Evaluation of Knowledge about Risk Factors of Heart Disease in Tabuk City between Adult Population

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ABSTRACT

Background: According to World Health Organization (WHO), heart disease especially coronary heart disease is the leading cause of death globally and one of the major health burdens worldwide. A report released by the Media and Health Awareness Information Center at the Ministry of Health (MOH) in Saudi Arabia, pointed out that, cardiovascular diseases (CVD), including heart attacks and strokes, are the cause of 42 percent of the Kingdom's non-communicable diseases deaths in 2010. Vascular injury accumulates in adolescence, making it necessary for primary preventive measures to be taken from childhood. Therefore, there is increasing emphasis on preventing atherosclerosis by modifying risk factors, such as healthy diet, exercise and avoidance of smoking.
Methods: We have conducted a descriptive cross-sectional study in Tabuk city population, Saudi Arabia. The study was conducted during the period from May to September 2017. The participants were selected by random sampling. Sampling was stratified for the different geographical areas of the city. The total sample obtained was 460. All the pupils were approached to obtain the desired sample size. A self-administered questionnaire about heart disease risk factors knowledge and awareness was filled by participants.
Results: the majority of participants showed right answers and were aware about some of the risk factors of heart disease. The majority agreed to the following statements: (Being overweight increases a person's risk for heart disease-96.7%), (Smoking is a risk factor for heart disease-92.4%), (High cholesterol is a risk factor for developing heart disease-92.4%) and (High blood pressure is a risk factor for heart disease-86.5%).
Conclusion: more attention is needed on primary prevention programs that focus on diet, exercise and the danger of heart disease and its risk factors should be emphasized.
Keywords: heart disease knowledge, risk factors, awareness, diet.

INTRODUCTION

Cardiovascular diseases (CVDs) are group of disorders of heart and blood vessels. According to WHO, heart disease especially coronary heart disease is the leading cause of death globally and one of the major health burdens worldwide [1].

For over 80 years, heart disease had been the leading cause of mortality for both men and women of all ages and all races in the United States. Coronary heart disease (CHD) is the most common type of heart disease, killing over 370,000 people annually in the United States [2].

A report released by the Media and Health Awareness Information Center at the Ministry of Health (MOH) in Saudi Arabia, pointed out that, cardiovascular diseases, including heart attacks and strokes, are the cause of 42 percent of the Kingdom's non-communicable diseases deaths in 2010. The report also noted that the number of patients with cardiac diseases in the primary health centers mounts to 167499 people of both males and females. The report underscored that the heart attacks and strokes are usually acute events and are mainly caused by a blockage that prevents blood from flowing to the heart or brain. The most common reason for this is a build-up of fatty deposits on the inner walls of the blood vessels that supply the heart or brain [3]. WHO noted that CVD has no geographic, socioeconomic or sex boundaries. It is estimated that far from being confined to the developed countries, cardiovascular disease is the leading cause of death in developing countries. 80% of CVD death is contributed by countries with low and middle income. People in low- and middle-income countries often do not have the benefit of integrated primary health care programmed for early detection and treatment of people with risk factors compared to people in high-income countries. People in low- and middle-income countries who suffer from CVDs have less access to effective and equitable health care services which respond to their needs. As a result, many people in low- and middle-income countries are detected late in the course of the disease and die younger from CVDs, often in their most productive years [1]. Some people are at greater risk of cardiovascular disease than others. According to the inter-heart and inter-stroke studies, hypertension, diabetes, dyslipidemia, obesity, smoking, physical activity, poor diet and alcohol consumption are the most common risk factors for myocardial infarction (heart attack) and strokes worldwide [2,3].

