Change in Dietary Habits, Lifestyle and Trend in Diseases in the GCC Countries

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The GCC countries have experienced a rapid change in dietary habits and lifestyle during the past three decades with the sharp increase in income as a result of the oil revenue. The traditional diet, which consisted of dates, milk, rice, brown bread, fish and vegetables has changed to a more westernised diet. Lifestyle has changed markedly as physical activity has diminished and a sedentary lifestyle has become the norm. Studies showed that about 20-25% of men practised exercise compared to about 6-10% of the women. A high percentage of both adults and children watched television for more than three hours daily. Women and adolescent girls were more likely to watch television than men and adolescent boys. These changes in food habits and lifestyle have lead to a great change in morbidity and mortality patterns. Infectious diseases have gradually disappeared and chronic non-communicable diseases are becoming more apparent.

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The GCC countries, namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates have experienced a rapid change in socio-economic status, food consumption patterns, lifestyle and health status during the past three decades, mainly due to the oil boom and sharp increase in income. These changes have their impact on the nutritional and health situation of the Gulf community, with development of a paradoxical nutrition status, as both under and over-nutrition exists. Under-nutrition manifested as growth retardation among preschool children and anaemia in young children, adolescent girls and pregnant women, while over-nutrition manifested as overweight and obesity and diet-related non-communicable diseases.

The improved standards of living and health services in these countries have lead to improvement in life expectancy, which increased from 50-59 years in the 1950s to more than 70 years in the 1990s. This situation has participated in the occurrence of several chronic diseases, especially cardiovascular disease, diabetes mellitus, hypertension and cancer. Additionally, the sedentary lifestyle and shifting from traditional diet to more westernized diet play an important role in changing the trends in diseases and the nutrition status of the population. The objective of this paper is to highlight the current changes in nutrition, health, lifestyle and food habits in the GCC countries[1].

Change in Dietary Habits

There has been a drastic change in food consumption patterns in the GCC states during the past three decades. The traditional diet which consisted of dates, milk, rice, brown bread, fish and vegetables has changed to a more diversified diet. The consumption of dates, fruits and vegetables has decreased gradually, especially among children and adolescents. Brown bread has been replaced by white bread and fast foods have become the most common foods preferred by young people[2]. Cereal consumption seems to have reached a ceiling, with a contribution to overall dietary energy supply of 35-42%. The main cereals consumed are rice and wheat and the rice consumed is polished and contains only 0.5% crude fiber[3]. Wheat is mostly consumed as bread made from flour with an extraction rate of 70-75%. Sugar consumption is rising from an already relatively very high level of 80-110 g/head/day and contributes 10-15% of daily energy supply. The same trend was seen for oils and fats, with consumption around 80 g/head/day and contributing 30% of daily calorie supply. The consumption of animal products is high compared to most developing countries (160-190 g meat, 400-490 g milk, and 22-32 eggs/head/day)[4].

Studies on the intake of complex carbohydrates in the Arab countries are at most scanty. This is mainly due to the lack of information on the fiber content of several foods consumed, as well as to a general neglect of the role of fiber in health and disease in nutritional surveys. However, since fiber is found only in the carbohydrate portion of the diet, it is widely accepted that the level of fiber in the Arab diet is decreasing. This can be assumed from the evidence for a decrease in the percentage of dietary intake from carbohydrates in most countries in the Arab region. Foods in the region are becoming increasingly processed with the result that grain products tend to be more refined and thus lose their fiber content. A further decrease in fiber intake take place with a decrease in the consumption of whole grains. Fresh fruits and vegetables are considered rich sources of dietary fiber. The trend in consumption of these foods can be a good indicator for fiber intake in the Arab countries. Food frequency studies of fruits and vegetables intake in the Arab Gulf states indicate low intake[5-7]. Between 59% and 23% of adults did not consume fresh fruit daily, and between 50% and 19% did not consume vegetables daily (Table 1). According to Pender[8] using the four groups guide, an adult should consume at least two to four servings of

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Table 1. **Frequency of intake of fresh vegetables and fruits in some GCC countries**

Country	Age (years)	Sex	Sample size	Food	Daily	% Frequency intake[1]		
						4-6/w	1-3/w	Rarely or none
Bahrain	30-79	M	299	Veg[2]	78.9	2.3	10.4	8.4
Musaiger &				Fruit	63.5	4.7	19.1	12.7
Al-Roomi (1996)[7]	30-79	F	217	Veg	81.1	3.7	9.7	5.5
				Fruit	65.4	6.5	12.4	15.7
Oman	15-50	F	900	Green Veg	50.3	3.1	31.3	15.4
Musaiger (1992)[2]				Yellow Veg	33.2	3.9	11.1	51.8
				Citrus Fruit	76.5	2.0	2.6	18.0
UAE	18-30	F	215	Veg	59.1	20.0	7.9	13.0
Musaiger &				Fruit	40.9	32.1	9.3	17.7
Radwan (1995)[6]								
Musaiger &	20-80	M	1090	Veg	59.6	22.8	15.4	2.2
Abuirmeileh (1998)[22]				Fruit	46.2	24.6	25.7	4.7
	20-80	F	1122	Veg	64.7	17.2	15.3	2.8
				Fruit	52.5	21.4	22.0	4.1

1 Frequency per week *2 Veg = Vegetables*

fruit and a similar number of servings of vegetables per day. Thus a high proportion of adults in the Gulf community do not consume the amount of fruits and vegetables currently regarded desirable. The relationship between the intake of high-fiber foods, such as fruits and vegetables and the occurrence of chronic non-communicable diseases is well documented[9]. A recent study in Bahrain showed the patients with myocardial infarction tended to consume fruits and vegetables less frequently per week than community control subjects[10].

