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OBESITY IN LEBANON

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ABSTRACT

There have been no national studies on obesity in Lebanon. The data available are derived from small scale studies on adolescents and adults. In adolescents aged 14-20 years, 35% of females and 23% of males were overweight (BMI 25-29.9), whereas 2% of females and 9% of males were obese (BMI > 30). In adults aged 18-54 years, 33% and 38% of females and males, respectively were overweight. The prevalence of obesity was 22% in females and 8% in males. In males, obesity was most prevalent in age group 35-44; while highest percentage of obesity was reported in females aged 45-54. The prevalence of obesity in the urban population was higher than the rural for both sexes. The observed differences in obesity prevalence between urban and rural populations could be explained by the changing dietary habits of the urban Lebanese where fat intake was found to constitute 36% of food energy in 1992 compared to 24% in the sixties. This change is an important factor in increasing the incidence of obesity. Another contributing factor could be the sedentary life style reported in the Lebanese population. In all age groups, obesity in Leanon appears to be less prevalent than for the US population but is difficult to compare with other countries in the region due to the different indices used to measure obesity. Further studies are needed to relate changing life styles in developing countries with the increasing incidence of obesity, and a unified index for obesity is necessary to facilitate comparisons between countries.

Key Words : Chronic diseases, Lebanon, obesity

INTRODUCTION

Historically the ability to store excess fat in adipose tissue was considered as useful protection against food shortages. This ability might have led to the propagation of the obesity gene with subsequent increase in obese people in the present era. This advantage, however, became a handicap in industrialized societies.

The industrial revolution resulted in food being available at all times and with minimal effort to obtain it, process it, or prepare it. Recently, as a consequence of epidemiological research, obesity was identified as a risk factor for some of the major diseases of modern times : diabetes, cardiovascular diseases, hypertension and certain cancers. Disorders related to dietary excesses are now increasing

among populations in developing countries. Changes in life-style and westernization of dietary patterns appear to be among the contributing factors. Of these disorders obesity has been reported to reach alarming levels in many countries of the Middle East. Most health planners in the region are aware of a generally increasing trend of obesity and actions directed towards control are being recommended to governments in the region (WHO/EMRO, 1989).

Quantitative assessment of changing dietary habits showed a reduction in consumption of starchy cereals and vegetables with a corresponding increase in fats of animal origin and increased intake of meat and sugar. Excessive intake of foods that are high in food energy, fats (especially saturated fats), and sodium and low in complex carbohydrates and fibre have been suggested as a dietary pattern that contributes significantly to most of the above mentioned disorders. It has also been reported that percentage body fat correlated positively with intake of total saturated, monounsaturated and polyunsaturated fats and negtively with carbohydrate intake. This suggested that diet composition independent of total energy intake, and physical activity may contribute to obesity (WHO/EMRO, 1989). Evidence is also available that reversing such dietary patterns led to reduced incidence of these chronic disorders. As a conclusion of much of the research connecting diet with nutrition and health, one can say that diet and lifestyle are major determinants of malnutrition of affluence (USDHHS, 1988; WHO/EMRO, 1989).

Prevalence of Obesity in Lebanon

In Lebanon, national studies on the prevalence of obesity have not been conducted. The data presented are derived from small scale surveys conducted on selected samples of adults and children.

A study on a random sample of 200 adolescents aged 14-19 years from different schools in Beirut showed that 36.1% of adolescent females and 24.6% of adolescent males had a BMI greater than 25 (Table 1). If we attempt to compare these data with data from other Arab countries we observe that, due to the different indicators used, comparisons and conclusions are difficult to be made. However, if we apply Garrow's classification (USDHHS 1988) we notice that the percentage of obese adolescents with BMI >30 is higher in males than females (9% vs. 2%) which is less than any of the figures reported for other Arab countries (Table 2). Morbid obesity (BMI >40) was absent in the population studied.

Data were collected on 406 female and male subjects from Beirut aged 18-24, 25-34, 35-44, and 45-54 years. The prevalence of over weight females and males was distributed as shown in Table 3.

