A Study to Assess the Knowledge and Practice regarding Homecare Management of Permanent Pacemaker Implanted (PPI) Patients in Selected Hospitals of Guwahati, Assam with a View to Develop an Information Booklet

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Abstract: *Background: An artificial Cardiac Pacemaker is an electronic device, recognized and widely used treatment for patients presenting with bradycardia. Patients are expected to return to normal activities almost immediately post implantation. However, patients themselves may perceive interferences to pacemaker function by various routine activities and devices and hence continued to lead restricted, disabled lives. As permanent pacemakers are meant for life time use, a negligence and lack of adequate knowledge and practice can cause life threatening complications. Therefore, it is considered vital for healthcare professionals to be aware of patients' knowledge and practices after the device implantation and the impact of this device on patients' day - to - day - life, hence subsequent evaluation of knowledge among PPI patients is the first and vital step to improve quality of life. Aim: The aim of the study was to assess the Knowledge and Practice regarding Homecare Management of Permanent Pacemaker Implanted (PPI) patients in selected Hospitals of Guwahati, Assam with a view to develop an Information Booklet. Objectives: Objectives of the study were to - assess the knowledge regarding homecare management of PPI patients, assess the practice regarding homecare management of PPI patients, find out the correlation between knowledge and practice regarding homecare management of PPI patients, find out the association between knowledge regarding homecare management of PPI patients with selected demographic variables and to find out the association between practice regarding homecare management of Permanent Pacemaker Implanted (PPI) patients with selected demographic variables - age, gender, religion, type of family, place of residence, marital status, education, occupation, place of pacemaker implantation, day of pacemaker implantation. Materials and Methods: A quantitative descriptive research approach with descriptive correlational research design was considered to be appropriate for this study. The settings of the study were 5 conveniently selected hospitals of Guwahati, Assam.105 PPI patients were selected as a study sample chosen by Non Probability Consecutive sampling in proportionate percentage from each hospital. The data were collected through Structure Interview Schedule and analysed in terms of descriptive and inferential statistics. Results: Out of 105 PPI patients, majority i. e., 49 (46.7%) belonged to the age group of 50 - 65years, 66 (62.9%) were male, 69 (65.7%) were Hindu, 57 (54.3%) were from nuclear family, 76 (72.4%) were from urban area, 75 (71.4%) were married, 22 (21.0%) were high school pass, 27 (25.7%) were government employee, 63 (60.0%) patients had their place of pacemaker implantation in private hospital, 31 (29.5%) patients belonged to 2 - 6 months according to day of pacemaker implantation. Majority i. e.57 (54.3%) had moderately adequate knowledge followed by 30 (28.6%) with inadequate knowledge and only 18 (17.1%) had adequate knowledge regarding homecare management of permanent pacemaker implantation. Whereas majority i. e., 68 (64.8%) had moderately adequate practice followed by 22 (21.0%) with inadequate practice and only 15 (14.3%) had adequate practice regarding homecare management of permanent pacemaker implantation. The study also revealed a significant positive correlation between knowledge and practice regarding homecare management of PPI patients (r= 0.953) at p value <.001. A significant association was found between knowledge with selected demographic variables and also between practice with selected demographic variables such as age, religion, marital status, education, occupation, place of pacemaker implantation, day of pacemaker implantation. Conclusion: The study concluded that majority of the patients had not adequate knowledge and practice regarding homecare management of permanent pacemaker. It was further established that there is a significant positive correlation between knowledge and practice of PPI patient.*

Keywords: Knowledge, Practice, Homecare, PPI patients, Information Booklet, Demographic Variables, Pacemaker.

1. Introduction

The greatest test of courage on earth is to bear defeat without losing heart.
- - Robert Green Ingersoll.

