

Awareness and prevalence of coronary artery disease risk factors among Saudi adults in Dawadmi, Riyadh province: A cross-sectional study

Abdulmgeed Fahhad H. Alruways, Nemer Abdulaziz Alotaibi,
Mohammad Azhar Rashikh, Ali Alhumaidi Alnufeie,
Yosef Jazza D. Alshammari, Majed Rashed Alharthy, Faisal Jamal M. Alanazi

College of Medicine, Dawadmi, Shaqra University, Saudi Arabia

ABSTRACT

Objective: Coronary artery disease (CAD) is one of the leading causes of death and disability worldwide. Amongst the Middle East countries, Saudi Arabia is facing rapid progressive urbanization by the adoption of a westernized lifestyle and food habits, which contribute to the rising burden of CAD. We aim to evaluate the awareness and prevalence of CAD risk factors among Saudi adults. **Methods:** This was a cross-sectional study conducted between January and March 2020. Data were collected through an online survey using a self-administered questionnaire. Data assessed on socio-demographic variables, family history of CAD, knowledge of risk factors, symptoms, and complications of CAD. Results data were entered and analyzed using IBM SPSS statistics, version 25. All comparisons were considered significant at $P < 0.05$. **Results:** A total of 311 subjects (48.6% men and 51.4% women) included, and most of the participants were between 18 and 25 years. A majority of the participants did not hear about CAD (82%) and unaware of any risk factors (26.4%), symptoms (25.1%), and complications (72.7%) of CAD. The prevalence of a family history of CAD (9.3%), overweight/obesity (58.6%), physical inactivity (79.1%), and smoking (24.1%) observed considerably high among the participants. **Conclusion:** The present study reveals that a significantly low level of awareness and a high prevalence of CAD risk factors found among Saudi adults. Therefore, the awareness program is needed at the public level to increase the knowledge of CAD risk factors so that persons with high risk for future CAD can be prevented.

Keywords: Awareness, coronary artery disease, prevalence, sedentary behaviour, smoking

Introduction

Noncommunicable diseases (NCDs) are the leading cause of mortality globally and estimated to account for 71% of the 57 million global deaths.^[1] Among NCDs, cardiovascular disease (CVD), remains the major cause of death and disability worldwide.^[1] World Health Organization estimated that about

17.9 million people died from CVD in 2016, demonstrating for 44% of all NCD deaths and 31% of all global deaths.^[1] Out of 17.9 million CVD deaths, coronary artery disease (CAD) was responsible for 41.3% (7.4 million) deaths worldwide.^[2,3] Among the Gulf Cooperation Council (GCC) countries, Kuwait, United Arab Emirates, Saudi Arabia, and Oman (41, 40, 37, and 36%, respectively) were estimated to have the highest proportion of mortality due to CVDs.^[2] In the Middle East countries, the prevalence of CAD has been identified to range from

Address for correspondence: Dr. Mohammad Azhar Rashikh,
College of Medicine, Dawadmi, Shaqra University, Saudi Arabia.
E-mail: azharrashikh@gmail.com

Received: 06-06-2020

Revised: 31-08-2020

Accepted: 22-09-2020

Published: 30-11-2020

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_934_20

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How to cite this article: Alruways AF, Alotaibi NA, Rashikh MA, Alnufeie AA, Alshammari YJ, Alharthy MR, *et al.* Awareness and prevalence of coronary artery disease risk factors among Saudi adults in Dawadmi, Riyadh province: A cross-sectional study. J Family Med Prim Care 2020;9:5629-37.

5.4 to 13.4%.^[4,5] However, in Saudi Arabia, the prevalence of CAD was reported between 5 and 6%.^[6] The rates of CAD and associated risk factors are significantly high in the GCC countries due to the rapid urbanization, increased consumption of fast foods, adoption of sedentary behaviour, and socioeconomic growth.^[7-9]

Coronary risk factors generally classified into two main categories: modifiable and nonmodifiable risk factors. The common modifiable risk factors are smoking, consumption of fast foods, physical inactivity, hypertension, diabetes mellitus, dyslipidemia, overweight/obesity, and psychological stress.^[10] Nonmodifiable risk factors recognized as old age, gender, and family history to CAD.^[11-14] The mean age for CAD in the Middle East is ten years younger than the mean age for the disease worldwide.^[15]

Awareness has defined as prior knowledge of the status of disease risk factors. This knowledge will inform individuals to adopt a healthy diet, weight management, and physical activity.^[16] One of the key challenges in controlling CAD is the lack of knowledge of major drugs used in the treatment of CAD, unhealthy diet, and a sedentary lifestyle, which leads to an increase in hospitalizations and mortality.^[17] There are very few studies conducted in Saudi Arabia to assess public awareness of risk factors of CAD.^[18,19] In this context, our study designed to investigate the prevalence and awareness of risk factors of CAD among the Saudi adult population in the Dawadmi region, Riyadh Province.

