



## A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge of Early Signs, Symptoms and Immediate Management of Myocardial Infarction among High Risk Patients in Selected Hospital, Udaipur

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### ABSTRACT

Coronary Heart Disease (CHD) is a major cause of mortality, with Myocardial Infarction (MI) being a severe manifestation requiring early recognition and management. Despite prevalent risk factors like hypertension, diabetes, smoking, and obesity, awareness of MI symptoms and immediate care remains inadequate. This study evaluates the effectiveness of a structured teaching program in enhancing knowledge about MI among 40 high-risk patients in a selected Udaipur hospital. Using a pre-experimental, one-group pre-test post-test design, data was collected through a structured questionnaire. After the intervention, knowledge improvement was assessed using paired t-test and chi-square test for statistical analysis. The pre-test revealed that out of 40 participants, 33 (82.5%) had a moderate level of knowledge, 4 (10%) had inadequate knowledge, and only 3 (7.5%) had adequate knowledge. Following the intervention, 33 (82.5%) demonstrated adequate knowledge, while 7 (17.5%) had moderate knowledge, and none remained in the inadequate category. The mean pre-test score was  $22.5 \pm 5.4$ , which significantly improved to  $40.32 \pm 5.48$  in the post-test ( $t = 13.00$ ,  $p < 0.05$ ), indicating the effectiveness of the structured teaching program. Chi-square analysis showed a significant association between pre-test knowledge scores and selected demographic variables such as educational status ( $\chi^2 = 12.45$ ,  $p < 0.05$ ) and prior awareness about MI ( $\chi^2 = 9.68$ ,  $p < 0.05$ ), whereas no significant association was found with age, gender, or co morbid conditions. The findings suggest that structured teaching programs are highly effective in enhancing knowledge regarding early signs, symptoms, and immediate management of myocardial infarction among high-risk patients. Early education and awareness interventions can play a crucial role in reducing pre-hospital delays and improving patient outcomes in cardiac emergencies.

**KEYWORDS** *Effectiveness, Structured teaching program, Knowledge, High-risk patients Coronary heart disease, Myocardial infarction*



## INTRODUCTION

Coronary Heart Disease (CHD) is a leading cause of mortality and morbidity worldwide, with cardiovascular diseases (CVDs) accounting for 17.5 million deaths in 2020, representing 30% of global deaths<sup>1</sup>. In India, CHD is the primary cause of death, with heart attacks responsible for one-third of all heart disease-related fatalities. By 2020, 40% of the world's cardiac patients were projected to be Indians<sup>2</sup>. The prevalence of CHD in India was estimated at 3-4% in rural areas and 8-10% in urban areas, affecting around 29.8 million people<sup>3</sup>. Acute Myocardial Infarction (MI) occurs due to the blockage of blood flow to a section of the heart, leading to tissue damage. It is categorized into ST-segment elevation MI (STEMI) and non-ST-segment elevation MI (NSTEMI)<sup>4</sup>. Most heart attacks result from coronary artery disease (CAD), where plaque buildup leads to clot formation, obstructing blood flow. Immediate medical attention is crucial to minimize heart damage. Studies suggest that modifiable risk factors such as dyslipidemia, smoking, stress, diabetes, hypertension, and obesity account for over 90% of MI cases<sup>5</sup>. Diabetes significantly increases the risk of CHD, with diabetic patients having a similar risk of MI as non-diabetic patients with a prior infarction. Early intervention, lifestyle modifications, and aggressive management of risk factors are essential in reducing CHD-related mortality<sup>6</sup>.

## NEED FOR STUDY

Studies indicate that hypertension and diabetes significantly raise the risk of myocardial infarction (MI)<sup>7</sup>. Knowledge about risk factors and early warning signs is crucial for secondary prevention<sup>8</sup>. Research shows that awareness influences lifestyle changes and adherence to treatment<sup>9</sup>. However, many high-risk individuals lack adequate knowledge, leading to pre-hospital delays. This study aims to assess the effectiveness of a structured teaching program in improving knowledge regarding early signs, symptoms, and immediate management of myocardial infarction.