Focusing on Indian history of artificial pacemakers, according to Nair M et al Cardiac pacemaker was introduced in India in 1966. First pacemaker was implanted at the "Institute of Post Graduate Medical Education and Research Kolkata West Bengal" in April 1967. After that, in 1968, cardiac pacing started at AIIMS, New Delhi. [1]There were 9782 PPMs (Permanent Pacemakers) inserted during 1995 - 2009 in Western Australia. The rate rose with increasing age, being highest in those 85years or older; over 500/100000 for men throughout, and over 200/1000000 for women. Rates for patients over 75 were more than double the rates for those age 65 - 74 years. The rate of insertion and prevalence of PPM continue to rise with ageing population. [2]A survey was carried out by Indian Heart

Rhythm Society (IHRS) and Indian Society of Electrocardiography (IES) concluded approximately 37, 000 artificial Cardiac devices were sold in India from April 1, 2012 up to March 31, 2013. In India Cardiac device implants/million people is at a mean of 25 implants/million population. [3]In Eastern India, almost 90% permanent pacemaker implantation being done in West Bengal. Prevalence of chronic AV block is 2.47% per year with West Bengal tops the list with almost more than 70% prevalence, Assam with10%, Bihar with 12.8%, Orissa 5% and Tripura with 2% prevalence. [4]Homecare is a particular area of patients' practices that constitutes comprehensive health care strategy to promote, maintain or restore health. [5] So, Nurses, being independent in their management of these patients should initially assess the patients' level of knowledge should start the health teaching to prevent complications, malfunctions, readmission as well as to improve homecare practices and their quality of life.

Need of the study
A prospective study on complication rates associated with pacemaker showed that pacemaker insertion is associated with a notable complication risk like Hemodynamic instability, lead dislodgement, lead malfunction, Hematomas, Cardiac perforation, Pneumothorax, Hemothorax, reoperation, Heart Failure, Cardiac arrest etc due to lack of knowledge, proper pacemaker care practices at home. (Jeanne E. Poole et al 2015). [6] Torrington M, Both JL, Weymer HW (1985) interviewed 94 patients with permanent pacemaker to assess their knowledge and understanding of their disease and treatment. The results showed that many patients knew little about their illness, the reason for having a pacemaker, homecare practices and their prognosis. [7]From the above mentioned studies and statistically it is cleared that prevalence of pacemaker insertion is expanding worldwide. Most of the patient presents with fear of electronic devices, fear of death. Also there is increasing number of serious complications and malfunctions related to the pacemaker which lead readmission and mortality due to noncompliance, lack of knowledge, and poor practices regarding homecare management of pacemaker. Patients' not having adequate knowledge about permanent pacemaker and its homecare is one of the most serious problems facing by the health care sector today. [8]Therefore, it becomes essential to assess the PPI patients on their knowledge and practices regarding homecare management of pacemaker.

Problem Statement
"A study to assess the Knowledge and Practice regarding Homecare Management of Permanent Pacemaker Implanted (PPI) Patients in selected Hospitals of Guwahati, Assam with a view to develop an Information Booklet. "

Objectives of the study
- To assess the knowledge regarding homecare management of Permanent Pacemaker Implanted (PPI) patients.
- To identify the practice regarding homecare management of Permanent Pacemaker Implanted (PPI) patients.
- To find out the correlation between knowledge and practice regarding homecare management of Permanent Pacemaker Implanted (PPI) patients.

- To find out the association between knowledge regarding homecare management of Permanent Pacemaker Implanted (PPI) patients with selected demographic variables.
- To find out the association between practice regarding homecare management of Permanent Pacemaker Implanted (PPI) patients with selected demographic variables.

Assumptions
The study is based on following assumptions:
- Knowledge and Practice regarding homecare management of PPI patients may be assess through structured interview schedule.
- Honest response of the patients towards questionnaire.

Hypotheses
- **H1:** There is significant correlation between the knowledge and practice regarding homecare management of PPI patients.
- **H2:** There is significant association between the knowledge regarding homecare management of PPI patients with selected demographic variables.
- **H3:** There is significant association between practice regarding homecare management of PPI patients with selected demographic variables.

Delimitation
The study is delimited to
- Only homecare of PPI patients
- Above 18 years of age group.
- Outpatients and inpatients who readmitted for any pacemaker related malfunctions, battery changes or for any other cardiac disorder.

2. Research Methodology

Research approach: Quantitative Descriptive approach was used for the present study

Research design: Descriptive Correlational research design was adopted for the present study

Settings of the study: The present study was conducted in both inpatient and outpatient cardiac department of five selected hospitals of Guwahati, Assam which is present in North Eastern part of India. The names of hospitals are Guwahati Medical College and Hospital (GMCH), NH Superspeciality hospital, Amingaon, Nemcare Superspeciality Hospital, Bhangagarh, Apollo Hospitals, Christian Basti, GNRC Hospitals, Dispur, Guwahati, Assam.

