Original Article

Knowledge of Cardiovascular Diseases and Their Risk Factors among the Public in Saudi Arabia

Samer Alzahrani[1], Muteb Eid Alosaimi[1*], Feras Fahad Bin Oways[1], Almahdi Omar Hamdan[2], Aseel Talal Suqati[2], Faris Saad Alhazmi[2], Ali Abdullah S Qudus[2], Yousef Nabil Basri[3], Abdullah Faisal Alhejaili[3], Mamdouh Raja Alharbi[4], Abdulrahman Hassan Jaafari[4], Yusra Abdulmohsin Al-Arbash[5], Mohammed Mubarak Alanazi[5]

[1] Faculty of Medicine, Department of Family Medicine, Al Imam Muhammad ibn Saud Islamic University, Riyadh, Saudi Arabia. [2] Faculty of Medicine, Department of Family Medicine, Umm Al-Qura University, Makkah, Saudi Arabia. [3] Faculty of Medicine, Department of Family Medicine, Taibah University, Almadinah, Saudi Arabia. [4] Faculty of Medicine, Department of Family Medicine, AlMaarefa University, Riyadh, Saudi Arabia. [5] Faculty of Medicine, Department of Family Medicine, Jordan University of Science & Technology, Irbid, Jordan.

Abstract

Background: Cardiovascular diseases are one of the leading causes of mortality and morbidity in the world. One way in which the risks associated with cardiovascular diseases can be lowered is by identifying conventional risk factors linked to atherosclerotic heart disease. **Aim:** The main objective of the study is to investigate the knowledge with regard to cardiovascular diseases and their risk factors among the public in Saudi Arabia. **Methods:** This is a cross-sectional study which involves 854 participants from 13 cities in Saudi Arabia during the period from 04/07/2019 to 24/09/2019. The study was carried out by distributing hardcopy questionnaires to 854 participants who were members of the public in Saudi Arabia. The study participants were selected through convenience sampling method. **Results:** The results shows that there exists the lack of knowledge with regard to cardiovascular diseases and their risk factors among the public in Saudi Arabia. Literature review shows that adequate awareness and knowledge on the risk factors when it comes to developing cardiovascular diseases is important in order to prevent the disease and also limit its mortality rate. **Conclusion:** In conclusion, the analysis shows that there is very limited knowledge among the Saudi Arabia population on the risk factors for cardiovascular diseases which are currently a major health challenge in Saudi Arabia.

Keywords: Cardiovascular diseases, knowledge, risk factors, Saudi Arabia

Introduction

Cardiovascular diseases are one of the leading causes of mortality and morbidity in the world. One way in which risks associated to cardiovascular diseases can be lowered is by identifying conventional risk factors linked to atherosclerotic heart disease. Nevertheless, different studies have only focused on patients in developed nations such as the United Kingdom and the United States [1]. No particular treatment has been found for cardiovascular diseases yet. As a result, the control of the known risk factors and prevention of the disease are bases for limiting the mortality for cardiovascular diseases [2]. Thus, epidemiological data on the knowledge of cardiovascular diseases and their risk factors among the public in Saudi Arabia is lacking; accordingly, assessing the public awareness of cardiovascular risk factors and diseases is critical.

Objectives of the study

As a result, the main objective of the study was to investigate the knowledge of cardiovascular diseases and their risk factors among the public in Saudi Arabia.

Literature Review

In recent years, Saudi Arabia has gone through key economic changes and has experienced significant urbanization [3]. In addition to that, the number of people who dwell in the urban area has doubled in size over the past decade. The rapid urbanization is linked to the increase in the burden of

Address for correspondence: Muteb Eid Alosaimi, Faculty of Medicine, Department of Family Medicine, Al Imam Muhammad ibn Saud Islamic University, Riyadh, Saudi Arabia.
E-mail: Dr.Mealosaimi@gmail.com

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cardiovascular diseases together with trailing screening programs and national preventive health system. Particularly, the screening methods which help adults identify whether they are at risk of developing cardiovascular diseases is limited. As a result, cardiovascular diseases are a major health challenge for the present day Saudi population. This means that there is a significant increase on the prevalence of cardiovascular risk factors. This can be greatly attributed to the fact that numerous patients have poor control on modifiable risk factor. Every year, At least 18 million individuals die from cardiovascular diseases worldwide. On the other hand, this accounts for 42% of the deaths in Saudi Arabia [4]. According to [5], the prevalence of hypertension in Saudi Arabia is 49 %; whereas, coronary heart disease is at 6% indicating a high burden of disease and associated risk factors. Studies such as [6, 7] have identified a set of common risk factors for cardiovascular diseases in Saudi Arabia. They include alcohol consumption, smoking, poor diet, physical activity, obesity, dyslipidemia, diabetes and hypertension. Studies in Saudi Arabia continue to suggest that the existence of the risk factors in particular diabetes, obesity and hypertension increase each year. The cardiovascular diseases risk profile is different between male and females. For instance, women have a higher probability of being obese; whereas, men have a higher chance of smoking. In addition to that, women have a higher chance of developing type2 diabetes; whereas, men have a higher chance of developing dyslipidemia [4]. As a matter of fact, women and men also share some of the characteristics such as 75% of physical inactivity [8]. They also have similar dietary habits such as the regular intake of high-fat and high-calorie food [9]. This means that gender and age greatly affect cardiovascular diseases and their risk factors among the Public in Saudi Arabia [10-12] state that majority of the factors linked to cardiovascular diseases are linked to age. As a result, additional study should be done on both young and old adult population so as to understand the impact of age on cardiovascular diseases. Secondly, the common cardiovascular diseases risk factors are different between both men and women. Most of the women who have died from cardiovascular diseases had no prior symptoms. In addition to that, men are more likely to smoke; whereas, women are more likely to be less physically active.

