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# A study to evaluate the effectiveness of self-instructional module on knowledge and care of pace maker implantation patients among nursing staff at selected hospitals at Indore

**[1]Sonali Kumawat and [2]Atul Sharma**

[1] Vice Principal and HOD, Department of Medical Surgical Nursing, Shubhdeep College of Nursing, Madhya Pradesh, India
[2] Nursing Officer, Hingora, Utter Pradesh, India

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**Abstract**
A quasi experimental one group pre-test post-test study to evaluate the effectiveness of self-instructional module on knowledge and care of pace maker implantation patients among staff nurses in selected hospital at Indore. By using non probable purposive sampling technique method. The tool comprised of by using structured interview schedule. The pretest was conducted and the self-instructional module was administered. The post test was conducted after one week .The data obtained were analyzed by using differential and inferential statistics. The mean post-test knowledge score is 22.80 was greater than the mean pre-test knowledge scores 8.76. The enhancement in the knowledge level of respondents is 14.04 indicates gain in knowledge by respondents.

**Keywords:** One group pre-test post-test quasi experimental study, staff nurses, pace maker and non-probable purposive sampling

## Introduction

Heart diseases are a huge burden and cause of concern for everybody from doctors to policy makers. Heart disease leading to heart failure is a further cause for worry. In fact, approximately 60% of all cardiac deaths occur due to arrhythmias leading to Sudden Cardiac Arrest (SCA). Annual incidence of SCA in India is 0.55 per 1,000 populations. Today, pacemakers are used to manage symptomatic brady cardia but rising cost of technology that saves life has been out of reach for many poor patients in India leading to confinement, morbidity and death. Each year 1-2 million individuals worldwide die due to a lack of access to pacemakers. In India, about 1, 00,000 patients suffer from bradycardia (slow heart rate) every year. However, only 15,000 patients resort to pacemakers in India annually.

In these circumstances, researchers see re-using pacemakers as a safe alternative. According to a recent US study published in the American Journal of Cardiology, implantation of donated permanent pacemakers can not only save lives, but also improve quality of life of needy poor patients. The authors say that reusing pacemakers could "alleviate the burden of symptomatic bradyarrhythmia (abnormally slow heart rate) in impoverished nations around the world. A cardiac pacemaker is a device that is used to regulate the heart rate. If you have been found to have a heartbeat that is too slow, a pacemaker can be implanted in the body to take over the function. This small electronic device automatically monitors and regulates the heartbeat, by transmitting electrical impulses to stimulate the heart when it is beating too slowly. Pacemaker can be permanent or temporary, permanent pacemakers are used most commonly for irreversible complete heart block. Temporary pacemakers are used (MI or after open heart surgery) to support patients until they improve or receive a permanent pacemaker. A pacemaker consists of a pacing lead and a pulse generator. Single chamber pacemakers have only a single lead while dual chamber pacemakers have two leads with one lead in the atrium and the other in the ventricle. Dual chamber pacemakers are more physiological but more expensive. The indications of pacing are now well established. The most important indication of pacing however remains complete heart block and the sick sinus syndrome which account for 95% of the indication for pacemakers implanted in Singapore. During the last pacemaker survey in 2005 in Singapore, the implant rate was 91 per million. With our ageing population, we can expect that the need for pacemaker implantation in Singapore will rapidly increase. In Europe, Japan and the USA, the implant rate is almost 300-1000 per million.

Nurses play a central role in detection prevention, control and rehabilitation. They are often the case manager, working in partnership with patients and families, based in the general/family practice, hospital and community sectors. Their role could be enhanced by exploiting the latest technology, training administrative and support opportunities and by sharing ideas, experiences and findings. Demonstrating the evidence of effectiveness,

safety and quality is crucial as is building capacity and capability. Finally nursing needs to ensure that it has a voice and place at the high table of policy making.

**Research Elaborations**

**Statement of problem**

"A study to evaluate the effectiveness of self-instructional module on knowledge and care of pacemaker implantation patients among nursing staff at selected hospital at Indore among staff nurses in selected hospitals at Indore".

