

# Awareness of Risk Factors and Warning Signs of Myocardial Infarction among High - Risk Patients Who are Seeking Services in Outpatient Departments

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**Abstract:** Myocardial Infarction (MI) is a condition which is caused due to the accumulation of fat in the coronary arteries that can lead to myocardial cell death. The risk factors of myocardial infarction include underlying coronary artery diseases, hypertension, smoking, Diabetes mellitus, lack of exercise, high blood cholesterol, obesity, poor diet and excessive alcohol intake. The other risk factors include cocaine, emotional stress, old age, family history and hypertension during pregnancy. The most common warning signs include chest pain or discomfort which may radiate to the shoulder, arm, back, neck or jaw. Often the pain or discomfort begins in the centre or left side of the chest, lasting for few minutes. The discomfort may get misinterpreted as heartburn. Other symptoms may include breathing difficulty, nausea, dizziness, a cold sweat or tiredness. The present study was aimed to assess the awareness of risk factors and warning signs of myocardial infarction among high - risk patients. **Objectives:** 1. To assess the awareness of risk factors and warning signs of Myocardial Infarction among high - risk patients seeking services in outpatient departments. 2. To determine the association of awareness of Myocardial Infarction with selected demographic variables. **Methods:** The research design selected for this study was descriptive cross - sectional design. The study was conducted among the high - risk patients who are seeking health care services from endocrine OPD, Cardiology OPD and Medicine OPD in a selected tertiary health care centre, Bangalore. Non probability convenience sampling techniques was used in this study. The sample size was 80. Awareness regarding the risk factors and warning signs of myocardial infarction were assessed using self - structured questionnaire and the data was collected by using interview method. The data was analysed using descriptive and inferential statistics. **Results:** The mean awareness score of high - risk patients regarding myocardial infarction is 14.33, the mean percentage is 71.63 % with the standard deviation of 2.867. Out of 80 samples 45% of the respondents have adequate awareness, 40% of the respondents have moderate awareness, 15 % of the respondents have inadequate awareness. As per the statistical analysis there is a significant association between the awareness of risk factors and warning signs of myocardial infarction among high - risk patients with gender ( $p=0.043$ ), education ( $p=0.041$ ) and habits ( $p=0.020$ ). **Conclusion:** The study findings revealed that most of the respondents that is 45% have adequate awareness regarding the awareness of risk factors and warning signs of MI. This emphasizes the need for educating the risk factors and warning signs of myocardial infarction. This can also help to identify the symptoms in earlier stage and prevent further complications.

**Keywords:** Myocardial Infarction, Awareness, Risk factors and warning Signs

## 1. Introduction

Myocardial Infarction (MI), also known as “heart attack,” a condition which is caused due to the decreased or complete absence of blood flow to a portion of the heart tissue. The accumulation of fat in the coronary arteries results in plaque formation and leads to the thinning of the diameter of the vessels. When this plaque deposition happens over years there could be partial or complete obstruction of blood flow through coronary artery. This block of the coronary arteries results in reduced blood flow to the heart muscles<sup>1</sup>. The prevalence of acute myocardial infarction is around 3 million people worldwide, with more than one million deaths in the United States annually. Globally, nearly 19.05 million people died during 2020. According to Indian Heart Association, 50% of all cardiac arrests in Indian men occur under the age of 50. Indians have 2.3 times higher percentage of heart diseases than western countries<sup>3</sup>. The annual number of deaths from cardiovascular diseases in India is projected to rise from 2.26 million (1990) to 4.77 million (2020). Demographic data indicate that the heart disease rate among Indians / South Asians is double that of the national averages of the western world<sup>4</sup>. The risk factors of myocardial Infarction include

underlying coronary artery diseases, hypertension, smoking, Diabetes mellitus, lack of exercise, high blood cholesterol, obesity, poor diet and excessive alcohol intake. The other risk factors include cocaine, emotional stress, old age, family history and hypertension during pregnancy. The most common warning signs include chest pain or discomfort which may radiate to the shoulder, arm, back, neck or jaw. Often the pain or discomfort begins in the centre or left side of the chest, lasting for few minutes. The discomfort may get misinterpreted as heartburn. Other symptoms may include breathing difficulty, nausea, dizziness, a cold sweat or tiredness<sup>2</sup>.

