International Journal of Advance Research in Medical Surgical Nursing

E-ISSN: 2663-2268
P-ISSN: 2663-225X
IJARMSN 2023; 5(1): 121-125
Received: 03-01-2023
Accepted: 13-02-2023

Prabhdeep Kaur
Student, Department of Medical Surgical Nursing (Cardiovascular and thoracic Nursing), MHR DAV Institute of Nursing, Jalandhar, Punjab, India

Dr. Williams Veena
Principal, Department of Medical Surgical Nursing, MHR DAV Institute of Nursing, Jalandhar, Punjab, India

Corresponding Author:
Prabhdeep Kaur
Student, Department of Medical Surgical Nursing (Cardiovascular and thoracic Nursing), MHR DAV Institute of Nursing, Jalandhar, Punjab, India

To assess the effectiveness of planned teaching programme on knowledge regarding cardiac dysrhythmias and its interpretation among nursing students in selected nursing institutions, Jalandhar, Punjab

Prabhdeep Kaur and Dr. Williams Veena

DOI: https://doi.org/10.33545/surgicalnursing.2023.v5.i1b.126

Abstract
Background of the study: The beginning of heartbeats may be detected as early as the 5th week of an infant's existence within the uterus. Normal functioning of heart can be interrupted and it can cause irregular heartbeats called cardiac dysrhythmias. Electrocardiogram is the most common diagnostic tool in cardiology. If electrocardiography is read accurately, it may considerably contribute to the accurate diagnosis and timely therapy of heart diseases. Within ten minutes of a patient presenting symptoms associated to cardiovascular problems, electrocardiography must be performed, recorded, and interpreted in order to adhere to the criteria established by the American Heart Association (AHA). As a member of the medical team, a nurse is expected to have a 99% accuracy rate in detecting ECG signs that indicate whether a patient is experiencing potentially lethal dysrhythmias or other abnormalities that put their life in jeopardy.
Methodology: In order to evaluate the efficacy of Planned Teaching Programme on nursing students' understanding of cardiac dysrhythmias and their interpretation in chosen institutions in Jalandhar, Punjab, a pre-experimental study with a one-group pre-test and post-test design was carried out. A strategy known as non-probability purposive sampling was used in order to choose the sample of one hundred nursing students who would then participate in the data gathering. The information was gathered with the use of a self-structured knowledge questionnaire, and it was analysed using descriptive as well as inferential statistics.
Results and Conclusion: It was vivid that the mean pre-test knowledge score was 12.4±2.81 and post-test knowledge score was 30.69±3.12 with regards to cardiac dysrhythmias and its interpretation with difference of 18.29. According to the results of our analysis, the computed "t" value (43.45) was statistically significant (p=0,001). Researcher found that nursing students' post-test understanding of cardiac dysrhythmias and how to interpret them improved following the introduction of the Planned Teaching Programme.

Keywords: Teaching programme, cardiac dysrhythmias, electrocardiography

Introduction
Beating of heart starts from the fifth week of intra uterine life. The human heart beats 100,000 times a day and nourishes the living tissues by pumping blood throughout the body. [1] Normal functioning of heart can be interrupted by many forms of heart disease and it can cause abnormal fast or slow heart beats called cardiac dysrhythmias. Due to such conditions heart pumps blood ineffectively, followed by less blood supply to brain and other vital organs and as a result the person can suffer from various symptoms like faint, chest pain or sometimes death as well [2]. There are number of cardiac disorders which lead to cardiac dysrhythmias as a complication. A report by World Health Organization in 2021 stated that, annually 17.9 million dwellers pass away from cardiovascular disorders worldwide, which signified 32% of all worldwide deaths [3].
Cardiac dysrhythmias are sometimes referred to as cardiac arrhythmias. An abnormality in the heart's electrical impulse generation or transmission (or both) is referred to as a cardiac dysrhythmia. According to an article published by National Library of medicine, sinus dysrhythmias are more projecting in younger generation in contrary to older ones [4].