The intake of fiber-rich foods by children and adolescents in most Arab Gulf countries is alarmingly low. The dietary habits of school children and adolescents in the region are characterized by low intake of fresh fruits, vegetables and milk and a high intake of carbonated beverages and foods. In general the food habits of the Arab Gulf adolescent particularly in urban areas, have become similar to that reported for Western communities in relation to snacking patterns and consumption of fast foods[11-13]. These changes in food habits may in part explain the increase in diet-related chronic disease in the Gulf region.

Change in Lifestyle Patterns

In addition to the change in food consumption patterns, the other changes in lifestyle are increase in smoking, decrease in practising exercise and sedentary lifestyle patterns. Smoking has been repeatedly found to be one of the risk factors for several chronic diseases. A secular trend of increasing cigarettes smoking among both males and females in the GCC countries was reported. In Bahrain, Hamadeh et al[14] showed that 33% of men and 9% of women aged 15-80 years were smokers. In Kuwait, the prevalence of smoking was higher as 52% of men and 12% of women aged 20 years and above were smokers[15]. Interestingly, smoking among physicians is higher in the region compared to the western region. Bener et al[16] found that although 91% of physicians in the United Arab Emirates agreed that smoking is hazardous to health, 36% of them were current smokers and 31% were former smokers. The prevalence of smoking among university students in the Gulf is also high. Hamadeh et al[17] reported that 27.5% of Gulf medical male students aged 18-31 years were smokers, compared to 2% of female students at the same age group.

Passive smoking, especially among women, seems to be a problem of concern in the Gulf region. Studies showed that women and other family members were regularly exposed to a smoking environment at home and at work. In the United Arab Emirates, 37% of married women were exposed to smoking, mostly from their husbands[18]. In Qatar, about 38% of mothers reported that their husbands were current smokers[19]. In Bahrain, 20% of men and 45% of women aged 30-49 years had one or more smokers in their families[7].

Studies on practising exercise in the Gulf region are very limited and mostly focused on exercise as a risk factor for heart disease, rather than studying the exercise habits in the community. In Bahrain, Musaiger and Al-Roomi[7] found that as age increased the practise of exercise decreased. The prevalence of exercise among men decreased from 20% to 7.5% at age 30-49 years and 50-79 years, respectively. The corresponding proportions for women at the same age were 10% and 6%, respectively. Additionally, television occupied most of leisure time of the people in the Gulf, especially adolescent girls and women. About 41% of mothers in Oman watched television for more than 4 hours a day[5]. In Bahrain the majority of men (77%) and women (80%) reported watching television daily7. This is consistent with a sedentary lifestyle pattern which may have a role in the aetiology of some chronic diseases.

Studies on risk factors associated with diet related chronic diseases in Bahrain are at most scanty. Al-Roomi et al[10] carried out a population-based case-control study to explore

the importance of lifestyle in the occurrence of Acute Myocardial Infarction (AMI) among Bahrainis aged 30-79 years. The findings showed that the prevalence of tobacco smoking among the first-time AMI cases (64%) was higher than that among controls (44%), with current cigarette smokers being 2.1 times more likely to have an episode of myocardial infarction than those who had never smoked regularly. Walking regularly and spending less time watching television at home also appeared to be associated with a reduced risk of developing AMI.

Because the AMI cases and community controls had different sex and age distributions, multiple logistic regression was used to estimate the risks of the occurrence of AMI in relation to hypertension, diabetes, lifestyle and dietary habits. The adjusted OR (adjusted for age, sex and several other confounding variables) for the occurrence of an episode of first-time AMI in a subject with a history of hypertension was 5.04 and in those with a history of diabetes 3.28. The risk of developing AMI, in line with many studies from western communities, was higher among men than women in those not currently married and increased with older age. Although 22% of first-time AMI cases were obese subjects (BMI>30), this proportion was lower than that among the community controls (33% were obese) using weight as a single measurement, the mean weight of cases was slightly lower than that of controls (66.5 kg + 16.1, and 68.4 kg + 14.9, respectively)[10].

The same study showed people who did not walk regularly for exercise who reported infrequent intake of fresh fruits and who infrequently consumed fresh vegetables were still at an increased risk of developing myocardial infarction, even after adjusting for the effects of all the other factors. Similar findings were obtained when the logistic regression analysis was repeated excluding those aged 60-79 years (30 cases and 130 controls).

