A Study to Assess Effectiveness of Planned Teaching Program on the Knowledge and Practice Regarding Management of Early Warning Signs of Myocardial Infarction among High-risk Patient from Selected Hospital of Metropolitan City

Suchita Sawant, Sunayana Yadav

Department of Cardiovascular and Thoracic Nursing, Bombay Hospital College of Nursing, Mumbai, Maharashtra, India

Abstract

The purpose of this study was to evaluate the efficacy of a planned educational program on high-risk patients' knowledge and practice of managing early warning signals of myocardial infarction (MI) at a selected metropolitan city hospital. This study employed "Quantitative (Descriptive evaluatory) research approach." One group is included in this study's pre-test–post-test design. Selected metropolitan hospital patients at high risk of MI were studied. This study includes high-risk MI patients. Purposive, non-probability sampling was employed in this investigation. The study included 60 patients in its sample size: -test value of 0.52 for (age), with a significance score of $P = 0.603$. Pre-test scores and age are not substantially associated since $t = 0.52$ is <2.0017. The gender variable produced a t-test of 0.48 and $P = 0.63$. Gender-pre-test score association is not significant since $t = 0.48$ is <2.0017. Education level had a 0.94 t-test and $P = 0.34$ significance score. Since $t = 0.94$ is <2.0017, education level does not affect pre-test scores. The family type variable gets a 2.003 t-test and $P = 0.049$ significance score. T value 2.003 exceeds table value 2.0017, showing a strong family type-pre-test score connection. This study found substantial differences in awareness of early warning indicators and immediate MI therapy before and after organized education. MI knowledge improved dramatically with organized education. This showed that planned teaching reduces disease risk. Thus, nurses must educate such patients to prevent MI incidence and sequelae.

Keywords: Effectiveness, knowledge, myocardial infarction, planned teaching program, practice

INTRODUCTION

The pump that circulates blood throughout your body is the heart, a fist-sized organ. It serves as the main component of your circulatory system. The heart is composed of four main chambers that are driven by electrical impulses and are composed of muscle. The nerve system and brain control how the heart works. [1] The front of the chest contains the heart. It is positioned to the left and somewhat behind your sternum or breastbone. The heart is shielded by the ribcage. The left side of the body is where the heart is located. Positioned between the left and right lungs. To create space in your left chest for your heart, your left lung is somewhat smaller. The body uses the heart primarily to pump blood throughout it. The heart additionally

- Controls the rhythm and speed of your heart rate
- Maintains your blood pressure.[2-5]

The term "heart attack" refers to myocardial infarction (MI), which is the result of reduced or stopped blood supply to a

Address for Correspondence:
Ms. Sunayana Yadav, Department of Cardiovascular and Thoracic Nursing, Bombay Hospital College of Nursing, Mumbai, Maharashtra, India.
E-mail: sunayanayadav01@gmail.com

section of the myocardium. MI can occur "silently" and go unnoticed, or it can be a devastating incident that results in hemodynamic decline and abrupt death.[6]

The primary cause of death in the US, coronary artery disease, is the root cause of the majority of MIs. Oxygen is not available to the myocardium when coronary artery blockage occurs. Long-term oxygen supply deprivation of the heart can result in necrosis and death of cardiac cells.[7]

As the epidemic spreads, social gradients have reversed, with those from lower socioeconomic backgrounds becoming more likely to smoke and consume less fruits and vegetables. Furthermore, patients from lesser socioeconomic backgrounds sometimes do not obtain the best possible care, which results in less favorable outcomes. Developing solutions including evidence-based policy and its effective implementation, strengthening health systems, and emphasizing prevention, early detection, and treatment through the application of both traditional and novel techniques are all necessary to combat the pandemic. These tactics are being tested in a number of current community-based research.[8]

Patients may exhibit pressure or discomfort in the chest, which may extend to the jaw, arm, neck, or shoulder. Myocardial ischemia can be linked to elevate biochemical markers such cardiac troponins and abnormalities in the electrocardiogram in addition to the history and physical examination.[7]

The World Health Organization estimates that 17.9 million people worldwide lose their lives to cardiovascular diseases (CVDs), making them the top cause of death worldwide. Heart and blood vessel illnesses together referred to as CVDs include rheumatic heart disease, coronary heart disease (CHD), and cerebrovascular disease. Heart attacks and strokes account for more than four out of every five deaths from CVD, and one-third of these deaths happen too soon among those under the age of 70.

