

## Evaluation of knowledge, attitudes and practice of coronary artery disease risk factors among general population in Tabuk City, Saudi Arabia

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### Abstract

**Background:** The prevalence of the coronary artery disease (CAD) is increasing in the developing countries, including Saudi Arabia. The aim of this study was to evaluate knowledge of CAD risk factors and to appraise the related attitude and practice among the general population of Tabuk city, Saudi Arabia. **Methods:** A cross-sectional descriptive study was conducted on a random sample of Tabuk city population. Each participant responded to a questionnaire paper requesting information about his personal details, knowledge about the CAD risk factors, his attitude, and his actual practice towards the risk factors. Study permission was obtained from the Research Committee (Faculty of Medicine/ University of Tabuk). Informed consents were obtained from the participants before entry into the study. The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL), version 20. Statistical significance was accepted when P value is less than 0.05. **Results:** A total of 126 adult subjects (69.84% males) participated in this study. Of the participants, 71.42% received university education, 2.4% had a past history of heart attack, 3.2% were known cases of diabetes mellitus, and 6.3% were known cases of hypertension. The commonest risk factors identified by the participants were smoking (81%). Those who could identify hypertension, obesity, smoking and diabetes mellitus were 65.9%, 77.8%, 81.0%, and 37.3% respectively. Less than two thirds (64.3%) of individuals could identify stress as a risk factor, and less than half (44.4%) could identify the genetic tendency as a risk factor of CAD. The majority of participants (72.2%) know that lack of exercise or the sedentary life style is a risk factor for CAD; however, only 8.16% were fully aware of the principal five modifiable risk factors of heart disease. **Conclusion:** The study showed critical deficiencies in CAD risk factors knowledge and perception that could result in underestimation of the disease severity. Educational health programs are highly recommended to increase awareness about the modifiable risk factors of the CAD.

**Key words:** Coronary Artery Disease, Risk Factors, Knowledge, Attitude, Practice

### Introduction:

Cardiovascular diseases (CVD), including coronary artery disease (CAD), constitute major public health problems worldwide. Each year, mortality due to heart diseases exceeds that of cancer around the world. Most countries face high and increasing rates of CVD. It is one of the principal causes of death and disability in the United States and most European countries<sup>(1)</sup>. A recent survey showed that the vast majority of killer diseases in the Kingdom of Saudi Arabia (KSA) are non-communicable, chronic diseases<sup>(2)</sup>. The worldwide increase in CVDs, especially in the developing countries, is caused by the rapid urbanization and its related reduction in physical activity and unhealthy diet.

By the time heart problems are detected, their underlying pathology (atherosclerosis) is usually well established, and had been developing for long time. A recent study reported a high prevalence of cardiovascular disease risk factors among young adults<sup>(3)</sup> Risk

factors, including unhealthy diet, sedentary lifestyle, cigarettes or shisha smoking, and obesity, are reaching dangerous levels in our community. The interaction of these risk factors with other genetic, physiologic, and environmental factors plays a major role in the underlying cause of coronary artery disease (CAD). Healthy diet, exercise and avoidance of smoking are invaluable measures in preventing atherosclerosis. A national prevention program at the community level as well as high risk groups is highly recommended to prevent the rapid rise in CAD morbidity and mortality. Therefore, the assessment of knowledge, attitude and practice of CAD and the association of these three components with the educational level of the general population could be one of the most important factors in planning how to prevent CAD that is fatal even in those patients who are without a history of coronary heart disease.

On the light of the current health care service and policy in Saudi Arabia that highlights the importance of implementing preventive measures against the coronary vascular diseases in general, we carried out this study aiming at evaluating knowledge, attitude, and practice of CAD risk factors among men and women in Tabuk city, Saudi Arabia.

### Materials and Methods

We carried out a cross-sectional descriptive study in Tabuk city, Saudi Arabia, during the period from January to October 2017. A total of 126 subjects participated in this study. Their ages ranged from 20 to 65 years old. We followed a simple random technique for selection of the participants from the major malls in the city. Each participant responded to a self-administered questionnaire paper requesting information about his personal details, knowledge about risk factors of CAD, his attitude towards the risk factors, and his actual practice regarding the risk factors. The obtained data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL), version 20. Statistical significance was accepted for  $P < 0.05$ . The research was carried out according to the ethical principles of medical research developed by the World Medical Association Declaration of Helsinki <sup>(4)</sup>

Approval was obtained from the Local Research Committee of the Faculty of Medicine- University of Tabuk. Informed consents were obtained from the participants before filling the questionnaires.

### Results:

Table 1 describes general characteristics of the participants. A total of 126 subjects (69.8% males) participated in this study. Mean age  $\pm$ (SD) was 32.41 (10.120) years. University graduates represent 71.4% of all participants. Those who suffer from a chronic medical illness were 12.7%. Table 2 shows that a large proportion of the respondents lack predefined good level of knowledge regarding modifiable risk factors of MI. Those who correctly identified hypertension, obesity, smoking and diabetes mellitus as modifiable risk factor were 65.9%, 77.8%, 81.0%, and 37.3% respectively. More than a quarter (27.8%) of all participants could not identify lack of exercise or sedentary life style as a risk factor of CAD. Less than two thirds (64.3%), and less than half (44.4%) could identify stress and genetic predisposition, respectively, as CAD risk factors. Only 8.16% of the participants were fully aware of all five key modifiable risk factors of heart disease. Statistical analysis showed an insignificant gender difference regarding knowledge about CAD risk factors except for the lack of exercise ( $p= 0.021$ ). Table 3 shows an insignificant association between CAD perception and gender, body weight, or educational level. Table 4 illustrates that only 38.9% know the symptoms of an acute heart attack. The knowledge about MI symptoms was higher among males compared to females ( $p= 0.050$ ), non-obese compared to obese group ( $p= 0.031$ ), and university graduates compared to those with lower degree of education ( $p= 0.005$ ).