**Objectives**

1. To assess the knowledge regarding care of pacemaker implantation patient among Nursing Staff.
2. To evaluate the effectiveness of knowledge regarding care of pacemaker implantation patient among Nursing Staff.
3. To find out an association between pre- test knowledge scores with demographic variables.
4. To determine the effectiveness of SIM.

**Hypothesis**

**$H_1$:** There will be significant difference between pre-test and post-test knowledge score on care of pace maker implantation patients among staff nurses.

**$H_2$:** There will be significant association between pre-test knowledge score with selected socio demographic variables.

**Materials and Methods**

**Population:** Staff Nurses

**Sample:** Staff Nurses in different hospitals at Indore City.

**Sample Size:** 50 staff nurses

Sampling Technique-Non probable purposive sampling.

**Setting:** Greater Kailash Hospital, Indore, Madhya Pradesh, India

The conceptual framework for the present study is based on CIPP Model

**Research Design**

The research design selected for the present study was a one group pre-test post-test research design.

**Table 1:** Quasi experimental one group pre and post-test research design

| Pre-Test | Treatment | Post–Test |
|---|---|---|
| **RO1** | **X** | **RO2** |
| Knowledge of Staff Nurses. | Self-Instructional Module | Knowledge of Staff Nurses. |

**The interpretations of the symbol are as below**

RO1 = Assessment of knowledge by pre-test.

X = self instructional module on care of pace maker implantable patient among staff nurses

RO2 = Assessment of knowledge by post-test.

**Ethical Consideration**

After obtaining permission from research committee of Indore College of nursing, prior permission was obtained from nursing superintendent and medical superintendent of greater Kailash Hospital, Indore, India.Consent was taken from each participant who had participated in the study.

**Description of the Tool**

Structured interview consists of two sections: section I& II

**Section I:** consist of demographic background of adult i.e. age of sample, gender, marital status, education qualification, experience and area of working in the hospital.

**Section II:** consists of question assessing knowledge and care about patient with pacemaker.

There are a total of 30 items in the interview, Item number 1-8 anatomy and physiology of the heart, 9-12 introduction and definition of the pacemaker, 13-20 pacemaker design and its types, 21-22 indication of pacemaker, 23-29 pacemaker implantation procedure, 30 complication of pacemaker implantation.

The score for correct answer was '1' and for the wrong answers was '0'. The scores range from a minimum of zero to a maximum score of 30.

**Data Collection and Data Analysis**

The data was presented under the following sections

**Section I:** Description of socio-demographic variables of Respondents.

**Section II:** Findings related to area wise knowledge scores of respondents regarding care of pacemaker implantable patient among staff nurses.

**Section III:** Findings related to association between pre-test knowledge score with selected socio-demographic variables of staff nurses.

**Result**

**Table 1:** Distribution of respondents according to Demographic Information. N =50

| Variables | Frequency | Percentage % |
|---|---|---|
| **Age** | | |
| 21-30 Year | 31 | 62% |
| 31-40 Year | 17 | 34% |
| 41-50 Year | 2 | 4% |
| 51-60 Year | --- | --- |
| **Sex** | | |
| Male | 22 | 44% |
| Female | 28 | 56% |
| **Marital Status** | | |
| Single | 15 | 30% |

| | | |
|---|---|---|
| Married | 32 | 64% |
| Widowed | 1 | 2% |
| Divorced | 2 | 4% |
| **Educational Qualification** | | |
| G.N.M. | 20 | 40% |
| B.Sc. Nursing | 12 | 24% |
| Post B.Sc. Nursing | 18 | 36% |
| M.Sc. Nursing | ----- | ------ |
| **Year of experience** | | |
| 0-5 Year | 15 | 30% |
| 6-10 Year | 19 | 38% |
| 11-15 Year | 11 | 22% |
| 16 Year or Above | 5 | 10% |
| **Area of working** | | |
| General Ward | 11 | 22% |
| I.C.U. | 26 | 52% |
| Post Operative Ward | 8 | 16% |
| Other (Specify-----) | 5 | 10% |

**The table shows that**

The above table shows that most of samples were from age of 21-30 year.

