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To assess the effectiveness of planned teaching program on knowledge regarding cardiac pacemakers among nursing students at selected nursing institutions of Kalaburagi

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Abstract

Background: The heart has its own built-in electrical system, called the conduction system. Our heart has its own internal electrical system that controls the rate and rhythm of our heartbeat. With each heartbeat, an electrical signal spreads from the top of the heart to the bottom. As the signal travels, it causes the heart to contract and pump blood.

Methodology: An evaluative approach with one group pretest posttest design was adopted for the study. The samples from the selected nursing institutions were selected using convenient sampling technique. The sample consisted of 50 nursing students. The tools used for data collection was structured knowledge questionnaire and planned teaching program was prepared for intervention.

Results: In pretest maximum 44(44%) respondents were having good knowledge, 40 (40%) respondents were having average knowledge and remaining 16 (16%) respondents were having poor knowledge. During posttest maximum 72 (72%) of respondents were having good knowledge and remaining 28 (28%) of respondents were having average knowledge regarding cardiac pacemaker. The statistical paired 't' implies that the difference in the pretest and post-test value was found statistically significant at 5% level ($p<0.05$) with a paired 't' value of 18.82. There exists a statistical significance in the difference of knowledge score indicating the positive impact of structured teaching programme.

Conclusion: Knowledge of nursing students regarding cardiac pacemaker during pretest was moderate and is increased as good after teaching program.

Keywords: Cardiac pacemaker, nursing students, knowledge, structured teaching program

Introduction

Stress has been categorized as an act stimulant as a consequence or response and as are institution proposed a physiological assessment that support considering the association between stress and illness.

Stress is a part of daily living and it can be considered as a natural human phenomenon. Basically, stress refers to the feeling of being under unbearable mental and emotional pressure. It When it comes to the way the heart works, timing is crucial. Without a strong heartbeat, blood cannot go where it needs to, and a strong heartbeat requires constancy. A heartbeat is essentially the heart contracting. An electrical impulse is often produced by the heart's pacemaker, or sino atrial node, and sent to the ventricles, the lower chambers of the heart. Heart block and arrhythmia can result from disruptions in the heart's electrical impulses or diseases of the sinus node, necessitating medical procedures to maintain the heart's proper and efficient rhythm.

Arrhythmias and dysrhythmias are common terms used to describe these rhythm issues. Since they are frequently benign, there is no known cardiac issue associated with them, and they do not result in any deviation. Arrhythmias, however, can also result from modifications in the heart caused by heart failure or an antecedent illness such a heart attack or persistently elevated blood pressure. Arrhythmias in these situations are harmful and should be recognized and treated appropriately. Even those who additionally have a cardiac rhythm disorder can have normal, busy lives with appropriate therapy and self-care.

Cardiac rhythm disturbance is one of the main cardiovascular issues. Temporary or permanent pacemakers can be used to treat cardiac rhythm problem, replacing erratic or slow heartbeats with regular impulses.

In the past forty years, India's cardiovascular crisis has doubled, and according to WHO forecasts, by 2020, nearly 60% of cardiac patients globally would be Indian. It has been shown that smoking, eating poorly, and inactivity are risk factors for cardiovascular disease.

Thousands of people's lives have improved due to technology worldwide. These medical discoveries are all utilised to identify illnesses and support patients in

managing their care. The artificial pacemaker, created in 1950 by Canadian John Hopps and initially implanted in a human being in 1958 following multiple improvements, is one of the technological health innovations [7].

Nurses are essential in patient education because they can improve device functionality and foster a greater commitment to follow-up care. Finally, the nurses can help the patient effectively adjust to their new life situation by offering psychological support and concentrating on their immediate concerns.

The researcher was compelled to evaluate nursing students' understanding of cardiac pacemakers after discovering during her career that many nurses lacked basic information about these devices.

Objectives

1. To assess the existing knowledge regarding cardiac pacemakers among nursing students by conducting pretest.
2. To assess the effectiveness of planned teaching program on knowledge regarding cardiac pacemakers among nursing students by comparing mean pre-test and post-test knowledge scores.
3. To find the association between pre-test knowledge scores regarding cardiac pacemakers among nursing students with selected socio-demographic variables.