Major Factors linked to an increased risk of CVD are grouped into two categories, non-modifiable and modifiable risk factors. Non-modifiable risk factors are factors that are outside

of a person's control and cannot be reduced or altered. They are: family history, age and sex. Modifiable risk factors can be reduced or prevented by lifestyle behaviors or by medical treatment. They are: cigarette smoking, excessive alcohol consumption, raised blood cholesterol levels, high blood pressure, high blood glucose, physical inactivity, poor diet and overweight and obesity[4]. The discovery of oil and other natural resources such as gas in the Gulf Cooperation Council (GCC) countries including Saudi Arabia led to rapid development and economic growth[4]. Along with the rapid socioeconomic growth in the Gulf countries, there has been a change in lifestyle such as an increased consumption of poor quality foods and the adoption of a sedentary lifestyle [5] and as a consequence the rates of CVD and associated risk factors among the Gulf population have also increased; the rates sometimes exceed that of developed countries[5]. There is a high prevalence of cardiovascular risk factors in the Saudi population [6].

It was estimated that 23.3 million people will die by 2030, because of cardiovascular disease. high blood pressure, high cholesterol level, high Blood glucose level, smoking, obesity and physical inactivity are conventional risk factors[5].

Although cardiovascular disease occurs in the middle age or later, risk factors (smoking, dietary factors etc.) are determined to great extent by behaviors learnt in childhood and continued to adulthood[7]. In the industrialized world, physical activity continues to decline,while total caloric intake increases. The resulting epidemic of overweight and obesity may signal the start of the age of inactivity and obesity. Rates of type 2 diabetes mellitus, hypertension and lipid abnormalities are on the rise, trends that are particularly evident in children. If these risk factor trends continue, age adjusted CVD mortality rates could increase in the coming years. Adherence to healthy nutritional and lifestyle recommendations can play an essential role in the prevention of CVD[8]. In order to encourage people to adopt a cardio protective lifestyle; little is known about knowledge of cardiovascular risk factors in general population. Knowledge is an essential step in developing a more cardio protective lifestyle [9].

Socioeconomic indicator "education" is a strong predictor of cardiovascular risk factor knowledge. Higher knowledge is associated with higher education. Socioeconomic polarization could partly explain the fact that a low socioeconomic position has been associated with higher morbidity and mortality of chronic diseases[10].

METHODS

We have conducted a descriptive cross-sectional study in Tabuk city population, Saudi Arabia. The study was conducted during the period from May to September 2017. The participants were selected by random sampling. Sampling was chosen from the different geographical areas of the city. The study included both genders from twenty years and above. The sample size was calculated based on the formula ($n = Z_{1-\alpha}^2 P(1-P)/d^2$), where n= sample size = 384[11,12]. Z= standard normal variate = 1.96 (at 5% type I error, p= 0.05), P= expected proportion = 50%, and d= precision error = 5%. Additional 20 % was added to cover the missing data. The total sample obtained was 460. All the pupils were approached to obtain the desired sample size. A self-administered questionnaire, based on the risk factors of heart disease, require information about heart disease knowledge, filled by participants. A letter that explains the objectives of the study and asks for participants consent was sent with the questionnaire. The questionnaire requires information Knowledge of risk factors of heart disease. The questionnaire responses were analyzed using the Statistical Package for the Social Science (SPSS Inc. Chicago, IL, USA) version 23. Categorical variables were described by frequencies and percentages. Descriptive analysis involving Chi-square test was used to test significance of association between categorical variables. The level of significance was set at P< 0.05. The research was approved by the local Research Committee of the Faculty of Medicine, University of Tabuk.

RESULTS

Table 1 showesd general characteristics of the participants. Participants were classified to four categories according to age: from 20 to 29 years old, from 30 to 39 years old, from 40 to 49 years old, and 50 years old or above. Male and female groups contributed to (45%) and (55%) respectively. The majority of participants were university graduates (90.2%), and about (9.8%) were secondary education or bellow.

