

The Relationship Between Obesity and Prevalence of Chronic Diseases in the Arab Women

Abdulrahman O. Musaiger and Nora E. Shahbeek

INTRODUCTION

The link between obesity and some chronic diseases is well documented (WHO, 2000). In the Arab Gulf countries, chronic diseases such as diabetes, hypertension and cardiovascular diseases are major causes of morbidity and mortality among adults (Musaiger and Miladi, 1996). However, the relationship between obesity and occurrence of these diseases has not been investigated well in this region. In Saudi Arabia, Al-Attas et al. (1991) found that obesity was associated with insulin resistance and impaired lipid metabolism. A hospital-based study in Kuwait (Al-Awadi et al., 1990) showed that cholesterol and triglyceride levels were higher among obese than non-obese patients. A cross-sectional survey on Bahraini adults (30-79 years) reported that obesity has a significant association with hypertension and diabetes after adjusting social and lifestyle factors (Al-Roomi et al., 1994).

The present paper analyzed the relationship between obesity and a group of chronic diseases, namely diabetes, coronary heart disease, osteoarthritis, hypertension and sleep apnoea, among Arab women living in Qatar (one of the Arab Gulf countries), taking into consideration the age of the women.

METHOD

Due to socio-cultural factors in Qatar, it is difficult to obtain a sample of women from households and measure their weight and height. For the purpose of this study, therefore, non-pregnant Arab women aged 20 years and above who attended four main health centers in Doha city, the capital of Qatar, were the target group. All Arab women who attended these health centers for a period of two weeks were included in this study. Pregnant and non-Arab women were excluded. Data were obtained between 8 a.m. and 12 p.m. daily, except for Friday (the official holiday). The total sample was 535 women aged between 20-67 years. The women were interviewed in the clinic by female medical students using a structured questionnaire.

History of chronic diseases was assessed by positive response to the question about whether

or not the doctor had ever told the women they that had diabetes, hypertension, osteoarthritis, coronary heart disease or sleep apnoea. This question was validated in several studies in western countries (Negri et al., 1988; Seeman et al., 1993) as well as in Arab Gulf countries (Musaiger and Al-Roomi, 1997).

Weight was measured using a Deteco scale to the nearest 0.05 kg with women wearing minimum clothing and no shoes. Height was measured without shoes to the nearest 0.1 cm by using the stadimeter attached to the scale. Obesity was determined using the body mass index, BMI [weight (kg)/height (m)²]. The women were divided into two groups, non-obese (BMI < 25) and obese (BMI ≥ 25), which included overweight and obese (WHO, 2000). Relative risk (RR) and confidence interval (C.I) were computed to determine the risk of diseases among obese and non-obese women, according to their ages.

RESULTS

The prevalence of overweight and obesity (BMI ≥ 25) among Arab women who attended health centers in Qatar was 66.7%, of whom 30.3% were overweight (BMI 25-29.9) and 36.4% were obese (BMI ≥ 30).

The relative risk, confidence interval and prevalence of chronic diseases among obese and non-obese Arab women by age groups are given in Table 1. All chronic diseases increased markedly with age, and women at age 50 years and above were more prone to these chronic diseases than other groups. In general, all chronic diseases were higher among obese than non-obese women, and they were significant in diabetes ($p < 0.00001$), osteoarthritis ($p < 0.0007$), hypertension ($p < 0.00007$) and sleep apnoea ($p < 0.02$).

The risk of disease varied according to the status of obesity and age of women. A very high risk for diabetes was noted in obese women at age 20-29 years (Relative Risk, RR=11.2, C.I. 1.49 - 84.43). This risk declined sharply at age 30-39 years (RR=2.69), and then diminished at older ages. There was no relationship between obesity and coronary heart disease at all age groups. The risk for osteoarthritis only became apparent at

Table 1: Relative risk, confidence interval (CI) and prevalence of chronic diseases among obese and non-obese Arab women by age group

Disease	Obesity status	Age (years)				Estimated overall prevalence (%)
		20-29 (n= 257)	30-39 (n= 171)	40-49 (n= 70)	50+ (n= 37)	
Diabetes	Non-obese	1.00*	1.00	1.00	1.00	5.1
	Obese	11.21**	2.69	0.93	1.36	19.3
	(CI)	(1.49-84.43)	(0.85-8.48)	(0.32-2.69)	(0.45-4.17)	
	Total prevalence (%)	5.5	15.8	25.7	51.4	14.6
Coronary Heart Disease	Non-obese	1.00	1.00	1.00	1.00	3.9
	Obese	1.15	0.84	0.56	0.47	4.2
	(CI)	(0.26-5.03)	(0.17-4.17)	(0.06-4.90)	(0.06-3.67)	
	Total prevalence (%)	2.7	4.1	5.7	10.8	4.1
Osteoarthritis	Non-obese	1.00	1.00	1.00	1.00	15.8
	Obese	1.02	0.88	2.05	4.38***	29.2
	(CI)	(0.47-2.19)	(0.42-1.84)	(0.56-7.50)	(0.75-25.38)	
	Total prevalence (%)	9.3	17.0	34.3	78.4	19.8
Hypertension	Non-obese	1.00	1.00	1.00	1.00	7.1
	Obese	3.00	2.52	0.89	0.66	20.8
	(CI)	(0.86-17.61)	(0.60-10.57)	(0.37-2.10)	(0.38-1.15)	
	Total prevalence (%)	3.3	9.9	32.9	56.8	13.5
Sleep apnoea	Non-obese	1.00	1.00	1.00	1.00	4.1
	Obese	2.59	0.78	0.75	1.09	9.4
	(CI)	(0.72-9.34)	(0.21-2.90)	(0.09-6.06)	(0.17-7.11)	
	Total prevalence (%)	4.7	5.8	7.1	18.9	6.4