Methods

Study design and participants

A cross-sectional study was designed and took place between January and March 2020 in the Dawadmi region of Saudi Arabia. A self-administered questionnaire was distributed among the general public and using a unique web link was sent to the randomly selected study subjects by mail, if there was no response within 2 weeks, a reminder mail sent. The completion of the survey was purely voluntary. In inclusion criteria, participants should be Saudi by citizenship, residents of Dawadmi city, and the villages around, ≥ 18 years old and either men or women.

Sample size

The total sample size was calculated by Jember, 2018 formula based on the prevalence of CAD-5.5% which was reported in a previous local study^[6] at 95% confident interval with 3% allowable error. Therefore, the least sample size for this study was 222, which was exceeded by enrolling 311.

$$n = (z2pq/I2)^{[20]}$$

Where

Z = 1.96 for 95% of confidence interval

p = 0.055 for 5.5% prevalence of CAD

q = 1-p = 0.945

I = Allowable error ($\pm 3\%$) = 0.03

$$= (1.96)^2 \times 0.055 \times 0.945 / (0.03)^2$$

Sample size (n) = 222

Data collection

Data were collected on a self-administered questionnaire using a unique survey web link. The questionnaire divided into four sections [Supplementary Material]: The first section included seven questions regarding sociodemographic and personal information of the participants (age, sex, place of living, education, nationality, weight, and height). Section 2 contained a family history of CAD from first-degree relatives. The third section included three questions about behavioural risk factors: smoking, fast food intake and physical activity. Section 4 included eight questions about awareness of CAD, where we asked from participants about a regular checkup, ever heard about CAD,

Table 1: Demographic and personal information of participants

Characteristics	Participants (n=311)	Frequency (%)
Age (Years)		
18-25	137	44.1
26-35	96	30.9
36-45	67	21.5
≥ 46	11	3.5
Gender		
Male	151	48.6
Female	160	51.4
Educational level		
High School	58	18.6
Diploma	16	5.1
Bachelor	228	73.3
Master Degree/PhD	9	2.9
Place of living		
Urban areas	214	68.8
Rural areas	97	31.2
Body mass index (BMI)		
Underweight	17	5.5
Normal weight	112	36.0
Overweight/Obese	182	58.6
Physical activity/Exercise		
No	246	79.1
Yes	65	20.9
Fast food intake		
Never	50	16.1
Once a week	157	50.5
Three times a week	47	15.1
More than three times a week	57	18.3
Smoking		
Yes	75	24.1
Family history of CAD	29	9.3

know the possible risk factors of CAD, know the symptoms of CAD, know the complications of CAD, threatened to live, knowing drug used in CAD and more health education regarding CAD. Before the administration of the questionnaire, the purpose of the study was briefly and described to the participants. Consent obtained from each participant before data collection. Data were strictly protected for confidentiality when conducting the study. At the end of the questionnaire, an email was provided to the participants to inquire about any unclear questions.

Definitions of risk factors

Physical activity. Subjects considered physically active if they were spending at least 150 minutes per week in aerobic exercises such as walking, jogging, swimming, cycling, family, or community activity.^[21,22]

Smoking. Participants who were currently smoking or had quit less than 1 year previously were classified as smokers. Nonsmokers were classified as those who had never smoked or who had quit more than 1 year previously.^[21]

Overweight/Obesity. Body mass index (BMI) calculated as weight (kg) divided by height (m²) and used as a marker for overweight and obesity. Height and weight were self-reported by the subjects. Underweight defined as BMI less than 18.5 kg/m²; healthy weight defined as BMI of 18.5–24.9 kg/m², overweight defined as BMI of 25.0–29.9 kg/m², while obesity defined as a BMI \geq 30.^[23]

Ethical approval

Ethical approval obtained from the Institutional Ethics Committee of the College of Medicine, Dawadmi, Shaqra University (project number-CMD/DWD/SU/2020/01/007).