TABLE 1

Prevalence of obesity among adolescents (14-19 years) in Lebanon

Females :

Grade of Obesity	Range of BMI	% female adolescent
Grade 0 (Normal)	20 - 24.9	63.9%
Grade I	25 - 29.9	34.4
Grade II	30 - 39.9	1.7%
Grade III	> 40	0.0%

Males :

Grade of Obesity	Range of BMI	% male adolescent
Grade 0 (Normal)	20 - 24.9	58.0%
Grade I	25 - 29.9	16.0
Grade II	30 - 39.9	8.6%
Grade III	> 40	0%

Source : Baba (1992)

TABLE 2

Comparison in the prevalence of obesity in various countries in the Arab Middle East.

Country & Year of Survey	Age (years)	Percent Obese M	F	Indicator of obesity used
Egypt 1976	15 - 18	3.7%	15.0%	> 120% unspecified reference
Cairo 1967	10 - 16	6%	4%	> 120% " "
Cairo 1978	11 - 16	14.4%	23.6%	" " "
Kuwait 1987	1 - 12	2.2	2.3	BMI M>28.4 F>26.4
	15-19	7.4	18.8%	BMI M>28.4 F>26.4
Saudi Arabia 1987	0 - 6	14.0%		> 97th Centile NCHS Ref.
Tunisia 1987	12-20	20.3%		Unspecified
Lebanon 1992	14 - 20	24.60%	36.10%	BMI > 25

Source (WHO/EMRO, 1989; Baba, 1992).

TABLE 3

Prevalence of overweight (BMI > 85th percentile) and obesity (BMI > 95th percentile) in the United States by age and sex compared with the Lebanese study group.

	Age (years)	Overweight		Obese	
		U.S.	Lebanese	U.S.	Lebanese
Males					
	Total	24.1	5.1	9.1	4.2
	18-24	13.1	10.4	5.5	0
	25-34	19.5	13.9	7.6	2.5
	35-44	27.0	20.7	10.4	10.3
	45-54	33.8	20.0	14.1	3.3
Females					
	Total	25.0	7.3	8.2	0.5
	18-24	11.5	3.4	3.9	1.1
	25-34	17.4	2.5	6.0	0
	35-44	28.1	12.5	10.8	0
	45-54	32.0	19.3	10.9	0
Total		-	6.41	-	3.8

Source (Baba, 1992).

The indicator used for overweight was a BMI $\geq 85^{th}$ percentile and for obesity a BMI $\geq 95^{th}$ percentile. It is noted that overweight was most prevalent among Lebanese adults in the 35-54 year age groups. The obesity percentage in females was highest in the age group (45-54) and in males in age group 35-44. In general a higher BMI was reported in males than females in all age groups studied.

In an attempt to relate life style to incidence of obesity in the Lebanese population a preliminary survey was conducted on a sample of 100 adults from rural and urban areas. Food intake data were collected by 24 hour recall and weight and height measurements were taken. A higher prevalence of obesity in urban population, whether for males or females, was reported. Among rural women, 42% were overweight (BMI 25-29.9), but none were obese. The prevalence, however, among urban women was 25% and 42%, respectively. The prevalence of overweight and obesity among men was lower, 33% and 9% of rural men were overweight and obese while the corresponding percentages for urban men were 42% and 8% respectively. The diet seems to be partly responsible for the higher prevalence of obese people in the urban group. In general higher intake of food energy was observed in the urban group (Table 4).

Dietary intake data indicate that urban men consumed more food energy than rural men as well as women. The lowest intakess intake were among rural women (61% of RDA). The same trend was observed for protein, fat, cholesterol, vitamin D,vitamin A and thiamine intake. In contrast more carbohydrate was consumed by rural women. The variation in cholesterol intake was high, and was mostly dependent on the consumption of animal foods.

Based on health statistics the morbidity from nutritionally related chronic diseases showed a higher prevalence of these diseases in older adults (Table 5). This is in accordance with the obesity data being more prevalent and more hazardous to health in males than females (Baba, 1992). Studying the prevalence of nutritionally related chronic non-communicable diseases on the basis of hospital admissions in post war years showed an increase in prevalence of heart disease from 2.9% to 6.7%. The prevalence of diabetes also paralleled that of obesity and was more prevalent in males (2.6%) between the ages of 30 to 50 years. This is similar to the figure (2.7%) reported in 1984. (Zurayk and Armenian, 1984).