Most common type of dysrhythmia is atrial fibrillation. Atrial fibrillation is increasing in both its incidence and its prevalence, and this trend is expected to continue. When it comes to fatal conditions like stroke or heart failure, atrial fibrillation is an important risk factor. According to National Library of Medicine research released in 2019, the worldwide prevalence of the condition is 0.47 percent. Early diagnosis is much more important for the patients to prevent them from lethal condition [5].

Most commonly used diagnostic tool in cardiology to diagnose cardiovascular disorders is electrocardiogram. When electrocardiography (ECG) is correctly read, it greatly aids in the timely detection and treatment of heart diseases..(6) According to the guidelines by American Heart Association, the electrocardiography must be documented and interpreted within 10 minutes of symptoms presented by patients related to cardiovascular disorders [7].

Being a member of health care team, a nurse must have 99% skills in sensing the ECG signals when the patient is in deadly dysrhythmias or other disturbances that impends their lives. Terminally sick patients need appropriate nursing care, but it's not only about the nurse-patient ratio. It's also about the nurse's interpretive abilities that assist the patient deal with deadly issues. Nurses must have to improve their critical thinking skills that help them to evaluate different types of cardiac dysrhythmias [8].

Related Work

To find out whether acute myocardial infarction patients have an increased risk of cardiac dysrhythmias within the first 48 hours after their hospitalisation, Patil PR, *et al*. (2021) [9] carried out research in India. In this study, 102 patients were brought to the intensive care unit (ICU) as soon as they reported experiencing chest discomfort. The patient's medical history and physical examination were extensively completed, with a focus on the cardiovascular system. The majority of patients were between the ages of 51 and 60, with 37.97 percent male and 65.22 percent female. All the females who were in postmenopausal period were mostly noticed as acute myocardial infarction. Myocardial infarction was more incident in males i.e. 77.50% as compared to females i.e. 22.50%. 52.90% of patients were smokers. Cardiac dysrhythmias incidence was 78.50% which was more prevalent among elderly women. Patients with age group of 50-60 years (36.27%) were found to be more prevalent with cardiac dysrhythmias. It was concluded that incidence of cardiac dysrhythmias was 78.7% in the patients under this study [9].

Quasi-experimental research was carried out in Bathinda Punjab by Umar S. (2021) [10] to determine if a STP may improve student nurses' understanding of cardiac arrhythmia and its intervention. Post-tests were carried out after STP had been put into place for seven days. There was a statistically significant difference at the 0.002 computed level. Understanding of participants was not linked to any aspect of one's SD variables. Consequently, it was determined that a STP strategy was helpful in raising student nurses' level of knowledge [10].

To test the efficacy of a video-assisted training module for cardiac dysrhythmias, Loveson C, *et al*. (2019) [1] did a pre-experimental study on fifty nurses working in a chosen hospital in Kanpur, India. Pre-test knowledge scores showed that 78% of individuals had low knowledge, 22% had medium knowledge, and just one had strong knowledge. During the post-test, 70% of individuals had an average knowledge score, compared to 30% who had a strong knowledge score. There isn't a single person who falls into the "low knowledge" group. T-test result was 19.74, with p0.001 significance. It was determined that the video aided learning approach was an excellent tool in burgeoning the knowledge of staff nurses [11].

Using a quasi-experimental design, Singhal G, *et al*. (2019) [12] evaluated the impact of PTP on the knowledge of 110 nursing professionals about the identification and medical assistance of cardiac arrhythmias. Nursing professionals had inadequate awareness of cardiac dysrhythmias in 68.2% of pre-tests, with an average knowledge score of 31.8 percent. When it came to cardiac dysrhythmias, 62.7 percent of staff nurses scored mediocre, while 37.3 percent scored excellent.It is quite clear that PTP is a useful tool for expanding one's knowledge [12].

Habibzadeh H, *et al*. (2019) [13] performed a quasi-experimental research with thirty student nurses to evaluate virtual and conventional training methods on identification of cardiac dysrhythmias. Pre and post-test scores of 11.20 ±4.41 and 14.40 ± 4.62 were recorded for students in the traditional educational group. On the other hand, the results for the virtual group were 11.30 ± 2.74 pre-training and 18.43 ± 4.68 post-training, respectively. This research's favourable impact on students' understanding of cardiac dysrhythmia highlights the benefits of virtual teaching methods [13].