Statistical analysis

Data were entered and evaluated using IBM SPSS statistics, version 25. Categorical variables presented as frequencies and percentages. A Chi-square test of significance was applied for comparisons. All comparisons were considered significant at $P < 0.05$.

Results

A total of 350 questionnaires were circulated, out of which 311 (88.85% response rate) subjects completed the online survey. Of the participants, 48.6% were men, and 51.4% were women. The present study found that the utmost of the participant's age is between 18 and 25 years. Women had a higher percentage of graduate degrees, and many participants lived in urban areas. The current study also presents BMI fast food intake, physical activity, and smoking behaviour. The results revealed that an equal number of participants were overweight and obese. In total, 79.1% of subjects were found physically inactive, and 24.1% of them had smoking behaviour [Table 1].

Knowledge of CAD

Table 2 reveals that a minimal number of participants (18%) heard about CAD. In gender comparison, men participants had significantly higher knowledge about CAD compared to their counterpart women, $P < 0.01$ [Table 2]. At an educational level, the participants who had university degrees were found significantly higher awareness about CAD compared to the primary education level of participants, $P < 0.01$ [Table 3]. When looking at the relationship between different age groups and people's knowledge of CAD, the inadequate knowledge of CAD was found highest in 26–35 years age group compared to

Table 2: Awareness of CAD among participants categorized by gender and living place

Characteristics	Total	Men (M)	Women (W)	P for M & W #	Live in Urban	Live in Rural	P for U & R #
	(n=311) n (%)	(n=151) n (%)	(n=160) n (%)		Areas (U) (n=214) n (%)	Areas (R) (n=97) n (%)	
Regular check-up of health including cholesterol level	34 (10.9)	15 (9.9)	19 (11.9)	0.583	24 (11.2)	10 (10.3)	0.813
Ever heard about CAD	56 (18)	36 (23.8)	20 (12.5)	0.009**	44 (20.6)	12 (12.4)	0.82
Know the complication of CAD	85 (27.3)	46 (30.4)	39 (24.3)	0.229	67 (31.3)	18 (18.6)	0.019*
CAD may lead to death/threaten to life	280 (90.0)	131 (86.8)	149 (93.1)	0.061	197 (92.1)	83 (85.6)	0.077
Know the symptoms of CAD							
Do not know	78 (25.1)	46 (30.5)	32 (20.0)	0.184	49 (22.9)	29 (29.9)	0.321
Know one symptom	96 (30.9)	45 (29.8)	51 (31.9)		70 (32.7)	26 (26.8)	
Know two symptoms	71 (22.8)	32 (21.2)	39 (24.4)		46 (21.5)	25 (25.8)	
Know three symptoms	66 (21.2)	28 (18.5)	38 (23.8)		49 (22.9)	17 (17.5)	
Know the risk factors of CAD							
Do not know	82 (26.4)	45 (29.8)	37 (23.1)	0.112	54 (25.2)	28 (28.9)	0.468
Know one risk factor	92 (29.6)	40 (26.5)	52 (32.5)		61 (28.5)	31 (32.0)	
Know two risk factors	76 (24.4)	31 (20.5)	45 (28.1)		52 (24.3)	24 (24.7)	
Know three or more than risk factors	61 (19.6)	35 (23.2)	26 (16.3)		47 (22)	14 (14.4)	
Know primary drug used in CAD	43 (13.8)	30 (19.8)	13 (8.1)	0.003*	33 (15.4)	10 (10.3)	0.226
Want more education of CAD	286 (91.9)	134 (88.7)	152 (95)	0.114	200 (93.5)	86 (88.7)	0.398

CAD, coronary artery disease; *Chi-square. * $P < 0.05$ and ** $P < 0.01$, considered significant; $P > 0.05$, considered nonsignificant

other group participants, and the difference was found statistically significant, $P < 0.01$ [Table 4].

Awareness of CAD risk factors, symptoms, and complication

In total, 26.4 and 25.1% of the participants did not know any risk factors and symptoms of CAD, respectively [Table 2]. At an educational level, the participants who had a higher education degree found significantly more knowledgeable about CAD symptoms, $P < 0.05$ [Table 3]. We also reported the knowledge of CAD complications; only 27.3% of the participants knew the complication of CAD [Table 2]. About the living place, the results of the study showed that urban participants had significantly higher knowledge about a complication of CAD compared to rural participants, $P < 0.01$ [Table 2].

