

ORIGINAL ARTICLE

KNOWLEDGE OF MODIFIABLE RISK FACTORS OF CARDIOVASCULAR DISEASES AMONG PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

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Background: Cardiovascular disease is a major cause of mortality and morbidity in Pakistan. Knowledge regarding any disease is an important pre-requisite for implementation of preventive and control measures. This study aimed to evaluate the knowledge of modifiable risk factors of cardiovascular diseases in acute myocardial infarction (MI) patients admitted to Ayub Teaching Hospital, Abbottabad, Pakistan. **Methods:** It was a hospital based cross sectional descriptive study carried out in cardiology unit of Ayub Teaching Hospital, on 150 patients with first attack of acute MI. knowledge of four modifiable risk factors; fatty food consumption, smoking, physical activities and obesity, was assessed. **Results:** Among 150 subjects, 103 (68.7%) were males while 47 (31.3%) were females. Forty three (28.7%) of the patients were having good level of knowledge. Male gender and educational status were associated with good level of knowledge. **Conclusion:** There is a lack of good level of knowledge among patients admitted with acute MI. Implementing aggressive educational strategies is of utmost importance in Pakistani population for preventing the rising prevalence of this disease to combat the burden of MI.

Keywords: Knowledge, modifiable risk factors, MI, Myocardial Infarction, Pakistan

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INTRODUCTION

Rapid urbanization and adoption of sedentary life style resulted in a rising burden of cardiovascular diseases in the developing world.¹⁻³ Cardiovascular diseases are responsible for one in four deaths at global level (12.9 million).⁴ Tobacco smoking, unhealthy diet, lack of physical activities and over use of alcohol, contribute to 80% of cardiovascular diseases.⁵ Lack of facilities in the hospitals keep developing nations unequipped to cope with this burden, and its coupling with lack of education and awareness of the disease symptoms result in worse outcome of the disease.⁶ the rising rates of hospital admissions and mortality from cardiovascular diseases at an early age is an explicit example of it.⁷ Moreover, people from South Asian region have one of the highest risks of cardiovascular diseases in the world.

The most effective way to combat the epidemic of cardiovascular diseases in low income countries is its prevention. Awareness regarding modifiable risk factors of cardiovascular diseases has been identified as an important pre requisite for behaviour change and is often intended by the prevention programmes.^{8,9} Although awareness alone is not sufficient yet it can be assumed to be an important component of behaviour change for decision making.¹⁰ Estimating the level of knowledge of the general population and those suffering from cardiovascular diseases may help in guidance of

public health programmes especially those aimed for reducing modifiable risk factors for cardiovascular diseases. Earlier studies have showed that education programs for the elder people were effective in improving health promotion knowledge and behaviours.^{11,12}

Awareness of risk factors of cardiovascular diseases varies among different populations. Whites have higher level of knowledge than Afro Americans in the United States of America.¹⁰ Similarly in United Kingdom, there was lack of tendency of exercise in South Asian families and had a lower level of knowledge of cholesterol and dietary content in comparison to the native white population.^{13,14}

A study regarding the risk factors for cardiovascular diseases has shown that tobacco use, ghee intake, raised fasting glucose, high cholesterol, family history of cardiovascular diseases, poverty, and low levels of education are associated with premature myocardial infarction in Pakistan.¹⁵ A study conducted a few years back in Karachi showed lack of knowledge among general population of Karachi.¹⁶ Moreover, another study conducted in the same city showed lack of good level of knowledge in patients with Myocardial infarction.¹⁷

This study aimed at evaluating the knowledge of modifiable risk factors of cardiovascular diseases and determination of factors associated with good level of knowledge in patients with acute MI admitted to Ayub Teaching Hospital, Abbottabad, Pakistan.

MATERIAL AND METHODS

It was a hospital based cross sectional descriptive study carried out in cardiology unit at Ayub Teaching Hospital Abbottabad, which spanned from January 1, 2013 to July 31, 2013, a period of 7 months. Ayub Teaching Hospital is a tertiary care unit providing health care facilities to the population of Hazara division, Azad Jammu and Kashmir and Gilgit Baltistan. All the patients admitted to the coronary care unit (CCU) at Ayub Teaching Hospital with first acute MI who fulfilled the criteria for MI were eligible to be included in the study. Acute MI was defined using the American College of Cardiology and European Society of Cardiology’s criteria.^{18,19} The presence of at least two of the following three factors were considered diagnostic for acute MI.