Change in Diseases Trends

The changes in food habits, life expectancy and lifestyle in the GCC countries has led to a greater change in morbidity and mortality patterns. Infectious diseases have gradually disappeared and chronic non-communicable diseases are becoming apparent. Diseases of the circulatory system such as Ischaemic Heart disease, Acute Myocardial Infarction, Cerebrovascular disease and Artherosclerosis are now the major cause of death in the Gulf, representing 25% to 37% of total annual deaths (Table 2).

Table 2. **Deaths due to diseases of circulatory system, neoplasms and accidents and injuries in the GCC countries**

Country	Year	% of total death		
		Circulatory system disease	Neoplasms	Accidents & injuries
Bahrain	1993	28.6	12.3	8.2
Kuwait	1994	36.7	12.4	10.6
Oman	1992	24.3	11.3	6.3
Qatar	1994	34.0	12.0	19.0
UAE	1992	25.0	8.0	--

Source: Reference No. 23

Hypertension has long been recognized as a risk factor for CVD. Using the WHO blood pressure criteria of 165/95 mmHg, the prevalence rates have been reported to range from 10% to over 17% of the adult population. Obesity, which is considered a risk factor for several chronic illnesses, has reached an alarming level in many countries in the region, especially among women. Using the criterion of BMI (Body mass index: weight in kg divided by height^2 in m^2) of 25 the prevalence of overweight and obesity among women ranged from 50% to 70%, while the prevalence among men ranged from 15% to 54%. Non-insulin-dependent diabetes is a serious health problem in the region. The prevalence of this type of diabetes is about 5% in population samples in Saudi Arabia, Iraq and Egypt. In the age range 30-63 years, 10% of Tunisians and 14% of Omanis have been estimated to have diabetes. The survey from Oman which used the WHO diagnostic criteria revealed the highest prevalence in the Arab region; 9.8% of the population sample aged over 19 years. Cancer has become the third cause of death in these countries, behind the cardiovascular diseases and injuries and accidents. The percentage of deaths due to cancer ranged from 6% to 19%. The main sites for cancer are lung, gastrointestinal, breast, liver and prostate, respectively[1,9,20,21].

Constraints to the control of diet-related chronic diseases in the Gulf[1]

Prevention and control of diet-related chronic diseases have received little attention in all Gulf countries. This can be attributed to the following factors:

1. Most health services focus on curative procedures for chronic diseases rather than preventive measures. The most sophisticated technology to treat these diseases, especially heart diseases, is employed and this makes a heavy load on the budget of health services, affecting expenditure on the preventive health.

2. Lack of epidemiological studies related to factors associated with chronic diseases. Although some of the risk factors are well established, it is believed that the magnitude of these factors may not be the same as those reported in Western countries. In addition there are some socio-cultural factors and behavioral changes which may differ from Western countries and play an important role in the prevalence of some chronic diseases.

3. Inadequate health information system. Although the reporting systems in health sectors in the Gulf have improved, the health information system is still ineffective for monitoring the health status of the community. This is mainly due to the lack of specialized staff rather than the lack of information technology.

4. Inadequate health and nutrition education. In general, health education programmes in the Gulf are far from being effective. This is mainly due to lack of specialized personnel in the mass media and incorrect selection of appropriate educational channels and target groups. Nutrition and health education in the region often pays little attention to preventing and managing diet-related chronic diseases. Even when this is done it is usually based on foreign sources without taking into consideration the local circumstances.

5. Insufficient information on prevention and management

of chronic diseases especially in health and medical curricula. Nutrition is given a low priority in medical and paramedical education in all the Gulf countries.There is no central programme for prevention and control of local nutritional problems. In some health colleges, nutrition is either only taught in mother and child health curricula, or given at a rather elementary level.

6. Unclear food subsidy policies. In the 1970s the Gulf countries established food policies to keep the price of staple foods within the purchasing power of the majority of the population. The main foods subsidised are rice, wheat, sugar, oils, fats and meat. This policy may encourage an increase in the intake of foods rich in energy and animal fat. It is recommended that the governments in the Gulf should change their policies so as to promote the consumption of foods that provide protection for chronic diseases such as vegetables, fruits and fish. These foods have become more expensive and are out of the reach of many low socio-economic families.

7. Absence of a Food and Nutrition policy. There is no food and nutrition policy in any of the Gulf countries. These countries carry out projects and programmes of various types in the fields of agriculture, health, social policy and education that are directly or indirectly related to control of nutritional problems. These programmes are often developed in isolation from other activities.

CONCLUSION

Although reliable data on the pathogenesis of chronic diseases in the Gulf are lacking, it is widely thought that the causation of these diseases is not simply the high intake of foods rich in fat and free sugars but rather results from a mixture of several factors such as sedentary life-style, high income, ignorance and low education and sociocultural factors as well as an increase in smoking and consumption of alcoholic drinks[9].

A major challenge for the Gulf countries is therefore to adapt to the current health situation by developing new programmes and services related to prevention and control of chronic diseases. At the same time, these countries should maintain essential programmes to control infectious diseases.

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