## PROBLEM STATEMENT

“A Study To Assess The Effectiveness Of Structured Teaching Programme On Knowledge Of Early Signs, Symptoms And Immediate Management Of Myocardial Infarction Among High Risk Patients In Selected Hospital, Udaipur.”



## OBJECTIVES

- To assess the knowledge about early signs, symptoms and immediate management of myocardial infarction among high risk patients before and after structured teaching programme.
- To evaluate the effectiveness of structured teaching programme on knowledge regarding early signs, symptoms and immediate management of myocardial infarction in among high risk patients.
- To find out an association between the pretest knowledge of early signs, symptoms and immediate management of myocardial infarction and with selected their demographic variables.

## HYPOTHESIS

**H<sub>1</sub>:** There will be a significant difference between pretest and post test level of knowledge score regarding early signs and symptoms and immediate management of Myocardial infarction among high risk patients.

**H<sub>2</sub>:** There will be a significant association between pre test level of knowledge score with their selected demographic variables

## MATERIALS AND METHODS

**Research Approach:** A quantitative research approach was used in the study.

**Research Design:** Pre-experimental, one group pre-test post–test research design used.

**Sample:** In the present study, the sample comprises 40 high risk patients studying in selected hospital at Udaipur who fulfill the inclusion criteria.

**Sampling Technique:** In the present study, the samples were selected through a non-probability purposive sampling technique.

**Setting:** In the present study, the setting was Pacific Institute of Medical Science (PIMS), Udaipur.

**Population:** In the present study, the target population was high risk patients in the selected hospitals at Udaipur city.

**Description of tool:** Structured questionnaire to assess the knowledge. It consisted of two parts:



**Part-I:** 11 Demographic data, includes the age, sex, education, occupation, family income, marital status, personal habits, weight of the patient, family type, food habits, and past history of illness.

**Part-II:** A structured questionnaire consisting of 50 items was considered appropriate for assessing the knowledge score of respondents. The maximum total score for the knowledge questionnaire was 50, with 1 mark awarded for each correct response and 0 marks for an incorrect response.

### **Ethical consideration**

- Approval from the ethical committee of Venkateshwar College of Nursing Udaipur.
- Before data collection, written permission was obtained from the concerned authority of the hospital, at Udaipur.
- Anonymity and confidentiality of subjects were maintained.
- Informed consent was obtained from the subjects.

### **Plan for data analysis**

The data analysis will be done according to the study objectives by using descriptive and inferential statistics. The plan of data analysis would be as follows:

- Frequency, percentage, mean, and standard deviation will be calculated.
- A paired t-test will be used to test the hypothesis.
- The chi-square test will be used for association with demographic variables.

## **RESULTS AND DISCUSSION**

The data obtained are divided into sections for easy and accurate interpretation of data. The data finding has organized under the following section:

**Section A:** Description of the demographic variables of high risk patients.

**Section B:** Description of the samples according to pre-test & post-test level of knowledge among high risk patients.

**Section C:** Analyze the effectiveness of structured teaching programme by comparing pre-test & post-test level of knowledge among high risk patients.

**Section D:** Association between pre-test knowledge level and their selected demographic variables.

### **Section A: Description of the demographic variables of high risk patients:**



The socio-demographic characteristics of the respondents are presented in the table, which includes variables such as age, sex, education, occupation, family income, marital status, personal habits, weight of the patient, family type, food habits, and past history of illness.

