Emir. J. Agric. Sci. (1994) 6 : 188-200

RISK FACTORS FOR CARDIOVASCULAR DISEASE AMONG WOMEN ATTENDING HEALTH CENTERS IN QATAR

A.O. MUSAIGER[1], F.A. AL-KHALAF, and N.E. SHAHBEEK[2]

[1] *Department of Food Sciences and Nutrition, Faculty of Agricultural Sciences, UAE University, Al-Ain, UAE;*
[2] *College of Medicine and Medical Sciences, Arabian Gulf University, Bahrain.*

ABSTRACT

Diseases of the circulatory system are the major causes of death in Qatar, and represented 34% of total causes of death in 1992. This study aimed to investigate some of the known risk factors for cardiovascular diseases in women in Qatar. A cross-sectional survey was carried out in 1992 on 603 women aged 17-67 years who attended health centers in Doha, the capital. The prevalence of diabetes and hypertension was very similar; 12.9% and 12.3%, respectively. However, the prevalence of these disease increased steeply with age and reached 37.1% and 51.4%, respectively for those aged over than 44 years. Very few women were current smokers (3.2%), but 37.7% of married women have smoker husbands, making a high proportion of passive smokers among women. Using BMI (wt/ht^2) as an indicator, 30% of women were overweight and 33.6% were obese. The association between obesity and age was highly statistically significant ($P<0.001$). Only 16% of women practised exercise regularly, with 27% exercising infrequently. A simple tool for coronary heart disease risk factors was implemented using a point scoring system for 9 known risk factors. It was found that 7% of women had generally average risk while 1% had moderate risk. In conclusion, the study showed that some of the known risk factors for cardiovascular diseases were highly prevalent among women in Qatar and this suggests the need for more epidemiological studies among both men and women, as well as the need for action to prevent and control these diseases.

Key Words : Cardiovascular disease, diabetes, exercise, hypertension, obesity, Qatar, smoking.

INTRODUCTION

Qatar like other Arabian Gulf countries has faced a drastic change in its socio-economic situation and dietary patterns during the past three decades which have affected the way of living and pattern of diseases. These changes, in addition to the increase in life expectancy, have led to increase in the incidence of non-

communicable diseases - the so called "diseases of affluence" such as cardiovascular disease, cancer, diabetes mellitus, and accident injuries. Recent statistics showed that the diseases of circulatory system are the major cause of death in Qatar and represented 34% of total deaths. The Qataris are more likely to be susceptible to this group of diseases than non-Qatari (37% and 30%, respectively). Neoplasms are the third major cause of death (12.1%) after injury and poisoning (20%). In general, the non-communicable diseases, including accidents and injuries, constitute more than 70% of total deaths in this country (Preventive Health Department, 1993).

There have been no studies on factors determining the non-communicable diseases in the population of Qatar. The aim of this paper is, therefore, to study some of the known risk factors associated with cardiovascular disease in adult females in Qatar as a first attempt to provide baseline data on factors associated with diseases of affluence in this country.

MATERIALS AND METHODS

The target population was adult females aged 18 years and over who attended the health centers in Doha, the Capital, during 1-15 July, 1992. Pregnant women were excluded to avoid disorders due to pregnancy such as gestational diabetes, hypertension and increase in weight. The total number of target women attending health centers during the study period were 671. However, 48 women refused to participate and 20 women were excluded because of incomplete information, making a drop out of 68 women (10% of total). The total sample population was thus 603 women.

Women were interviewed by female medical students using a pretested questionnaire. Information obtained included socio-economic background, practising exercise, history of diabetes and hypertension, weight and height measurements. Weight was measured using a Deteco scale having a capacity of 140 kg. The weight was measured to the nearest 0.05 kg with women wearing the minimum clothes and no shoes. The height was measured without shoes to the nearest 0.1 cm by using the stadiameter attached to the scale.

Obesity was determined using Body Mass Index (BMI) which is defined as the weight in kilograms divided by height in meters squared. Women with a BMI equal or more than 25 were considered overweight while those with BMI > 30 were considered obese (Bray, 1978).

Data were stored in Dbase file and analysed using EPI-INFO Programme (WHO/CDC, 1990). Chi-square and odd ratios were used to test the statistical significancy.

RESULTS

The distribution of women by socio-demographic characteristics is given in Table 1. Most women studied were Qatari (66%) while the rest were non-Qatari, mainly from other Arab countries, such as Egypt, Lebanon, Palestine and Sudan. The mean age of women was 31.1 $\pm$ 10 years and ranged from 18 to 67 years. The majority of women (69.4%) were less than 35 years of age, while those aged more than 44 years represented 12% of the total.