Hypotheses

- **H₁:** There will be significant difference between pre-test and post-test knowledge scores regarding cardiac pacemakers among nursing students.
- **H₂:** There will be significant association between pre-test knowledge scores regarding cardiac pacemakers among nursing students with their selected socio-demographic variables.

Methodology

- **Research Approach:** Quantitative Research Approach
- **Research Design:** Pre experimental one group pre test post test design.
- **Sampling technique:** Non-Probability; Convenient Sampling
- **Sample size:** 50
- **Setting of study:** Selected Nursing institutions, Kalaburagi
- **Population:** Nursing students of selected Institution

Tool used for data collection

Section I: Demographic data: It consists of 7 items related to demographic data of participants.

Section II: Structured Knowledge Questionnaire: It consisted of 25 items related to cardiac pacemaker. There were two alternative answers for each item Yes or No (Annexure-C), from which the participants have to choose one best option by encircling it. The total knowledge scores ranged from 0-25.

The score is further divided statistically as follows

- **Poor knowledge:** 0-8.
- **Average knowledge:** 9-16.
- **Good knowledge:** 17-25.

Results
Section I: Demographic profile

Table 1: Description of Selected Personal Variables, n=50

Sl. No.	Demographic variables	Frequency (f)	Percentage (%)
	Age (in yrs)		
1.	18-19	18	36
	20-21	27	54
	22 and above	05	10
	Gender		
2.	Male	20	40
	Female	30	60
	Year of study		
3.	2nd year B.Sc(N)	27	54
	3rd year B.Sc(N)	23	46
	Religion		
4.	Hindu	28	56
	Muslim	16	32
	Christian	4	8
	Other	2	4
	Type of family		
5.	Nuclear	32	64
	Joint	18	36
	Previous Knowledge		
6.	Yes	36	72
	No	14	28
	Source of Information		
	News papers	19	38
7.	Family & friends	24	48
	Social Media	2	4
	Other	5	10

Section II: Description regarding knowledge scores

Table 2: Mean, median, mode, standard deviation and range of pre test knowledge scores of Respondents regarding cardiac pacemaker, n = 50

Area of Knowledge	Number of Items	Mean	Median	Mode	Standard deviation	Range
Anatomy and physiology of cardiac system	08	5.84	6	6	0.97	3
Cardiac Pacemaker	10	6.64	7	7	1.52	5
Care of patient with cardiac pacemaker	07	4.34	5	5	1.37	5
Total Score	25	16.84	17	18	2.74	10

Table 2 reveals area wise and total pretest knowledge score of respondents regarding cardiac pacemaker.
In the area anatomy and physiology of cardiac system respondent's knowledge score mean was 5.84, median was 6, mode was 6 with standard deviation 0.97 and score range

was 3.
In the area cardiac pacemaker respondent's knowledge score mean was 6.64, median was 7, mode was 7 with standard deviation 1.52 and score range was 5.
In the area care of patient with cardiac pacemaker

respondent's knowledge score mean was 4.34, median was 5, mode was 5 with standard deviation 1.37 and score range was 5.

With regard to overall pretest knowledge score, respondents mean was 16.84, median was 17, mode was 18 with standard deviation 2.74 and score range was 10.

Table 3: Mean, median, mode, standard deviation and range of post test knowledge scores of Respondents regarding cardiac pacemaker, n = 50

Area of Knowledge	Number of Items	Mean	Median	Mode	Standard deviation	Range
Anatomy and physiology of cardiac system	08	6.48	7	7	0.9	4
Cardiac Pacemaker	10	6.80	7	7	1.59	6
Care of patient with cardiac pacemaker	07	4.7	5	6	1.55	6
Total Score	25	18.08	19	20	3.31	14

Table 3 reveals area wise and total post test knowledge score of respondents regarding cardiac pacemaker.
In the area anatomy and physiology of cardiac system respondent's knowledge score mean was 6.48, median was 7, mode was 7 with standard deviation 0.9 and score range was 4.
In the area cardiac pacemaker respondent's knowledge score mean was 6.80, median was 7, mode was 7 with standard

deviation 1.59 and score range was 6.
In the area care of patient with cardiac pacemaker respondent's knowledge score mean was 4.70, median was 5, mode was 6 with standard deviation 1.55 and score range was 6.
With regard to overall posttest knowledge score, respondents mean was 18.08, median was 19, mode was 20 with standard deviation 3.31 and score range was 14.