Knowledge of major drugs used in CAD treatment

A small number of participants knew the primary drug used in CAD treatment [Table 2]. In a relationship with gender and

knowledge of major drugs used in CAD treatment, current results showed that men participants had significantly higher knowledge compared to women, $P < 0.01$ [Table 2]. In a relationship with educational level and knowledge of major drugs used in CAD treatment, significantly higher awareness observed in participants who had a university degree, $P < 0.05$ [Table 3]. In relationship with different age groups and knowledge of major drugs used in CAD treatment, a significant difference observed between different age groups ($P < 0.01$), but higher awareness found in 18–25 years age group [Table 4]. The present study results revealed that 91.9% of the participants wanted more community education regarding CAD risk factors, symptoms, and preventive measures [Table 2].

Prevalence of a family history of CAD

The present study demonstrates that 9.3% of the participants had a family history of CAD [Table 1]. Gender and age are the crucial nonmodifiable risk factor of CAD. In gender comparison, the prevalence of a family history of CAD was found

Table 3: Awareness of CAD among participants categorized by level of education

Characteristics	High school degree (n=58) n (%)	Diploma (n=16) n (%)	Bachelor (n=228) n (%)	Master/PhD (n=9) n (%)	P
Regular health checkup including cholesterol level	6 (10.3)	2 (12.5)	24 (10.5)	2 (22.2)	0.734
Ever heard about CAD	5 (8.6)	4 (25)	43 (18.9)	4 (44.4)	0.039*
know complication of CAD	7 (12.1)	4 (25)	71 (31.1)	3 (33.3)	0.034*
CAD may lead to death	49 (84.5)	14 (87.5)	208 (91.2)	9 (100)	0.325
Know the symptoms of CAD					
Do not know	21 (36.2)	7 (43.8)	49 (21.5)	1 (11.1)	0.026*
Know one symptom	15 (25.9)	8 (50)	69 (30.3)	4 (44.4)	
Know two symptoms	14 (24.1)	0 (0)	56 (24.6)	1 (11.1)	
Know three symptoms	8 (13.8)	1 (6.3)	54 (23.7)	3 (33.3)	
Know the risk factors of CAD					
Do not know	21 (36.2)	6 (37.5)	55 (24.1)	0 (0)	0.205
Know one risk factors	18 (31)	5 (31.3)	66 (28.9)	3 (33.3)	
Know two risk factors	14 (24.1)	2 (12.5)	57 (25)	3 (33.3)	
Know three or more than three risk factors	5 (8.6)	3 (18.8)	50 (21.9)	3 (33.3)	
Know primary drug used in CAD	3 (5.2)	2 (12.5)	33 (14.5)	5 (55.6)	0.044*
Want more education of CAD	54 (93.1)	14 (87.5)	209 (91.7)	9 (100)	0.345

CAD, coronary artery disease. * $P < 0.05$, considered significant; $P > 0.05$, considered nonsignificant

Table 4: Awareness of CAD among study participants categorized by different age groups

Characteristics	18-25 years (n=137) n (%)	26-35 years (n=96) n (%)	36-45 years (n=67) n (%)	≥46 years (n=11) n (%)	P#
Regular health check-up including cholesterol level	9 (6.6)	7 (7.3)	16 (23.9)	2 (18.2)	0.001***
Ever heard about CAD	35 (25.5)	8 (8.3)	10 (14.5)	3 (27.3)	0.006**
know complication of CAD	44 (32.1)	17 (17.7)	21 (31.3)	3 (27.3)	0.086
Know the symptoms of CAD					
Know one symptom	42 (30.6)	24 (25)	27 (40.3)	3 (27.3)	0.609
Know two symptoms	33 (24)	24 (25)	11 (16.4)	3 (27.3)	
Know three symptoms	28 (20.4)	19 (19.8)	16 (23.8)	3 (27.3)	
Know the risk factors of CAD					
Know one risk factors	40 (29.2)	31 (32.3)	16 (23.8)	5 (45.4)	0.101
Know two risk factors	26 (18.9)	23 (23.9)	24 (35.8)	3 (27.3)	
Know three or more than three risk factors	34 (24.8)	12 (12.5)	14 (20.9)	1 (9.1)	
Know CAD may lead to Death	123 (89.8)	82 (85.4)	65 (97.0)	10 (90.9)	0.115
Know primary drug used in CAD	27 (19.7)	5 (5.2)	10 (14.5)	1 (9.1)	0.017*

CAD, coronary artery disease; #Chi-square test. * $P < 0.05$, ** $P < 0.01$, considered significant; *** $P < 0.001$, considered highly significant

significantly high among the women compared to its counterpart, $P < 0.05$ [Figure 1]. About different age groups, we observed that the prevalence of a family history of CAD was found significantly high among the older age group participants, $P < 0.05$ [Figure 2].