About half of women (53%) had a high educational level (secondary schools and above). This relatively high percentage of education among the women was mainly due to non-Qatari women, as the latest census showed that the non-Qatari women had a higher education level than Qatari women (Central Statistics Organization, 1994). The same explanation can be given for the relatively high proportion of employment in the women studied (26%), as in general, employment among national women in the Gulf does not exceed 10% (Musaiger, 1987). The percentage of women who were currently married was 72%.

History of Chronic Illnesses

Three main chronic diseases were investigated in this study namely, diabetes, hypertension and heart diseases. The women were asked whether or not they currently had any of these chronic diseases. The prevalence of diabetes and hypertension among women studied was very similar (12.9% and 12.3%, respectively). These figures compared favourably with that reported in Bahrain among women aged 29 to 79 years (Al-Roomi et al. 1994). The prevalence of heart disease was 3.8%. Actually, this category includes a group of diseases such as myocardial infarction, angina, and stroke, however, since the women generally could not differentiate among these diseases, they were asked about whether or not they had any diseases related to the heart.

A high statistically significant association was found between these diseases and age of women (Table 2). The prevalence of diabetes was 0.6% among those aged less than 25 years and then increased by 10% for every ten years to reach 37% among those aged over than 44 years. The situation for hypertension was diferent as the proportion tripled after age 34 years and then tripled again in those aged over 44 years to reach 51% among this age group. Surprisingly, 1.2% of women aged less than 25 years reported a history of heart

TABLE 1
Socio-demographic characteristics of women in Qatar.

Characteristics	No.	%
Age (years)		
< 25	167	27.8
25 - 34	250	41.6
35 - 44	115	19.0
> 45	70	11.6
Nationality		
Qatari	398	66.0
Non-Qatari	205	34.0
Educational level		
Low	120	19.9
Middle	164	27.2
High	319	52.9
Employment status		
Employed	156	25.9
Housewives	447	74.1
Marital status		
Married	432	71.6
Single	131	21.7
Divorced	22	3.6
Widowed	18	3.0
Total	603	100.0

* Low education = Illiterate + read and write
Middle education = Primary + intermediate
High education = Secondary and above

TABLE 2

History of some chronic diseases of women in Qatar by age

Age (years)	Diabetes %	Hypertension %	Heart diseases %
< 25	0.6	4.7	1.2
25 - 34	10.4	5.2	3.6
35 - 44	21.9	14.9	3.5
> 45	37.1	51.4	11.4
Total	100.0	100.0	100.0
	$p < 0.001$	$p < 0.001$	$p < 0.004$

disease. This relatively high prevalence may be due to congenital heart disease.

The relationships between the prevalence of diabetes and heart disease to a family history of these diseases were found to be statistically significant ($p<0.001$ and $p<0.02$, respectively). Of women who had diabetes, 70% had a family history of diabetes, compared to 44% of those who had no diabetes. The percentages for heart diseases were 43% and 23% among those who had heart diseases and those who had not respectively (Table 3).

Smoking

Smoking has been repeatedly found to be one of the main risk factors for cardiovascular disease (Lakier, 1992). The prevalence of smoking among women in Qatar is very low (3.2%) compared to that reported in other Gulf countries (Hamadeh et al., 1993). However, a high prevalence of smoking was found among husbands (38%) of women who are currently married. Thus a high proportion of women could be defined as passive smokers.

Physical Exercise and Obesity

It is believed that a sedentary lifestyle and high intake of food rich in fats are the main factors determining obesity in the Gulf, including Qatar (Musaiger, 1987). Our study showed that more than half of women (56.5%) did not practice any type of exercise; 27.5% practiced exercise infrequently while only 16.5% of women practiced exercise regularly. Most of these were non-Qatari. The common exercises practiced were walking and swimming. The low percentage of women who practice exercise could be attributed to several reasons, such as lack of health awareness, lack of places for women to practice exercise, and cultural barriers.

Typically, as reported in all Gulf countries, overweight was highly prevalent among women in Qatar (63.7% had BMI > 25). About one-third of women were overweight and a similar proportion were obese (BMI > 30). The association between overweight (based on BMI) and age of women was highly statistically significant ($p<0.001$). The prevalence of overweight among older women (35 years and over) was astonishing as about 80% of these women had a BMI equal or greater than 25 (Table 4). This percentage is higher than that reported in women in other countries in the region (WHO/EMRO, 1989).

TABLE 3

The relationship between the prevalence of diabetes and heart disease with family history of these diseases among women in Qatar.

