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# A study to assess the effectiveness of self-instructional module on the knowledge regarding cardiac rehabilitation among relatives of patients undergoing cardiovascular and thoracic surgery at the selected hospital in Nagpur city

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**Abstract**
A study was conducted to assess the level of knowledge in relatives of patient regarding cardiac rehabilitation. The purpose of cardiac rehabilitation is to provide comprehensive, multifaceted treatment. Education, and secondary prevention for cardiac patients and individuals with heart disease risk factors, in order to aid recovery and prevent recurrence of heart problems. Cardiac rehabilitation teaches the client how to be more active and make lifestyle changes that can lead stronger heart and better health.

**Methodology:** The study based on Quantitative research approach this was a quasi-experimental one group pre-test post-test research design. The setting of the study was Suretech hospital and research centre, Nagpur, sample size for the was 60.Sampling technique was purposive sampling technique for the selection of sample. The tool was structured questionnaire. This was pre-test. The self–Instructional modules was given to all the relatives. The post-test done by using the same tool to identify change in knowledge.

**Result**: The level of knowledge were seen into 5 categories poor, average, good, very good, excellent. Pre-test score was poor 18 (30%), average 26 (43.33%), good 16 (26.66%), very good 00 (00%) and Excellent 00(00%). Post-test score was poor 00 (00%), average 00(00%), good 15 (25%), very good 21 (35%) and excellent 24 (40%). There is association between knowledge regarding cardiac rehabilitation with demographic variable.

**Conclusion**: The study reveals that there is a deficit knowledge regarding cardiac rehabilitation in pre-test. The post-test knowledge was increased which reveals that self-instructional modules was effective on knowledge regarding cardiac rehabilitation.

**Keywords:** Cardiac rehabilitation, cardiac disease

## Introduction

Heart is one of the most important organs in the entire human body. The heart pumps the blood which carries all the vital materials (e.g. Oxygen and glucose) which help our body functions and removes the waste products that we do not need. Heart is more susceptible for diseases that lead to malfunction causing severe complications for human life. Heart diseases are the leading cause of premature mortality and morbidity and is the world's first leading killer disease.

Currently, coronary heart disease is the most common cause of death in the world. Annually, over 8.76mn people die of coronary disease, which constitutes 15.5% of all deaths. In hospital mortality falls within the range of 3.5-14%. Around 12% of patients die within 6 months of hospital discharge. Recent years have seen a decrease in hospital mortality caused by STEMI, however, late mortality in post infarct patients which increases significantly within 3 years after hospital discharge still poses a serious problem. A patient with extensive myocardial infarction who leaves hospital should undergo comprehensive medical care, which is compose of outpatient care, post hospital rehabilitation, optimization of pharmacotherapy, planned revascularization, electrotherapy and secondary prevention.

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## Background of study

The purpose of cardiac rehabilitation is to provide comprehensive, multifaceted treatment, education, and secondary prevention for cardiac patients and individuals with heart disease risk factors, in order to aid recovery and prevent recurrence of heart problems. Cardiac rehabilitation teaches the client how to be more active and make lifestyle changes that can lead stronger heart and better health.

In 1994, the AHA declared that cardiac reducing modifiable risk factors for CVD Since then, detailed guidelines have been published that clearly specify each of the core components of cardiac rehabilitation/secondary prevention programs, along with information about the evaluation, intervention, and expected outcomes in each area. Thus, cardiac rehabilitation/secondary prevention programs currently include baseline patient assessments, nutritional counseling, aggressive risk factor management (I.e, lipids, hypertension, weight, diabetes, and smoking), psycho-social and vocational counseling, and physical activity counseling and exercise training, in addition to the appropriate use of cardio-protective drugs that have evidence-based efficacy for secondary prevention. A cardiac rehabilitation is a combination of activities designed to help patients recover from cardiovascular events such as myocardial infarction (heart attack) and to prevent future cardiovascular and thoracic surgery.

## Materials and Methods

**Problem Statement**: A study to assess the effectiveness of Self-Instructional Module on the knowledge regarding Cardiac rehabilitation among relatives of patients undergoing Cardiovascular and thoracic surgery at the selected hospitals in Nagpur

### Objectives

- To assess the existing knowledge regarding on cardiac rehabilitation among relatives of patients undergoing cardiovascular and thoracic surgery at the selected hospitals in Nagpur city.
- To evaluate the effectiveness of self – instructional module on knowledge regarding cardiac rehabilitation among relatives of patients undergoing cardiovascular and thoracic surgery at the selected hospitals in Nagpur city.
- To associate the post – test knowledge scores among relatives of patients undergoing cardiovascular and thoracic surgery with selected demographic variables.