Study population: In the present study, the accessible population comprised of 105 numbers of PPI Patients attending inpatients and outpatients departments of Cardiology of Guwahati Medical College and Hospital (GMCH), NH Superspeciality hospital, Nemcare Superspeciality Hospital, Apollo Hospitals, GNRC Hospital Guwahati, Assam.

Sample and Sample size: In the present study the sample size comprised of 105 numbers of PPI patients attending inpatients and outpatients departments of Cardiology of Guwahati Medical College and Hospital (GMCH), NH Superspeciality Hospital, Nemcare Superspeciality Hospital, Apollo Hospitals, GNRC Hospital, Guwahati, Assam**.**

Sampling Technique: The sampling technique used in the present study was Non Probability Consecutive sampling technique

Criteria for Selection of Sample

Inclusive criteria
- PPI patients attending both inpatient and outpatient departments of Cardiology in selected hospitals of Guwahati.
- PPI patients who are willing to give consent for the study.
- PPI patients who are able to communicate in Assamese and English language

Exclusive criteria
- PPI patients who are seriously ill, associate with multiple complications, any form of neurological illness
- PPI patients who are under mechanical ventilation.
- Patients on 1st post permanent pacemaker implanted day.

Variables under study - In the present study, two types of variables were considered.
Research Variables: In the present study the research variables comprised of knowledge and practice regarding homecare management of PPI patients.
Demographic Variables: In the present study demographic variables were age, gender, religion, type of family, place of residence, marital status, education, occupation, place of pacemaker implantation, day of pacemaker implantation.

Tools and Methods of data collection - The content of the tool was broadly divided into following three sections:
Section A: Demographic Proforma
Section B: Knowledge Questionnaire - This section was prepared to assess the level of knowledge regarding homecare management of PPI patients. Under this section total 29 multiple choice questions with four alternate options were prepared. Each items had three distractors and one correct answer. The interview schedule was planned. A score of one (1) was given for correct response and zero (0) was given for incorrect response. The maximum possible score was 29. The total knowledge score of each subject was calculated and converted into percentage and interpreted.
Section C: Checklist
A checklist was developed to assess the practice regarding homecare management of PPI patients. This consisted of 18 items. Each positive response item was given score of "1" against "Yes" and "0" against "No" and each negative response item was given score of "0" against "Yes" and "1" against "No". The maximum possible score was 18.

Information booklet
The information booklet was designed to provide comprehensive public health strategies on permanent pacemaker care. These strategies was seek to provide awareness to the public regarding pacemaker care. The information booklet included following information - basic facts of the Heart with regards to pacemaker, definition of an artificial Cardiac pacemaker, incidence and prevalence of pacemaker insertion, types of pacemaker, indications of permanent pacemaker insertion, signs indicating need of a pacemaker, signs of a pacemaker malfunction, potential adverse events related to permanent pacemaker, care just after a permanent pacemaker implantation, homecare management with regards to incision care, pain, activity restrictions, electrical hazards, things to be avoid and precaution to be taken, lifestyle modifications, pacemaker ID card, when to call medical personnel, home monitoring, change of permanent pacemaker and follow up recommendations.

Plan for data analysis

The plan for data analysis of the present study was calculated by using descriptive and inferential statistics

