

# **Review Article**

# The effectiveness of computer assisted programme on knowledge and practice regarding immediate care of patients with myocardial infarction among staff nurses

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## ABSTRACT

**Background of The Study:** Myocardial destruction was observed but not modified by the cardiologist. It has become increasingly clear that to make a real impact on the prognosis of patients with myocardial infarction. The goal of medical management is to minimize myocardial damage, preserve myocardial function, and prevent complications. the researcher felt the need to assess the effectiveness of computer assisted programme on knowledge & Practice Regarding immediate care of patient with myocardial infarction among staff nurses in admitted in selected wards of Jawaharlal Nehru Hospital & Research centre sector -9 Bhilai C.G.

**Materials and Methods:** The purpose of experimental study was to study, observe and explore the cause and effect relationship of a situation. In this study the design used in Quasi Experimental one group pretest and post test research design. The setting for present study is Jawaharlal Nehru Hospital & Research Centre Sector -9 Bhilai C.G. In this study a total of 30 samples for assessment of knowledge & practice of Jawaharlal Nehru Hospital & Research Centre Sector -9 Bhilai C.G. Non- Probability Purposive Sampling technique was used for selecting the sample.

**Result:** The comparison of knowledge score between pre test & post test in which 20%(6) subjects were in Average , 76.67%(26) subjects were in Good, 3.33%(1) subjects were in Excellent pre test knowledge score regarding immediate care of myocardial infarction patient. In Post test knowledge level the majority of staff nurse's 46.67% (14) subjects in Excellent knowledge level & 53.33% (16) were in Good knowledge regarding immediate care of myocardial infarction patients. Pre test Mean Knowledge score was 10.53, Mean % was 43.88%, S.D of pre test knowledge score was 2.9 & CV was 27.54 & post test Mean knowledge score was 16.54, Mean % was 68.33%, S.D of post test knowledge score was 2.95 & C.V of post test was 17.99. The Practice score of Pre test Mean was 12, mean % was 50% with S.D 1.88 & C.V was 15.67 & Post test practice Mean score was 19.87, mean % was 82.79 with S.D 2.34 & C.V was 11.78.

**Conclusion:** Prevalence of acute myocardial infarction as the first manifestation of ischemic heart disease is high, approximately 50%. Hypertensive individuals more frequently have symptoms preceding acute myocardial infarction, probably due to ventricular hypertrophy associated with high blood pressure levels.

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#### 1. Background of The Study

Heart is maintaining a constant circulation of blood throughout the body. The pumping action of the heart is accomplished by rhythmic contraction of its muscular wall.

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https://doi.org/10.18231/j.ijpns.2022.017 2582-4023/© 2022 Innovative Publication, All rights reserved. The heart muscle must have an adequate blood supply to contract properly. Coronary arteries carry oxygen and blood to the myocardium. When a coronary artery is narrowed or blocked, the area of heart muscle supplied by artery becomes ischemic and injured, and infarction may result. The major disorders due to insufficient blood supply to the myocardium are angina pectoris, myocardial infarction (MI), and congestive heart failure (CHF).

Nurses must incorporate scientific knowledge and technical advances into their practice to assist the patients in remaining well and functioning at the maximum level. In ICU's, the nurses working round the clock have a major responsibility in caring for patients with cardiac disorders in general. Cardiovascular Nurses play a key role in the evaluation of cardiovascular status, monitoring the Hemodynamic functions and Disease Management. Nurse-led cardiovascular procedures like Subclavian CVC placement and Percutaneous Coronary interventions have been found safe and effective.

Two-dimensional echocardiography has become a useful bedside technique in the triage of patients with acute chest pain. Regional wall motion abnormalities occur within seconds after coronary occlusion well before necrosis. It was not so very long ago that the treatment for a patient with myocardial infarction consisted of bed rest and analgesia.

## 2. Need For The Study

The heart requires a balance between oxygen supply and demand in order to function properly. The integrity of the coronary artery is an important determinant of oxygen supply to the heart muscles.

The clinical manifestations associated with Myocardial Infarction results from ischemia of the heart muscle and the decrease in function and acidosis associated with it. The major clinical manifestation of acute Myocardial Infarction is chest pain which may radiate to the neck, jaw, shoulder, back, or left arm. The pain also may be present in the epigastrium, stimulating indigestion. Acute Myocardial Infarction may also be associated with less common clinical manifestations which include atypical chest pain, back ache, or abdominal pain, nausea, dizziness, unexplained anxiety, weakness or fatigue, palpitation, cold sweat, or paleness, the Blood pressure and pulse rate may be elevated, late the blood pressure may drop, urine output may be decreased, crackles may be noted in the lungs persisting for several hours to several.