**Research Design:** Quasi experimental (One group pre-test and post-test study)

### Variables

**Independent variables:** self-instructional modules.
Dependant variables: knowledge.

**Setting of Study:** selected hospitals of Nagpur city.

### Population

Target Population-relatives of patients with cardiovascular and thoracic surgery.
Accessible Population-relatives of patients with cardiovascular and thoracic surgery

**Sample Size**: Sample size of the study was 60 relatives of patients.

**Sampling Technique:** Purposive sampling technique ".

### Criteria for sample selection
### Inclusion Criteria

1. Relatives of patient who are willing to participate.
2. Relatives of patient who are undergoing cardiovascular and thoracic surgery.
3. Relatives of patient who able to Read and write Hindi and English.

### Exclusion Criteria

Those who have attended similar type of research programme within 6 month.

### Tool Preparation

A tool is an instrument and equipment used for data collection Physical instrument – self-instructional modules. Questionnaire – question on cardiac rehabilitation

**Development of tool**: The investigator prepared the structured knowledge questionnaire.

**Description of tool**: Tool consist of two section –
**Section A**: This section consist of demographic data which include age, sex , religion , education status , marital status , occupation , family income , previous knowledge about cardiac rehabilitation , source of information.
**Section B:** This section consist of 30 questions on knowledge regarding cardiac rehabilitation.

### Validity

In order to obtain content validity the tool was given to eight experts who included two Department of Medical surgical Nursing, one from Department of Child Health Nursing, one from Department of Mental Health Nursing, one from Community Health Nursing, one from Department of Obstetrics and Gynecology.

### Method for data collection

- Data will be collected from relatives of patient.
- Data regarding knowledge about cardiac rehabilitation.
- Relatives of patient informed about study and after a within consent, they will be given a structured questionnaire
- The questionnaire will be used to gather the data about demographic variables and question based on self-instructional modules on cardiac rehabilitation.

### Method for data analysis

- Data regarding knowledge about cardiac rehabilitation will be analyse by answer given by relatives in pretest and posttest after administration of self-instructional modules.
- Compare the result of pretest and posttest by test of significance of both (paired) if the posttest "t" value will be increased the study will be effective.

### Result

The analysis and interpretation of the observation are given in the following sections:

**Section A:** Distribution of relatives of patients with regards to demographic variables.

**Section B:** Assessment of knowledge regarding cardiac rehabilitation among relatives of patients in selected hospital.

**Section C:** Effectiveness of self-instructional module on cardiac rehabilitation among relatives of patients undergoing cardiovascular and thoracic surgery at selected hospital in Nagpur city.

**Section D:** Association of knowledge of relatives of patients on cardiac rehabilitation with selected demographic variable

**Section A: Distribution of relatives of patients with regards to demographic variables**

Table 1: Distribution of relatives according to their demographic variables N= 60

| Demographic variables | Frequency | Percentage% |
|---|---|---|
| **Age (years)** | | |
| 21 - 30 years | 21 | 35% |
| 31 - 40 year | 23 | 38.33% |
| 41 - 50 years | 10 | 16.66% |
| 51 and above | 06 | 10% |
| **Gender** | | |
| Male | 34 | 56.66% |
| Female | 26 | 43.33% |
| Transgender | 00 | 00% |
| **Religion** | | |
| Hindu | 42 | 70% |
| Muslim | 06 | 10% |
| Buddhist | 11 | 18.33% |
| Christian | 01 | 1.66% |
| Other | 00 | 00% |
| **Education** | | |
| secondary | 21 | 35% |
| Higher secondary | 26 | 43.33% |
| Graduate | 12 | 20% |
| Post graduate and above | 1 | 1.66% |
| **Marital status** | | |
| Married | 40 | 66.66% |
| Unmarried | 18 | 30% |
| Single | 02 | 3.33% |
| Divorced | 00 | 00 |
| **Occupation** | | |
| Government job | 02 | 3.33% |
| Private job | 09 | 15% |
| Self-employment | 15 | 25% |
| Farmers and labour | 20 | 33.33% |
| Housewife | 14 | 23.33% |
| **Income** | | |
| Less than 10,000 | 13 | 21.66% |
| 10,001 / - 20,000 | 18 | 30% |
| 20,001/ - 30,000 | 09 | 15% |
| 30,001 and above | 04 | 6.66% |
| **Previous knowledge about cardiac rehabilitation** | | |
| Yes | 16 | 26.66% |
| No | 44 | 73.33% |
| **Source of knowledge** | | |
| Book, media , newspaper | 05 | 8.33% |
| Paramedical field | 02 | 3.33% |
| Friends and family | 09 | 15% |
| Other | 00 | 00% |