3. Analysis and Interpretation of Data

Table 1: Distribution of PPI patients with respect to the demographic variables

Variables		N	%
Age	34 - 49 Years	14	13.3%
	50 - 65 Years	49	46.7%
	> 65 Years	42	40.0%
Gender	Male	66	62.9%
	Female	39	37.1%
Religion	Hindu	69	65.7%
	Muslim	30	28.6%
	Christian	6	5.7%
Type of family	Nuclear	57	54.3%
	Joint	22	21.0%
	Extended	26	24.8%
Residence	Urban	76	72.4%
	Rural	29	27.6%
Marital status	Married	75	71.4%
	Unmarried	10	9.5%
	Divorced	5	4.8%
	Widow/Widower	15	14.3%
Education	Illiterate	13	12.4%
	Primary	13	12.4%
	Middle School	16	15.2%
	High school	22	21.0%
	Higher secondary	18	17.1%
	Graduate or above	15	14.3%
	Professional	8	7.6%
Occupation	Daily wager	10	9.5%
	Homemaker	21	20.0%
	Government employee	27	25.7%
	Private employee	26	24.8%
	Business	12	11.4%
	Others	9	8.6%
Place of pacemaker implantation	Government hospital	42	40.0%
	Private hospitals	63	60.0%
Day of pacemaker implantation	<1 month	18	17.1%
	2 - 6 months	31	29.5%
	7 - 11 months	29	27.6%
	> 12 months	27	25.7%
Total		105	100.0%

Objective 1: To assess the knowledge regarding homecare management of Permanent Pacemaker Implanted patients.

Table 2: Frequency and Percentage distribution of PPI patients according to level of knowledge, n=105

Level of Knowledge	Frequency (f)	Percentage (%)	Mean	SD	Overall Mean±SD	Median
Inadequate (19 - 20)	30	28.6	19.40	0.50		
Moderately adequate (21 - 24)	57	54.3	22.86	0.99	22.44±2.43	23
Adequate (25 - 27)	18	17.1	26.17	0.86		
Total	105	100.0				

Objective 2: To identify the practice regarding homecare management of Permanent Pacemaker Implanted patients.

Table 3: Frequency and Percentage distribution of PPI patients according to level of practice, n=105

Level of Practice	Frequency (f)	Percentage (%)	Mean	SD	Overall Mean±SD	Median
Inadequate (9 - 10)	22	21.0	9.55	0.51		
Moderately adequate (11 - 15)	68	64.8	12.96	1.25	12.73±2.28	13
Adequate (16 - 17)	15	14.3	16.40	0.51		
Total	105	100.0				

Objective 3: To find out the correlation between knowledge and practices regarding homecare management of Permanent Pacemaker Implanted patients.
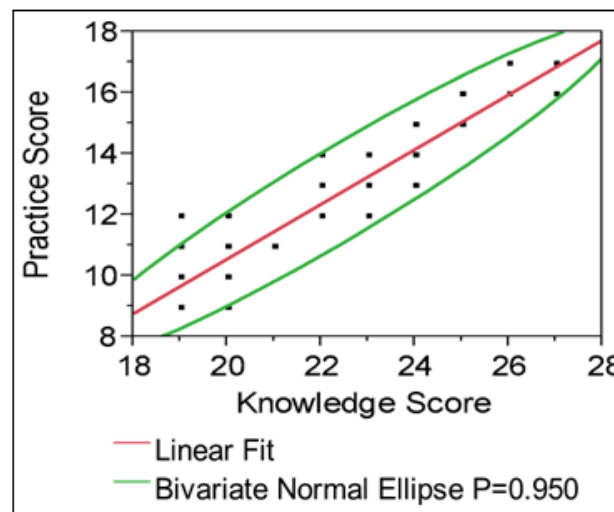
H1: There is a significant correlation between the knowledge and practices regarding homecare management of PPI patients.

Table 4: Descriptive Correlational Statistics between knowledge and practices

Variable	Mean	SD	Pearson r
Knowledge Score	22.44	2.43	0.953** ($p<.001$)
Practice Score	12.73	2.28	

** Significant p<.001

Bivariate Scatter pot of Practice Score by Knowledge Score

Linear Regression
Practice Score = - 7.41 + 0.898 x Knowledge Score, R sq=90.89%

Fig.: Scattered plot diagram representing Correlation between Knowledge and Practice scores of PPI patients

Objective 4: To find out the association between knowledge regarding homecare management of Permanent Pacemaker Implanted patients with selected demographic variables.

H2: There is a significant association between the knowledge regarding homecare management of PPI patients with selected demographic variables.