The first goal for healthcare professionals is to diagnose in a very rapid manner whether the patient is having an STEMI or NSTEMI because therapy differs between the 2 types of myocardial infarction. Particular considerations and differences involve the urgency of therapy and degree of evidence regarding different pharmacological options. As a general rule, initial therapy for acute myocardial infarction is directed toward restoration of perfusion as soon as possible to salvage as much of the jeopardized myocardium as possible. This may be accomplished through medical or mechanical means, such as Coronary Artery Bypass Grafting.

## 3. Statement of The Problem

"A Study To Assess The Effectiveness Of Computer Assisted Programme On Knowledge And Practice Regarding Immediate Care Of Patients With Myocardial Infarction Among Staff Nurses In Jawaharlal Nehru & Research Centre Sector -9 Bhilai (C.G)".

## 4. Objectives of The Study

- 1. To assess the pre test and post test knowledge and practice score regarding Immediate care of patients with Myocardial Infarction among the staff nurses in Jawaharlal Nehru Hospital & research centre sector -9 Bhilai (C.G).
- 2. To assess the effectiveness of computer assisted programmes regarding Immediate care of patients with myocardial infarction among staff nurse in Jawaharlal Nehru Hospital & research centre sector -9 Bhilai (C.G).
- To find out the association between pre test knowledge regarding Immediate care of client with Myocardial Infarction among staff nurses with selected sociodemographic variables.

# 4.1. Hypothesis

- 1. **Ho:** There will be no significant effectiveness of computer assisted programme on post test knowledge and practice score regarding Immediate care of patients with Myocardial Infarction among the staff nurses.
- 2. **H**<sub>1</sub> : There will be significant effectiveness of computer assisted programme on post test knowledge and practice score regarding Immediate care of patients with myocardial infarction among the staff nurses.
- 3. **H**<sub>2</sub>: There will be significant association between pre test knowledge with the selected socio demographic variable.

# 4.2. Inclusion criteria

## 4.2.1. This study includes

- 1. Staff nurses who are working in I.C.U, C.C.U, and casualty wards of Jawaharlal Nehru Hospital & Research Centre Bhilai (C.G).
- 2. Staff nurses who are willing to participate in the study.

## 4.3. Exclusion criteria

## 4.3.1. This study includes

- 1. Staff nurses working in O T, Psychiatric and surgical wards.
- 2. Staff nurses working in general wards.

#### 5. Materials and Methods

## 5.1. Research approach

The purpose of experimental study was to study, observe and explore the cause and effect relationship of a situation.<sup>1–10</sup> The researcher planned to find out the effectiveness of computer assisted programme on level of knowledge and practice regarding immediate care of patient with myocardial infarction among staff nurses at Jawaharlal Nehru Hospital & Research Centre sector -9 Bhilai C.G.

## 5.2. Reasearch design

In this study the design used in Quasi Experimental one group pre-test and post test research design.

## 5.3. Population

The present study population comprised staff nurses of Jawaharlal Nehru Hospital. Bhilai (C.G.). The study covered only those staff nurses who were present at hospital during the data collection period and who were agreed to participate the study.

## 5.4. Target population

In this study the target population includes all the staff nurses working in Casualty, I.C.U and C.C.U at Jawaharlal Nehru Hospital & Research Centre Sector 9 Bhilai C.G.

## 5.5. Accessible population

In present study the accessible population includes the staff nurses of Jawaharlal Nehru Hospital & Research Centre Sector -9 Bhilai C.G.

### 5.6. Setting of the study

The setting for present study is Jawaharlal Nehru Hospital & Research Centre Sector -9 Bhilai C.G;

## 5.7. Sample

In this study a total of 30 samples for assessment of knowledge & practice of Jawaharlal Nehru Hospital & Research Centre Sector -9 Bhilai C.G.

## 5.8. Sample techniques

Non- Probability Purposive Sampling technique was used for selecting the sample.

## 5.9. Sample size

A total of 30 staff nurses for assessment of knowledge & practice of Jawaharlal Nehru Hospital & Research Centre Sector -9 Bhilai C.G.