From hospital admission data it was observed that obesity was more prevalent in men than women between ages 20-49 years. After the age of 50 years obesity became more prevalent among women with the highest percentage of obese women occurring between the ages of 60 and 69 years.

TABLE 4

Dietary intake of energy and certain nutrients as a percentage of US Recommended Daily Allowances.

Sex and age	Calories % RDA		Protein % RDA			FAT % Cal.			Carbohydrate % Cal.			Saturated Fat	
	Mean	SD	Mean	SD	% Cal.	Mean	SD	g	Mean	SD	g	Mean	SD
Men Rural 36-59	82.5	15.4	136	44.7	13.4	34	10.6	85	49	12.6	292	15	6.1
Men Urban 35-59	98.5	23.8	194	73.0	16	39	9.9	120	42	11.1	292	24	11.3
Women Rural 28-58	61	14.5	101	42.5	15	32	5.4	45	53	6.7	160	9	5.0
Women Urban 30-53	73	27.4	126	33.9	16	36	7.6	62	48	6.5	171	12	8.6

Sex and age	P/S		Cholest. mg		Alc. % Cal.		BMI		Vit.A% RDA		Vit.D% RDA		Vit.E% RDA		Thiamin%RDA	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Men Rural 36-59	0.54	0.42	219	300.5	3.7	6.1	24.59	4.0	144	294.7	21	32.3	50	47.8	80	19.4
Men Urban 35-59	0.70	0.49	305	225.4	3.3	5.1	25.65	3.6	92	71.8	25	26.7	78	42.6	92	30.8
Women Rural 28-58	0.25	0.26	99	97	0	0	25.15	5.0	150	379.7	7	14.4	21	18.0	81	48.2
Women Urban 30-53	0.54	0.57	182	193.2	0	0	28.10	2.1	139	206.9	19	23.3	49	34.8	82	34.83

Source : Baba (1992).

TABLE 5

Percentage of morbidity from chronic nutritionally related diseases by age and sex in Lebanon (1984)

Condition	Age (years)								
	0 - 9	10-19	20-29	30-39	40-49	50-59	60-69	70+	Total
Hypertension									
Males	0.0	0.1	0.3	1.6	5.1	10.1	20.5	23.7	3.6
Females	0.0	0.2	0.9	3.9	8.3	21.0	31.0	35.1	6.1
Heart Disease									
Males	0.2	0.1	0.2	0.4	3.7	10.0	18.4	21.2	3.1
Females	0.0	0.1	0.3	1.1	2.4	6.7	14.2	25.8	2.7
Diabetes									
Males	0.1	0.0	0.2	0.7	4.0	9.8	12.7	13.5	2.5
Females	0.0	0.1	0.4	1.2	1.2	4.0	10.1	15.8	2.8
Hypercholesterolemia									
Males	0	0.0	0.1	1.4	5.4	7.1	5.7	9.0	2.0
Females	0	0.1	0.4	1.8	4.0	9.4	12.0	7.0	2.4

Source : Zurayk and Armenian (1985).

Cardiovascular disease accounted for 6.7% of hospital admissions and was higher than all other nutritionally related diseases. Admissions of obese patients was low since many people did not feel the need to be admitted to the hospital just because they were obese. Another reason for the low levels of obesity admissions was that obese patients with complications were often admitted under the diagnosis of the complication.

In conclusion, it is clear that comprehensive data for the prevalence of obesity in different age groups and in different sexes in Lebanon is not available. Moreover the use of different indices for obesity makes it more difficult to observe similarities and trends of obesity in the same population and among populations. It is recommended to conduct studies in various Arab countries using the classification for obesity in different age groups recommended by the Food and Nutrition Board (1989) in order to monitor its prevalence and implement various measures of control. In Lebanon changes in dietary habits have been observed with increases in dietary fat, mainly saturated fat, consumption along with decreased physical activity. Both factors are related to obesity and consequently to other nutritionally related chronic diseases.

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