Table 5.1: Chi square test for association between the knowledge score of PPI patients and age, n=105

Age (Years)	Knowledge			Total	Chi Sq ($\chi2$)	df	Asymp. P
	Inadequate	Moderate	Adequate				
34 - 49	1	4	9	14			
50 - 65	14	28	7	49	27.13	4	<.001**S
> 65	15	25	2	42			
Total	30	57	18	105			

**Highly Significant at $P<.001$ Exact $P<.001$ S - Significant

Table 5.2: Chi square test for association between the knowledge score of PPI patients and gender, n=105

Gender	Knowledge			Total	Chi Sq (χ2)	df	Asymp. P
	Inadequate	Moderate	Adequate				
Male	14	40	12	66			
Female	16	17	6	39	4.79	2	.091NS
Total	30	57	18	105			

NS=Not Significant at p <0.05 Exact *p*=.097

Table 5.3: Chi square test for association between the knowledge score of PPI patients and religion, n=105

Religion	Knowledge			Total	Chi Sq (χ2)	df	Asymp. P
	Inadequate	Moderate	Adequate				
Hindu	14	37	18	69			
Muslim	14	16	0	30			
Christian	2	4	0	6	14.71	4	.005** S
Total	30	57	18	105			

**Highly Significant at *P*<.01 Exact *p*=.005 S - Significant

Table 5.4: Chi square test for association between the knowledge score of PPI patients and type of family, n=105

Type of family	Knowledge			Total	Chi Sq χ2	df	Asymp. P
	Inadequate	Moderate	Adequate				
Nuclear	16	32	9	57			
Joint	5	11	6	22	2.57	4	.633NS
Extended	9	14	3	26			
Total	30	57	18	105			

NS=Not Significant at p <0.05 Exact *p*=.641

Table 5.5: Chi square test for association between the knowledge score of PPI patients and place of residence, n=105

Place of Residence	Knowledge			Total	Chi Sq χ2	df	Asymp. P
	Inadequate	Moderate	Adequate				
Urban	18	44	14	76			
Rural	12	13	4	29	3.22	2	.200NS
Total	30	57	18	105			

NS=Not Significant at p <0.05 Exact *p*=.214

Table 5.6: Chi square test for association between the knowledge score of PPI patients and marital status, n=105

Marital status	Knowledge			Total	Ch iS qχ 2	df	Asymp. P
	Inadequate	Moderate	Adequate				
Married	13	47	15	75			
Unmarried	5	3	2	10			
Divorced	3	2	0	5	17.52	6	.008** S
Widow/Widower	9	5	1	15			
Total	30	57	18	105			

**Highly Significant at *P*<.01 Exact *p*=.008 S - Significant

Table 5.7: Chi square test for association between the knowledge score of PPI patients and education, n=105

Education	Knowledge			Total	Chi Sq (χ2)	df	Asymp. P
	Inadequate	Moderate	Adequate				
Illiterate	11	2	0	13			
Primary	9	4	0	13			
Middle School	8	8	0	16			
High School	1	21	0	22	113.72	12	<.001**S
Higher Secondary	1	15	2	18			
Graduate and above	0	2	13	15			
Professional	0	5	3	8			
Total	30	57	18	105			

**Highly Significant at *P*<.001 Exact *P*<.001 S - Significant

Table 5.8: Chi square test for association between the knowledge score of PPI patients and occupation, n=105

Occupation	Knowledge			Total	Chi Sq (χ2)	df	Asymp. P
	Inadequate	Moderate	Adequate				
Daily wager	7	3	0	10	39.86	10	<.001**S
Homemaker	12	9	0	21			

Government employee	7	13	7	27			
Private employee	2	14	10	26			
Business	1	10	1	12			
Others	1	8	0	9			
Total	30	57	18	105			

**Highly Significant at $P<.001$ Exact $p<.001$ S - Significant

Table 5.9: Chi square test for association between the knowledge score of PPI patients and place of pacemaker implantation, n=105

Place of pacemaker implantation	Knowledge			Total	Chi Sq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Govt. hospital	21	18	3	42			
Private Hospital	9	39	15	63	17.02	2	<.001**S
Total	30	57	18	105			

**Highly Significant at $P<.001$ Exact $P<.001$ S - Significant

Table 5.10: Chi square test for association between the knowledge score of PPI patients and day of pacemaker implantation, n=105

Day of pacemaker implantation	Knowledge			Total	Chi Sq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
<1month	14	4	0	18			
2 - 6months	15	16	0	31			
7 - 11months	0	23	6	29			
>12months	1	14	12	27	60.82	6	<.001**S
Total	30	57	18	105			

**Highly Significant at $P<.001$ Exact $P<.001$ S - Significant

Objective 5: To find out the association between practices regarding homecare management of Permanent Pacemaker Implanted patients with selected demographic variables.

