

*Assessment of the nutritional status of Syrian
children aged 6–12 years and residents in the
Kingdom of Saudi Arabia*

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Abstract

Malnutrition is a concerning public health problem in most Middle East countries. This study aimed to assess the nutritional status of 6-12 year-old Syrian children living in the Kingdom of Saudi Arabia and their dietary diversity and intake.

Conclusion

Both types of malnutrition (over and under) in Syrian children in the Kingdom of Saudi Arabia were caused by inadequate and inappropriate eating behaviors and absence of nutritional education in addition to other lifestyle factors, such as low physical activity.

Objectives

- 1. Knowledge and evaluation of the nutritional status of Syrian students in the primary stage at the age of 6-12 years and residents in the Kingdom of Saudi Arabia*
- 2. Food intake analysis for this age group*

results

Indicators		Female		Male		Total		Mean ±SD
		N	N%	N	N%	N	N%	
WAZ	Moderate underweight	1	3.0	0	0.0	1	1.0	0.01±0.78
	Underweight	6	18.2	2	5.1	8	7.6	
	Normal	18	54.5	33	84.6	51	48.6	
	Overweight	6	18.2	4	10.3	10	9.5	
	Obese g1	1	3.0	0	0.0	1	1.0	
	Obese g2	1	3.0	0	0.0	1	1.0	
HAZ	Severe stunting	1	2.0	4	7.3	5	4.8	-0.24±1.48
	Moderate stunting	7	14.3	3	5.5	10	9.5	
	Stunting	8	16.3	7	10.9	15	14.4	
	Normal	23	46.9	31	56.4	54	51.4	
	Over height	8	16.3	9	16.4	17	16.2	
	Severe over height	2	4.1	2	3.6	4	3.8	

Indicators		Female		Male		Total		Mean \pm SD
		N	N%	N	N%	N	N%	
BAZ	Severe thinness	0	0	1	1.8	1	1.0	0.43 \pm 1.52
	Moderate thinness	3	6.1	2	2.2	5	4.8	
	Thin	3	6.1	4	7.1	7	6.7	
	Normal	28	57.1	29	51.8	57	54.3	
	Overweight	11	22.4	15	26.8	26	24.8	
	Obese G1	3	6.1	5	8.9	8	7.6	
	Obese G2	1	2.0	1	1.8	2	1.9	
BMI	Severe malnutrition	15	30.6	20	35	35	33.3	17.6 \pm 3.19
	Moderate malnutrition	9	18.4	5	8.9	14	13.3	
	Malnutrition	10	20.4	11	19.6	21	20.0	
	Normal	14	28.6	19	33.9	33	31.4	
	Overweight	1	2.0	0	0.0	1	1.0	
	Obese g1	0	.0	1	1.8	1	1.0	

Indicators		Female		Male		Total		Mean \pm SD
		N	N%	N	N%	N	N%	
WHZ	Moderate wasting	3	10	1	2.22	4	5.33	0.72 \pm 1.66
	Normal	21	70	36	80	57	76	
	Overweight	3	10	3	6.67	6	8	
	Severe overweight	3	10	5	11.1	8	10.67	

*WAZ: Wight/ Age Z-score; HAZ: Hight/ Age Z-score; BAZ: Body mass index/ Age Z-score; BMI: Body mass index; WHZ: Wight/high Z-score

Table 2 Dietary diversity

Dietary diversity score	Frequency	Percent
Lowest dietary diversity (≤ 3 food groups)	567	59.4
Medium dietary diversity (4–5 food groups)	240	25.2
High dietary diversity (≥ 6 food groups)	138	14.5
Total	954	100.0

Table 3 Average daily consumption of nutrients (24-h recall) in relation to DRI in girls and boys using T test

Items intake/day	Boys			Girls			DRI*	T test**	
	Mean N= 49	SE	%DRI	Mean N=56	SE	%DRI		Girls	Boys
Calories	1055	69.04	68.68	984.13	54.2	58.37	1686 ^d	15.28	18.15
Protein g	47.65	2.75	308.7	49.3	2.69	319.4	161.03	17.32	18.31
Carbs g	133.26	9.96	102.5	114.68	7.24	88.21	47.73	13.38	15.84
Fiber g	10.37	0.78	48.03	10.13	0.96	46.94	23.95	13.23	10.51
Fat g	37.81	3.48	ND	37.92	2.95	ND	ND	10.86	12.86

Items intake/day	Boys			Girls			DRI*	T test**	
	Mean N= 49	SE	%DRI	Mean N=56	SE	%DRI		Girls	Boys
Chol mg	251.44	27.3	ND	268.22	23.9	ND	NDa	9.21	11.24
Vit. A µg	733.46	139.1	213.9	478.47	49.4	139.6	94.49	5.27	9.68
Vit. C mg	46.2	5.64	246.4	28.89	4.61	154.1	79.34	8.2	6.27
Vit. D µg	1.49	0.19	29.8	1.43	0.23	28.55	14.39	7.81	6.3
Ca mg	472.69	39.29	57.4	447.69	36.6	54.36	45.46	12.03	12.25
K mg	1372.4	85.86	40.93	1196.75	77.1	35.69	56.40	15.98	15.52
Na mg	1220.7	92.13	111.9	1127.07	87.7	103.3	95.51	13.25	12.85

*As low as possible while consuming a nutritionally adequate diet, * DRI: Dietary Reference Intake (DRIs) in bold type; AIs, adequate intakes; ND, not determined; SE, Standard Errors; **Significant at $P \leq 0.05$ and $P \leq 0.01$.

Recommendations

- *Awareness programs for primary school children for food education*
 - *To modify the system of sports programs to become targeted, focused and consistent for children during the study period*
- *Tips for educating parents about the importance of food diversity*

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