The above table no.4.2.1 depicts frequency and percentage wise distribution of no. Of frequency according to age, gender, religion, education, marital status, occupation, income, previous knowledge regarding cardiac rehabilitation and source of knowledge respectively.

- Distribution no. Of frequency according to their age in years shows that 21 (35%) of them were belonging to the age of 21 - 30 years, 23 (38.33%) in the age range of 31- 40 years, 10(16.66%) in the age group 41 - 50 years, 06(10%) in the age group 51 and above years respectively

- Distribution of relatives of patients according to their gender shows that 34 (56.66%) of them were male, 26(43.33%) them were female respectively.

- Distribution no. of frequency according to their religion shows that 42 (70%) of them were Hindu, 06 (10%), of them were Muslim, 11 (18.33%) of them were Buddhist, 01(1.66%) of them were Christian, 00 (00%) of them were other respectively. Distribution no. of frequency according to their education shows that 21(35%) of them secondary, 26 (43.33%) of them were higher secondary, 12(20%) of them were Graduate, 01 (1.66%) of them were post Graduate and above respectively.

- Distribution no. of frequency according to their marital status shows that 40 (66.66%) of them were married, 18(30%) of them were unmarried, 02(3.33%) of them were single, 00(00%) of them were Divorced respectively.

- Distribution no. of frequency according to their occupation shows that 02 (3.33%) of them were Government job, 09 (15%) of them were Private Job, 15(25%) of them were self-employment, 20(33.33%) of them were Farmer and labour, 14(23.34%) of them were Housewife respectively.

- Distribution no. of frequency according to their income shows that 13(21.66%) of them were Less than 10,000, 18(30%) of them were 10,001 to 20,000, 09 (15%) of them were 20,001 to 30,000, 04 (6.66%) of them were 30,001 and above respectively.

- Distribution of relatives of patients according to their previous knowledge regarding cardiac rehabilitation that show 16(26.66%) of them were belonging "yes ", 44(73.33%) were " no" respectively.

