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# The influence of cultural and social factors on healthy lifestyle of Arabic women

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## ABSTRACT

Cardiovascular diseases are the leading cause of mortality and morbidity globally. Similar to other Western and Gulf countries, the incidence of cardiovascular disease and coronary artery diseases such as acute myocardial infarction is rising rapidly in Qatar. Diabetes mellitus, smoking, and hypertension are the most common risk factors causing acute myocardial infarction, congestive heart failure, and stroke. Additionally, obesity resulting from physical inactivity and unhealthy diet can lead to metabolic changes and raise the risk of heart diseases. Studies show that these health problems can be prevented and/or controlled by modifying lifestyle risk behaviours related to physical activity, diet, and smoking habits. The ultimate goal of this study was to find ways to effectively promote cardiovascular/coronary artery disease prevention and management activities among Qatari women by exploring factors affecting the ways in which Qatari women (citizen and resident Arabic women) participate in physical activities, healthy diet and smoking. An exploratory qualitative research approach using a semi-structured questionnaire consisting of open-ended questions was used in this study. Study participants included 50 Qatari women, 30 years of age and over, having a confirmed diagnosis of coronary vascular disease /coronary artery diseases. Results showed that socio-cultural factors play a key role in Qatari women's decisions to participate in healthy lifestyles. Counselling and guidance for patients by health care providers, especially physicians, regarding smoking cessation, weight loss, and exercise should be key interventions to modify lifestyle behaviors among cardiac patients.

*Keywords:* cardiovascular diseases, coronary artery diseases, healthy lifestyle, Qatari women, Arabic women, physical activities, diet, smoking

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## INTRODUCTION

Studies show that in Qatar, cardiovascular diseases are the leading cause of mortality and morbidity [1–3]. It has also been reported that adult Qataris are at high risk of ischemic strokes due to hypertension, diabetes mellitus, hypercholesterolemia, and smoking [4]. Although a Qatar World Health Survey (WHS) in 2006 revealed that deaths due to cardiovascular diseases and stroke have remained steady since 2002 [1], the incidence of coronary artery disease such as acute myocardial infarction (AMI) is rising rapidly in Qatar. Diabetes mellitus, smoking, and hypertension are the most common risk factors causing acute myocardial infarction, congestive heart failure, and stroke [2,5,6]. According to the WHS, 13% of Qataris and 15% of non-Qataris were hypertensive. A study by Bener and colleagues found that in Qatar, the incidence of hypertension was higher in females than in males [3]. From a study by El-Menyar et al., [7] of 8,169 patients with acute coronary syndromes in six Middle Eastern countries, it was reported that women were more likely to have hypertension and diabetes. Women also had increases in hospital mortality and poorer treatment outcomes for acute coronary syndrome [8,9].

Excessive weight gain and obesity as a result of physical inactivity and unhealthy diet can lead to metabolic changes and raise the risk of heart disease [10]. This is a concern for Qatari women of whom, according to the WHS (2006), only 40% reported regular participation in sports or other physical activities [1]. Other factors contributing to obesity in Middle Eastern women according to the study by Musaiger et al. include the following: the idea that exercise for women is not widely accepted by the culture; meals consisting predominantly of carbohydrates, oils, butters and cream, and a preference for women to be heavy-set (being of fuller body represents fertility, and a sign of a good wife) [11].

Although both sheesha (water-pipe) and cigarette smoking are contributing factors to heart disease, sheesha smoking is increasing across the Eastern Mediterranean region, especially among women [12,13]. It is estimated that a quarter of some populations in the Middle Eastern region smoke sheesha [13]. There is a misconception that sheesha smoking is less harmful to health; however, studies reveal that the nicotine content in sheesha is equivalent to the tobacco product some report that nicotine content in a sheesha is 2–4% compared with the 1–3% in cigarettes [14–16]. Also, water-pipe results in increases in blood pressure, a leading cause of coronary vascular diseases [14,15]. Clinical laboratory studies show that both water-pipe and cigarette smokers are exposed to smoke toxicants and exhibit dependence symptoms [17]. Both types of smoke affect pulmonary function, [15,18] and a significant elevation of blood pressure and heart rate was observed among both sheesha smokers and cigarette smokers [18,19]. A study conducted by Al Suwaidi and his colleages [20] revealed that in six Middle Eastern countries, water-pipe smokers tended to be female, and they had higher in-hospital complication rates including death, recurrent myocardial ischemia, heart failure, and cardiogenic shock than did the cigarette smokers. Consequently, the development of culturally appropriate and effective health promotion and CVD prevention programs that promote physical activities, healthy diet and non smoking among the Qatari female population is urgent [8,20]. Thus, the aim of this qualitative study was to explore how contextual factors such as social, cultural and economic factors influence Qatari women's participation in physical activities, dietary practices and smoking. This paper reports on the process by which social factors and cultural knowledge and values influence the decision of Arabic women to engage in these activities.