Table 4: Frequency and Percentage distribution of respondents according to level of Knowledge regarding cardiac pacemaker among GNM nursing students, n=50

Level of Knowledge					
Pre test			Post test		
Poor f (%)	Average f (%)	Good f (%)	Poor f (%)	Average f (%)	Good f (%)
8 (16%)	20 (40%)	22 (44%)	00	14 (28%)	36 (72%)

Table 4 depicts that, with regard to pre test level of knowledge it shows that, maximum 22(44%) respondents were having good knowledge, 20(40%) respondents were having average knowledge and remaining 8(16%)

respondents were having poor knowledge. During post test maximum 36(72%) of respondents were having good knowledge and remaining 14 (28%) of respondents were having average knowledge regarding cardiac pacemaker.
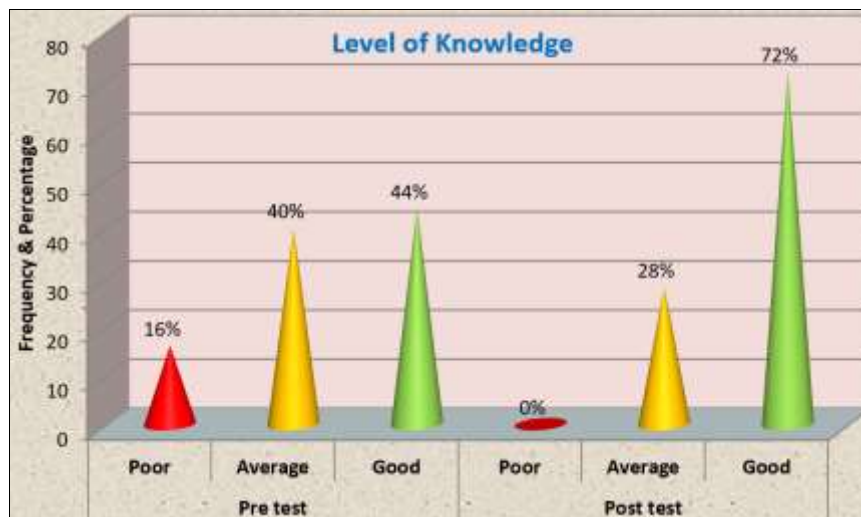
Fig 1: Pretest and posttest level of knowledge of respondents regarding cardiac pacemaker

Section III: Effectiveness of Structured Teaching Programme

Table 5: Mean, standard deviation, standard error of difference and 't' value of pre-test and post-test knowledge scores regarding cardiac pacemaker, N=50

Aspects	Mean	Sd	SEMD	Paired t Test
Pre-test	16.84	2.74	0.16	18.82*
Post-test	18.08	3.31		

* Significant at 5% level

Table 5 indicates that, the statistical paired 't' implies that the difference in the pretest and post-test value was found statistically significant at 5% level ($p<0.05$) with a paired 't' value of 18.82. There exists a statistical significance in the difference of knowledge score indicating the positive impact of planned teaching programme.
Hence, the research hypothesis H_1 is supported. This indicates that the enhancement in knowledge is not by chance and the Nursing students who exposed to structured teaching programme on cardiac pacemaker, significantly

improved in their knowledge.

Section IV: Association between level of knowledge and selected socio demographic variables

The computed Chi-square value for association between level of knowledge of nursing students regarding cardiac pacemaker and their selected demographic variables is found to be statistically significant at 0.05 levels for any gender, religion and previous knowledge and is not found statistically significant for age, year of study, type of family and source of information. Therefore, the findings partially support the hypothesis H_2, inferring that nursing students level of knowledge regarding cardiac pacemaker is significantly associated only with gender, religion and previous knowledge.

Conclusion

The conclusions drawn from the study were as follows.

- Knowledge of nursing students regarding cardiac pacemaker during pretest was moderate and is increased as good after teaching program.
- Planned teaching program was effective to enhance knowledge of student nurses regarding cardiac pacemaker.
- There was significant association found between the knowledge scores of student nurses and gender, religion and previous knowledge.

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Author's Contribution

Not available.

Conflict of Interest

Not available.

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