The average of cardiovascular diseases in Saudi Arabia has been found to be significantly higher in Saudi Arabia. It is critical to note that Patients in Saudi Arabia have at least three of the risk factors linked to the disease [6]. Hypertension is prevalent in more than 80% of the potions; whereas, smoking and diabetes is prevalent among half of the patients. Dyslipidemia is on the other hand prevalent on at least one third of the population. Most of the patients in Saudi Arabia have at least one of the uncontrolled risk factors related to cardiovascular diseases which reflects poor awareness of the disease [13]. Awareness and knowledge on the risk factors for cardiovascular diseases is important not only for physicians but also for the public so as to help prevent the disease.

Materials and Methods

This was a cross-sectional study design which involved 854 participants from 13 cities in Saudi Arabia during the period from 04/07/2019 to 24/09/2019. The study was carried out by distributing hardcopy questionnaires to 854 participants who were members of the public in Saudi Arabia. The study participants were selected through convenience sampling and the questionnaire was given them to complete. The age restriction to the questionnaire was individuals who were aged 18 and above; whereas, no sex restrictions were applied. The questionnaire was completed by Saudi citizens and residents of Saudi Arabia. The questionnaire was distributed in hardcopy to the participants in public places in Saudi Arabia. The questionnaire consisted of three sections. The first section was to collect the participants' demographic data. The second section assessed the medical status of the respondents; while, the third section assessed the respondents' knowledge about cardiovascular diseases. The respondents were asked to tick the option that most appropriately reflected their opinion.

The socioeconomic variables in the questions are included the participants' age, gender, marital status, and weight description. Personal and family medical history like smoking status, length of exercise, type of food eaten, lifestyle and history of cardiovascular diseases in the family were also included in the questionnaire. Awareness and knowledge of cardiovascular risk factors was assessed through a 3- point likert scale consisting of Yes, No, and I do not know asking if the participants believed that precise factors were the risk factors associated with cardiovascular diseases. Nine risk factors were included in the questionnaire including smoking, unhealthy diet such as diets high in saturated fats, cholesterol and salt, physical inactivity (lack of exercise), obesity, stress, positive family history of cardiovascular diseases, high LDL cholesterol levels, hypertension and diabetes. Each participant was asked about their medical status on whether they suffered from chronic diseases and information on their blood glucose, cholesterol and pressure.

All the data were analyzed using SPSS software, version 23.0 (IBM Corporation, Armonk, NY, USA). The demographic characteristic of the respondents' were categorical variables and were presented as percentages and frequencies. On the other hand, continuous variables were presented as mean ± SD. SPSS was used for statistical analysis and reported mean, median, standard deviation, P value, Chi-square and variables correlation. Analysis was carried out at 95% CI. Comparison of mean knowledge score was carried out for all the cardiac risk factors using chi-square.

Regression analysis was also used. In multiple regression, the research will include different covariates at a time. Accounting for all the covariates helps in adjustments and comparison of the results for the multiple regression can help in clarifying how much the confounders in the model distort the association between outcome and exposure.

The study was carried out in line with the questionnaire' guidelines. The participants in the study were asked to declare if they consent to the questionnaire survey or not. The respondents who replied No were exempted from the study. Completion of the questionnaire was voluntary and personal data which meant revealing the respondent's identity was not collected. Data was protected for confidentiality and ethical approval was obtained before data collection process initiation.

RESULTS

Table 1. Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.207[a]	4	.877
Likelihood Ratio	1.205	4	.877
Linear-by-Linear Association	.296	1	.587
N of Valid Cases	854		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 59.06.