Table 2 showed percentage of correctly answered questions. The majority of participants showed right answers and were aware about some of the risk factors of heart disease. The majority agreed to the following statements: (Being overweight increases a person's risk for heart disease-96.7%), (Smoking is a risk factor for heart disease-92.4%), (High cholesterol is a risk factor for developing heart disease-92.4%), and (High blood pressure is a risk factor for heart disease-86.5%). At the same time, 97.8% agreed to that as regular physical

activity will lower a person's chance of getting heart disease and 92.2% think that keeping blood pressure under control will reduce a person's risk for developing heart disease. 39.6% agreed to that (a person always does not know when he/she has heart disease), 36.7% agreed if they have a family history of heart disease they are at risk for developing heart disease, and 72.8% agreed to that if a person increased in age, he is at increased risk for developing heart disease. Half of participants did not know that diabetes mellitus is a risk factor for heart disease (50.4%), and about three quarters disagreed to that if people have diabetes, they will have high cholesterol.

Table 3 showed percentage of correctly answered questions among gender groups. The two sexes were nearly equal in knowledge and awareness of heart disease. Males (58.9%) were more aware than female (40.3%) in that diabetes mellitus as a risk factor for heart disease.

Table 4 showed percentage of correctly answered questions among education level of participants. Participants with secondary education were more aware than participants with bachelor and basic education in that diabetes increases the risk for heart disease and it will coexist with high cholesterol.

Table 1: general characteristics n=460

Character		
Age	From 20 to 29(n(%))	182(39.6%)
	From 30 to 39(n(%))	137(29.8%)
	From 40 to 49(n(%))	126(27.4%)
	50 years or above(n(%))	15(3.3%)
Gender	Male (n (%))	207(45%)
	Female (n (%))	253(55%)
Education	Primary and Intermediate (n (%))	10(2.2%)
	secondary (n (%))	35(7.6%)
	Bachelor (n (%))	415(90.2%)
Income	Below 5000 SR /month (n (%))	112(24.3%)
	5000-9999 SR /month (n (%))	105(22.8%)
	10000-19999 SR /month (n (%))	233(50.7%)
	20000 or above SR /month (n (%))	10(2.2%)

Table 2: percentage of correctly answered questions

Question	Right answer	%
1.A person always knows when they have heart disease	False	39.6%
2.If you have a family history of heart disease you are at risk for developing heart disease	True	36.7%
3. The older a person is, the greater their risk of having heart disease	True	72.8%
4. Smoking is a risk factor for heart disease	True	92.4%
5. High blood pressure is a risk factor for heart disease.	True	86.5%
6. Keeping blood pressure under control will reduce a person's risk for developing heart disease	True	92.2%
7. High cholesterol is a risk factor for developing heart disease	True	92.4%
8. Eating fatty foods does not affect blood cholesterol levels	False	73.5%
9. If your "good" cholesterol (HDL) is high you are at risk for heart disease	False	52.8%
10. If your "bad" cholesterol (LDL) is high you are at risk factor for heart disease	True	88%
11. Being overweight increases a person's risk for heart disease.	True	96.7%
12. Regular physical activity will lower a person's chance of getting heart disease	True	97.8%
13. Diabetes Mellitus is a risk factor for developing heart disease	True	49.6%
14. High blood sugar puts a strain on the heart	True	61.3%
15. People with diabetes mellitus rarely have high cholesterol	False	24.1%

Table 3: percentage of correctly answered questions among gender

Question	Gender		P-value
	Male n=207	**Female** n=253	
1.A person always knows when they have heart disease	39.1%	39.9%	.982
2.If you have a family history of heart disease you are at risk for developing heart disease	37.2%	36.3%	.737
3. The older a person is, the greater their risk of having heart disease	78.2%	68.3%	.033
4. Smoking is a risk factor for heart disease	97.5%	88.1%	.000
5. High blood pressure is a risk factor for heart disease.	85.5%	87.3%	.834
6. Keeping blood pressure under control will reduce a person's risk for developing heart disease	90.3%	93.6%	.219
7. High cholesterol is a risk factor for developing heart disease	90.3%	94%	.200
8. Eating fatty foods does not affect blood cholesterol levels	70.5%	75.8%	.166
9. If your "good" cholesterol (HDL) is high you are at risk for heart disease	49.2%	55.7%	.251
10. If your "bad" cholesterol (LDL) is high you are at risk factor for heart disease	83.1%	92.1%	.004
11. Being overweight increases a person's risk for heart disease.	97.5%	96%	.356
12. Regular physical activity will lower a person's chance of getting heart disease	97.5%	98%	.006
13. Diabetes mellitus is a risk factor for developing heart disease	58.9%	40.3%	.001
14. High blood sugar puts a strain on the heart	53.1%	67.9%	.003
15. People with diabetes mellitus rarely have high cholesterol	21.7%	26%	.023