Although prevalent across India, the prevalence of heart disease differs significantly between states. Mizoram has the lowest disease load, 9 times lower than Punjab, with 17.5% of the population affected. Punjab has the highest disease burden. The stark inequalities in development among Indian states are a function of regional variations in lifestyle. Interventions can be more successfully implemented when the common risk factors in several places are understood. It is necessary to implement specially designed initiatives rather than seeing India as a monolith.[4]

The World Health Organization reports that cardiac illnesses are the world's largest cause of mortality, taking the lives of several million people annually. According to a WHO report, 2.6 million Indians will pass away from CHDs in 2020, accounting for 54.1% of all fatalities from CVDs. Furthermore, just 23% of CHD-related deaths in Western countries occur in the 30–69-year-old age range, although nearly half of these deaths are anticipated to occur in young, middle-aged people in this age range.[5]

It is found that people are unaware about the early warning signs and symptoms of MI due to which there is a delay in hospitalization and getting treated hence, the need to make people aware about the early warning sign and its immediate management of MI among people so that they will be able to take medical aid as soon as possible, so we decided to take this topic for the study.

Objectives
The objectives of the study are as follows:
1. To evaluate high-risk patients' understanding and use of early warning signs and MI management both before and after scheduled instruction
2. To find out the efficacy of the intended curriculum on the understanding and practice about earliest warning indications and its management between MI high-risk patients from the selected hospital in metropolitan cities
3. To determine the relationship between high-risk patients' knowledge and practice of early warning signs and how to manage MI among specific demographic characteristics, such as age, gender, and education.

Hypothesis
- H01 – There is no difference in the mean scores for knowledge and practice about early warning symptoms and their care of MI among high-risk patients in a selected metropolitan hospital, both before and after the test
- H1 – There is a difference in pre-test and post-test mean scores of knowledge and practice regarding early warning sign and its management of MI among high-risk patients of selected hospital in metropolitan city
- H02 – The relationship between knowledge and practice is non-existent in relation to early warning sign and management of MI with selected demographic variables of high-risk patients with MI of selected hospital in metropolitan city
- H2 – There is an association between knowledge and practice regarding early warning sign and management of MI with selected demographic variables of high-risk patients with MI of selected hospital in metropolitan city.

Assumptions
1. Patients may have some knowledge regarding heart, heart attack, and its warning sign
2. Knowledge may vary depending on qualification, age, and experience
3. This planned teaching may enhance their knowledge, understanding, and practice.

MATERIALS AND METHODS
Research approach
This study employed "Quantitative (Descriptive evaluatory) research approach."

Research design
One group is used in this study's pre-test–post-test methodology.

Setting of the study

Selected metropolitan hospital patients at high risk of MI were studied.

Population of the study

This study includes high-risk MI patients.

Sample technique

Purposive, non-probability sampling was employed in this investigation.

Sample size

The sample size in this study consisted of 60 patients.

Statistics

Descriptive

Demographic data were analyzed using frequency percentage. Analysis of knowledge score used frequency.

Inferential

A paired t-test was used to compare the percentage of knowledge results. The knowledge score was also correlated with demographic variables using a paired t-test.

RESULTS

Section-I

The analysis of the sample's demographic data is covered in this section. A frequency and percentage table is created after analysis.

Table 1 shows that 57% of samples were aged >40, whereas 43% were aged <40. Most participants were elderly. Samples were 50% female and 50% male. The data reveals 42 (70%) married, 8 (13%) single, and 10 (17%) widowed. Education data shows 25 (42%), 16 (27%), 11 (18%), and 8 (13%), respectively, were graduates. Based on occupation, 26 (43%) were sedentary, 13 (22%) retired, 10 (17%) unemployed, 9 (15%) executive, and 2 (3% professionals). The analysis found 50% nuclear and 50% joint samples. The majority of sample 39 (65%) had a monthly income of 4K–6K, followed by 18 (30%) with 2K–4K and 3 (5%), with <2K. Mixed diet 41 (68%) followed veg diet 19 (32%). Of the sample, 33/55 (55%) did not drink, followed by 27/45%. Six (10%) smoked bidi, 26 (43%) smoked cigarettes, and 28 (47%) did not smoke. High blood pressure was the most frequent health issue, followed by heart disease (18%), diabetes (16%), and others (1%). The majority of samples had a health problem for 6 months–3 years (43.33%), followed by 20.33, 8.33, and 6%. Stress tests 23 (38.33%) predominated, followed by cardiac biomarker and other blood tests 20 (33.33%) and ECG 17 (28.33%). In ongoing drug samples, 27 (45%) were anti-hypertensive, 19 (31.67) were other, and 14 (23.33) were anti-diabetic.