**N = 40**

**Table 1** Description of the demographic variables of high risk patients

S. N.	Demographic variables	Frequency (n)	Percentage (%)	
1	Age of the Patient	21–35 years	8	20.00
		35–45 years	9	22.50
		45–55 years	19	47.50
		55 years & above	4	10.00
2	Sex	Male	33	82.50
		Female	7	17.50
3	Education	Primary education	4	10.00
		Secondary education	8	20.00
		Higher education	18	45.00
		Illiterate	10	25.00
4	Occupation	Sedentary worker	5	12.50
		Moderate worker	17	42.50
		Heavy worker	18	45.00
5	Family Income	₹2001–₹5000	1	2.50
		₹5001–₹10,000	10	25.00
		₹10,000 & above	29	72.50
6	Marital Status	Married	32	80.00
		Unmarried	4	10.00
		Widow	4	10.00
7	Personal Habits	Smoking	7	17.50
		Tobacco & betel chewing	5	12.50
		Alcohol consumption	15	37.50
		Nil	13	32.50
8	Weight of the Patient	35–45 kg	1	2.50
		46–55 kg	5	12.50
		56–70 kg	30	75.00
		Above 70 kg	4	10.00
9	Family Type	Nuclear family	19	47.50
		Joint family	21	52.50
10	Food Habits	Non-vegetarian	33	82.50
		Vegetarian	7	17.50
11	Past History of Illness	Diabetes mellitus	9	22.50
		Hypertension	15	37.50
		Diabetes mellitus with Hypertension	16	40.00



The table 1 presents the frequency and percentage distribution of high-risk patients based on selected demographic variables.

- In terms of age, the majority of participants were between 45–55 years 19 (47.5%), followed by those aged 35–45 years 9 (22.5%), 21–35 years 8 (20%), and 55 years & above 4 (10%).
- Regarding sex, the majority of the participants were male 33 (82.5%), while a smaller proportion were female 7 (17.5%).
- Concerning education, the highest proportion of participants had higher education 18 (45%), followed by those who were illiterate 10 (25%), had secondary education 8 (20%), and had primary education 4 (10%).
- With respect to occupation, most of the participants were heavy workers 18 (45%), followed by moderate workers 17 (42.5%) and sedentary workers 5 (12.5%).
- For family income, a majority of participants had an income of ₹10,000 & above 29 (72.5%), while 10 (25%) had an income of ₹5001–₹10,000, and only 1 (2.5%) had an income between ₹2001–₹5000.
- In terms of marital status, most participants were married 32 (80%), while 4 (10%) were unmarried, and 4 (10%) were widowed.
- Regarding personal habits, 15 (37.5%) participants consumed alcohol, 13 (32.5%) had no addictive habits, 7 (17.5%) were smokers, and 5 (12.5%) consumed tobacco and betel.
- In terms of weight, the majority of participants weighed between 56–70 kg 30 (75%), while 5 (12.5%) were in the 46–55 kg category, 4 (10%) weighed above 70 kg, and only 1 (2.5%) was in the 35–45 kg range.
- For family type, more participants belonged to joint families 21 (52.5%) than nuclear families 19 (47.5%).
- With respect to food habits, the majority of participants were non-vegetarians 33 (82.5%), while only a few were vegetarians 7 (17.5%).
- Lastly, regarding past history of illness, 16 (40%) participants had both diabetes mellitus and hypertension, while 15 (37.5%) had hypertension alone, and 9 (22.5%) had diabetes mellitus alone.

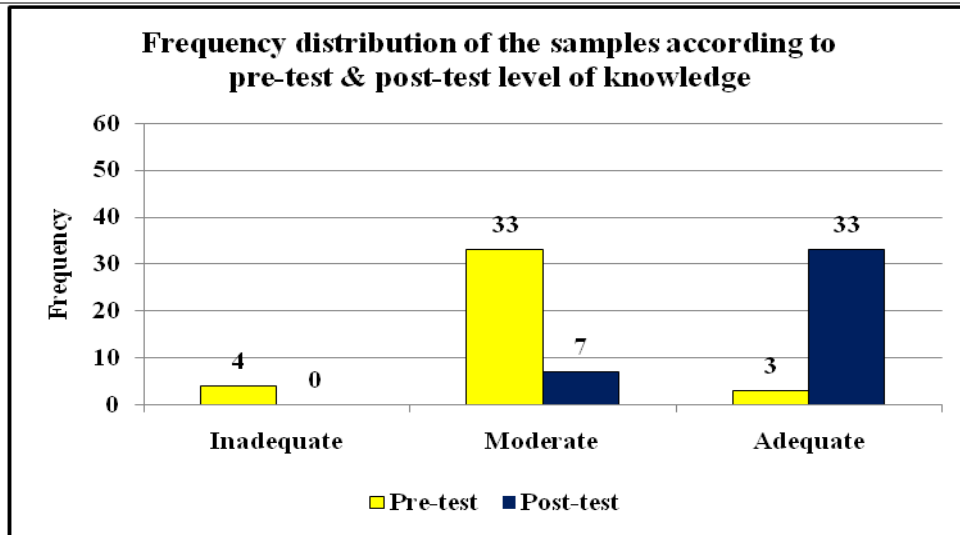
**Section B: Description of the samples according to pre-test & post-test level of knowledge among high risk patients:**