### Need for the study

Myocardial infarction or heart attack is becoming a major noncommunicable disease in India. The change in lifestyle practices, aging, limited awareness and screening, usage of oral contraceptives and prehospital delay can lead to myocardial infarction and gradually progress to death. The burden of myocardial infarction has increased globally and has shifted towards developing and developed countries due to population growth and aging<sup>5</sup>. Previous research has shown that more than half of heart attack deaths occur within one

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hour of symptom onset before the patient is admitted to a medical facility, indicating a need for improved response times<sup>6</sup>.

Prehospital delays and a lack of awareness about heart attack symptoms contribute to increased death rates. Delayed medication administration can have a negative impact on heart attack patients<sup>16</sup>. Patients with diabetes may experience silent myocardial infarction because of cardiac neuropathy or may manifest atypical symptoms<sup>7</sup>.

Adequate awareness of myocardial infarction is crucial for its prevention and control several factors were found to be significantly associated with poor understanding of warning signs of myocardial infarction such as older age, lower education level, unemployment, underprivileged people, poor health behaviour and psychological status. Improved knowledge of signs and symptoms of myocardial infarction can lead to quicker access to emergency treatment, ultimately improving prognosis and survival rates<sup>8</sup>.

The incidence of cardiac arrests is sudden and intense but few start slowly with mild pain or discomfort. Some of the signs of a cardiac arrest includes chest discomfort, light-headedness, nausea or vomiting, radiating to jaw, neck or back pain, discomfort or pain the arm or shoulder, shortness of breath<sup>9</sup>

Due to lack of knowledge regarding myocardial infarction, most of the high - risk patients are unaware of the signs and symptoms of myocardial infarction which leads to prehospital delay. In a selected tertiary care hospital approximately 200 - 300 high risk patients are seeking services in outpatient department. Our study mainly aimed at identifying the high - risk groups with lack of awareness regarding myocardial infarction and providing adequate information regarding warning signs and risk factors of myocardial infarction. Therefore, we felt that there is a need to assess the awareness of risk factors and warning signs of myocardial infarction among high - risk patients and to provide adequate knowledge regarding myocardial infarction through an information pamphlet

**2. Materials and Methods**

The research approach adopted was quantitative approach to achieve the objective of the study, which is felt to be most appropriate in the field of education for its practicability in the real - life situations. The research design selected for the present study was Non - experimental Cross - sectional

Descriptive Research design. Data analysis was done using descriptive and inferential statistics. Descriptive statistics like frequency, percentage, mean and standard deviation was used to analyse the data. Fischer exact test and chi square test was used to find the association between the variables. The population selected for the study was High risk patients seeking services from Endocrine OPD, Cardiology OPD and Medicine OPD in a selected tertiary health care centre, Bangalore. The sample size was 80. Non probability convenience sampling techniques was used in this study. Structured questionnaire was used to assess the awareness and warning signs of myocardial infarction.

**3. Results**

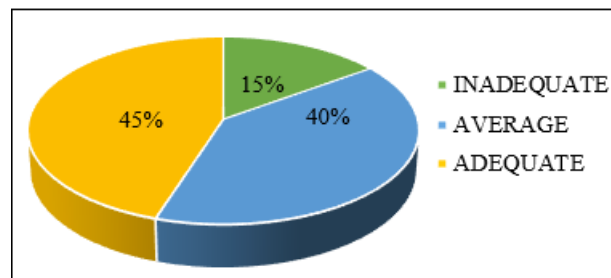
**Findings related to awareness of risk factors and warning signs of myocardial infarction among high - risk patients:**

**Table 1, n=80**

Content	Maximum Score	Range	Mean	SD	Mean Percentage (%)
Awareness	20	7 - 19	14.33	2.867	71.63

The table 1 represents the mean awareness score of high - risk patients regarding myocardial infarction is 14.33, the mean percentage is 71.63 % with the standard deviation of 2.867.