Table 4: percentage of correctly answered questions among education

Question	Education			P-value
	Basic n=10	**Secondary** n=35	**Bachelor** n=415	
1.A person always knows when they have heart disease	0%	28.5%	41.4%	.001
2.If you have a family history of heart disease you are at risk for developing heart disease	50%	28.5%	37.1%	.002
3. The older a person is, the greater their risk of having heart disease	100%	28.5%	75.9%	.001
4. Smoking is a risk factor for heart disease	50%	85.7%	93.9%	.001
5. High blood pressure is a risk factor for heart disease.	50%	100%	86.2%	.001
6. Keeping blood pressure under control will reduce a person's risk for developing heart disease	50%	100%	92.5%	.001
7. High cholesterol is a risk factor for developing heart disease	50%	100%	92.7%	.001
8. Eating fatty foods does not affect blood cholesterol levels	0%	57.1%	76.6%	.001
9. If your "good" cholesterol (HDL) is high you are at risk for heart disease	50%	57.1%	52.5%	.001
10. If your "bad" cholesterol (LDL) is high you are at risk factor for heart disease	50%	85.7%	89.1%	.001
11. Being overweight increases a person's risk for heart disease.	100%	85.7%	97.5%	.002
12. Regular physical activity will lower a person's chance of getting heart disease	100%	100%	97.5%	.981
13. Diabetes mellitus is a risk factor for developing heart disease	50%	42.8%	50.1%	.001
14. High blood sugar puts a strain on the heart	50%	100%	58.3%	.001
15. People with diabetes mellitus rarely have high cholesterol	0%	42.8%	23.1%	.001

DISCUSSION

According to WHO, heart disease especially coronary heart disease is the leading cause of death globally and one of the major health burdens worldwide [1].

To the best of our knowledge, there is no much data and insufficient studies done regarding the knowledge and awareness of heart disease risk factors among public. Half of participants did not know that diabetes mellitus is a risk factor for heart disease (50.4%), and about three quarters disagreed to that if people have diabetes, they will have high cholesterol. Similar findings reported in another study and it showed that the participants were unaware of comorbid conditions like diabetes and hyperlipidemia[13].

In our study, the majority agreed to the following risk factors for heart disease: being overweight -96.7%, high cholesterol-92.4% and high blood pressure -86.5%. Another study reported overweight as considered a major risk factor (100%) for heart disease by the participants followed by high cholesterol level (98%) ,high blood pressure level 94% and smoking 92% [14].

In this study, 97.8% agreed to that as regular physical activity will lower a person's chance of getting heart disease and 92.2% though that keeping blood pressure under control will reduce a person's risk for developing heart disease. similar findings reported, as regular physical activity (90%) were considered as factors that help lower chances of developing heart disease, by the participants[14].

In this study, 72.8% agreed to that if a person increased in age, he is at increased risk for developing heart disease, while another study reported few participants were unaware of older age being a greater risk factor (10%). This study showed that 36.7% of participants think if they have a family history of heart disease they are at risk for developing heart disease, while another study showed similar results(32%) [14].

CONCLUSION

More attention is needed in primary prevention programs that focus on diet, exercise and the danger of heart disease and should be emphasized. Lifestyle changes such as modifying dietary habits can benefit those who are at risk of developing heart disease. Knowledge of risk factors of heart disease is essential to prevent development of, and identify heart disease. The study emphasizes on the importance of educating the population about the various risk factors of heart disease.

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