56% of respondents were female and 44% were male.

64% respondents have done married, 30% were single whereas 2% was widowed and 4% was divorced. 40% respondents have done G.N.M. and 24% have done B.Sc. Nursing whereas36% done the Post B.Sc. Nursing and no candidate have done the M.Sc. Nursing.

Most of samples 38% were have 6-10 Year experience.

Most of sample 52% have worked in the I.C.U. ward and 22% have worked in General ward, 16% working in Post Operative ward whereas only 10% candidate have worked in other hospital ward.

**Section II Associations between demographic variable with posttest knowledge score**

**Table 2:** Ages in Years/Post Test Score

| Demographic variable Age in year | Post -Test Score | | | | | Total | D.F | $X^2$ Value | Significance |
|---|---|---|---|---|---|---|---|---|---|
| | Very Poor | Poor | Good | Very good | Excellent | | | | |
| 21 - 30 | -- | -- | 6 | 10 | 15 | 31 | Degree of freedom is 4 | P value of $X^2$ Is 2.07 | P =0.76 No significance association |
| 31 - 40 | -- | -- | 2 | 9 | 6 | 17 | | | |
| 41 - 50 | -- | -- | -- | 1 | I | 2 | | | |
| 51 - 60 | -- | -- | -- | -- | -- | -- | | | |
| TOTAL | | | 8 | 20 | 22 | 50 | | | |

$X^2$ (df =1) = 9.49< 0.76

**Table 3:** Sexes /Post Test Score

| Demographic variable Sexes | Post -test score | | | | | Total | D.F | $X^2$ Value | Significance |
|---|---|---|---|---|---|---|---|---|---|
| | Very poor | Poor | Good | Very good | Excellent | | | | |
| Male | -- | -- | 3 | 12 | 7 | 22 | Degree of freedom is 4 | P value of $X^2$ Is 2.07 | P =0.76 No significance Association |
| Female | -- | -- | 5 | 8 | 15 | 28 | | | |
| Total | | | 8 | 20 | 22 | 50 | | | |

$X^2$ (df =1) p= 3.84 < 0.20

**Table 4:** Marital status /Post Test Score

| Demographic variable in Marital status | Post -test score | | | | | Total | D.F | $X^2$ Value | Significance |
|---|---|---|---|---|---|---|---|---|---|
| | Very poor | Poor | Good | Very good | Excellent | | | | |
| Single | -- | -- | 3 | 2 | 10 | 15 | Degree of freedom is 6 | P value of $X^2$ Is 7.65 | P =0.26 No significance association |
| Married | -- | -- | 4 | 16 | 12 | 32 | | | |
| Widow | -- | -- | -- | I | -- | I | | | |
| Divorced | -- | -- | 1 | I | -- | 2 | | | |
| Total | | | 8 | 20 | 22 | 50 | | | |

$X^2$ (df =1) p= 12.59 < 0.26

**Table 5:** Educational Qualifications /Post Test Score

| Demographic variable in Educational qualification | Post -test score | | | | | Total | D.F | $X^2$ Value | Significance |
|---|---|---|---|---|---|---|---|---|---|
| | Very poor | Poor | Good | Very good | Excellent | | | | |
| | | | | | | | Degree | P value of | P =0.136 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Gnm | -- | -- | 6 | 8 | 6 | 20 | of freedom is 4 | $X^2$ Is 6.98 | No significance Association |
| B.sc.(n) | -- | -- | -- | 3 | 9 | 12 | | | |
| Post b.sc.(n) | -- | -- | 2 | 8 | 8 | 18 | | | |
| M.sc.(n) | -- | -- | -- | -- | -- | -- | | | |
| Total | | | 8 | 20 | 22 | 50 | | | |