Prevalence of overweight/obesity

Table 1 demonstrates that 58.6% of the participants were found overweight/obese. In gender comparison, the prevalence of overweight/obese was seen higher in women compared to men, but the difference was observed nonsignificant, $P > 0.05$ [Figure 1]. According to age groups, the prevalence of overweight/obese was found significantly higher in the 36–45 year age group, $P < 0.001$ [Figure 2]. Regarding the educational level, the prevalence of overweight/obese found to be significantly high among the low-level educational degree participants, $P < 0.001$ [Figure 3].

Prevalence of smoking

In gender comparison, the prevalence of smoking was observed significantly higher among men than in women, $P < 0.001$ [Figure 1]. According to the age group, the prevalence of smoking found to be significantly high in 46–65 years age group participants, $P < 0.05$ [Figure 2]. Regarding the educational level, the prevalence of smoking found to be significantly higher among lower educational degree participants, $P < 0.01$ [Figure 3].

Prevalence of physical inactivity

Table 1 presents that 79.1% of the participants were physically inactive. In gender comparison, the prevalence of physical inactivity was observed higher among women than in men, but the difference was observed nonsignificant, $P > 0.05$ [Figure 1]. With regards to the educational level, the prevalence of physical inactivity was found slightly higher in lower educational degree participants, and the difference was found nonsignificant, $P > 0.05$ [Figure 3].

Prevalence of fast food intake

Table 1 shows that 33.4% of the participants consumed fast food at least three times a week. In gender comparison, the prevalence of fast food intake was observed significantly among men, $P < 0.001$ [Figure 1]. According to the age group, the prevalence of fast food intake was found significantly high in younger age groups, $P < 0.001$ [Figure 2].

Discussion

There is a fewer number of studies on the knowledge and prevalence of CAD risk factors among the general population of Saudi Arabia. The purpose of this study was to evaluate awareness and prevalence of CAD risk factors and identify demographic variables associated with knowledge levels among the Saudi adult community. In the present study, two-third of the participants had a university degree, which is higher than Palestine,^[24] Oman,^[25] and Cameroon^[26] but lower than the United Arab Emirates^[27] and Kuwait.^[28]

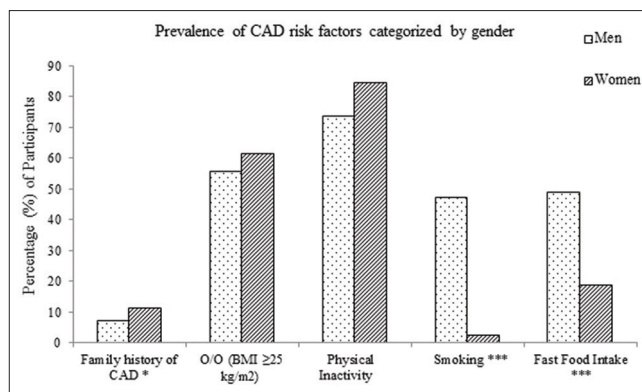


Figure 1: Prevalence of CAD risk factors among participants categorized by gender. * $P < 0.05$; considered significant, *** $P < 0.001$; considered highly significant. CAD, Coronary artery disease; O/O, Overweight/Obesity; BMI, Body mass index

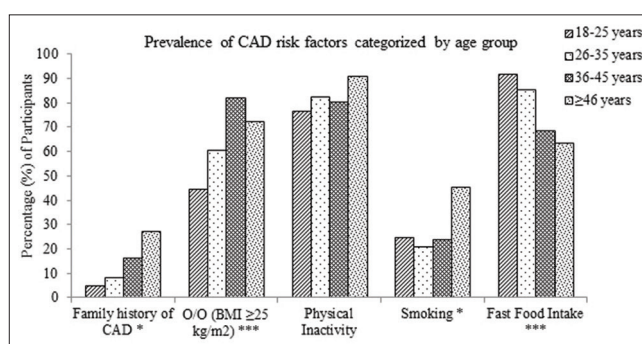


Figure 2: Prevalence of CAD risk factors among study participants categorized by age group. * $P < 0.05$, ** $P < 0.01$, considered significant; *** $P < 0.001$, highly significant; $P > 0.05$, considered nonsignificant. CAD, Coronary artery disease; O/O, Overweight/Obesity; BMI, Body mass index