History of the Disease	Prevalence of the Disease					
	Yes		No		Total	
	N	%	N	%	N	%
Family history of diabetes						
Yes	55	70.5	233	44.4	288	47.8
No	23	29.5	292	55.6	315	52.2
	$p < 0.001$, O.R. = 3.0 (95% C.I., 1.73-5.22)					
Family history of heart diseases						
Yes	10	43.5	135	23.3	145	24.0
No	13	56.5	445	76.7	458	76.0
	$p < 0.02$, O.R. = 2.5 (95% C.I., 1.00 - 6.4).					

TABLE 4
Prevalence of obesity in women in Qatar by age group.

Obesity	Age (years)									
	<25		25- 44		>45		Total			
	N	%	N	%	N	%	N	%	N	%
Underweight (BMI < 20)	36	21.6	20	8.0	4	3.5	-	0.0	60	10.0
Normal (BMI 20-24.9)	69	41.3	58	23.2	20	17.5	11	15.7	158	26.3
Overweight (BMI 25-29.9)	40	24.0	86	34.4	32	28.1	23	32.8	181	30.1
Obese (BMI 30+)	22	13.2	86	34.4	58	50.9	36	51.5	202	33.6

* Weight and height were not taken for two women.

TABLE 5

Heart disease risk appraisal for women in Qatar by age (%)

Level of risk	Age (years)			
	<25	25-34	35-44	>45
Well below average risk	55.6	27.2	14.9	8.6
Below average risk	43.8	68.0	73.7	57.1
Generally average risk	0.6	4.4	9.6	30.0
Moderate risk	0.0	0.4	1.8	4.3

Heart Disease Risk Appraisal

A simple tool to assist health workers in evaluation of coronary heart disease risk was implemented. This tool is based on nine known risk factors for coronary heart disease namely smoking, blood pressure, diet, stress, exercise, weight, age, gender and heredity. Detailed information on how these risk factors were scored are available elsewhere (Delugolecka and King, 1989). The results showed that, using a combination of risk factors, 7% of women had generally average risk, and 1% had moderate risk. However, when risk was associated with age, it was found that the proportion of women who had generally average risk increased slightly with age till age 35-44 years, and then the risk become three times more for those aged over 44 years. None of the women had a moderate risk at age less than 25 years, and then the risk increased gradually to reach 4.3% in those aged over 44 years (Table 5).

DISCUSSION

This is the first study which has investigated risk factors for CVD in the adult population in Qatar. Women generally have lower incidence rate for CVD than men, however by age 65, the number of deaths due CVD was becoming higher for women than for men (Eaker et al., 1993). Some studies have shown that an increase in the incidence of atherosclerosis and coronary heart diseases occurs in post menopausal women (Isles and Holes, 1992). Statistics of the Ministry of Public Health showed that the rate of deaths due to diseases of circulatory system was 37% among men compared to 28% among women. There is a difference between sex and nationality, as deaths due to these diseases occurred more among Qataris than non-Qatari and Qatari women have a higher incidence rate of these disorders than non-Qatari women (Preventive Health Department, 1993). These differences in mortality between the Qatari and non-Qatari may be attributed to differences in lifestyle and dietary habits, in addition to age distribution. Most Qatari women are housewives and depend mainly on housemaids in home management. In addition, they rarely practice physical exercise compared to non-Qatari. The foods commonly consumed by Qatari families are high in fat and carbohydrates (Musaiger, 1987). These factors may play an important role in increasing risk of CVD among Qatari women compared to non-Qatari.

The prevalence rate of diabetes, hypertension and heart diseases among women in Qatar are high compared to their counterparts in some developing countries (WHO/EMRO, 1989, INCLEN, 1992). This prevalence reaches alarming levels after age 44 years, as almost one-third and about half of women at this age had a history of diabetes and hypertension respectively. Heart diseases

occurred in about one-tenth of women at the same age group. This finding is in good agreement with that reported by Preventive Health Department (1993), as 94% of deaths owed to circulatory system diseases in women occurred at 45 years of age or over. However, it is worth mentioning that our study is of the women who attended health centers, and some of these women may visit the health centers for treatment of chronic diseases. Therefore, the prevalence of diabetes, hypertension and heart diseases in this study do not necessarily reflect the prevalence of these diseases in the community.

The role of heredity factor as a cardiovascular disease risk should be taken into consideration. It was found that with a family history of premature death from CVD, there was a much greater risk of cardiovascular deaths (National Dairy Council, 1991). Our study showed that family history of diabetes was highly associated with the prevalence of diabetes among women studied, while the association was only barely statistically significant in relation to heart diseases in general. This may be due to small number of women who reported occurrence of heart diseases.