H3: There is a significant association between practices regarding homecare management of PPI patients with selected demographic variables.

Table 6.1: Chi square test for association between the practice score of PPI patients and age, n=105

Age (Years)	Practice			Total	Ch iS q (χ 2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
34 - 49	1	6	7	14			
50 - 65	14	29	6	49			
> 65	7	33	2	42	20.82	4	<.001** S
Total	22	68	15	105			

**Highly Significant at $P<.001$ Exact $P<.001$ S - Significant

Table 6.2: Chi square test for association between the practice score of PPI patients and gender, n=105

Gender	Practice			Total	Ch iSq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Male	11	45	10	66			
Female	11	23	5	39	1.97	2	.373 NS
Total	22	68	15	105			

NS=Not Significant at p<0.05 Exact P=.419

Table 6.3: Chi square test for association between the practice score of PPI patients and religion, n=105

Religion	Practice			Total	Chi Sq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Hindu	8	46	15	69			
Muslim	13	17	0	30			
Christian	1	5	0	6	18.60	4	<.001** S
Total	22	68	15	105			

**Highly Significant at $P<.001$ Exact p =.001 S - Significant

Table 6.4: Chi square test for association between the practice score of PPI patients and type of family, n=105

Type of family	Practice			Total	Chi Sq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Nuclear	13	37	7	57	4.39	4	.356NS

Joint	4	12	6	22			
Extended	5	19	2	26			
Total	22	68	15	105			

NS= Not Significant at p <0.05 Exact *P*=.365

Table 6.5: Chi square test for association between the practice score of PPI patients and place of residence, n=105

Place of residence	Practice			Total	Chi Sq χ2	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Urban	12	53	11	76			
Rural	10	15	4	29			.102NS
Total	22	68	15	105	4.56	2	

NS= Not Significant at p <0.05 Exact *P*=.107

Table 6.6: Chi square test for association between the practice score of PPI patients and marital status, n=105

Marital status	Practice			Total	Chi Sq χ2	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Married	9	53	13	75			
Unmarried	4	5	1	10			
Divorced	2	3	0	5	13.66	6	.034S
Widow/Widower	7	7	1	15			
Total	22	68	15	105			

*Significant at *P*<.05 Exact *P*=.034 S - Significant

Table 6.7: Chi square test for association between the practice score of PPI patients and education, n=105

Education	Practice			Total	Chi Sq χ2	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Illiterate	9	4	0	13			
Primary	8	5	0	13			
Middle School	5	11	0	16			
High School	0	22	0	22	91.67	12	<.001** S
Higher secondary	0	16	2	18			
Graduate and above	0	5	10	15			
Professional	0	5	3	8			
Total	22	68	15	105			

**Highly Significant at *P*<.001 Exact p <.001 S - Significant

Table 6.8: Chi square test for association between the practice score of PPI patients and occupation, n=105

Occupation	Practice			Total	Chi Sq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Daily wager	6	4	0	10			
Homemaker	9	12	0	21			
Government employee	6	16	5	27			
Private employee	0	17	9	26	37.77	10	<.001** S
Business	0	11	1	12			
Others	1	8	0	9			
Total	22	68	15	105			

**Highly Significant at *P*<.001 Exact *P*<.001 S - Significant

Table 6.9: Chi square test for association between the practice score of PPI patients and place of pacemaker implantation
n=105

place of pacemaker implantation	Practice			Total	Chi Sq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
Govt. hospital	17	23	2	42			
Pvt. hospital	5	45	13	63	18.26	2	<.001** S
Total	22	68	15	105			

**Highly Significant at *P*<.001 Exact *P*<.001 S - Significant

Table 6.10: Chi square test for association between the practice score of PPI patients and day of pacemaker implantation
n=105