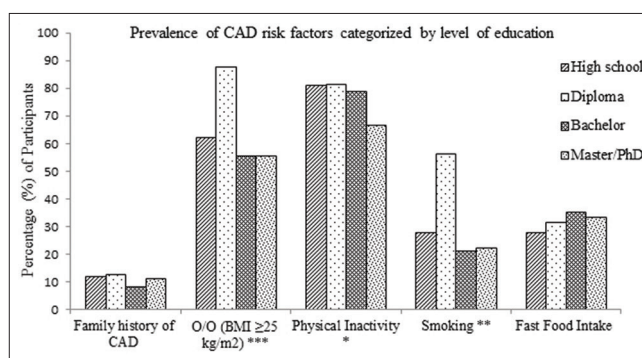


Figure 3: Prevalence of CAD risk factors among participants categorized by level of education. * $P < 0.05$, ** $P < 0.01$, considered significant; *** $P < 0.001$, highly significant; $P > 0.05$, considered nonsignificant. CAD, Coronary artery disease; O/O, Overweight/Obesity; BMI, Body mass index

The results showed that a meagre percentage of study participants heard about CAD (18%). This finding is lower than any earlier studies.^[25,26] The relatively low level of knowledge among the entire sample in the present study could be due to inadequate educational programs, deprived knowledge of health science, and a low number of community health centres. The study

results also revealed that women participants had significantly less knowledge about CAD compared to men. This result was inconsistent with an earlier study, which indicated that women had more knowledge of CAD.^[29] It might be due to the lack of health awareness programs in female health care centres in Saudi Arabia. The present study revealed that university degree participants heard about CAD with a better percentage than those with primary and diploma educational degrees. Therefore, the higher education system, especially in health science, could be vital in increasing the level of CAD knowledge.

The results of the current study publicized that 74.9% of study participants identified at least one symptom of CAD that consistent with India^[30] and higher than Malaysia.^[31] Women in our study observed to be more knowledgeable about symptoms of CAD than men. Similar results reported in other studies conducted in the United Arab Emirates^[27] and Kuwait.^[28] Therefore, our results indicated that participants from urban areas and a university degree had good knowledge of CAD symptoms.

Concerning CAD risk factors, our study participants had good knowledge, which was higher in women compared to men. About 73.6% of the population could identify at least one risk factor of CAD. This awareness is consistent with India^[30] and found it better than Malaysia^[31] and Cameroon.^[26] It might be due to the majority of our participants had a university level of education, but in Malaysia and Cameroon, the majority had an elementary level of education. The results showed that only 13.8% of participants knew about significant drugs used in CAD, and women's knowledge was significantly lower than that of men. It suggests that improving awareness through education is likely necessary to achieve better control of CAD and its associated complication in Saudi Arabia. Our results also revealed that 91.9% of participants were interested in getting more education on CAD.

Family histories of CAD and advanced age are the critical, independent risk factors of CAD.^[14,32] The present results showed that families from older age group participants had a higher prevalence of CAD, which is consistent with earlier studies.^[33-35] Our study also revealed that women had a higher prevalence of CAD, which is consistent with local and Indian study results.^[33,36]

In the present study, we found that 58.6% of the participants had a BMI of ≥ 25 kg/m². Our BMI results are consistent with the previous study of Saudi Arabia^[37] but lower than Oman^[25] and Lebanon^[38] and higher than the Cameroon population.^[26] BMI has been significantly high in urban, older age, women, and lower educational level participants compared to their counterparts. Similar results reported in earlier local studies of Saudi Arabia.^[21,39,40] This finding revealed that overweight and obesity were directly associated with urbanization, older age, lower educational level, unhealthy diet habits, and sedentary lifestyle. With the reduction of obesity, the study results emphasized that people should educate about the higher risk of CAD associated with obesity. They offered guidance for

weight reduction through a healthy lifestyle incorporating a balanced diet and adequate exercise, pharmacological and surgical means.