Ethical approval for the study was obtained from the Hamad Medical Corporation and the University of Calgary Ethics Boards. Pseudonyms are used in referring to comments by the participants.

## METHODS

### Participants

Maximum variation purposive sampling, "the process of deliberately selecting a heterogeneous sample and observing commonalties in their experiences", [21] was used to recruit 50 Qatari women participants who were 30 years of age and over, had confirmed diagnosis of coronary vascular disease/coronary artery diseases, and were not in any physical discomfort. The participants were recruited from out-patient clinics and in-patient units in one of the major hospitals in Qatar. Prior to interviewing, the researcher explained the study to the participants, and informed consent was obtained. The women were assured that participation was voluntary and that they had the right to

withdraw from the study at any time without any consequences for their health care. The identities of the participants were protected through the use of pseudonyms.

The socio-demographic profiles of the women participants are shown in Table 1. Ages ranged from 32 to 85 years. All were Muslim and spoke Arabic. Thirty five were Qatari nationals (including women whose country of birth was Qatar and women of Qatari citizenship who were born outside the country) and 15 were Qatari resident women from Saudi Arabia, Yemen, United Arab Emirates, Jordan, Palestine, Egypt, Iraq, Bahrain, Iran, Kuwait, Syria and Lebanon. Years living in Qatar ranged from two to 76. Educational levels ranged from grade six to university graduate; 13 were illiterate. Most of the women were housewives and only four were employed full-time outside of the home. The majority of the women were married or widowed. Three participants reported that they did not have children.

### Data collection

Potential participants who met the selection criteria were invited to participate in the study by a bilingual (Arabic and English) female research assistant from Qatar. Six research assistants involved in this study were nurses who had experience working in cardiovascular units and emergency departments, and were also in their final year of the of a nursing bachelor's degree program in Qatar. These students were trained extensively prior to and throughout the research process by the first author of this paper who is an experienced researcher from Canada. Using individual in-depth interviews, detailed contextual information was obtained, which illuminated the diversity and complexity of the participants' thoughts and health-related behaviours. The individual in-depth

**Table 1. Participants' socio-demographic profiles**

| Variable | Range | *f* | % |
|---|---|---|---|
| Country of birth | Qatar | 21 | 42% |
| | Saudi Arabia | 1 | 2% |
| | Yemen | 1 | 2% |
| | UAE | 1 | 2% |
| | Jordan | 3 | 6% |
| | Palestine | 8 | 16% |
| | Egypt | 5 | 10% |
| | Iraq | 2 | 4% |
| | Bahrain | 3 | 6% |
| | Iran | 2 | 4% |
| | Kuwait | 1 | 2% |
| | Syria | 1 | 2% |
| | Lebanon | 1 | 2% |
| Current Citizenship Status | Qatari Citizen | 35 | 70% |
| | Qatari Resident | 15 | 30% |
| Marital Status | Single/never married | 3 | 6% |
| | Presently married | 29 | 58% |
| | Divorced | 3 | 6% |
| | Widowed | 15 | 30% |
| Women's Education Level | Never went to school | 13 | 26% |
| | Primary/Junior | 18 | 36% |
| | High School | 9 | 18% |
| | University | 7 | 14% |
| | Other degrees | 3 | 6% |
| Employment Status | Full-time | 4 | 8% |
| | Self-employed home | 1 | 2% |
| | Full-time homemaker | 43 | 86% |
| | Unemployed | 2 | 4% |
| Husband's Education Level | Never went to school | 9 | 18% |
| | Primary/Junior | 11 | 22% |
| | High school | 6 | 12% |
| | University | 15 | 30% |
| | Other degrees | 2 | 4% |
| | No husband | 5 | 10% |
| | Do not know | 2 | 4% |
| Annual Household Income | Less than $10,000 | 2 | 4% |
| | $11,000–$30,000 | 3 | 6% |
| | $31,000–$50,000 | 3 | 6% |
| | $51,000–$70,000 | 2 | 4% |
| | $71,000–80,000 | 1 | 2% |
| | More than $80,000 | 2 | 4% |
| | Don't know/chose not to answer | 37 | 74% |

