National Nutrition Survey in the State of Kuwait

Jameela M. Al-Ghanim and Suad N. Al-Hooti
Biotechnology Department, Food and Nutrition Program
Kuwait Institute for Scientific Research

Kuwait Institute for Scientific Research

Background: The National Nutrition Survey of the State of Kuwait (NNSSK) used a stratified probability cluster sampling to obtain a representative national sample of Kuwaiti households, based on 82 clusters from the six governorates of Kuwait.

Materials and methods: 545 households (1830 individuals representing six age groups; <5, 6-9, 10-19, 20-49 and >50 years, participated in the survey (July 2008 to November 2009). The survey collected anthropometric, health, dietary and socio-economic data and biological samples.

Results: The prevalence of overweight or obesity among children and young adults (≤19 year) was 35% for males and 28% for females. For adults, the prevalence was 70% for males and 75% for females. Approximately 15% fasting blood glucose values were indicative of diabetes and another 33% at increased risk of diabetes. The prevalence increased with age to more than 50% of men and women age ≥ 50 years. The prevalence of hypertension was 26% with more than 60% of men and women ≥50 years of age being hypertensive.

Conclusions: Overweight and obesity, and related non communicable diseases, are major public health problems in Kuwait. Urgent action is needed to address these problems, in particular to combat overweight and obesity during childhood.

Table 1 BMI Classification by Gender and Age (≥ 20 years)

BMI Classification		20-49	≥ 50
Males	Underweight	3.9	0.0
	Normal	28.1	21.2
	Overweight	38.1	36.7
	Obese	29.9	42.0
Females	Underweight	1.9	0.0
	Normal	27.0	6.6
	Overweight	19.9	24.7
	Obese	51.1	68.7

*Adults include: 19 years+ 6 month + 1 day and above.
BMI Classification: underweight: BMI< 18.5; normal weight: 18.5≤BMI < 25; overweight: 25≤BMI< 30; and obese: BMI≥30.

Table 3. Prevalence of Hypertension (%) by Gender and Age

	Hypertension Indicator	6-9	10-19	20-49	≥ 50
Males	Hypertensive	17.0	20.6	23.7	65.2
	Normotensive	83.0	79.4	76.4	34.8
Females	Hypertensive	14.4	16.7	23.2	61.4
	Normotensive	85.6	83.3	76.8	38.6

Note: Hypertension is define as SBP>=140 mmHg or DBP>=90 mmHg or take medicine for 17 years or older; for subjects up to 17 years old, hypertension is defines if SBP or DBP>= 95th percentile blood pressure for each height percentile, age, and gender.

Table 5. Prevalence of Iron Deficiency Anemia (IDA) Based on Serum Hemoglobin, Ferriten and Znpp by Gender and Age

Gender	IDA Indicator	6-9	10-19	20-49	≥ 50
Males	IDA	0	0.4	0.5	0.7
	Normal	100	99.6	99.5	99.3
Females	IDA	1.4	2.8	15.6	8.8
	Normal	98.6	97.2	84.4	91.2

Note: IDA defined if both ferritin and ZnPP indicate iron deficiency and HGB indicates anemia

Table 2.
Distribution of BMI Z-Scores by Gender and Age (≤ 19 Years)

BMI Classification[1]		≤2	3-5	6-9	10-19
Males	Thinness	5.5	2.0	12.7	13.2
	Normal	77.2	85.9	63.7	36.2
	Overweight	9.7	12.0	14.2	18.9
	Obese	7.6	0.0	9.4	31.7
Females	Thinness	4.5	2.6	3.8	2.7
	Normal	87.0	85.4	73.1	56.5
	Overweight	8.5	7.6	9.9	19.2
	Obese	0.0	4.4	13.2	21.5

*BMI-for age (0-5). thinness: <-2SD; overweight: >+2SD; obesity : >+3SD
BMI-for age (5-19 years): thinness: <-2SD; overweight: > +1SD (equivalent to BMI 25kg/ m² at 19 years); obesity; >+2SD (equivalent BMI 30kg/ m² at 19 years).

Table 4. Prevalence of Anemia (%) Based on Hemoglobin Levels by Gender and Age

Gender	Hemoglobin Status	≤ 2	3-5	6-9	10-19	20-49	≥ 50
		%	%	%	%	%	%
Males	Anemic	11.1	1.5	8.4	2.6	3.3	8.3
	Normal	88.9	98.5	91.6	97.4	96.7	91.7
Females	Anemic	6.2	11.1	8.4	13.3	28.0	22.9
	Normal	93.8	88.9	91.6	86.7	72.0	77.1

References

AACC. 1983. Approved Methods of the American Association of Cereal Chemists, 8th ed. AACC method 40-70, Elements by atomic absorption spectrophotometry. American Association of Cereal Chemists. Minnesota, USA.

American Diabetes Association. 2010a. Standards of medical care in diabetes. Diabetes Care, 33: S11-61

American Diabetes Association. 2010b. Summary of revisions for the 2010 clinical practice recommendations. Diabetes Care, 33: S3.

WHO. 2000. Obesity: preventing and managing the global epidemic. Report of a WHO Consultation. Geneva, WHO technical report series No. 894.

WHO. 2006. Definition and diagnosis of diabetes mellitus and intermediate hyperglycaemia,. Available at:
http://www.who.int/diabetes/publications/Definition and diagnosis of diabetes_new.pdf

Zimmermann, M. 2008. Methods to assess iron and iodine status. British Journal of Nutrition 99 (3):S2-S9.