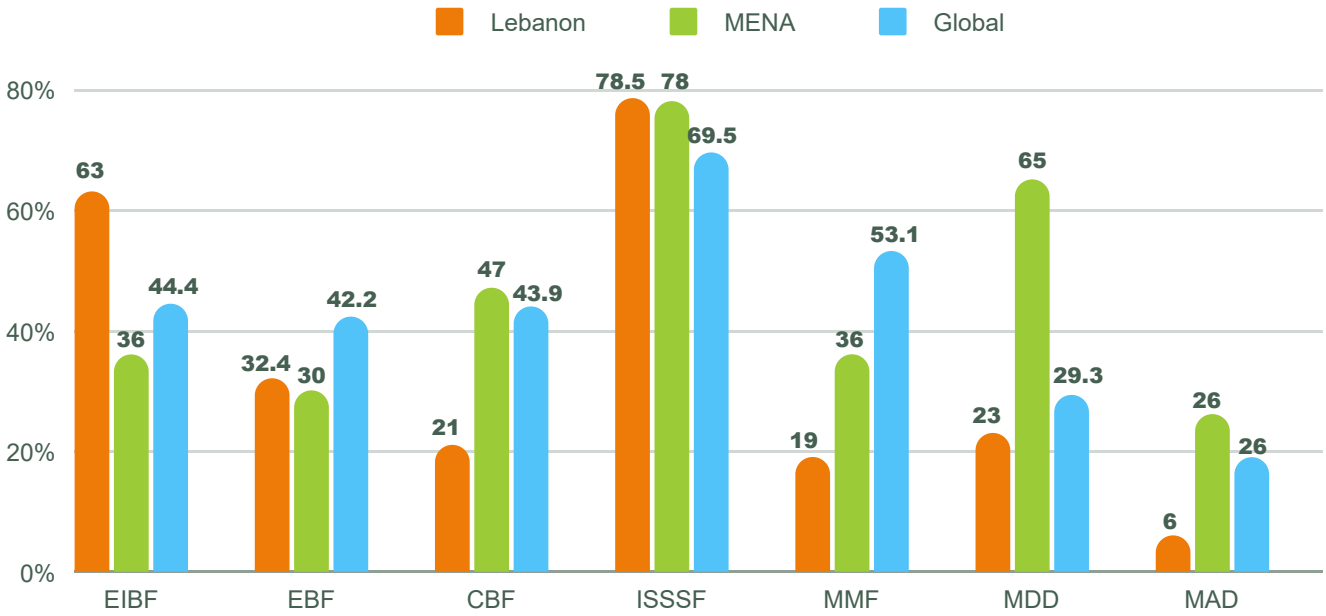
Minimum acceptable diet 6-23 months:

WHO guiding principles on feeding the breastfed child and the non-breastfed child recommend that children aged 6–23 months be fed meals at an appropriate frequency and in a sufficient variety to ensure, respectively, that energy and nutrient needs are met. This indicator combines information on minimum dietary diversity and minimum meal frequency, with the extra requirement that non-breastfed children should have received milk at least twice on the previous day. Nationally. Only 6% of children 6-23 months were fed on minimum acceptable diet, same to Syrian with 6.3% but slightly higher for Palestinian at 21.5%. Again, compared to regional and global prevalence, this was slightly lower, same as Syrian refugees living in informal settlements. However, the current financial and economic crises in Lebanon, that is also affecting the refugee population is likely to affect the recommended complementary feeding practices as the community adopt coping strategies.

Minimum milk feeding for non-breastfed children 6-23 months:

milk and other dairy products are rich sources of calcium and other nutrients. WHO guiding principles for feeding non-breastfed children aged 6–23 months state that the amount of milk needed to meet nutrient requirements depends on the other foods consumed by the child. 90.5% of non-breastfed children 6-23 months received minimum milk feeding but was lower in Palestinian and Syrian refugees in tented settlements with 84.6% and 71.4% respectively.

FIGURE 17:
Comparison Between global, Regional[27] and Lebanon Prevalence of selected IYCF indicators



Looking at the parameters of a quality and nutritious diets, 90% of children nationally are missing at least one of the quality parameters of their diets. Major equity gaps are observed when looking tat refugee populations. This above picture is further confirmed while looking at the dietary intake analysis, where more than 70% of the young children were missing the Vit A rich foods and sources of protein in their diets.

WOMEN AND CHILD ANAEMIA

Women who are underweight and anaemic during pregnancy are more likely to have stunted children, perpetuating the inter-generational transmission of stunting. Iron deficiency anaemia and poor maternal nutrition during pregnancy and breastfeeding may increase the risk of preterm delivery or low birth weight baby and lead to stunted growth of the child.