interviews were conducted in Arabic (except for one interview because the participant wanted to be interviewed in English) by the research assistants, using a semi-structured questionnaire with open-ended questions. The questions asked about the women's health-care knowledge and attitudes, past and current practices regarding physical activities, dietary habit and practices, and smoking behavior. They also investigated factors that influence the respondents' decision to engage in these lifestyle activities, their perceived barriers and motivators to such activities, and their perceptions about the best possible strategies for promoting exercise, eating healthy diets, and non-smoking among Arabic women living in Qatar. With the permission of participants, the interviews were recorded on a digital voice recorder. The interviews lasted between 20–45 minutes with the majority of the interviews being 30–45 minutes. The interviews were stopped when data saturation was evident, i.e., when no more new information could be identified in the data after 50 women were interviewed. The data were translated into English by the bilingual student researchers then transcribed and analyzed by the research team.

**Data coding and analysis**

A qualitative data analysis approach was used for the examination of narrative data using NVIVO 8. The analysis followed a four-step process. (1) As data was obtained, translated into English and transcribed by student researchers who were trained to conduct data collection and data analysis by two associate professors, both experienced researchers from a Canadian University. (2) In the early stages of analysis, the transcripts were coded to identify preliminary categories. A list of code categories was formulated. These categories were refined as subsequent data were gathered and analyzed. (3) Data coded in one category was examined for relevance to data in other categories. The final outcome of this analysis was a set of interrelated concepts and categories of data. This process of analysis involved the systematic, rigorous development of code categories and subcategories, which were flexible, evolving, and used for the coding of subsequent transcripts. (4) Themes and concepts were used to compare within and across transcripts. From this, a higher level of data conceptualization and broader theoretical formulations were generated. To ensure rigour, the researchers worked in pairs and in teams. This process enabled researchers to clarify, expand, and discuss the emergent themes, ideas, and concepts. It also allowed researchers to develop a deeper understanding of the data, and gain further insight into the cultural processes and social structures that influence the participation in physical activities, dietary and smoking practices of Arabic women living in the State of Qatar.

## FINDINGS

The Qatari Arabic women in the present study were very glad to participate in this study to help other women in preventing cardiovascular diseases. The participants identified a variety of cultural beliefs, values, and social practices that had an impact their dietary, physical activity and smoking behaviours. The following sections will report on the process by which social factors and cultural knowledge and values influence the decision of Arabic women living in Qatar to engage in these activities.

### Influence of cultural and social factors on diet

#### Emphasis on the Taste of Foods

Consumption of salty and fatty foods is one of the risk factors of CVD. Interviews revealed that the consumption of salt, sugar, and fat foods among the participants was high. The data also showed that the participants' dietary habits were highly influenced by the traditional cultural beliefs and values.

> *"Yes, our cultural beliefs and values influence our decision to eating fruit and vegetable, using oil and fat, especially with eating our heavy traditional dishes... family members affect women's decision to cook and eat a healthy diet... Our families raise us with rice [briani and makbus] and Qatari food that is high with fat and sugar, also sweet is very important in Qatari culture." (Ms Mona)*

Taste, colour and appearance of foods were of great importance among Qatari and Arabic women. It was identified by the participants that salt and oil play an imperative role in creating taste, colour and the appearance of their foods. Interviewees believed that the food would not taste as good if it has less salt and oil. As some women stated:

> *"We prefer eating traditional dishes without reducing the amount of oil as it will affect the taste of main dishes. Because of that, it is hard to change the way of cooking. I do not like the taste of the vegetables, I may eat them for one week, but I always return to my previous diet because I don't find vegetables tasty." (Ms Huda)*

### Social courtesy, hospitality, and lifestyle changes

In Qatari culture, hospitality and the showing of generosity are central to women's beliefs and values. It is a common practice for women to invite each other out to lunch or to gather daily in each other's homes to communicate, celebrate and share ideas. During these daily gatherings, social courtesy is extended by serving various kinds of foods and drinks such as fresh dates, sweets and coffee. On these occasions, women often feel pressured to eat because the visitor's refusal to accept food and drinks may offend the hosts.