Table 2. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.071[a]	.005	-.006	1.461

a. Predictors: (constant), diabetes, hypertension, stress, high LDL cholesterol levels, unhealthy diet such as diets high in saturated fats, cholesterol and salt, positive family history of cardiovascular diseases, obesity, smoking, physical inactivity (lack of exercise)

Table 3. ANOVA[a] results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.238	9	1.026	.481	.888[b]
	Residual	1802.687	844	2.136		
	Total	1811.925	853			

a. Dependent Variable: Age

b. Predictors: (constant), diabetes, hypertension, stress, high LDL cholesterol levels, unhealthy diet such as diets high in saturated fats, cholesterol and salt, Positive family history of cardiovascular diseases, obesity, smoking, physical inactivity (lack of exercise)

Table 4. The Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.869	.357		8.029	.000	2.168	3.571
Smoking	.043	.069	.022	.624	.533	-.093	.179
Unhealthy diet such as diets high in saturated fats, cholesterol and salt	.050	.067	.025	.739	.460	-.083	.182

Physical inactivity (lack of exercise)	-.047	.068	-.024	-.695	.487	-.181	.086
Obesity	-.072	.067	-.037	-1.080	.281	-.204	.059
Stress	-.011	.067	-.006	-.163	.871	-.143	.121
Positive family history of cardiovascular diseases	.041	.068	.021	.599	.549	-.093	.175
High LDL Cholesterol levels	-.011	.066	-.006	-.171	.864	-.141	.119
Hypertension	.013	.066	.007	.199	.842	-.117	.143
Diabetes	.063	.068	.032	.931	.352	-.070	.195

a. Dependent Variable: Age

Discussion

The results show that there exists the lack of knowledge of cardiovascular diseases and their risk factors among the public in Saudi Arabia. Literature review shows that adequate awareness and knowledge on the risk factors when it comes to developing cardiovascular diseases is important when it comes to prevent the disease and also in limiting its mortality rate. The main strategy for limiting the prevalence and incidence of the disease is public awareness and knowledge on the modifiable risk factors for cardiovascular diseases. Whereas most of the respondents that took part in the study were at least 18-25 years accounting for 22.4 percent and 61 years and older accounting for 21.2 percent

Majority of the respondents reported that at least four of the nine risk factors they think can put someone at high risk of developing cardiovascular diseases. Unhealthy diet such as diets high in saturated fats, cholesterol and salt, obesity, High LDL cholesterol levels and, hypertension are among them. For the rest, smoking, physical inactivity (lack of exercise), stress, positive family history of cardiovascular diseases, hypertension and diabetes can be named. The participants were asked about their medical status on whether they suffered from chronic diseases and information on their blood glucose, cholesterol and pressure. Majority of the respondents said No on whether they can think it can put someone at high risk of developing cardiovascular diseases.

Of the 854 participants from 13 cities in Saudi Arabia which were involved in the study, most of them had one of their family members been diagnosed with a cardiovascular diseases either (mother, father, sister, brother, own child, etc.). In addition to that, the respondents said that they were overweight and obese. These results are similar to Khalaf et al. (2013) who reported that at least 60% of the respondents had very low knowledge on the risk factors which are linked to cardiovascular diseases. In a different study, Yusuf et al. (2014) [8] reported that at least 53% of the respondents were not aware of the risk factors of cardiovascular diseases. The cardiovascular diseases risk profile is different between males and females. For instance, women have a higher probability of being obese whereas men have a higher chance of smoking. In addition to that, women have a higher chance of developing type 2 diabetes whereas men have a higher chance of developing dyslipidemia. As a matter of the fact, women and men also share some of the characteristics such as 75% physical inactivity. They also have similar dietary habits such as the regular intake of high-fat foods and high-calorie foods. This means that gender and age greatly affect cardiovascular diseases and their risk factors among the public in Saudi Arabia.

The respondents were asked for how many days they do at least 30 minutes of exercise in a typical week (such as walking, running, cycling, and jogging) and most of the respondents asserted that at least 0-2 times. In addition to that, most of the respondents said that not every day the respondents eat healthy food which included plenty of fruits and vegetables, foods low in saturated fat, cholesterol, salt and high in fiber). This results are the same as [14].

The research also ascertained that most of the respondents suffer from at least one of the following chronic diseases which include hypertension, diabetes, high blood cholesterol level and coronary heart disease.

Most of the respondents were not aware on the types of cardiovascular diseases. This range from coronary heart disease, cerebrovascular disease, peripheral arterial disease, rheumatic heart disease, congenital heart disease and deep vein thrombosis and pulmonary embolism. In addition to that, at least most of them were aware that feeling weak, light-headed, or faint, chest pain or discomfort and pain or discomfort in arms or shoulder were symptoms of heart attack. They did not recognize the pain or discomfort in jaw, neck, or back and difficulty in breathing or shortness of breath. Most of the respondents were also not aware of the symptoms of stroke which include sudden numbness or weakness of the face, arm, or leg, sudden confusion or trouble in speaking or understanding others, sudden trouble seeing in one or both eyes, sudden dizziness, trouble walking, or loss

of balance or coordination and severe headache with no known cause [15].

Conclusion

In conclusion, the analysis shows that there is very limited knowledge among the Saudi Arabia population about the risk factors for cardiovascular diseases. Cardiovascular diseases are a major health challenge for the present day Saudi population. Patients in Saudi Arabia have at least three of the risk factors linked to the disease. Most of the patients in Saudi Arabia have at least one of the uncontrolled risk factors related to cardiovascular diseases which reflects poor awareness of the disease. Awareness and knowledge on the risk factors for cardiovascular diseases is important not only for physicians but for the public so as to help prevent the disease.

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