Children with anaemia deficiencies may become pale and weak, eat less, and tire easily. They gain weight poorly and have frequent respiratory and intestinal infections. The most common causes of anaemia include nutritional deficiencies; particularly iron deficiency, and infectious diseases, such as malaria, tuberculosis, HIV and parasitic infections.

Anaemia is a public health concern nationally, also among Palestinian and Syrian refugees in tented settlements.

Almost 42 % of women and 43% of children 6-59 months are suffering from a degree of anaemia, the levels are highest in Mount Lebanon and North. When looking at refugee population, we can see that women and child Anaemia levels are also high in Syrian refugees in tented settlements, at 31.4% and 32.8% respectively. A significant proportion of the anaemia in the country can be resulted due to micronutrient deficiencies because of the poor diets. There is need to scale up both preventive and treatment multi-dimensional and comprehensive approaches to curb medium and severe levels of anaemia in all governorates and among the refugee populations. Consumption of eggs, flesh foods and pulses was the lowest across governorates, Syrian and Palestinian, being the main sources of iron, thus the likely cause of anaemia is inadequate dietary intake of micronutrients (especially iron, folic acid, vitamin B12), and a lack of appropriate complementary foods, leading to high to medium levels of anemia. Due to the current financial and economic crises, majority of the households confirmed adopting negative coping mechanisms, such as a reduction in meals, as well as a reduction in the consumption of meat, dairy products, fresh vegetables, and fruits. However, there is need to investigate the higher the causes of the higher anemia levels in the North and Mount Lebanon governorate and also reinforcement of existing activities.

Considering the intergenerational impacts of anaemia in women and irreversible impacts of the anaemia on thriving and cognitive development of children, short (supplementation schemes), mid (such as flour fortification programs) and long terms (dietary promotion) strategies and programs must be in place to address this national public health problem.

MATERNAL NUTRITION

Pregnancy imposes a big nutrient-need load on mothers, which in the absence of adequate extra nutrients leads to utilization of body nutrient reserves leading to malnutrition. Gestational malnutrition leads to low birth weights and may ultimately culminate in poor child growth and development, thus there is an urgent need to address malnutrition among pregnant women. Poor adult nutritional status is a key indicator to household food insecurity. Malnourished PLWs carry a risk of growth retardation of the fetus and consequently low birth weight. It also led to fetus prematurity and high neonatal mortality. If the situation deteriorates, both U5 children and caretakers from the same household are vulnerable to malnutrition.

Based on the survey findings, Palestinian had the highest rate of moderate malnutrition among pregnant and lactating women at 9.46%, followed by Syrian at 7.55% and nationally at 5.0%. There was no case of severe malnutrition reported among PLW across all survey strata. According to VAM report 2020, reducing consumption of adult members in favour of children, one was of the coping strategy used by the community – the most severe among consumption-based coping mechanisms. This might be one the likely causes of having moderate malnutrition among PLW but low levels of malnutrition among children 6-59 months. Maternal malnutrition among pregnant and lactating women should be addressed by scaling up interventions and programming at both health facility and community level.

VACCINATION:

According to Lebanon National Immunization Strategy 2017-2022[28], the primary objective of the national immunization program is to achieve a 95% national coverage for all vaccines/antigens and 90% coverage in all districts.

Nationally, IPV (inactivated polio vaccine) had a coverage of 94%, close to the national target of 95%, followed by 3rd dose of OPV (oral polio vaccine) at 83.2%. Vaccines received after six months seems to be performing poorly and far from the national target across governorates. Palestinian camps was leading in terms of vaccine coverage as compared to other strata but still not within the national coverage target.

5.0

RECOMMENDATIONS

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There is need for the government, donors, and partners to put in place and accelerate a multi-system, multi sectoral response plan and approaches to prevent and shield the vulnerable groups of children and women from the causes and effects of all forms of malnutrition. These can be done through and engaging five delivery systems; health, food, social protection, WASH and Education to put in place sustainable and affordable interventions. There is also a need to set up a surveillance system to closely monitor the nutrition situation that can give an indication of the trends and serves as early warning system.