* Reference value for relative risk, ** p<0.003, ***p<0.005

age 40 years and above. Obese women at age 40-49 years had twice the risk for osteoarthritis (RR= 2.05, C.I., 0.56 - 7.50) than non-obese women and then the risk became four times at age 50 years and above (RR= 4.38, C.I., 0.75 - 25.38), but the relationship was not statistically significant. Obese women at age 20-29 years had about four times the risk for hypertension than non-obese women (RR=3.88, C.I. 0.60 - 10.57), but the relationship was not statistically significant. As for sleep apnoea, the relative risk was 2.59 (C.I., 0.72 - 9.34) in obese women aged 20-29 years. The risk then declined to 0.78, 0.75 and 1.09 for women aged 30 - 39, 40 - 49 and 50 years and above, respectively.

DISCUSSION

With the epidemiological transition phenomenon, most Arab countries are facing the growing prevalence of non-communicable diseases. Obesity has reached epidemic status in these countries, particularly among women (Musaiger and Miladi, 2000). Preventing and

controlling obesity, therefore, are the main measures to reduce the occurrence of these diseases. The high prevalence of overweight and obesity (66.7%) among Arab women is alarming and need an urgent action. A similar trend of obesity among women was reported elsewhere in the region (Al-Nuaim et al., 1996; Musaiger et al., 2000).

The overall prevalence of diabetes and hypertension in this study is relatively high (14.6% and 13.5%, respectively), when compared to similar studies in Western countries (Negri et al., 1988), but it is comparable to those reported for same age group of women in the Arab Gulf countries (Musaiger and Al-Roomi, 1997; Al-Nuaim et al., 1996).

The prevalence of diabetes, hypertension, osteoarthritis and sleep apnoea was directly related to obesity. This is confirmed by many studies in both developed and developing countries (WHO, 2000). However, age seems to be an important confounding factor combined with these diseases. Obesity has a significant impact on the occurrence of diabetes, and to some extent with hypertension and sleep apnoea at age 20 - 29

years. It is important, therefore, to focus on prevention of obesity at an earlier age (at school age or adolescence) to reduce the risk of occurrence of these diseases in adulthood. Chronic diseases are predisposing during the adolescent period, and therefore primary care should place emphasis on teenage girls and boys (Schneider, 2000).

The relationship between obesity and coronary heart disease is not clear. This phenomenon was also observed in other studies in the region (Al-Roomi et al., 1994; Ahmed et al., 1993), and in western countries (Must et al., 1995). The relationship between body mass index and the risk of coronary heart disease remains controversial and some studies have reported that there is no association between body mass index and the risk of coronary heart diseases in both men and in women (Beard et al., 1999; Thompson et al., 1999). The relation between obesity and coronary heart disease may be explained, in part, by higher serum cholesterol level and the prevalence of diabetes and hypertension among fatter people (Negri et al., 1992).

There were two limitations to this study. First, the occurrence of chronic diseases based on history rather than actual diagnosis and unknown chronic diseases were not counted. Second, in the earlier age (<30 years) it is possible that type 1 diabetes was included.

Despite these limitations, the findings of this study showed that about two thirds of Arab women attending health centers in Qatar are considered overweight or obese, and this may increase the prevalence of obesity-related comorbidities among these women. This stresses the need for joint efforts to prevent and control obesity in the community. Training of primary care physicians in the management of obesity, introducing prevention of obesity in school and university curricula, and health education in the mass media are among the most needed efforts in this aspect. Further in-depth studies on factors associated with obesity in this region are highly recommended.

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ABSTRACT The aim of this paper was to find out the association between obesity, based on body mass index (BMI), and some chronic diseases among Arab women living in Qatar. A sample of 535 women aged 20-67 years were selected

and interviewed in four main health centers in Qatar. Weight and height were taken, as well as history of five chronic diseases; diabetes (II), hypertension, osteoarthritis, coronary heart disease and sleep apnoea. Relative risk (RR) and confidence interval were computed to determine the risk of diseases among obese and non-obese women stratified by age. The prevalence of overweight and obesity (BMI = 25) was very high (66.7%). The risk of chronic diseases varied according to obesity and age of women. However, in general all chronic diseases were higher among obese than non-obese women. Obese younger women (aged 20-29 years) had more risk for diabetes (RR=11.2) and hypertension (RR=3.0) than non-obese older women (= 30 years). The risk for osteoarthritis was higher among obese women aged 40-49 years (RR=2.05) and those aged = 50 years (RR=4.38). The findings suggest the need for joint effort to prevent and control obesity in the Arab community, in order to control chronic diseases.

Authors' Addresses: Dr. Abdul Rahman O. MUSAIGER, Director, Nutritional Studies, Bahrain Center for Studies and Research Manama - Bahrain

Telephone: +973-17754948; Fax: +97317754822 ; E-mail: amusaiger@bcsr.gov.bh

Nora E. Shahbeek, Hamad Medical Corporation, Ministry of Health, Doha, Qatar