- Distribution of relatives of patients according to sources of knowledge shows that 05(8.33%) of them were belonging to the book, media and newspaper, 02(3.33%) in the range of Paramedical field, 09(15%) in the range of Friends and family, 00 (00%) Others respectively.
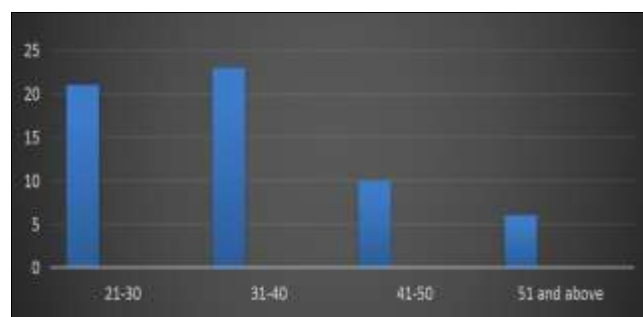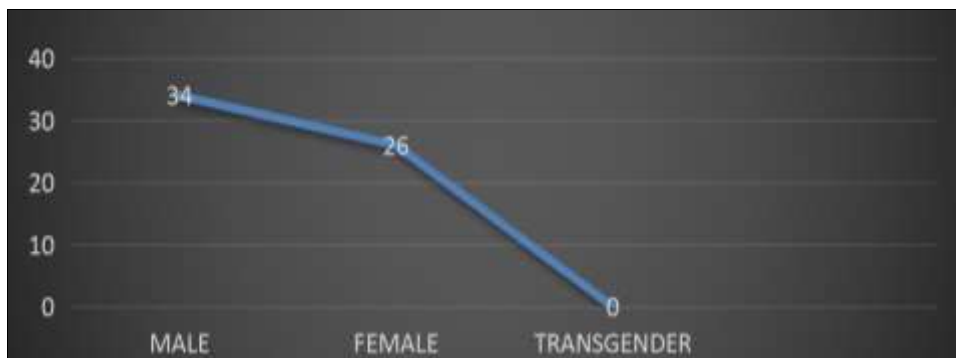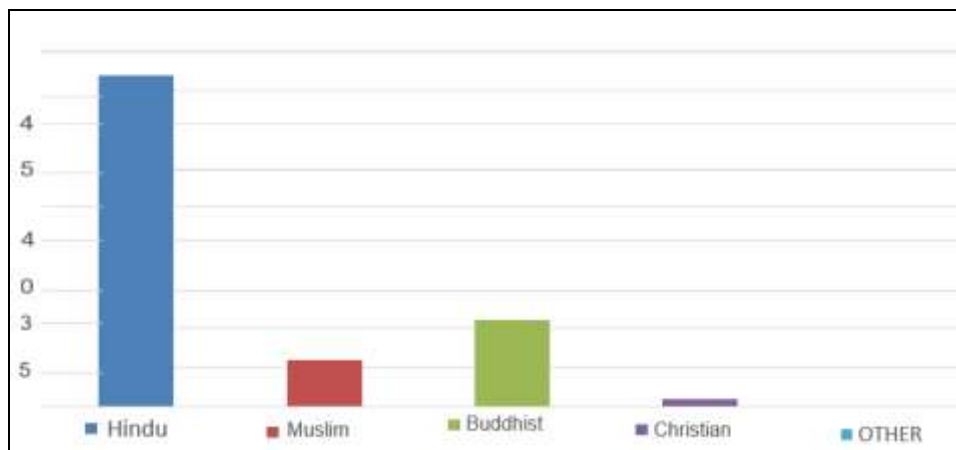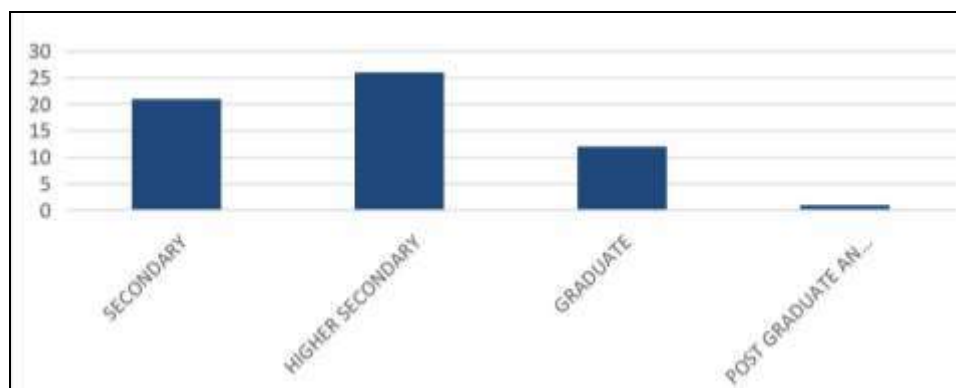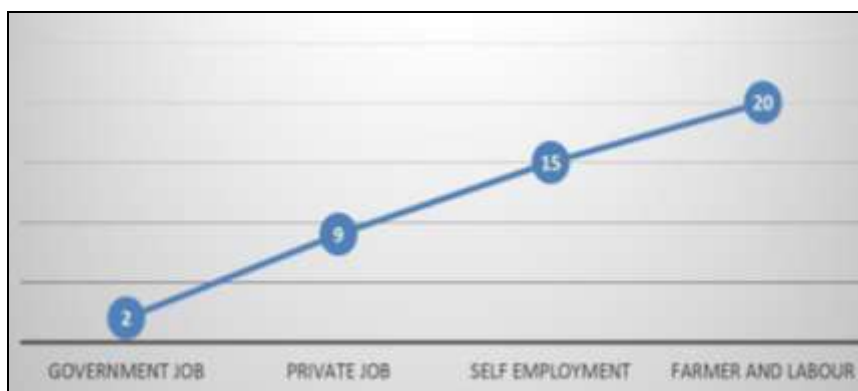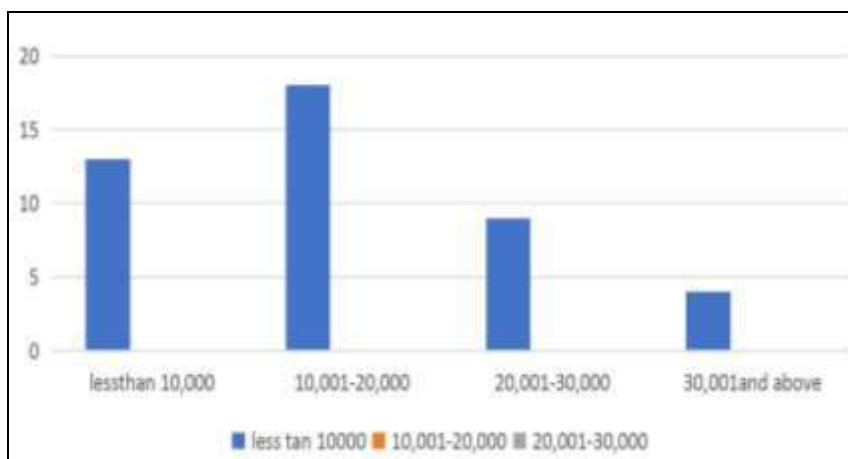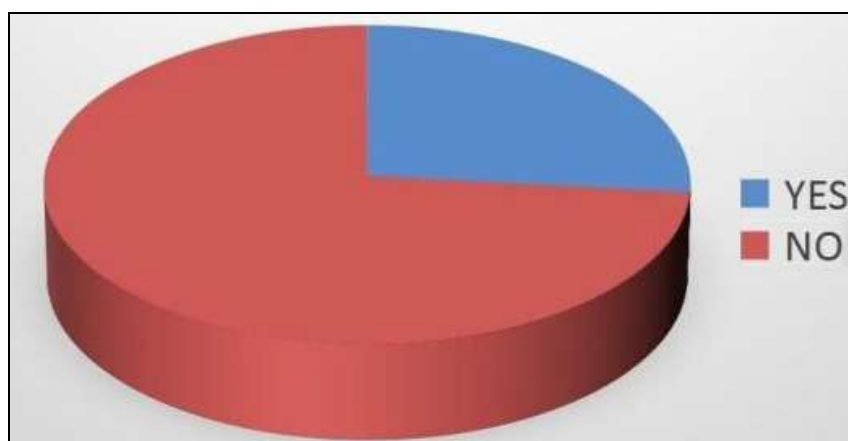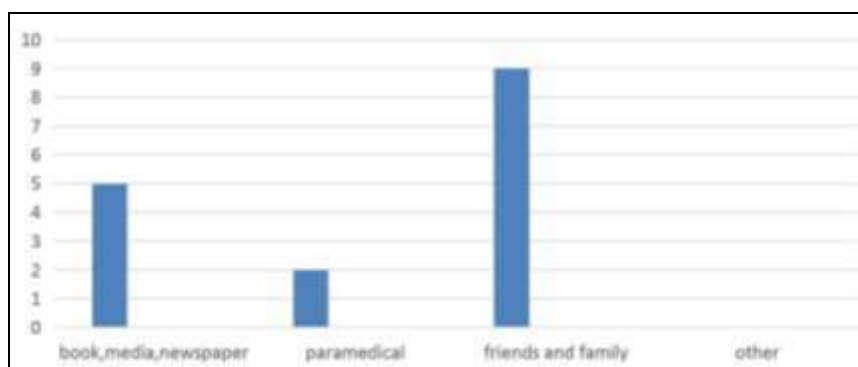