$X^2$ (df =1) = 9.49< O.136

**Table 6:** Years of experiences /Post Test Score

| Demographic variable in Years of experiences | Post -test score | | | | | Total | D.F | $X^2$ *Value* | Significance |
|---|---|---|---|---|---|---|---|---|---|
| | Very poor | Poor | Good | Very good | Excellent | | | | |
| 0-5 year | -- | -- | 3 | 7 | 5 | 15 | Degree of freedom is 6 | P value of $X^2$ Is 2.73 | P =0.84 No significance association |
| 6-10 year | -- | -- | 2 | 7 | 10 | 19 | | | |
| 11-15 year | -- | -- | 3 | 4 | 4 | 11 | | | |
| 16 &above | -- | -- | -- | 2 | 3 | 5 | | | |
| Total | | | 8 | 20 | 22 | 50 | | | |

$X^2$ (df =1) p= 12.59 < 0.84

**Table 7:** Areas of working /Post Test Score

| Demographic variable in Areas of working | Post -test score | | | | | Total | D.F | $X^2$ *Value* | Significance |
|---|---|---|---|---|---|---|---|---|---|
| | Very poor | Poor | Good | Very good | Excellent | | | | |
| General ward | -- | -- | 3 | 5 | 3 | 11 | Degree of freedom is 6 | P value of $X^2$ Is 26.5 | P =0.0012 significance association |
| ICU | -- | --- | -- | 10 | 16 | 26 | | | |
| Post Operative ward | -- | -- | -- | 5 | 3 | 8 | | | |
| Others ward | -- | -- | 5 | -- | -- | 5 | | | |
| Total | | | 8 | 20 | 22 | 50 | | | |

$X^2$ (df =1) p= 12.59 < 0.0012

**Section III**

**Association between pre-test and post-test knowledge score**

Table no. 3 there were 50 adult male and female samples taken for the study. Each of them had to answer 30 questions. Their pre and post-test correct answers were recorded and the mean and standard deviation of the test scores were obtained as below

**Associations between pre-test and post test knowledge score**

Table no. 8 there were 50 adult male and female samples taken for the study. Each of them had to answer 30 questions. Their pre and post-test correct answers were recorded and the mean and standard deviation of the test scores were obtained as below

**Table 8:** Associations between pre-test and post test knowledge score N=50

| Knowledge score | Mean ± SD | Mean difference | df | 't' value | P value |
|---|---|---|---|---|---|
| Pre-test score | 8.76±2.36 | 14.04 | 49 | 66.2844 | P= 0.05 |
| Post-test score | 22.80±3.19 | | | | |

Table No. 8 is showing that pre test knowledge score of the samples is 8.76 and post test knowledge score is 22.8. To know whether this increase in the mean knowledge score is significant or not, the researcher applied 't' test. The researcher can conclude at 5% level of significance and 49 degree of freedom that there is significant change in mean knowledge score. It means that the intervention (SIM on knowledge and care of patient with pacemaker) is effective.

The researcher can conclude at 0.05 level of significance. Therefore there is significant difference between the average values of pre and post test related to knowledge of pacemaker, which gives an interpretation, that there is a significant gain in the knowledge score of the sample in the post test phase. This indicates that the SIM is effective in increasing the knowledge of the samples regarding knowledge and care of patient with pacemaker

**Conclusion**

The main aim of the study was to determine the effectiveness of self instructional module on knowledge and care of pacemaker implantation patients among the staff nurses. Information was given to the staff nurses through a self-instructional module which includes various aspects regarding knowledge and care of pacemaker implantation patients.

The followings conclusions were drawn on the basis of finding of the study:

- The pre-test findings showed that knowledge of staff nurses regarding knowledge and care of pacemaker implantation patients was inadequate.
- The administration of self-instructional module helped the nurses to understand more regarding knowledge and care of pacemaker implantation patients.
- Most of nurses were having adequate level of knowledge after the administration of self-instructional module.
- The self-instructional module is proved to be very effective method of transforming information.

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