**Percentage distribution of subjects based on level of awareness:**



**Figure 1, n = 80**

The above figure shows 45% of the respondents have adequate awareness, 40% of the respondents have moderate awareness, 15 % of the respondents have inadequate awareness

**Findings related to association between awareness of risk factors and warning signs of myocardial infarction with selected baseline variables among high - risk patients**

**Table 2:**

S. No	Baseline Variables	F	AWARENESS						Test of Significance	P Value
			Inadequate		Average		Adequate			
			F	%	F	%	F	%		
1	AGE									
	1. 30 - 45 years	28	2	7.14%	9	32.14%	17	60.71%	6.120*	0.186 (NS)
	2. 46 - 60 years	34	6	17.64%	17	50%	11	32.35%		
	3. 61 - 75 years	18	4	22.22%	6	33.33%	8	44.44%		
2	GENDER									
	1. Male	47	11	23.40%	17	36.17%	19	40.42%	6.313#	0.043 (S)
	2. Female	33	1	3.03%	15	45.45%	17	51.51%		
3	MARITAL STATUS									
	1. Married	73	12	16.43%	30	41.09%	31	42.46%	1.893*	0.359 (NS)

	2. Unmarried	7	0	0%	2	28.57%	5	71.42%		
	EDUCATION									
4	1. Professional degree	8	0	0%	1	12.50%	7	87.50%	18.721*	0.041 (S)
	2. Graduate	30	5	16.66%	14	46.66%	11	36.60%		
	3. Diploma	13	2	15.38%	3	23.07%	8	61.53%		
	4. High school	18	2	11.11%	8	44.44%	8	44.44%		
	5. Middle school	5	1	20%	4	80%	0	0%		
	6. Primary school	2	0	0%	0	0%	2	100%		
	7. No formal education	4	2	50%	2	50%	0	0%		
	OCCUPATION									
5	1. Professional	25	5	20%	8	32%	12	48%	11.148*	0.48 NS
	2. Semi professional	8	1	12.50%	5	62.50%	2	25%		
	3. Clerical/ farm/ shop	8	1	12.50%	4	50%	3	37.50%		
	4. Skilled worker	8	1	12.50%	4	50%	3	37.50%		
	5. Semi - skilled worker	15	3	20%	2	13.30%	10	66.66%		
	6. Unskilled worker	3	0	0%	1	33.33%	2	66.66%		
	7. Unemployed	13	1	7.69%	8	61.53%	4	30.56%		
	COMORBIDITIES									
6	1. Diabetes mellitus	21	3	14.28%	6	28.57%	12	57.14%	6.692*	0.553 NS
	2. Hypertension	23	3	13.04%	12	52.17%	8	34.78%		
	3. Dyslipidemia	4	0	0%	1	25%	3	75%		
	4. Coronary artery disease	2	1	50%	1	50%	0	0%		
	5. More than one comorbidity	30	5	16.66%	12	40%	13	43.30%		
	DIETARY PATTERN									
7	1. Vegetarian	10	0	0%	6	60%	4	40%	3.986*	0.386 NS
	2. Non vegetarian	70	12	17.39%	27	38.57%	31	41.92%		
	EXERCISE									
8	1. Regular (5 - 6 times a week)	18	5	27.77%	5	27.77%	8	44.44%	4.081*	0.394 NS
	2. Sometimes (2 - 3 times a week)	29	3	10.34%	11	37.93%	15	51.72%		
	3. Nil	33	4	12.12%	16	48.48%	13	39.39%		
	PERSONAL HABITS									
9	1. Smoking	8	3	37.50%	1	12.50%	4	50%	15.45%*	0.02 S
	2. Alcohol	11	2	18.18%	3	27.27%	6	54.54%		
	3. Tobacco	5	1	20%	4	80%	0	0%		
	4. More than one habits	6	1	16.66%	0	0%	5	83.33%		
	5. Nil	50	5	10%	24	48%	21	42%		
	FAMILY HISTORY OF HEART DISEASES									
10	1. Yes	32	3	9.38%	12	37.50%	17	53.13%	1.991#	0.37 NS
	2. No	48	9	18.75%	20	41.66%	19	39.58%		

# - Chi square test

\* - Fisher exact test

Table 2 shows that there is a significant association between the awareness of risk factors and warning signs of myocardial infarction among high - risk patients with gender (p=0.043), education (p=0.041) and habits (p=0.020).

#### 4. Conclusion

The study findings revealed that most of the respondents that is 45% have adequate awareness regarding the awareness of risk factors and warning signs of MI. The study highlights the need for the nurses and nursing students to plan health teaching programmes at OPD for all patients and family members regarding risk factors and warning signs of myocardial infarction.

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