**N = 40**



**Table 2** Description of the samples according to pre-test & post-test level of knowledge among high risk patients

Level of Knowledge	Pre-test		Post-test	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Inadequate	4	10.00	0	0.00
Moderate	33	82.50	7	17.50
Adequate	3	7.50	33	82.50
<b>Total</b>	<b>40</b>	<b>100.00</b>	<b>40</b>	<b>100.00</b>



**Figure 1** Description of the samples according to pre-test & post-test level of knowledge among high risk patients

The Table 2 & Figure 1 presents the distribution of high-risk patients based on their pre-test and post-test levels of knowledge. In the pre-test, the majority of participants, 33 (82.5%), had a moderate level of knowledge. A smaller proportion, 4 (10%), had an inadequate level of knowledge, while only 3 (7.5%) demonstrated an adequate level of knowledge. In the post-test, there was a significant improvement in knowledge levels among participants. None of the participants (0%) remained in the inadequate category. The proportion of participants with moderate knowledge decreased to 7 (17.5%), while those who achieved an adequate level of knowledge increased substantially to 33 (82.5%). These findings indicate that there was a marked improvement in the knowledge level of high-risk patients following the intervention, as seen by the substantial shift from moderate and inadequate levels in the pre-test to predominantly adequate levels in the post-test. This suggests that the educational intervention was effective in enhancing knowledge among the participants.

**Section C: Analyze the effectiveness of structured teaching programme by comparing pre-test & post-test level of knowledge among high risk patients:**

**N = 40**

**Table 3** Effectiveness of structured teaching programme by comparing pre-test & post-test level of knowledge among high risk patients



Test	Mean	SD	Mean Difference	df	t- value	Inference
Pre-test	22.5	5.4	17.82	39	13.00*	S
Post-test	16.51	5.48				2.021* (0.05 Level)

NS-Not Significant; \*\* Significant

**H<sub>1</sub>:** There will be a significant difference between pretest and post test level of knowledge score regarding early signs and symptoms and immediate management of Myocardial infarction among high risk patients.

The table 3 presents the analysis of the effectiveness of the structured teaching programme by comparing the pre-test and post-test levels of knowledge among high-risk patients. The mean knowledge score in the pre-test was 22.5, with a standard deviation (SD) of 5.4. After the structured teaching programme, the mean knowledge score in the post-test improved to 16.51, with a standard deviation of 5.48. This indicates a reduction in the mean knowledge score, showing a significant improvement. The mean difference between the pre-test and post-test scores was 17.82, suggesting a substantial change in knowledge levels after the intervention. The paired t-test was applied to determine the statistical significance of this difference. The obtained t-value was 13.00, which is greater than the critical t-value (2.021 at 0.05 level of significance, df = 39). Since the calculated t-value is significantly higher than the table value, the difference between pre-test and post-test scores is statistically significant (S), indicating that the structured teaching programme was effective in improving knowledge among high-risk patients. Thus, the findings confirm that the intervention had a positive impact, leading to a significant improvement in knowledge levels. Thus, the findings suggest that the structured teaching programme was a beneficial educational tool in improving the awareness and understanding of high risk patients on this topic. Hence **H<sub>1</sub>** is accepted and null hypothesis rejected.