In a quasi-experimental research, Kausik NK, *et al*. (2018) [14] evaluated the impact of PTP on the knowledge and abilities of 60 nursing students in regards to the interpretation and handling of fatal dysrhythmias. More than eighty-six percent of the trainees were female and over half were in their early twenties. The experimental group's average post-test knowledge score was 34.37, with a t value of 11.07. When it comes to post-test ability scores, student nurses in the experimental group had an average of 12.7 compared to the average of 2.4 for their control group. An analysis at the 0.05 and 0.01 level revealed statistically significant gains in students' knowledge and abilities due to a well-thought-out instructional strategies. Participant s' knowledge and skills in the diagnosis and treatment of lethal dysrhythmias were enhanced by PTP, according to the findings of this study [14].

A pre-experimental research by Jacob J. (2018) [15] examined the impact of PTP on nurses' understanding of cardiac arrhythmia evaluation and management in Pune-area hospitals. Most respondents (65%) were female, employed in critical care settings (63%) and having Diploma in GNM (78%) between the ages of 20 and 25 years old (52 percent). Socio-demographic factors had no significant impact on knowledge score. The average score on the pre-test knowledge was 25.20 (with a standard deviation of 3.28) and 64 percent of the samples had an average level of knowledge about the evaluation of cardiac arrhythmias and the treatment of these conditions. Post-test knowledge scores were 32.25±2.26, which indicated that knowledge had risen after the proposed instruction schedule. Eighty-eight percent of the participants demonstrated a thorough grasp of cardiac arrhythmias and how to treat them [15].

True experimental randomised block design study by Ajith VM, *et al*. (2016) [16] assessed the impact of video training on 30 nurses' knowledge of detection and treatment of cardiac arrhythmias. The findings showed that the

experimental group's pre-test mean was 16±5.8 compared to 29±5.4 in the post-test. There was a 20% disparity between the two mean percentages. The experimental group's paired t test score was 13.19, which was higher than the tabulated value. Video training was shown to be a very effective means of training nursing professionals on the detection and treatment of cardiac dysrhythmias [16].

Material and Method

Research approach: Quantitative research approach was inspected and found suitable for the study.

Research design: A Quasi experimental Non-randomized control group design was used.

Sample size: was 100 student nurses from selected nursing institutes.

Sample technique: the technique to draw the sample was non probability purposive sampling.

Description and development of tool

The tool was divided in two sections:

Section A

Socio-demographic variable performa to collect the general information of nursing students on age, gender, area of residence, currently residing as, mother's occupation, father's occupation, previous information regarding cardiac dysrhythmias and its interpretation, have you ever seen any person having cardiac dysrhythmias during your clinical posting?

Section B

It consisted a self-structured knowledge questionnaire was used to examine the knowledge of cardiac dysrhythmias and their interpretation among nursing students at selected nursing colleges.

Data collection procedure

After receiving administrative permission, the final data was gathered in February of 2022, between the 20th and the 28th of the month. An official letter of authorization was obtained from principal of chosen nursing colleges. Non-probability purposive sampling was used to pick 100 nursing students from chosen nursing colleges after the purpose of the research was communicated to the participants and they were guaranteed of anonymity and confidentiality. Self-structured knowledge questionnaire was employed to assess nursing students' understanding of cardiac dysrhythmias and how to interpret their results.

Pre-test: Assessment of students' knowledge of cardiac dysrhythmias and their interpretation by means of a self-structured knowledge questionnaire was conducted before the study.

Implementation of Planned Teaching Programme: On the day of the pre-test, the PTP was administered to nursing students as well. Cardiovascular dysrhythmias and their varieties, as well as their interpretation, were all part of the Planned Teaching Program's discussion topics. In all, delivering the lecture to the nursing students took one hour and thirty minutes of time.

Post-test: Students' understanding of cardiac dysrhythmias and their interpretation was assessed again on the third day using the same self-structured knowledge questionnaires they had used on the first.