**Table 1: General characteristics of the study group n= 126**

Character		Frequency	%
Gender	Male	88	69.8
	Female	38	30.2
Smoking	Yes	42	33.3
	No	75	59.5
	Past	9	7.1
Education	Primary-Secondary	36	28.6
	University	90	71.4
Co-morbidity	None	110	87.3
	DM	4	3.2
	HT	8	6.3
	Others	4	3.2

**Table 2: Knowledge about MI risk factors among males and females in the study group n= 126**

Knowledge	Male	Female	Total	P value
DM	31 (24.6%)	16 (12.7%)	47 (37.3%)	0.763
HT	55 (43.7%)	28 (22.2%)	83 (65.9%)	0.474
Smoking	69 (54.8%)	33 (26.2%)	102 (81.0%)	0.238
Lack of exercise	67 (53.2%)	24 (19.0%)	91 (72.2%)	0.021
Overweight	65 (51.6%)	33 (26.2%)	98 (77.8%)	0.238
Stress	53 (42.1%)	28 (22.2%)	81 (64.3%)	0.347
Genetic	40 (31.7%)	16 (12.7%)	56 (44.4%)	0.776
Aging	44 (34.9%)	18 (14.3%)	62 (49.2%)	0.954
Fatty food	61 (48.4%)	31 (24.6%)	92 (73.0%)	0.306

**Table 3: Perception of coronary artery disease among different groups of the study sample n= 126**

		Perception of coronary artery disease			
		Yes	No	Not sure	P-value
Sex	M	73 (57.9%)	38 (30.2%)	13 (10.3%)	0.300
	F	19 (15.1%)	17 (13.5%)	2 (1.6%)	
Obesity	Non-obese	21 (16.7%)	15 (11.9%)	6 (4.8%)	0.439
	Overweight/Obese	35 (27.8%)	40 (31.7%)	9 (7.1%)	
Education	Primary-Secondary	12 (9.5%)	20 (15.9%)	4 (3.2%)	0.216
	University	44 (34.9%)	35 (27.8%)	11 (8.7%)	

**Table 4: Knowledge about symptoms of MI among different groups of the study sample n= 126**

		Symptoms knowledge			
		Yes	No	Not sure	P-value
Sex	M	29 (23.0%)	34 (27.0%)	25 (19.8%)	0.050
	F	20 (15.9%)	7 (5.6%)	11 (8.7%)	
Obesity	Non-obese	23 (18.3%)	9 (7.1%)	10 (7.9%)	0.031
	Overweight/Obese	26 (20.6%)	32 (25.4%)	26 (20.6%)	
Education	Primary-Secondary	12 (9.5%)	19 (15.1%)	5 (4.0%)	0.005
	University	37 (29.4%)	22 (17.5%)	31 (%)	

**Discussion**

The findings of the present study can be regarded as a preliminary step in providing quantitative information about the underlying

level of knowledge and perception of CAD risk factors among the general population in Tabuk city. Such information can be used in planning

future educational programs to enhance awareness and knowledge about cardiovascular diseases, their risk factors, and possible measures of prevention.

In spite of the findings that the majority of the participants were university graduates, the overall level of knowledge was low, indicating a wide gap between pedagogy and health education in our country. The educational level in the nearby countries, like Kuwait and Jordan, has a direct relation to a general knowledge about CAD risk factors <sup>(5,6)</sup>.

The commonest risk factors identified by the participants were smoking; however, one third of the participants were current smokers. Similar findings was also reported in the Kuwaiti survey <sup>(7)</sup>. It is worth noting that smoking is a modifiable risk factor. With a targeted health education, the high risk group can be convinced to quit smoking.

The study showed poor knowledge about many of the important CAD risk factors. Both regional and international studies reported comparable results <sup>(5-9)</sup>. The participants' failure to identify the relation between diabetes mellitus and CAD gives a clue about the poor attention given to the tight control of this disease among the community. The impact of emotional stress on health and its role in the pathogenesis of CAD was not appreciated by one third of the participants.

A very alarming finding was the lack of knowledge about symptoms of acute myocardial infarction, even among the well-educated participants. This may cause delay in seeking medical advice and therefore results in higher degrees of mortality. Similar findings were also reported in the Kuwaiti study <sup>(5)</sup>.

The present study showed insignificant difference between males and females in CAD risk factors knowledge. The same finding was reported in the Jordanian survey <sup>(6)</sup>. Females are supposed to show higher awareness because of their less working hours compared to males, which give them free time to increase their knowledge through the mass media or the smart phone applications <sup>(5)</sup>.

One of the major limitations of this study is the recall bias that is a feature of self-administered

questionnaire studies. However, our results showed deficiencies in risk factors knowledge and perception of CAD, that could result in inadequate preventable measures against cardiovascular diseases. On the other hand, the poor knowledge about acute heart attack symptoms might cause a delay in doctor consultation and all the related complications that could be caused by the late presentation. The present study highlighted the need for improvement in health education and promotes behavioral changes towards positive health habits.

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