The prevalence of obesity among women in Qatar is a source of concern, and more attention should be given to the prevention and control of obesity in both children and adults. Factors determining obesity in Qatar have not been studied. Studies in other Gulf countries (Musaiger and Al-Ansari, 1992; Khashoggi et al., 1994) showed that several social and dietary factors were associated with obesity in women. Musaiger and Al-Ansari (1992) found that age, education, employment, marital satus, family size and practising exercise have a statistically significant association with obesity among women in Bahrain, while ownership of cars, availability of housemaids and meal patterns have no statistically significant association.

Smoking may be one of the most significant risk factors for CVD in countries where the incidence of CVD is high (Isles and Holes, 1992). Although the prevalence of smoking in women in Qatar is very low (3.6%), it seems that a high percentage of these women are exposed to a smoking environment because of smoking by one or more male members in the family. This study revealed that more than one third of married women have husbands who smoke. Recent evidence suggests that passive smokers may also be at risk of health hazards due to smoking such as CVD (Isles and Holes, 1992).

In conclusion, this study showed that women in Qatar, especially those aged over than 44 years, are highly susceptible to some of the known risk factors for CVD such as diabetes and hypertension. In addition, obesity is highly prevalent among these women. There is, in consequence an urgent need for taking action to

prevent and control CVD in this country. However, since this study involved women who attended health centers, it is difficult to generalize the findings. Community-based studies among both men and women in Qatar are recommended to determine the true prevalence of risk factors for CVD and other chronic diseases. It is important in future studies to distinguish between nationals and non-nationals because socio-economic status, dietary habits, age and sex structure are different and these factors can affect the prevalence of chronic diseases.

REFERENCES

Al-Roomi, K., A.O. Musaiger and A. Al-Awadi. (1994). Lifestyle patterns and the risk of acute myocardial infarction in a Gulf Arab population : A community-based case control study. Int. J. Epidemiol. 23, 931-939.

Bray, G.A. (1978). Definition, measurement, and classification of the syndrome of obesity. Int. J. Obesity, 2 : 99-112.

Central Statistics Organization. (1994). Statistical Abstract, 1993, Presidency of Council of Ministers, Qatar.

Delugolecka M.J. and S.A. King. (1989). A simple tool for heart disease risk appraisal in general practice. J. Roy. Soc. Hlth. 109 : 98-99.

Eaker E.D., J.H. Chesebro, F.M. Sacks, N.K. Wenger, J.P. Whisnant and K. Winston. (1993). Cardiovascular Disease in Women. Circulation 88 : 1999-2009.

Hamadeh R.R., K. McPherson and R.C. Doll. (1993). Prevalence of smoking in Bahrain. Tobacco Council 1 : 102-106.

INCLEN Multicentre Collaboration Group (1992). Risk factors for cardiovascular disease in the developing world. A multicentre collaborative study in the International Clinical Epidemiology Network (INCLEN). J. Clin. Epidemiol. 45 : 891-847.

Isles C.G. and D.J. Holes. (1992). Changing trend in vascular disease : Coronary risk factors today. In Lorimer A.R. and Schepher J. (editors). Preventive Cardiology, Oxford, U.K., 1-29.

Khashoggi R., K. Madani, H. Ghaznawi and M. Ali. (1994). Socio-economic factors affecting prevalence of obesity among adult females in Saudi Arabia. Ecol. Food Nutr. 31 : 277-284.

Lakier J.B. (1992). Smoking and cardiovascular disease. Am. J. Med. 93 (1A) : 85-125.

Musaiger, A.O. (1987). The state of food and nutrition in the Arabian Gulf countries. Wld. Rev. Nutr. Diet. 54 : 105-173.

Musaiger, A.O. and Al-Ansari, M. (1992). Factors associated with obesity among women in Bahrain. Int. Quart Comm. Hlth Ed., 12:129-135.

National Dairy Council (1991). Coronary Heart Disease - I. London, U.K.

Preventive Health Department. (1993). Vital Statistics, Annual Report, 1993, Ministry of Public Health, Qatar.

WHO/CDC. (1990). Epi-Info. Version 5.0 Centers for Disease Control, Atlanta and World Health Organization, Geneva.

WHO/EMRO. (1989). Clinical disorders arising from dietary affluence in countries of the Eastern Mediterranean Region. World Health Organization, Regional Office for the Eastern Mediterranean, Publication No. 14, Alexandria, Egypt.