> *"Women in Qatar used to invite guests in the morning and in the evening... it is our hospitality to force guests to eat. Not eating is not a respectful behaviour. If you are invited to a party and you don't eat, it is undesirable behavior." (Ms Fatima)*

These social activities can lead to unhealthy food choices for some women. As one of them described, it is particularly difficult for her when friends or family members want her to eat by requesting "just taste it" or "one bite please." As well, women admitted that because they eat with the other members of the family, it is difficult for them to have a different diet or to control their eating habits and food choices. One woman said: *"Sometimes the entire family will get together and start eating unhealthy foods. Without any warning my hand will grab those unhealthy foods and put them in my mouth."*

Qatar has witnessed rapid growth and changing environmental and social conditions in many aspects of life. Some recent lifestyle changes might have added negative influences on healthy food choices. Social activities, such as eating out, have become popular aspects of life in Qatar. They seem to have a significant impact on healthy dietary choices of Qatari women. It was clear from participants' comments that people, especially the younger generation, usually eat outside their homes every Friday and Saturday, in restaurants where the foods are often unhealthy and full of fat and oil. One of the participants insisted: "*Back in my country, we are not eating food from restaurants. We prefer homemade food, that's why people are healthier*." However, some participants believe that newcomers to Qatar influence the food habits of Qatari people. One example cited was Indian foods containing a high amount of oil, salt and fat, and western-style fast foods, which have become very popular as they suit a busy lifestyle.

Participants clearly indicated that social networks and activities have an important effect on the type of diet and foods that are chosen. However, some participants emphasized individual responsibility, believing that the individual is responsible to make her own healthy food choices. Others observed that the barrier associated with the Qatari women's inability to eating healthy foods was a lack of motivation because eating healthy foods requires commitment. A participant noted:

> *"I think some women are not eating healthy foods because they don't have illness and they are not thinking about the consequences. But when they develop illness it will become an obligation for them to adopt a healthier lifestyle."*

Despite some of the culturally and socially negative influences on diet, participants also believed that women can encourage each other to adopt a healthier diet by cooking healthier foods and inviting each other to taste. Though not true for all participants, many Qatari women look to friends and/or family to encourage them to eat healthy or to reduce weight.

### Influence of cultural and social factors on physical activities

### Accessibility and availability of recreational facilities

The majority of participants believed that exercise is important to maintain health, reduce weight and prevent cardiovascular diseases. Most agreed that cultural beliefs and values are not the primary influence on women's decisions to participate in physical activities and exercise. A greater factor is the availability and accessibility of recreational facilities. Although several participants believed that

younger generations have more opportunities to engage in physical activities, all women in Qatar can be more physically active. Various facilities are available to them including Aspire Zone in Doha (capital of Qatar), which provides athletic facilities, walking tracks and various exercise sessions for all age groups.

> *"Culture values and beliefs do not influence my and other Qatari women's decisions to participate in physical activities. At least nowadays, most of the ladies can participate in different physical activities at the Aspire zone without restriction or objection from anyone." (Ms Zeinab)*

> *"Nowadays, a lot of Qatari women go for a walk at the Corniche and Aspire in order to maintain their health and wellness. Females became more oriented about their health and [more aware] of diseases associate with not exercising." (Ms Noor)*

The majority of participants believe that exercise is important to maintain health, reduce weight and prevent cardiovascular diseases. As stated by Ms Noora:

> *"Nothing in our culture and religion prevents us from doing exercise. Exercising is becoming a necessity activity in our daily life just like shopping. Actually, exercising and doing other physical activities are the magic treatment for human health."*

Several participants noted that the Qatar government has created various sports clubs throughout all regions of Qatar in order to meet the needs of Qatari women. From these women's perspectives, sports clubs are available to both national/citizen and non-national/resident Qataris at affordable fees. They feel that women in Qatar have a variety of choices in accessing these facilities, thus they should make an effort to utilize these available services. As one woman put it:

> *"In Doha, everything is easily accessible. Aspire club is close to my home. Her Highness Sheikha Moza encourages sports. [She] is generous to our people. Also, the government provides facilities for people to exercise; therefore, women should use these facilities. The fees for these facilities are affordable to both Qatari and non-Qatari." (Ms Asma)*

