

## AWARENESS OF CORONARY ARTERY DISEASE RISK FACTORS AMONG PATIENTS AT A TERTIARY CARE HOSPITAL IN RAWALPINDI PAKISTAN

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### Abstract

**Background:** Pakistan has a huge burden of Coronary Artery Disease (CAD) and dearth of resources to fight it, which makes primary prevention of the disease by increasing awareness among the population very important. The objective of this study was to assess awareness of Coronary Artery Disease risk factors among patients in Rawalpindi.

**Methods:** This was a cross-sectional descriptive study conducted at Armed Forces Institute of Cardiology Rawalpindi Pakistan from November 2016 to November 2017. Sample size of 480 was calculated using WHO sample size calculator. Questionnaires were distributed to 480 outdoor patients by convenience sampling, of which 80 (16.5%) did not know about CAD and were not investigated further. Responses only from the remaining 400 patients were included. The questionnaire contained close-ended questions on risk factors for CAD and means of increasing CAD awareness. Indoor patients were excluded from the study. Data was analyzed with SPSSv21.

**Results:** The mean age of patients was 53+6 years and 60% were males. 81.5% patients were able to read and write. Mean score of correctly identified risk factors was (6+2 out of 10). The percentage of patients aware of the different risk factors is as follows; diabetes (59.3%), hypertension (80.7%), dietary fat (79%), smoking (77.5%), stress (75.5%), sedentary lifestyle (68%), obesity (66%), old age (65.2%), male gender (52.7%) and family history (52%). Percentage of patients desirous of increasing their awareness about CAD risk factors through various means is as follows; treating physicians (84.8%), media (76.5%), syllabus and scholars (82.8%).

**Conclusion:** Awareness about modifiable risk factors; hypertension, smoking, high dietary fat intake, obesity, sedentary lifestyle and stress with the exception of diabetes is reasonably good. Awareness about non-modifiable risk factors; family history, male sex and aging is poor.

**Keywords:** Coronary artery disease, risk factors, awareness, Pakistan

## Introduction

Coronary Artery Disease (CAD) is an atherosclerotic disease influenced by multiple factors. It results in a high degree of physical disability as well as morbidity and mortality. Cardio-vascular diseases (CVDs) account for one-third of total deaths globally. In Pakistan, Coronary Artery disease was the leading cause of death, killing 111.4 thousand people in 2012.(1) Coronary Artery Disease is the most common type of heart disease in the United States, killing more than 370,000 people annually.(2) The disease burden of CAD in Pakistan is estimated to be around 5 million people.(3)

A decline in the CAD mortality rate over the past few decades has been observed and can be attributed to improved treatment facilities and better control and prevention of the Risk Factors.(4) In United States, deaths due to CADs have reduced, but control of traditional risk factors still remains a problem.(5)

Prevention and modification of the risk factors significantly prevent/delay onset of CAD. Non-modifiable factors include age, gender, race and family history, whereas cholesterol intake, smoking habits, diabetes, hypertension, lifestyle and alcohol intake are modifiable.(6) Prevention can be either primary or secondary. A behavioral change towards CAD requires awareness of its risk factors as a pre-requisite.(7)

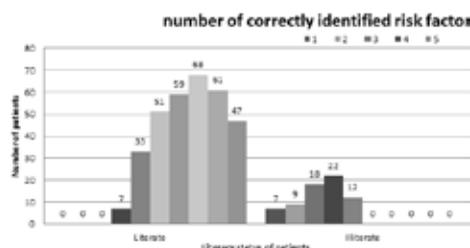
Although there is paucity of indigenous data on the subject, increasing awareness about the cardiovascular risk factors is intuitively likely to reduce the burden of heart disease.(8). In a country like Pakistan, which has a huge burden of CAD and dearth of resources to fight it, primary prevention of the disease by increasing awareness among the general population is of utmost importance.

## Methodology

We conducted this cross-sectional descriptive study at Armed Forces Institute of Cardiology (AFIC) from November 2016 to November 2017 on sample of 480 adult participants attending the adult cardiology and cardiac surgery, and admitted to the hospital, by convenient sampling, of which 80 (16.5%) didn't know about CAD. These subjects were excluded from the study. Responses only from the remaining 400 patients were included. Informed consent was obtained from the participants. The questionnaire was initially developed in English, translated into Urdu, then back-translated into English to check for consistency. Content validity was done by medical experts. The questionnaire consisted of close-ended questions on risk factors for CAD and means of increasing awareness among the people. It had 14 questions. Ten questions were about each CAD risk factor described in medical textbooks. Correctly identified risk factor carried 1 score each. The questionnaire was pre-tested on 20 patients other than those included in the study. The questionnaires were distributed to the patients who were included in the study in the outpatient department (OPD) and they were asked to complete and return them there and then. The patients were asked by trained medical students to fill the questionnaires. Those who could not read, were interviewed face to face by trained medical students. Data were entered and analyzed with SPSS version 21.0. Mean age of the patients was calculated. Frequencies and percentages were calculated for each categorical variable.

## Results

Of the total 400 participants, the mean age of the respondents was 53+6 years with an age range from 35 to 95 years, with 60% being males and 40% females. Most of them (81.5%) were able to read and write. Out of the 10 risk factors for Coronary Artery Disease (CAD) asked, mean score of correctly identified risk factors was 6+2. They correctly identified at least 4 risk factors, whereas none of the illiterate patients could correctly identify more than 5 risk factors (figure 1).