Cigarette smoking is another modifiable risk factor of CAD and a critical role in the development of premature CAD. Smoking habits vary according to gender, age, socioeconomic status, and education.^[41] In our present study, the prevalence of smoking found consistent with a prior study of Saudi Arabia^[21] while higher than India.^[36] Cigarette smoking acts synergistically with other conventional risk factors, greatly increasing the baseline risk associated with each risk factor individually.^[42,43] Thus, eradicating cigarette smoking is of dramatic public health importance because it could delay the onset of CAD by a decade. With the reduction of smoking behaviour, the Ministry of Health will have to apply effective antismoking media campaigns and the provision of antismoking clinics to support individuals who want to quit smoking.

Fast food intake and physical inactivity considered as major modifiable risk factors for CAD.^[44-46] The present study results revealed that one-third of the study participants consumed fast food three times a week. However, the consumption of fast food was found more significantly among younger age men participants. Our study results also showed that the majority of participants (79.1%) spent a sedentary lifestyle and did not involve in regular exercise, which is consistent with previous local studies.^[13,21,33,37] Sedentary behaviour was observed more prevalent in female participants. The present finding recognized that sedentary behaviour among the Saudi population is more significant than China and the United States.^[47] Rising in sedentary behaviour among the Saudi population may be due to rapid development and economic growth. Therefore, the Ministry of Health should start the awareness program regarding the benefits of exercise among the general population and positively encourage people to improve their behaviour to reduce CAD.

Conclusion

The results of the current study suggest that the Saudi population have a low level of awareness of risk factors, symptoms, and complication of CAD. Modifiable risk factors such as smoking, overweight/obesity, fast food intake, and physical inactivity were significantly associated with knowledge levels. More than one-fourth of the total participants could not identify any single CAD risk factors. Results also showed that about one-third of Saudi adults had more than two risk factors of CAD. We accept that this is due to urbanization, a westernized lifestyle, low physical activity, and poor health educational programs. Therefore, general public health awareness programs and cardiac educational activities should implement to increase the level of awareness among the Saudi population about CAD and to reduce the prevalence of this life-threatening disease. Further studies are required to determine the crucial causes for the lower awareness and high prevalence of CAD risk factors in the Saudi population.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Supplementary material

Survey Questions

Personal Information

1. Sex: Male Female
2. Age: 18-25 years 26-35 years 36-45 years 46-65 years
3. Education High School Diploma Bachelor Master/Ph.D.
4. Nationality Saudi Non-Saudi
5. Living area Dawadmi City Dawadmi Village
6. Weight:
7. Height:

Do your first-degree relatives (mother, father, full sibling) have coronary artery disease diagnosed by a physician? Yes No

Risk factors questions

1. Smoking Yes No
2. Physical activity/exercise (spending at least 150 min per week in aerobic exercises such as walking, jogging, swimming, cycling, family or community activity) Yes No
3. How many times do you eat junk food?
 Never Once a week Three times a week More than three times a week

Health awareness questions

1. Do you do regular checkup including cholesterol level? Yes No
 2. Have you ever heard about coronary artery disease? Yes No
 3. Which one of the following is leading to coronary artery disease? “you can choose one or more than one”
 I do not know
 Family history of CAD
 Obesity
 Chronic diseases (hypertension, diabetes, high cholesterol level/dyslipidemia)
 Smoking
 Eating junk food
 Physical inactivity
 4. Which one of the following symptom is related to coronary artery disease? “you can choose more than one”
 I do not know
 Chest pain
 Shortness of breathing
 Pain radiated of left arm
 5. Do you have knowledge about complication of coronary artery disease? Yes No
 6. Do you think that coronary artery disease threatened your life? Yes No
 7. Do you know the primary drugs used in CAD? Yes No
 8. Do you think that there should be more education regarding about CAD? Yes No
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Key findings:

- Saudi adults affirmed to have poor knowledge about CAD and its risk factors
- One-fourth of Saudi adults did not know any single risk factors of CAD
- 72.7% of Saudi adults did not know about the complication of CAD
- More than 58% of Saudi adults noted to have at least two risk factors of CAD
- 9.3% of the participants perceived to have a family history of CAD
- Prevalence of fast food intake was observed significantly high among male and younger age group participants ($P < 0.001$)