## 5.10. Variables

Independent Variables: Computer Assisted Program regarding Immediate Care of Myocardial Infarction Patient

Dependent Variables: Knowledge & Practice of Staff Nurse

#### 6. The Criterian For Selecting

## 6.1. Inclusion criteria

## 6.1.1. This study includes

- 1. Staff nurses who are working in I.C.U, C.C.U, and casualty wards of Jawaharlal Nehru Hospital & Research Centre Bhilai (C.G).
- 2. Staff nurses who are willing to participate in the study.

# 6.2. Exclusion criteria

- 1. This study includes.
- 2. Staff nurses working in O T, Psychiatric and surgical wards.
- 3. Staff nurses working in general wards.

## 7. Data Collection Methods and Technique

The instrument selected in research so as for as possible to the vehicle that could best obtained data for drawing the conclusion pertinent to the study and to the knowledge in a discipline. A structured interview shechdule questionnaire was developed based on review of book, article, journal, projects, reports, experience and personal experience.<sup>11–20</sup> The data collection method used was interview and the techniques used were self structured interview schedule.

#### 7.1. Description of tool

- Section-I Comprise of self structured questionnaire regarding socio demographic variable.
   Age, gender, education, total Work experience, experience In Selected ward, present Working Area, nurse Patient Ratio In Working Ward.
- 2. Section-II Comprise of self structured questionnaire regarding knowledge
- 3. Section-III Comprise of self-structured checklist regarding practice

## 7.2. Criteria measures

Criterion measures used in this study were as follows.

#### 7.3. Scoring for section II and III

- 1. \*Excellent Score- 17-24
- 2. \*Good Score 9-16
- 3. \*Average Score 0-8

## 7.4. Knowledge & practice itmes

There were total 24 questions on both to assess the knowledge & practice regarding Myocardial infarction. Each correct answer is given 1 score. The maximum knowledge score was 24.

## 7.5. Plan for data analysis

Data obtained will be analysed in term of objective & by using descriptive inferential statistics in the following manner- Organising data in a master sheet. Frequency & percentage distribution of sample characteristics. Chi square analysis to a socio demographic variable data with pre test.

#### 8. Result

Distribution of Study Subjects According to the Socio demographic Variables.

#### Table 1: Percentage distribution age

Age	Frequency	Percentage
21-25 years	4	13.33
26-30 years	6	20
31-35 years	6	20
36 and above	14	46.67
Total	30	100

Column diagram showing percentage distribution of subject according to age. Depict that 4 (13.33%) were under 21-25 years, 6(20%) were under 26-30 years, 6(20%) were under 31-35 years, 14 (46.67%) were under 36 & above. & maximum number 14(46.67%) belong to the age group 36 & above years, minimum number 4(13.33%) belong to the age group 21-25 years.<sup>21-25</sup>

Table 2: Percentage distribution of sex				
Sex	Frequency	Percentage		
Male				
Female	30	100		
Total	30	100		

Pie diagram showing percentage distribution of subject according to sex. Depict that number 30 (100%) belong to female and number 0 (0%) belongs to male. & maximum number 30(100%) belong to female & minimum number 0 (0%) belong to male.

Depict that number 14(46.67%) subject were under Hindu, 2 (6.66%) were under Muslim, 46.67(14%) were under Christian, 0(0%) were under Other & Maximum

#### Table 3: Percentage distribution of religion

Religion	Frequency	Percentage
Hindu	14	46.67
Muslim	2	6.66
Christian	14	46.67
Other	-	-
Total	30	100

number 14(46.67%) is maximum were belong to Hindu & Christian & Minimum 0(0%) were under other.

Table 4: Percentage	distribution	of	education
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Education	Frequency	Percentage
Diploma in nursing	13	43.33
Degree in nursing	17	56.67
Post graduate & above	0	0
in nursing		
Total	30	100%

Depict that number 13(43.33%) were under Diploma in nursing, 17(56.67%) were under Degree in nursing, 0(0%)were under Post graduate & above in nursing & maximum number 17 (56.67\%) belong to Degree in Nursing and minimum number 0 (0%) belong to Post Graduate & above in Nursing.

Table 5: Percentage distribution of total work experience

Total Work Experience	Frequency	Percentage
Nil or less than 1 year	4	13.33
1-5 year	6	20
6-10 year	6	20
11 & above year	14	46.67
Total	30	100

Depict that number 15(25%) were under Nil or less than 1 year, 19(31.67%) were under 1-5 year, 15(25%) were under 6-10 year, 11(18.33%) were under 11 & above year & maximum number 19(31.67%) belong to 1-5 year and minimum number 11(18.33%) belong to 11 & above year.