1. Typical chest pain lasting for 20 minutes or more
2. ECG showing ST elevation of at least 2 mm in two or more adjoining leads with subsequent evolution of the ECG.
3. Cardiac markers like CK-MB or troponin T or I are elevated

Patients fulfilling the study criteria were asked to participate in the study after explaining them about the study. Those who gave informed consent were eligible for the study. Moreover, confidentiality of the information was assured to them. All those patients who were mentally retarded or having previous history of MI were excluded from the study. Data was collected using a specifically designed questionnaire. Components of the questionnaire were based on already published studies.^{8,9,17} Questionnaire was developed in English language. It mainly contained closed ended questions. In order to include illiterate patients, questionnaires were read out to them in their mother tongue rather than self administered. Questions regarding knowledge of four major modifiable risk factors fatty food consumption, smoking, lack of physical activities and obesity were included. Those who could identify three out of four risk factors were considered to have good level of knowledge. Data was analysed for frequencies and percentages using SPSS-16. Continuous variables like age and monthly income were mentioned as Mean±SD.

Associations of educational status and gender with knowledge were assessed using chi-square test.

RESULTS

A total of one hundred and fifty eligible patients participated in the study. Among them 103 (68.7%) were males, while 47 (31.3%) were females. The Mean age and monthly income of the patients was 58.5±12.6 and 14226.7±10112.4 respectively. Only 31 (20.6%) subjects had completed 10 years of education. Those who were current users of tobacco were 36.7%, while

ex users were 10.6%. Only 30(20%) of the patients did exercise daily (Table-1).

Clinical characteristics of the patients showed that 21.6% of the subjects were diabetic, while 46.7% were hypertensive.

Table-2 shows knowledge of modifiable risk factors of cardiovascular diseases. Those who had no knowledge of any risk factors for heart diseases were 50(33.3%).

Those who knew about one risk factor were 33 (22%), while 24 (16%) of the subjects were having knowledge regarding two risk factors. Knowledge of three out of four risk factors was considered as good level. Just forty three (28.7%) of the subjects were having good level of knowledge. Identification of risk factors by the subjects is shown in a bar graph (Figure-1). Questions regarding risk factors like fatty food consumption, smoking, obesity and lack of physical activities were rightly answered by 46.7%, 46%, 45.3% and 40.7% respectively.

Table-3 shows associations of gender with level of knowledge of risk factors for heart diseases. Males were having better knowledge as compared to females ($p<0.001$) except for knowledge regarding obesity ($p=0.116$).

Moreover, it was established that there is a significant association between educational status and good level of knowledge ($p<0.001$), as shown in table-4.

Table-1: Demographic characteristics of the study group

Demographic Characteristics	Frequency	Percent
Gender		
Male	103	68.7
Female	47	31.3
Marital Status		
Married	140	93.3
Widowed	10	6.7
Age in years (Mean±SD)		
58.5±12.6	NA	NA
Monthly household income in PKR (Mean±SD)		
14426.7±10112.4	NA	NA
Educational Status		
Illiterate	100	66.7
Can read & write	6	04.0
Elementary	4	02.7
Primary	9	06.0
Secondary	21	14.0
College	3	2.0
University	7	4.6
Tobacco use		
Never used	79	52.7
Current user	55	36.7
Ex-user	16	10.6
Exercise		
Yes	30	20.0
No	120	80.0
Frequency of exercise		
Daily	30	20.0
Number of visits to a health facility in last month		
No visit	94	62.7
<3	43	28.7
3–5	13	8.6

Table-2: Knowledge of modifiable risk factors

Knowledge of Modifiable risk factors	Frequency	%
Don't know any risk factor	50	33.3
Only one risk factor	33	22.0
Two risk factors	28	16.0
Three risk factors/Good level of knowledge	43	28.7

Table-3: Association of gender with level of knowledge

Gender	Knowledge of modifiable risk factors			p-value
Impact of fatty food on heart diseases				
	Negative	No impact	Don't know	
Male	61	7	35	0.000
Female	9	3	35	
Impact of vegetables on heart diseases				
	Positive	No impact	Don't know	
Male	42	14	47	0.000
Female	5	2	40	
Impact of smoking on heart diseases				
	Negative	No impact	Don't know	
Male	55	8	40	0.000
Female	13	0	34	
Impact of exercise on heart diseases				
	Positive	No impact	Don't know	
Male	52	6	45	0.000
Female	9	0	38	
Impact of obesity on heart diseases				
	Negative	No impact	Don't know	
Male	50	1	52	0.116
Female	15	0	32	