**Figure 1. Association between patient literacy and correctly identified CAD risk factors**

As shown in Table I, there was not a single CAD risk factor that was correctly identified by more than 80% of the participants. Only 4 out of the 10 risk factors were identified by more than three-quarter of patients of which hypertension was the most widely recognized, followed by dietary fat, smoking and stress. About one third of the patients did not consider obesity and sedentary lifestyle to be risk factors for CAD. More than a third of the patients were not aware that diabetes and old age put one at risk of developing CAD. Only a half of the patients believed that males or people with a family history of CAD are more vulnerable to be affected by the disease.

**Table 1. The percentage and number of patients aware of different CAD risk factors**

Risk Factors	Percentage %	Number (out of 400)
Diabetes	59.3%	237
Hypertension	80.7%	323
Smoking	77.5%	310
Dietary Fat	79%	316
Obesity	66%	264
Sedentary Lifestyle	68%	273
Stress	75.5%	302
Male Gender	52.7%	211
Old Age	65.2%	261
Family History	52%	208

In addition to electronic and print media, other popular means of awareness among the patients were treating physicians, religious scholars, teachers and educational syllabi. As shown in Table II, more than three-quarters of the patients wanted to gain information about the disease through these means.

**Table 2. Percentage and number of patients desirous of increasing their awareness about CAD risk factors by different means of information**

Means of Information	Percentage %	Number (out of 400)
Treating Physician	84.8%	339
Electronic & Print media	76.5%	306
Teachers & Religious Scholars	82.8%	331
Educational Syllabus	82.8%	331

## Discussion

In our study, majority of participants identified hypertension (80.7%), dietary fat consumption (79%) and smoking (77.5%) as risk factor for heart disease. These findings are similar to a study conducted at four educational institutes of Karachi showed that participants considered smoking as the top-most risk factor for CAD, whereas hypertension and high dietary fat were ranked as the second and third most common risk factors.(8) The results of our study are also at par with another study looking at knowledge of heart disease risk factors in acute MI patients in Karachi.(9)

Only 66% participants were of the opinion that obesity could cause CAD and only 68% considered sedentary lifestyle to be a risk factor. This was also observed in a study among university students in Karachi where 88% percent of students thought or knew that exercise prevents heart diseases.(8) In contrast, another study among patients in Karachi reported that only a minority could identify obesity or lack of exercise as risk factors for heart disease.(9) This striking difference can be attributed to increased awareness among the university students but is not a rule as another study conducted among other university students in Pakistan shows contrasting results where only 22% respondents

scored above 20 out of 28 showing lack of knowledge.(10)

The results of our study are in contrast to another study conducted at four tertiary care hospitals in Pakistan which demonstrates relatively poor knowledge about risk factors for coronary artery disease.(11) The correct identification of risk factors in their study was as follows; smoking (31%), Obesity (14%), lack of exercise(17%) and dietary fat (39%). Our study revealed relatively higher correct identification of these risk factors.

A study conducted in the United States reported CAD risk awareness to be high for hypertension (82.2%) and dietary fat (67%) but lower for diabetes (40.8%) and obesity (29.4%).(12) These findings are similar to but not quite the same as our study since 59.3% of participants recognized diabetes and 66% identified obesity as risk factors for CAD. Another study in the United States also showed mean CAD knowledge score of 63.7%.(13)

A study in Poland concluded that the awareness of CVD risk factors among ambulatory patients was very low where only 7.4% of patients knew at least 3 risk factors. Smoking and high dietary fat were best recognized (33.1% and 27.4%, respectively) while old age was identified only by 2.5% of the individuals.(14) Contrary to this observation, a much higher percentage of participants (65.2%) thought old age was a risk factor for CAD.

Only 52% of participants in our study considered positive family history and male gender as risk factors for CAD. Although these are non-modifiable risk factors, but the population with these risk factors needs to be more careful, regulate their diet and maintain an active lifestyle.

All the above mentioned national and international studies highlighted need for increasing awareness about coronary artery disease and recommended that education on CAD risk factors be imparted through various health education programs.

Our study has a few limitations. First, the convenience sampling method introduces selection bias. As data was obtained only from one cardiac care tertiary hospital, representing the demographic area of one metropolitan city, we feel that our study population may be somewhat reflective of the awareness level only of the general population of a small region within Pakistan. However, patients may be either less knowledgeable or more informed than the general population. Exposure to a hospital environment may have resulted in increased awareness about CAD among patients than the general public. Furthermore, the respondents were recruited from Cardiology and Cardiac Surgery outpatient clinics and, therefore, may be more aware of CAD. Therefore, the true knowledge state of the general population may be lower than was observed in this study.

#### Conclusion

Awareness about modifiable risk factors; Hypertension, Smoking, High Dietary Fat Intake, Obesity, Sedentary lifestyle and Stress with the exception of Diabetes is reasonably good. Awareness about non-modifiable risk factors; family history, male gender and aging, is somewhat poor.

Large Scale Surveys should be conducted to assess the level of awareness about CAD among the general population. The following measures should be taken to increase awareness; Treating Physicians should educate their patients about CAD and its risk factors, Electronic & Print media must be used to increase awareness about CAD in the population, Teachers & Religious Scholars should create awareness about CAD among their pupils and Lessons on CAD should be included in the Educational Syllabus.

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