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Experience in Selected	Frequency	Percentage
Valu Less than 1 year	4	13 33
Less than 1 year	4	15.55
1-2 year	0	20
3-4 year	6	20
More than 5 year	14	46.67
Total	30	100

Pyramid Diagram Showing Percentage Distribution of Subject according To Experience in selected ward. Depict that number 4(13.33%) were under Less than 1 year, 6(20%) were under 1-2 year, 6(20%) were under 3-4 year

, 14(46.67%) were under More than 5 year & maximum number 14(46.67%) belong to more than 5 year and minimum number 4(13.33%) belong to Less than 1 year.

**Table 7:** Percentage distribution of present working area

Present working	Frequency	Percentage
area		
Casualty	10	33.33
ICU	8	26.67
CCU	10	33.33
Total	30	100

Depict that number 21(35%) were under Medical ward, 10(16.67%) were under Casualty, 16(26.67%) were under ICU, 13(21.67%) were under CCU & maximum number 21(35%) belong to medical ward and minimum number 10(16.67%) belong to casualty.

 Table 8: Percentage distribution of nurse patient ratio in working warking ward

Nurse patient ratio	Frequency	Percentage
1:2	12	40
1:3	8	26.67
>1:3	10	33.33
Total	30	100

Depict that number 15(25%) were under 1:1, 32(53.33%) were under 1:2, 13(21.67%) were under 1:10 & maximum number 32(53.33%) belong to 1:2 ratio and minimum number 13(21.67%) belong to 1:10.

Comparison of knowledge score between pre test & post test depicts that comparison of knowledge score between pre test & post test in which 20%(6) subjects were in Average, 76.67% (26) subjects were in Good, 3.33% (1) subjects were in Excellent pre test knowledge score regarding immediate care of myocardial infarction patient. In Post test knowledge level majority of staff nurse 46.67% (14) subjects in Excellent knowledge level & 53.33% (16) were in Good knowledge regarding immediate care of myocardial infarction patient. The above result signifies that there has been a consistent increase in post test when compared to pre test.

comparison of practice score between pre test & post test depicts that distribution of practice score between pre test & post test in which 6.67%(2) subjects were in average, 93.33%(28) subjects were in good practice regarding immediate care of myocardial infarction patient in Pre test. In Post test practice level majority of staff nurse 90% (27) subjects has excellent practice level & 10% (3) were in good practice regarding immediate care of myocardial infarction patient. The above result signifies that there has been a consistent increase in post test when compared to pre test. 

 Table 11: Analysis of pre test and post test Knowledge score

 using mean, mean percentage & standard deviation & coefficient

 of variance.

Knowledge	Mean	Mean %	SD	CV
Pretest Knowledge Score	10.53	43.88	2.9	27.54
Posttest Knowledge Score	16.4	68.33	2.95	17.99

## 8.1. Analysis of pretest and posttest knowledge score

depicts that distribution of aspect wise Pre test Mean Knowledge score was 10.53, Mean % was 43.88%, S.D of pre test knowledge score was 2.9 & CV was 27.54 & post test Mean knowledge score was 16.54, Mean % was 68.33%, S.D of post test knowledge score was 2.95 & C.V of post test was 17.99.

## 8.2. Analysis of pretest and posttest practice score

depicts that distribution of aspect wise Pre test Mean practice score was 12, Mean % was 50%, S.D of pre test practice score was 1.88 & C.V was 15.67.& post test Mean practice score was 19.87, Mean % was 82.79, S.D of post test practice score was 2.34 & C.V was 11.78

Depict the mean knowledge score of pre test mean was 10.53, mean % was 43.88% with S.D 2.9 & C.V was 27.54 & post test knowledge mean score was 16.4, mean % was 68.33 with S.D 2.95 & C.V was 17.99.

The statistical paired T test implies that difference in pre test & post test knowledge score found statistically significant. P<0.05 which proves the effectiveness of computer assisted programme. Hence  $H_1$  is accepted & Ho is rejected.

Depict the Practice score of Pre test Mean was 12, mean % was 50% with S.D 1.88 & C.V was 15.67 & Post test practice Mean score was19.87, mean % was 82.79 with S.D 2.34 & C.V was 11.78. The statistical paired T test implies that difference in pre test & post test Practice score found statistically significant. P<0.05 which proves the effectiveness of computer assisted programme. Hence H<sub>1</sub> is accepted & Ho is rejected.