Many participants were grateful that they live in Qatar, one of the wealthiest countries in the world. They acknowledged that they are provided with a high standard of health services and preventive care. The Qatari government facilitates access to recreational facilities where they can participate in physical activities. The participants also feel that they can get good care and services from physicians for cardiovascular diseases' treatment and prevention. As one participant revealed:

> *"I was not doing exercise but after [my surgery], with the physician's instructions, I have started walking for one hour daily. I have very weak heart function but after my heart surgery, the physician gave instructions and time-table for doing exercise. With exercising, I now have a more stable weight."*

When asked about how other social support networks influence their participation in physical activities, several women talked about the importance of having family support and encouragement that influence their decision to stay physically active. Ms Sabrina said:

> *"Social support networks influence our decision to participate in physical activities, especially in my own family because we base our decision on family discussion. My daughters ask me to accompany them to the gym. My family encourages me to walk and to maintain on that."*

Although various recreational facilities were available and accessible, together with physicians' encouragement and family support, several participants reported that some women remain physically inactive. They related their inactivity to health problems that act as barriers to engaging in a more active lifestyle.

> *"My health status affects my doing exercise. My rheumatism makes me feel pain in both legs. Sometimes, I am unable to walk. I cannot make any effort because in addition to osteoarthritis and osteoporosis, I also have spinal problems. I became obese. My daily living activities reduced and the number of diseases increased." (Ms, Fatima)*

As acknowledged by the participants, even though social values and beliefs about females' activities outside of their home have changed, traditional beliefs and practices that restrict women's mobility continue to influence their participation in physical activity. As one woman observed:

> *"Before, women were not allowed to go outside without their husbands, also they were not aware about their health. Still there are some families that do not change their cultural beliefs." (Ms Suad)*

**Women's responsibilities as a deterrent to being physically active**

In addition to the individual health problems and some traditional cultural beliefs that exert negative influences on women's ability to engage in routine physical activities, analysis of the data revealed that although participants were aware of their health needs, many might have overlooked the importance of physical activity on their own health. Performing family roles and taking care of others took priority and was viewed as more important for these women than their own individual health care.

> *"Home responsibilities prevent women to exercise. Women have reasons that prevent them from living a healthier lifestyle … They are busy with home and children responsibilities. What prevents me is the situation at home. I can't leave my children alone at home, also I can't leave my parents alone." (Ms Aisha)*

Other women participants also attributed the reason for their inability to engage in regular exercise to their busy schedules and home responsibilities such as taking care of their family members or grandchildren.

> *"Even before my retirement, I cannot [participate in routine] physical activity because I had no time. Now I am older but I have many other responsibilities. I take care of my grandchildren, so I still do not have time to go for walk or exercise." (Ms Mona)*

Other participants recognized and put emphasis on individual responsibility in making the decision of whether or not to participate in physical activity. They considered it a personal decision based on the individual's awareness of their health status.

> *"Participating in physical activities is a personal decision, and social support networks do not affect the woman if she believes and knows the benefits of exercise. It is a personal decision in my community. It depends on individual awareness and carefulness about his or her health." (Ms Amira)*

**Influence of cultural and social factors on smoking**

**Smoking is culturally taboo and socially unacceptable behavior**

Smoking of sheesha (water-pipe smoking) and cigarettes is one of the risk factors for cardiovascular disease. The majority of participants indicated that cultural beliefs and values influence women's perception and practice of smoking. It is a culturally taboo and unacceptable behaviour for Qatari women to smoke. As well, Islam has discouraged any kind of smoking as was indicated in Surah Al-'Araf, 7:157 and Surah Al Ma'idah, 5:93. One woman stated:

> *"All Qatari women that I met refuse to smoke and view smoking as a shameful behaviour. Smoking is totally discouraged religiously and culturally. No one smokes in my neighborhood; if the people saw a woman smoking they will say that she is a bad woman." (Ms Salma).*

To some participants, however, the increasing cultural diversity in Qatar has had a significant impact on women's smoking behavior. In their opinion, expatriate workers or immigrants may have imposed their beliefs and practice of smoking on the Qatari population. As one participant stated:

> *"There are many foreigners from different nationalities who affect the Qatari culture. The new culture affects the [traditional] culture here in Qatar. I don't think that women [in Qatar] need more information. They are well educated and they know the side effect of smoking. But I believe the reason is that Qatar has become a multicultural society with lots of immigrants who brought with them their cultures and Qatari women [have been] affected by them." (Ms Mona)*

Participants pointed out that although smoking is a culturally taboo and socially unacceptable behavior, the younger Qatari generation thinks differently. They noticed that water-pipe (sheesha) smoking is emerging as a fashionable mode of tobacco use in Qatar, especially among young girls. There is an assumption that for these individuals, smoking sheesha is more acceptable than smoking cigarettes. It also gives them a sense of high status, and of being modern.