#### Section D: Association between pre-test knowledge levels and their selected demographic variables:

N = 40

**Table 4** Association between pre-test knowledge level and their selected demographic variables

S. N.	Demographic variables	df	Tabulated Value (0.05)	Calculated Chi-Square test	Inference
1	Age of the Patient	3	7.815	4.28	Not Significant
2	Sex	1	3.841	0.02	Not Significant
3	Education	3	7.815	6.31	Not Significant
4	Occupation	2	5.991	5.86	Not Significant
5	Family Income	2	5.991	5.35	Not Significant
6	Marital Status	2	5.991	4.17	Not Significant
7	Personal Habits	3	7.815	8.89	Significant





8	Weight of the Patient	3	7.815	1.9	Not Significant
9	Family Type	1	3.841	3.93	Significant
10	Food Habits	1	3.841	0.47	Not Significant
11	Past History of Illness	2	5.991	3.23	Not Significant

**H<sub>2</sub>:** There will be a significant association between pre test levels of knowledge score with their selected demographic variables

The table 4 presents the association between pre-test knowledge levels and selected demographic variables among high-risk patients, using the Chi-square test to determine statistical significance. Regarding the age of the patients, the calculated Chi-square value (4.28) was lower than the tabulated value (7.815) at  $df = 3$ , indicating that age did not significantly influence pre-test knowledge levels. Similarly, sex ( $\chi^2 = 0.02$ ,  $df = 1$ ,  $p > 0.05$ ), education ( $\chi^2 = 6.31$ ,  $df = 3$ ,  $p > 0.05$ ), occupation ( $\chi^2 = 5.86$ ,  $df = 2$ ,  $p > 0.05$ ), and family income ( $\chi^2 = 5.35$ ,  $df = 2$ ,  $p > 0.05$ ) were also found to have no significant association with pre-test knowledge. The marital status of participants was analyzed, and the obtained Chi-square value (4.17,  $df = 2$ ) did not reach the significance level, suggesting that it was not a determining factor for pre-test knowledge. Similarly, weight of the patient ( $\chi^2 = 1.9$ ,  $df = 3$ ,  $p > 0.05$ ) and food habits ( $\chi^2 = 0.47$ ,  $df = 1$ ,  $p > 0.05$ ) also showed no significant association with knowledge levels. Furthermore, past history of illness ( $\chi^2 = 3.23$ ,  $df = 2$ ,  $p > 0.05$ ) did not exhibit a significant relationship with pre-test knowledge. However, two demographic variables were found to have a significant association with pre-test knowledge levels. Personal habits ( $\chi^2 = 8.89$ ,  $df = 3$ ,  $p < 0.05$ ) showed a statistically significant relationship, indicating that lifestyle habits like smoking, alcohol consumption, and tobacco use may have influenced the knowledge level of patients. Additionally, family type ( $\chi^2 = 3.93$ ,  $df = 1$ ,  $p < 0.05$ ) was significantly associated with pre-test knowledge, suggesting that patients from nuclear or joint families might have different levels of awareness regarding health-related knowledge. In conclusion, the analysis revealed that personal habits and family type were significantly associated with pre-test knowledge levels, while other demographic variables did not show a significant influence. Hence **H<sub>2</sub>** is accepted and null hypothesis rejected.

## CONCLUSION

The present study aims to assess the effectiveness of the structured teaching programme on knowledge of early signs, symptoms and immediate management of myocardial infarction among high risk patients in the selected hospital of Udaipur Rajasthan. The quantitative research approach and pre-experimental one-group pre-test post-research design was adopted



for this study. The non-probability purposive sampling technique was used for data collection. Data were collected from the high risk patients to assess the level of their knowledge among the high risk patients by using a structured questionnaire before and after the structured teaching programme. The collected data were tabulated and analyzed by descriptive and inferential statistics. The study findings showed that the structured teaching programme was effective in improving the knowledge of high risk patients of early signs, symptoms and immediate management of myocardial infarction. There was a significant difference between the pre-test knowledge score and post-test knowledge score after the administration of the structured teaching programme regarding the knowledge of prevention of adverse effects of mobile phone games at the 0.05 level of significance. There was a significant association between the pre-test level of knowledge and their selected demographic variables.



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