- 1. Depicts that there was no association between the pre test knowledge score and age as calculated is 7.31 is smaller than table value of chi- square (11.07) at level of P<0.05. Hence it is not significant. H<sub>2</sub> is rejected.
- 2. There was no association between pre test knowledge score and gender as calculated is 0 is less than table value of chi- square (7.82) at level of P>0.05. Hence it is Non significant.  $H_2$  is rejected.
- 3. There was no association between the pre test knowledge score and Education as calculated is 0.88 is less than table value of chi- square (9.49) at level of P<0.05. Hence it is not significant. H<sub>2</sub> is rejected.

I 8 8					
Score	Pre Test		Pos	st Test	
	Frequency	Percentage	Frequency	Percentage	
Excellent	1	3.33%	14	46.67%	
Good	26	76.67%	16	53.33%	
Average	6	20%	0	0%	

## Table 9: Comparison of knowledge Score between Pre test & Post test by frequency, Percentage & Total Score.

 Table 10: Comparison of practice score between pre test & post test by frequency, percentage & total score

Score	Pre	Test	Post Test		
	Frequency	Percentage	Frequency	Percentage	
Excellent	0	0%	27	90%	
Good	28	93.33%	3	10%	
Average	2	6.67%	0	0%	

 Table 12: Analysis ofpre test and post test practice score using mean, mean percentage & standard deviation & coefficient of variance.

S.No	Practice	Mean	Mean %	S.D	<b>C.V.</b>
1.	Pre test	12	50	1.88	15.67
2.	Post test	19.87	82.79	2.34	11.78

 Table 13: Analysis of knowledge and effectiveness of computerassissted programme using paired t test

Samples	Mean	Mean%	SD	CV	Paired 't' test	Table value	Significance
Pre test Knowledge Score	10.53	43.88	2.9	27.54	4.84	2.05	P<0.05 Significant
Post test Knowledge Score	16.4	68.33	2.95	17.99			

Table 14: Analysis of practice and effectiveness of computerassissted programme using paired t test

Samples	Mean	Mean %	SD	CV	Paired 't' Value	Table value	Significance
Pre test practice Score	12	50	1.88	15.67	15.63	2.05	P<0.05 Significant
Post test practice Score	19.87	82.79	2.34	11.78			-

Table 15: Chi square analysis of association between pre test knowledge with the selected socio demographic variable.

Socio Demographic Data	Chi Square Value	DF	Critical Value >0.05	Significant Or Not
Age	7.31	5	11.07	Not Significant
Sex	0	2	7.82	Not Significant
Education	0.88	4	9.49	Not Significant
Total Work Experiences	11.02	6	12.59	Not Significant
Experience In Selected Ward	11.02	6	12.59	Not Significant
Present Working Area	9.49	4	9.49	Not significant
Nurse Patient Ratio In Working Ward	4.25	4	9.49	Not Significant

- 4. There was no association between the pre test knowledge score and Total work experience as calculated is 11.02 is less than table value of chi-square (12.59) at level of P<0.05. Hence it is not significant.  $H_2$  is rejected.
- 5. There was no association between the pre test knowledge score and Experience in selected ward as calculated is 11.02 is less than table value of chi-square (12.59) at level of P<0.05. Hence it is not significant. H<sub>2</sub> is rejected.
- 6. There was no association between the pre test knowledge score and Present working area as calculated is 9.49 is less than table value of chi- square (9.49) at level of P<0.05. Hence it is not significant. H<sub>2</sub> is rejected.
- 7. There was no association between the pre test knowledge score and Nurse patient ratio in working ward as calculated is 4.25 is less than table value of chi- square (9.49) at level of P<0.05. Hence it is not significant. H<sub>2</sub> is rejected.

Data presented in table indicates that there was no significant association between the knowledge scores with selected demographic Variables. Hence H<sub>2</sub> is rejected.

## 9. Summary and Conclusion

The main aim of the study to assess the effectiveness of computer assisted programme on knowledge & practice regarding immediate care of patient with myocardial infarction of Jawaharlal Nehru hospital & research centre sector -9 Bhilai. Non probability purposive convenient sampling of 30 subjects for assessment of knowledge & practice was taken & self structured questionnaire & observation checklist was adopted to approach the subject consent of the sample was taken. The review of related literature enabled the investigator to develop the conceptual frame work, structured interview, methodology for the study & plan for the analysis of data.

An experimental research design was adopted to conduct the study target population was staff nurses working in Jawaharlal Nehru hospital & research center sector-9 bhilai. Non probability purposive sampling technique was utilized for selecting a sample of 30 staff nurses for knowledge & practice.

#### 10. Source of Funding

None.

## 11. Conflict of Interest

None.

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