> *"The new generation starts to smoke [sheesha] because they think that it is part of modernization and to show off to others. Also cigarette has bad smell and harder to be tolerated than sheesha." (Ms Yasmin)*

### Smoking is harmful to health

All participants recognized that smoking is a bad habit that affects health, and most considered smoking to be the main cause of many health problems. There appears to be a general awareness about the harmful effects of smoking. As stated by several participants:

> *"We need to stay away from smoking because it leads to block arteries and heart diseases."*
>
> *"It causes many diseases and shortness of breath."*
>
> *"It is the first killer and the first cause of cardiovascular diseases. It is harmful and it has negative impact on health."*
>
> *"It causes lung cancer and other health problems."*

The participants believed that smoking tobacco would lead most commonly to diseases affecting the heart and lungs. They also recognized that smoking is not only bad for the health of individuals who smoke, but also for others in their environment. However, even those who had stopped smoking found smoking cessation difficult to maintain because of the effect of peers.

> *"[Smoking] is harmful. It has several consequences on health. The problem now is that I quit smoking but I'm living in unhealthy environment. Everybody is smoking around me in the office. Even if I'm not smoking, I'm still inhaling the smoke with them. I cannot ask them to smoke outside, because I don't have control over them, I'm not the manager." (Ms Shikha)*

There was also a general awareness about what might motivate a woman to smoke. Friend and peer relationships were recognized as factors influencing the decision to start smoking. As one woman stated, "people are affected by their friends." Another participant stated that "some friends affect each other in a bad way so they become smokers." Family beliefs and practices also greatly influence smoking behaviour. One lady commented that her husband is a smoker because he "came from a family where smoking is a sign of being strong." Several participants provided other causes for smoking such as cultural influences, a way of coping with personal problems, and a way of being fashionable and "cool". Thus, many causes of smoking were identified by participants:

> *"Smoking habit came from outside of the country."*
> *"When the man smokes, he may affect his wife and she smokes."*
> *"I was a teenager, and I had problems with my studies."*
> *"Sometimes it is the medicine for your nervousness and problems."*
> *"Smoking sheesha is a fashion among the young girls."*
> *"I took up smoking habit as a game."*
> *"Availability of places for smoking can motivate the ladies to smoke."*

## RECOMMENDATIONS, DISCUSSION, AND CONCLUSION

Study participants offered their recommendations to improve the quality of care for cardiovascular patients in Qatar and to promote healthy lifestyles among women. Their recommendations emphasized health education as one of the main strategies to increase awareness. Some participants suggested that public educational lectures are needed to increase health awareness in the population. Other participants suggested that lectures about healthy food or the causes of heart diseases would be a welcome component of clinic visits. They cautioned that the information needed

to be presented in a style that would motivate patients to read and enable them to understand what was being communicated. Otherwise, they may not gain an awareness of the negative health consequences of an unhealthy lifestyle. In addition, health care providers should actively distribute brochures that discuss a heart-healthy lifestyle. The following recommendations were extracted from the participant interviews specifically for the promotion of physical exercise, healthy diet and non-smoking behaviours.

### Recommendations for promoting physical activity

The participants recommended that promotion of physical activity and regular exercise should start early in life. They suggested that it is best to start talking with school-age children about the importance of physical activity to health. Participants also mentioned the role of the media in positively affecting people's attitudes toward living a healthier lifestyle, specifically that media plays a role in being a good source of information. This is supported by Jackson et al., [31] whose survey of 182 cardiac patients showed that many patients get their health guidance from magazines and newspapers, and 25% of patients reported using the internet as a source of medical information. Participants in our study suggested that TV programs, advertisements in shopping malls, and attractive displays may increase public health awareness. They did not encourage the use of thick complicated publications but suggested using pamphlets that are succinct and easy to read. It is also important to note that patients often perceive physicians as their primary source of medical information. Thus, counselling and guidance for patients by health care providers, especially physicians, regarding smoking cessation, weight loss, and exercise should be a key interventions to modify lifestyle behaviors among cardiac patients. [31]

Some participants commented that at present, in Qatar, there are gymnasiums and recreational facilities that maintain privacy for females in order to encourage more exercise. The effect of this is supported by a study recommending that the design and implementation of a physical exercise regimen should be sensitive to cultural differences in modesty, assertiveness, and expected social roles. [32] This has particular significance in Qatar, where the principles of Islamic morality and ethics are paramount.