**Fig 1:** Age

**Fig 2:** Gender



**Fig 3:** Religion



**Fig 4:** Education
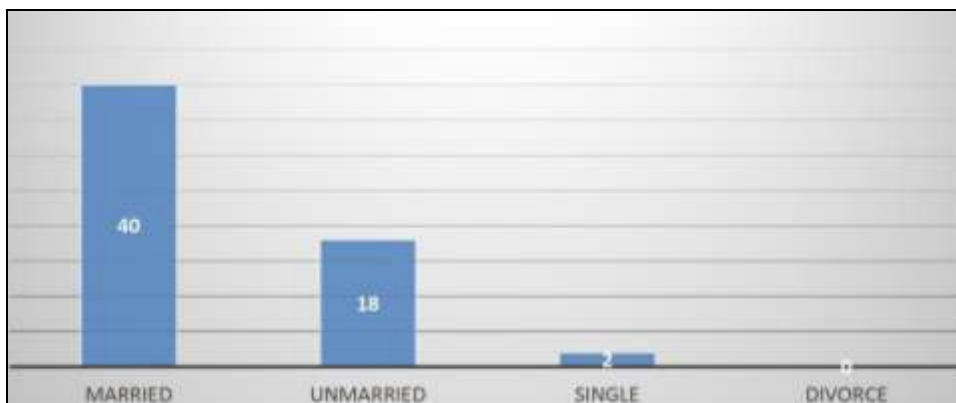


**Fig 5:** Marital Status

**Fig 6:** Occupation



**Fig 7:** Income



**Fig 8:** Previous Knowledge



**Fig 9:** Source of knowledge

**Section B: Assessment of knowledge regarding cardiac rehabilitation among relatives of patients in selected hospital**

**Tables 2:** Distribution of relatives of patients with regards to the level of pre – test knowledge regarding cardiac rehabilitation. N = 60

| Level of knowledge score | Score range | Percentage score | Frequency | Percentage |
|---|---|---|---|---|
| Poor | 0 - 6 | 0 - 20% | 18 | 30% |
| Average | 7 - 12 | 23.33-40% | 26 | 43.33% |
| Good | 13 - 18 | 43.33-60% | 16 | 26.66% |
| Very good | 19 - 24 | 63.33-80% | 00 | 00% |
| Excellent | 25 - 30 | 83.33-100% | 00 | 00% |
| Minimum score | 2 | | | |
| Maximum score | 18 | | | |
| Mean% | 30.73% | | | |
| Mean score | 9.22 | | | |

The above table no. 4.2.2 show or representing the frequency and percentage wise distribution of relatives of patients according to pre - test level of knowledge regarding cardiac rehabilitation. The level of knowledge were seen into 5 categories poor average, good, very good, excellent of relatives of patients 18(30%) had poor, 26(43.33%) had average, 16(26.66%) had good, 00(00%) had very good and 00(00%) had excellent knowledge score regarding cardiac rehabilitation.

**Table 3:** Distribution of relatives of patients with regards to the level post - test knowledge regarding cardiac rehabilitation.
N=60

| Level of knowledge | Score range | Percentage score | Frequency | Percentage |
|---|---|---|---|---|
| Poor | 0 - 6 | 0 - 20% | 00 | 00% |
| average | 7 - 12 | 23.33- 40% | 00 | 00% |
| Good | 13 - 18 | 43.33- 60% | 15 | 25% |
| Very good | 19 - 24 | 63.33-80% | 21 | 35% |
| Excellent | 25 - 30 | 83.33–100% | 24 | 40% |
| Minimum score | 13 | | | |
| Maximum score | 29 | | | |
| Mean% | 74.66% | | | |
| Mean score | 22.4 | | | |

The above table no 4.3 show the frequency and percentage wise distribution of relatives of patients according to post - test level of knowledge regarding cardiac rehabilitation. The level of knowledge were seen into 5 categories poor, average, good, very good, excellent of relatives of patients 00(00%) had poor, 00(00%) had average, 15(25%) had good, 21(35%) had very good and 24(40%) had excellent level of knowledge score regarding cardiac rehabilitation.

**Section C: Effectiveness of self-instructional module on cardiac rehabilitation among relatives of patients undergoing cardiovascular and thoracic surgery at selected hospital in Nagpur city**

**Table 4: s**ignificance of difference between knowledge score in pre and post - test of relatives of patients in relation to cardiac rehabilitation.

| Overall | Mean | S D | Mean percentage | T- value | | P - value |
|---|---|---|---|---|---|---|
| Pre - test | 9.22 | 4.64 | 30.73% | Tabulated value | Calculated value | $P<0.05$ |
| Post - test | 22.4 | 4.79 | 74.66% | 2.00 | 15.27 | |