Health and Nutrition

- Continued screening in the PHC settings and UNHCR reception centres for timely detection, referral, and treatment of malnutrition to maintain the low levels.
- Increase the capacity of community health workers to identify and refer malnutrition cases to the treatment centres.
- Investment in public health and education programs to promote healthy diet for mothers and children and the healthy start of complementary feeding. This can be done through the 1000 days IYCF campaign (communication for behavior change.
- Expand caregiver access to quality counseling and support on young child feeding.
- Reinforcement of existing activities (e.g. deworming campaigns and antenatal activities) to reduce high levels of anaemia.
- Providing information and education for the community on anaemia and micronutrient Deficiencies. These can be done through social media channels with support of communications teams.
- Strengthening of training of health staff for anaemia detection and treatment as well as investment in equipment for testing anaemia and ensuring adequate supplies and supplements for appropriate treatment.
- Expand support to infant and young child feeding and care practices, and the prevention and management of common childhood illnesses in the PHC.
- Deliver dietary supplements, home fortificants to young children at risk of micronutrient deficiencies, and malnutrition free of charge.
- Reinforcement of existing activities (e.g. deworming within school health program and /or campaigns and targeted campaigns, preconception , antenatal and postnatal care with encouraging birth spacing and ensuring family planning modern methods so that the mothers are capable of taking care of their baby and themselves.
- To consider targeting decision makers in the families (men and mothers in law) in addition to women of reproductive age for awareness on family planning and birth spacing. In addition, use innovative methods to reach all levels of education and remove barriers to access SRH services.
- Improve and market access to primary health care services for child and maternal care and provision of supplements during pregnancy and lactation free of charge.
- Reinforce the implementation of government decision on milk formula distribution in hospitals and to encourage breastfeeding directly after birth.
- Improve the distribution and use of medical records provided to the child at birth in hospitals.

WASH

- Increase the implementation of joint nutrition and WASH programs and increase the coverage of handwashing facilities and WASH services in all households, including the informal settlements (safe water and sanitation).
- Promote the provision of relevant WASH services and hygiene kits (e.g soap) through all food assistance platforms.
- Improved access to clean and sufficient drinking water, proper sanitation, drains for wastewater and proper management of solid waste.
- Expand hygiene promotion, behaviour change for household and child hygiene practices, and prevention of infections, given that diarrheal diseases are a key factor in stunting.

Social protection

- Improve access to age-appropriate nutritious, affordable and sustainable foods through social protection transfers (cash or in kind) targeting at risk children and pregnant and lactating women.
- Design social transfers – cash, food and/or vouchers– that support, and do not undermine, nutritious and safe diets in early childhood, in response to humanitarian crises.
- Use social protection programs to improve caregivers' knowledge about young child feeding and maternal nutrition.
- Use of multi-dimensional approach to food security like fresh food vouchers, income generating activities, cash and food for work programs, and hunger safety net programs for vulnerable groups.
- Create referral pathways to the available community services to assist families with high social vulnerability.

Food Systems

- Advises to the Government on food fortification of items such as bread to curb micronutrients deficiencies.
- Strengthen institutional procurement as part of national and/or large-scale programs (e.g. school meals, cash and vouchers, food assistance) including distribution of nutritious food aid to the diagnosed cases.
- Scaling up unconditional resource transfers to support access to food to the most vulnerable populations.
- Support complementary feeding practices by ensuring access to adequate diet diversity and nutrient-rich foods to families with children under 2 years of age, this can be done through targeted cash transfers.

Education

- Liaise with social media platforms to develop educational courses on proper nutritional practices that are age appropriate and disseminated through relevant channels.
- Improve the use of school platforms to support efforts to reach adolescent girls with school feeding and messaging around nutrition and reproductive health.

Others

- Government, UN agencies and partners to advocacy for enhanced resources allocation in addressing key nutritional issues.
- Advocacy to prioritize children and PLWs in cash transfer and food assistance programs to improve access to and use of preventive services.
- Follow up on fully implementation of IYCF national Policy and policy statement to reinforce IYCF programming.
- Mobilize resources to scale up training of health workers and community health workers on IYCF practices and early childhood development (ECD).
- Dietary supplements and home fortifications interventions.
- Enhanced coordination mechanisms around nutrition information management, including monitoring and evaluation strategies.
- Conduct IYCF surveys for Palestinian refugees and Refugee in non -permanent shelters (ITs, prefab) with representative sample sizes and a survey for refugees living urban/rural settings.
- In-depth assessment/study to understand the possible reasons for high levels of stunting among Syrian refugees in tented settlements, and whether if it is similar in Syrian refugee population living outside ITs.
- With higher levels on anaemia deficiencies, need to conduct micronutrient surveys to establish status of other micronutrients deficiencies.
- Advocate for review of maternity leave policy for working mothers to allow them breastfeeding their babies during the first 6 months and follow up on implementation.
- Support finalization of the national nutrition strategy based on the results of the survey.
- 1000 days IYCF campaign (communication for behaviour change).
- Advocate for evidence informed resources mobilization for multi-system nutrition programming in Lebanon.
- Policy advocacy for legislative system for a conducive enabling environment for regulation of donation of BMS, and Flour Fortification.
- Conduct landscape analysis to understand context-specific barriers, enablers, and pathways to improving the quality of young children's diets with focus on refugee.

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