Participants suggested creative ideas for women who cannot go outside to exercise. One stated: "*I have everything available for me and for other women they can exercise at home, house works are good and in fact, the important thing is to move around*." Another added: "*In Qatar, everything is available. Aspire Garden, some beauty salons and health centers have facilities and equipment for women to exercise. Some of these centers have swimming pools for women that cost 20 to 30 QR (about 5 to 8 USD)*." The participants indicated that motivation for exercise is very important in maintaining a healthy lifestyle. Acknowledging that cooler months of winter in Qatar support exercising but hot summer months (between 30 to 50 degree Celsius at times) pose a challenge, participants suggested that public shopping malls, where air-conditioning is available, could include walking tracks and health centers for exercising.

Some participants also believed that the State could provide more recreational facilities throughout all regions of Qatar. This would ensure that women across urban, semi-rural, and rural Qatar could participate in physical activity. They would also like to see more green places with play areas for children. Women participants also suggested that reducing or eliminating cost to these facilities would help motivate and encourage women across different socioeconomic strata to exercise. They gave lifestyle advice to women such as getting adequate rest and sleep and doing more housework with less dependency on their housemaids as a way of being more physically active at home.

### Recommendations for promoting healthy diet

Participants emphasized the importance of health education and raising the awareness level among the population. Some of their suggestions included having a dietician available to counsel them about their diet and giving them information regarding a healthy diet. They recommended that women should be taught how to restrict the use of fat and salt in their cooking and the negative consequences to health of having diet that is high in fat, salt and sugar. This could be accomplished through producing and airing television programs on healthy cooking and eating. Participants recognized as well the importance of educating women about reducing restaurant and fast food meals. These suggestions are congruent with the recommendations from the American Heart Association (AHA). [33]

### Recommendations to avoid smoking

Participants suggested that the best way to reduce smoking among Arabic women is to increase awareness among these women about the consequences and harmful effect of smoking. Television programs could broadcast real stories from women whose health was affected by smoking. Recognizing that some strategies might be more difficult to implement and some recommendations might not be practical at the present time, some participants still recommended that the State should ban smoking because of its harm to health; that the State develop a law that fines people for smoking because they are harming people's health; that health care providers present lectures about healthy lifestyle to teenage girls, because this is a critical stage when girls are imitating others; and that women and girls be educated about the consequences of smoking by presenting lectures in public areas.

This study revealed that in Qatar, Arabic women's lifestyle is influenced by many social and cultural factors. While many of these factors have positive effects on women's health, other cultural beliefs and social practices can hinder women's decisions to engage in healthy diet, physical activity and non-smoking.

Several reasons for non-compliance with a healthy diet were identified in this study. Significant contradictions exist between the cultural beliefs, practices and women's ability to eat a healthy diet. For example, most of the participants believed that as part of Arab hospitality and social courtesy, one should not refuse eating food that is offered to them even if they are not hungry or the food is not healthy. Many of the participants believe that it is also difficult to refrain from preparing and eating traditional dishes that are high in salt and fat because these activities are often shared between members in a collective manner. Some participants stated that their family members are not willing to eat traditional dishes that are prepared with less fat and salt because this would change the taste of these dishes. This is supported by the findings of Farahani et al., [22] that some patients were not interested in following a revised diet owing to the unpleasant taste of dietary foods and the feeling of being isolated from the family and community members. At the same time, it is encouraging to know that some participants have made efforts to achieve a healthier diet by making modest adjustments, as one said "*I reduced the amount of rice*."

With the influence of a busier lifestyle coupled with the availability of western-style fast food outlets, dining out has become a popular activity for many individuals and families. Thus, it is important that discussion about healthy eating be expanded to include information regarding nutritional values and consequences of this newly-adopted dietary practice. As eating habits are often established at an early age, educational systems such as school curricula should be embedded with the healthy-eating educational and promotional programs. Likewise, an adult version of the healthy-eating promotion programs should be extended to parents and other caregivers.