Table 2 reveals that comparing pre-test and post-test sample knowledge scores on early warning signals of MI (with an education booklet) was successful. The post-test score shows more sample knowledge than the pre-test score. Hence, organized teaching programs are helpful at raising awareness.

Table 1: Assignment of samples based on their demographic information, $n=60$

S. No.	Demographic characteristic	Frequency	Percentage
1	Age		
	≤40	26	43
	>40	34	57
2	Gender		
	Male	30	50
	Female	30	50
3	Marital status		
	Married	42	70
	Unmarried	8	13
	Divorced	0	0
	Widow	10	17
4	Education level		
	Illiterate	0	0
	Primary	16	27
	Secondary	8	13
	Higher secondary	11	18
	Graduate and above	25	42
5	Occupation		
	Not working	10	17
	Laborer	0	0
	Sedentary worker	26	43
	Executive	9	15
	Professionals	2	3
	Retired	13	22
6	Family type		
	Nuclear	30	50
	Joint	30	50
7	Monthly income		
	<2K	3	5
	2K–4K	18	30
	4K–6K	39	65
	>6K	0	0
8	Diet		
	Veg	19	32
	Mix	41	68
	Jain	0	0
9	Alcohol consumption		
	Yes	27	45
	No	33	55
10	Habits		
	Cigarettes	26	43
	Bidi	6	10
	No	28	47
11	Health problems		
	Hypertension	25	42
	Diabetes	16	27
	Cardiac	18	30
	Other	1	1
12	Duration of health problem		
	<6 months	8	13.33
	6 months–3 years	26	43.33
	3 years–6 years	6	10
	>6 years	20	33.33
13	Diagnostic test done		
	ECG	17	28.33
	2 D Echo	0	0
	Cardiac Biomarker	20	33.33
	Stress test	23	38.33
14	Ongoing medicines		
	Anti-hypertensive	27	45
	Anti-diabetic	14	23.33
	Other	19	31.67

Table 3 shows that the sample had poor practice level (0–5 marks out of 10) before the test, but the post-test showed improvement (6–10 marks out of 10). After the proposed

instruction program, samples comprehended practice steps better, improving their practice knowledge score.

According to Table 4, the knowledge "t" value was 29.10, with a $P < 0.0001$ significance level and 59 degrees of freedom, rejecting the null hypothesis (H0). The post-test mean exceeds the pre-test mean, indicating that planned education program on early warning signals of MI for high-risk patients from chosen metropolitan city hospitals was effective. The "t" value for practice was 33.75, rejecting the null hypothesis (H0) with a $P < 0.0001$ significance level and 59 degrees of freedom. The proposed instruction program on handling early warning signals of MI in high-risk patients from chosen metropolitan city hospitals was effective, as compared to the pre-test mean; the post-test mean score is greater.

Table 5 shows a t-test value of 0.52 for (age), with a significance score of $P = 0.603$. Pre-test scores and age are not substantially associated since $t = 0.52$ is <2.0017. The gender variable produced a t-test of 0.48 and $P = 0.63$. Gender-pre-test

score association is not significant since $t = 0.48$ is <2.0017. Education level had a 0.94 t-test and $P = 0.34$ significance score. Since $t = 0.94$ is <2.0017, education level does not affect pre-test scores. The family type variable gets a 2.003 t-test and $P = 0.049$ significance score. T value 2.003 exceeds table value 2.0017, showing a strong family type-pre-test score connection.

DISCUSSION

Dhanawade and Chougule, assessed industrial workers in Sangli, Miraj, and Kupwad corporation's response to planned education on early indications and prevention of MI. Pre-test knowledge shows 50 (83.3%) workers have adequate knowledge, 3 (5%) have poor knowledge, and 7 (11.6%) have good knowledge. After testing, 39 (65%) workers had good 11 (18.3%) possessed knowledge. very good understanding, and 10 (16.6%) possessed sufficient knowledge. Pre-test mean was 8.6 and S.D. was 1.439; post-test mean score was 12.136, SD 1.548. There is a noteworthy distinction between the pre- and post-test results. Knowledge mean results. $P = 0.00$, below 0.05. A planned teaching program can detect and prevent MI. Statistics show a considerable variation between pre- and post-test results. The hypothesis H1 was accepted. Myocardial Infraction, industrial workers.[7]

Jigishapatel et al., evaluated the impact of a planned teaching program on people (30–45 years old) in a Rajkot-based selected institute's awareness of certain lifestyle modifications for the prevention of MI. At the 0.001 level, the obtained knowledge "t" value of 12.20 indicates a very significant result. The study's conclusions showed that a structured education program was successful in raising awareness of certain lifestyle modifications that can be made to prevent MI.[8]