Table-4: Association of educational status with level of knowledge

Knowledge of modifiable risk factors of heart diseases				
Educational status	Impact of fatty food			p
	Negative	No impact	Don't know	
Illiterate	34	6	60	0.000
Can read & write	1	2	3	
Elementary	3	0	1	
Primary	8	1	0	
Secondary	14	1	6	
College	3	0	0	
University	7	0	0	
Impact of vegetables on heart diseases				
	Positive	No impact	Don't know	
Illiterate	16	8	76	0.000
Can read & write	1	2	3	
Elementary	3	0	1	
Primary	7	2	0	
Secondary	12	1	8	
College	2	1	0	
University	6	1	0	
Impact of smoking on heart diseases				
	Negative	No impact	Don't know	
Illiterate	32	5	63	0.001
Can read & write	2	1	3	
Elementary	3	0	1	
Primary	7	0	2	
Secondary	16	1	4	
College	3	0	0	
University	6	1	0	
Impact of exercise on heart diseases				
	Positive	No impact	Don't know	
Illiterate	25	4	71	0.000
Can read & write	2	0	4	
Elementary	3	0	1	
Primary	7	0	2	
Secondary	14	2	5	
College	3	0	0	
University	7	0	0	
Impact of obesity on heart diseases				
	Negative	No impact	Don't know	
Illiterate	32	0	68	0.000
Can read & write	3	0	3	
Elementary	3	0	1	
Primary	7	0	2	
Secondary	12	0	9	
College	3	0	0	
University	6	0	1	

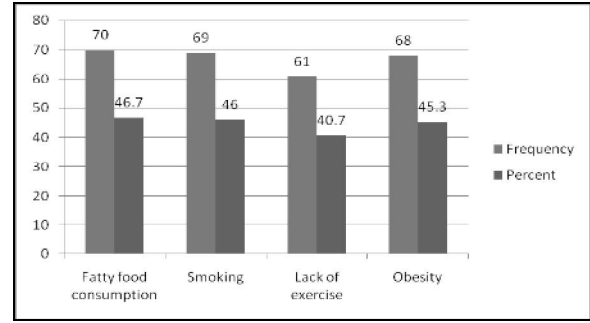


Figure-1: Identification of risk factors

DISCUSSION

This is the second study regarding knowledge of modifiable risk factors of heart diseases among high risk groups in Pakistan. Knowledge of modifiable risk factors for cardiovascular diseases; fatty food consumption, smoking, obesity and lack of physical activities were assessed in the patients. According to our study male to female ratio was 2:1, which is not congruent to the study conducted in Karachi in a tertiary care hospital where male to female ratio was nearly 3:1.¹⁷ This difference may be due to a large sample size selected for that study conducted in Karachi. According to our study 21.3% were diabetics and 46.7% of the subjects were hypertensive. This finding is consistent with the study conducted in Karachi.¹⁷ Moreover our study showed that 20% of the subjects exercised daily which is more than that conducted in Karachi and some other south Asian countries, which showed 4.3% of the subjects exercised daily.^{17,20}

According to our study only 28.7% of the subjects were having good level of knowledge, which is quite less than that conducted in National Institute of Cardiovascular Diseases which showed that 42% of the subjects were having optimal knowledge.¹⁷ Those who didn't know any risk factors were 33.3%, which are quite discouraging results as compared to the one conducted in NICVD Karachi which showed 3.8% of the subjects with no knowledge of any risk factor for heart diseases. Besides this, educational status was having significant association with knowledge regarding the risk factors for cardiovascular diseases which is similar to other studies conducted in Karachi and Saudi Arabia.^{17,21} Modifiable risk factors like fatty food consumption, smoking, lack of exercise and obesity were recognized by nearly the same number of subjects with a slight difference. These findings are nearly similar to other studies conducted in Karachi, but the percentages are different.^{16,17} This pattern of knowledge among the subjects of Karachi might be attributed to state funded advertisement campaigns and Karachi being a metropolitan city having more awareness opportunities.

As it was a cross sectional descriptive hospital based study, it may not be projected to the whole population of our country. However, this study might pave way for further population based studies regarding modifiable risk factors for heart diseases.

CONCLUSION

This study established that there is a lack of good level of knowledge of modifiable risk factors for cardiovascular diseases among patients with MI in a tertiary care hospital. Moreover, educational status and male gender were associated with good level of knowledge.

RECOMMENDATIONS

Creating awareness among masses through health education will help in controlling cardiovascular diseases by early screening, diagnosis, initiation of effective treatment and modifying risk factors. This will help in reducing cardiovascular diseases related mortality and morbidity.

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