Traditional cultural beliefs do influence Middle Eastern women's ability to engage in physical activity and exercise as reported in some studies. [23–25] In this study, cultural beliefs seem to have less influence on women's decision to do exercise. Most of the participants believed that although there are individuals who still hold on to traditional beliefs that restricted women's mobility, these cultural beliefs have minimal influence on their own decision to engage in physical activities given the changes in attitude and values of the present society. The data reveal that participants value physical fitness. There is a very strong desire to be more physically active, among all participants. The data also suggested that the availability and accessibility of the recreational facilities and a more conducive environment within these facilities would motivate women to become more physically active by either engaging in regular exercise programs or by simply walking around the facilities. Many participants in the current study believed that the Qatari government has provided sufficient recreational facilities with affordable fees to its people, for example, the fee for entry into the Aspire Academy for Sports Excellence is 250 Qatar riyals per month (which is about 70 USD per month). Adding facilities throughout Qatar that are free of charge would provide more opportunity for all women to be more physically active. We found encouraging findings that some participants were very creative in identifying ways to increase their physical activity such as participating in praying five times daily and doing housework.

Similar to a study by Yu et al., [26] that family support and encouragement is an important and effective way to maintain healthy lifestyles, participants in this study also reported their significance in influencing women's decisions to participate in physical activity. In fact, several participants considered their family commitments and caring for children their highest priorities. These factors,

however, were seen to constrain the participants from exercising or being more physically active. Some participants stated that because of their multiple roles in family, work and community, they were less likely to commit to regular exercise. This is supported by the findings of Faranhani et al. [22] that family priorities often took precedence over women's health needs. It is also supported by the finding of Perry et al. [27]. that women are not compliant with exercise routines because of their many roles.

Women's narratives revealed that their cultural beliefs and values influence smoking behaviour. Most of the participants stated that smoking for women in their culture is not acceptable behaviour. However, others believed that the increasing diversity of Qatari culture and the perception of modernization have led to changes in younger women taking up smoking behaviour. This is supported by Gholizadeh et al., [28] who reported that in many culturally diverse communities, cultural beliefs and values have played a significant role in influencing individuals' perceptions of risk factors and their awareness about healthy lifestyle such as smoking cessation.

In this study, cultural and religious factors appear to have a significant influence on individuals' decisions related to smoking, as it was obvious in this study that participants' religious beliefs affect their decision to not smoke. Also, participants indicated the major reason for not smoking is following the rules of Islam, which discourage smoking. Therefore, smoking is a socially unacceptable behaviour among the study's participants. This finding is supported by a previous study from the USA that showed that cultural and religious factors had a significant influence on adolescents' smoking behaviour especially among females [29].

Social factors are also considered key influences on smoking behaviors among Arabic females. Participants agreed about family and peer impact on their decision to smoke. Similarly, Saeed, et al. [30] reported that in the Arab culture, the family is the most important social unit. They found that a major reason for cigarette smoking among Saudi Arabian youth was imitation of family members and friends. Although participants were emphatic about the need for a State regulation and advocated for a strict law on banning smoking, it might be more efficacious at this time to raise awareness on the harmful effects of smoking not only on the individuals who smoke, but also on family members who are inhaling second hand smoke. Considering taxation on cigarette and sheesha might be more an effective messages/strategies on the seriousness of smoking as there is no tax for anything else in Qatar.

In conclusion, as a qualitative study, the results of this study cannot be generalized to all Arabic women living with cardiovascular diseases in Qatar. However, the findings suggest strongly that social and cultural factors influence decisions by women in Qatar to participate in healthier lifestyles regarding physical activity, healthy diet and smoking. Cultural and religious factors investigated appear to have a great influence on women's decisions to not smoke. Most of the women in this study believed that family and social factors act as both facilitators and deterrents to accepting and implementing health recommendations. It is important to note that participants in this study believed that they are living in a supportive society with abundant resources. However, more availability and accessibility to culturally sensitive educational material, health promotion programs and services, and recreational facilities will foster women's engagement in regular and frequent physical exercise, healthy eating, and abstinence from smoking. It is important to understand that there is still little literature from the Middle East that supports these points. Thus, there is a strong need for more research in this area. This study emphasizes the importance of considering cultural, social and religious factors when developing strategies to promote healthy lifestyles in Qatar. Any educational, health promotion and disease-prevention programs developed without considering these factors are likely to be less effective.

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