Table no. 4.2.4 depicts the overall mean knowledge score of pre - test relatives of patient which reveals that post - test means knowledge score was higher 13.4 with SD of + 9.82 when compared with pre – test means knowledge score value which was 09.7 with SD Of + 4.64 the statistical relatives of patient paired t - test implies that the difference in pre - test and post - test knowledge score found to be 15.89 which is statistically significant at 5% level of significant ($p<0.05$). Hence it is statistically interpreted that self-instructional modules on knowledge regarding cardiac rehabilitation was effective. Thus H1 is accepted and H0 rejected.
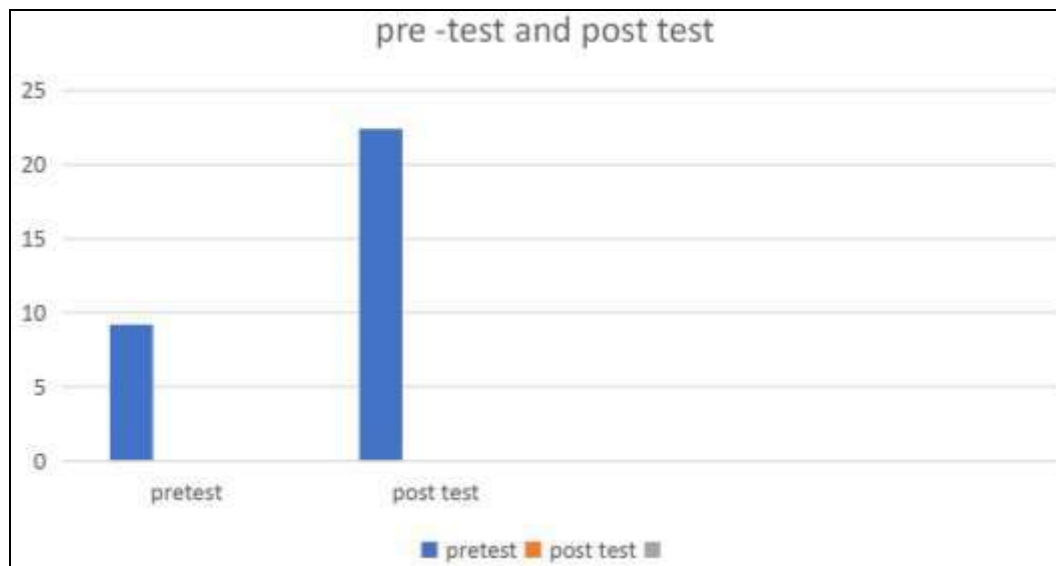
**Fig 10:** bar graph significance of difference between knowledge score in pre and post test

**Section D: Association of knowledge of relatives of patients on cardiac rehabilitation with selected demographic variable**

The analysis of the related to association of knowledge of relatives of patients regarding cardiac rehabilitation in relation to demographic variables . It was calculated with the help of chi-square test.

**Table 5:** an analysis of data find association between post - test knowledge and selected demographic variables

| Sr.no | Demographic Variables | Chi square value | Degree of freedom | Table value | Level of significance | Significance |
|---|---|---|---|---|---|---|
| 1. | Age | 5.93 | 12 | 21.03 | 0.05 | Not significant |
| 2. | Gender | 9.9 | 8 | 15.51 | 0.05 | Not significant |
| 3. | Religion | 7.52 | 16 | 15.34 | 0.05 | Not significant |
| 4. | Education | 5.88 | 12 | 21.03 | 0.05 | Not significant |
| 5. | Marital status | 0.10 | 12 | 21.03 | 0.05 | Not significant |
| 6.. | occupation | 18.8 | 16 | 15.34 | 0.05 | Not significant |
| 7.. | Income | 5.90 | 12 | 21.03 | 0.05 | Not significant |
| 8.. | Previous knowledge | 1.93 | 4 | 9.49 | 0.05 | Not significant |
| 9. | Source of knowledge | 2.56 | 12 | 21.03 | 0.05 | Not significant |

Table no. 4.2.5 depicts that there is no association between knowledge score with demographic variables.

**Discussion**

In the previously studies researcher discuss about Cardiac Rehabilitation/Secondary Prevention (CR/SP) programs are considered standard of care and provide critically important resources for optimizing the care of cardiac patients. The objective of this paper is to briefly review the evolution of CR/SP programs from a singular exercise intervention to its current, more comprehensive multifaceted approach. Additionally, researcher offer perspective on critical concerns. Additionally, we explain the the effectiveness of knowledge among relatives of patient on our self instructional module on Cardiac rehabilitation, because relative or any family member is responsible to render the Quality of care to patient to regain normal expectancy of life after the Surgery So, that we are think this was not consider in previous study & we work on it.

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