Gandhar et al., evaluated MI early warning indicators. To link findings to demographics, the ability to recognize early

Table 2: Comparison of pre-test and post-test knowledge score

S. No.	Knowledge level	Range	Pre-test		Post-test	
			F	%	F	%
1	Poor	0–7	0	0	0	0
2	Average	8–14	52	86.66	0	0
3	Good	15–21	8	13.33	53	88.3
4	Excellent	22–28	0	0	7	11.7

Table 3: Assessment of practice level

S. No.	Practice levels	Range	Pre-Test		Post-test	
			F	%	F	%
1	Poor practice	0–5	60	100	0	0
2	Excellent practice	6–10	0	0	60	100

Table 4: Comparison of mean of pre and post-scores of overall knowledge and comparison of mean of pre and post-scores of overall reported practices

Scores	Pre-test Mean±SD	Post-test Mean±SD	M.D	S.E.	Calculate dt	Table value	Significance
Knowledge	12.65±1.51	20.13±1.05	7.48	0.25	29.10	2.0017	$P<0.0001$
Practice	4.03±1.05	9.32±0.46			33.75	2.0017	$P<0.0001$

Table 5: Association of practice and demographic variables, $n=60$

S. No.	Demographic characteristic	Mean	SD	MD	SEM	Calculate dt	Table value	Significance
1	Age							
	≤40	4.11	1.11	0.82	0.34	0.52	2.0017	$P=0.603$ NS
	>40	3.97	1.02					
2	Gender							
	Male	3.97	1.03	0.13	0.31	0.48	2.0017	$P=0.63$ NS
	Female	4.1	1.09					
3	Education level							
	Upto secondary	3.87	1.03	1.56	0.38	0.94	2.0017	$P=0.34$ NS
	Higher secondary and Above	4.14	1.07					
4	Family type							
	Nuclear	4.3	0.98	0.53	1.41	2.003	2.0017	$P=0.049$ S
	Joint	3.77	1.07					

warning indications of MI is correlated with age, income, occupation, food pattern, habits, and exercise. With a standard deviation of 5.061401, the mean score was 8.28 and the "*P*" value was >0.05. Knowledge is unrelated to gender, weight, previous MI, or family history. The average understanding of early myocardial infarction (MI) indications is crucial for prompt diagnosis and treatment.[9]

Pradeep assessed how organized training affected patients' understanding of early symptoms and immediate MI therapy. Most samples (38%) were 51–60 years old and 82% male. About 54% of the samples were secondary school graduates, spoke Marathi and Hindi, and ate diversely. Most samples (54%), earned 1000–2000 rupees each month. Most samples smoked, drank, and chewed tobacco. About 28% of the samples had diabetes and 72% had ischemic heart disease. About 38% had heart ischemic attack for < half a year. For 6–12 months, 18% of patients had ischemic heart disease. Diabetes with ischemic heart disease affected 16% of patients for over 3 years. The percentage of general knowledge improved significantly between pre- and post-tests. Post-test evaluation showed 80–100% of samples recognized heart structure, function, disease process, risk factors, and meaning. After the test, 90–100% of samples knew MI symptoms, drugs, drug action, doses, and consequences. Most samples observed diet, exercise, medicine, and follow-up changes. Organized instruction improves patient outcomes. It revealed that planned teaching minimizes disease risk. Nursing must educate at-risk patients about MI to reduce its incidence and complications.[10]

Gysel *et al*., sought to evaluate structured teaching program on MI prevention in selected villages in Kirumampakkam Primary Health Centre, Puducherry, for young adults. The study found extremely significant values for knowledge ($t = 25.05$, $P < 0.0001$), attitude ($t = 10.902$, $P < 0.001$), and practice ($t = 6.051$, $P < 0.01$). Means of the pre- and post-tests differences in Practice, knowledge, and attitude were 6.80, 19.3, and 2.3. Thus, knowledge, attitude, and practice scores differ significantly pre- and post-test. Thus, post-test understanding, disposition, and behavior improve significantly, making it is extremely successful.[11]

Conclusion

The survey found that most individuals were ignorant of the disorder. MI development, risk factors, early warning signals, and immediate management were poorly understood. This study found substantial differences in awareness of early warning indicators and immediate MI therapy before and after organized education. MI knowledge improved dramatically with organized education. This showed that planned teaching reduces disease risk. Thus, nurses must educate such patients to prevent MI incidence and sequelae.

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