Day of pacemaker implantation	Practice			Total	Chi Sq (χ2)	df	Asymp. *P*
	Inadequate	Moderate	Adequate				
<1month	9	9	0	18	48.74	6	<.001* *S
2 - 6months	13	18	0	31			

7 - 11months	0	25	4	29			
>12months	0	16	11	27			
Total	22	68	15	105			

**Highly Significant at *P*<.001 Exact *P*<.001 S – Significant

4. Discussion

Section A: The knowledge regarding homecare management of PPI patients Findings of the present study:
The present study findings revealed that out of 105 PPI patients majority i. e., 57 (54.3%) had moderately adequate knowledge followed by 30 (28.6%) had inadequate knowledge and only 18 (17.1%) had adequate knowledge regarding homecare management of permanent pacemaker.

Section B: The practice regarding homecare management of PPI patients Findings of the present study:
The present study findings revealed that out of 105 PPI patients majority i. e., 68 (64.8%) had moderately adequate practice followed by 22 (21.0%) had inadequate practice and only 15 (14.3%) had adequate practice regarding homecare management of permanent pacemaker.

Section C: Correlation between knowledge and practice regarding homecare management of PPI patients
The findings of the present study revealed a statistically significant positive correlation between studied participants knowledge and practice score at p value <.001 regarding homecare management of permanent pacemaker.

Section D: Association between the knowledge of PPI patients with selected demographic variables
The findings of the present study revealed that there was significant association between knowledge with demographic variables such as age, religion, marital status, education, occupation, place of pacemaker implantation, day of pacemaker implantation.

Section E: Association between the practice of PPI patients with selected demographic variables
The findings of the present study revealed that there was significant association between practice with demographic variables such as age, religion, marital status, education, occupation, place of pacemaker implantation, day of pacemaker implantation.

5. Implications, Limitations and Recommendations

Implications for the study Implications in Nursing Practice
- Help the nurse practitioner in making pacemaker care guidelines at home which will help in reducing complications and readmission.
- Help the nurse practitioner in preparing structured teaching programme, information booklet, health education to enhance the PPI patients' knowledge and practice regarding homecare management of permanent pacemaker.

Implications in Nursing Education
The nursing students should be made aware about their role as a health educator for patients and relative with cardiac pacemaker, emphasizing on the aspects of homecare management of PPM. Students can be asked to conduct a programme, exhibition and demonstration to spread the awareness and importance of care of Cardiac pacemaker with thorough assessment of knowledge of patients and integrate their knowledge into pacemaker care practice.

Implications in Nursing Administration
Nursing administrators are backbone of providing quality nursing care. The findings of the study will help the nurse administrator in formulating policies, planning, organizing and staff development programme in order to enhance knowledge and practice of PPI patients in their homecare settings which will prevent complication and life threatening issues relate to PPM. The nurse administrator also should encourage and instruct health professionals or nurse for conducting health education for PPI patients regarding home care management of PPM during the time of discharge or in periodic OPD visit.

Implications in Nursing Research
Another research has been added to the nursing care literature. Nurses play a key role in providing quality care to the patients. This study was conducted to assess the knowledge and practice regarding homecare management of PPI patients and the findings of the study can be utilized by the further nurse researcher as an evidenced based nursing practice. The tool, technique, methodology and literature review can provide an avenue for further research studies. It certainly increases the body of knowledge and can be used as reference materials in the future.

6. Limitations of the Study

The limitations of the study were as follows:
- The study was limited to those patients who already had a permanent pacemaker implanted.
- The study used consecutive sampling technique, so the investigator cannot consider the sample to be representative of entire population. Hence generalization is less likely.
- The questionnaire was structured, hence the response was limited.

7. Recommendations for the Future Study

The following recommendations were suggested for the future research study
- Establishment of homecare program to all PPI patients and their relatives to improve their knowledge and practice regarding permanent pacemaker care.
- Studying the possible strategies to overcome the factors affecting patients' knowledge and practice regarding home care management of PPM.

- Dissemination of posters, booklets, leaflets for PPI patients which describe care practices of permanent pacemaker in combined with basic knowledge about it in Cardiology departments and evaluates the impact of implementing such educational strategies on their outcomes.
- A similar study can be replicated on a large sample size using probability sampling technique to achieve more generalization in similar or in different settings.

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