Plan of data analysis

Data was calculated using descriptive analysis and inferential statistics. Interpretation and analysis of data was done using mean, mean percentage and standard deviation to assess the knowledge. Paired 't' test was used to compare the difference between pre-test and posi-test. Chi square test was used to find out the association of knowledge with socio demographic variables.

Results

Table 1: Comparison of the Mean Pre-test and Mean Post-test Knowledge Scores Regarding cardiac dysrhythmias and its interpretation among nursing students.

Knowledge score	Mean	Standard deviation	Mean difference	DF	't'
Pre-test	12.4	±2.81	18.29	99	43.45***
Post-test	30.69	±3.21			

Maximum score = 40 *** = Highly significant at $p<0.001$
Minimum score = 0

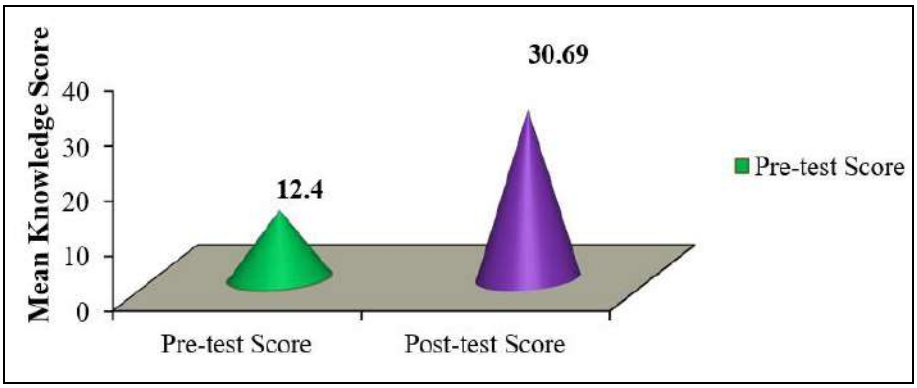

Fig 1: Comparison of mean pre-test & post-test knowledge scores

Table 2: Comparison of Area wise mean Pre-test and Post-test Knowledge Score Regarding cardiac dysrhythmias and its interpretation among nursing students

Areas of knowledge	No. of items	Pre-test		Post-test		Mean Difference	't' test
		Mean	Mean Percentage (%)	Mean	Mean Percentage (%)		
Introduction conduction system and to basics of ECG	10	3.78	37.8	8.49	84.9	04.71	27.21***
Cardiac dysrhythmia & its types	20	6.58	32.9	14.99	74.95	08.41	10.92***
Interpretation of cardiac dysrhythmia	10	2.04	20.4	7.21	72.1	05.71	30.21***

Maximum score = 40 ***= Highly Significant at $p<0.001$
Minimum score = 0

Table 3; Association of Pre-test Knowledge Regarding cardiac dysrhythmias and its interpretation among nursing students with their Selected Socio Demographic Variables by Using Chi- square Test. N=100

Socio demographic variables		Level of knowledge		df	Chi-square	P-value
		Below median	13 & Above median			
Age (in years)						
20-22		44	45	01	0.10NS	0.75
23-25		06	05			
More than 25		00	00			
Gender						
Male		2	1	01	0.45 NS	0.49
Female		45	52			
Area of Residence						
Rural area		16	23	01	1.61 NS	0.20
Urban area		33	28			
Currently residing as						
Day scholar		19	18	01	0.26 NS	0.60
Hostler		29	34			
Paying guest		00	00			
Type of family						
Nuclear		36	45	01	2.02 NS	0.15
Joint		10	09			
Extended		00	00			
Mother's occupation						
a.	Medical	4	1	03	0.15 NS	0.98
b.	Paramedical	0	1			
c.	Others	21	22			
d.	Unemployed	24	27			
Father's Occupation						
a.	Medical	1	2	03	1.67 NS	0.64
b.	Paramedical	1	4			
c.	Others	43	47			
d.	Unemployed	1	1			
Previous information regarding cardiac dysrhythmias and its interpretation						
a.	Yes			38	24	01	0.01 NS	0.92
b.	No			22	16			
If yes, the source of information						
Mass media (Books, Journals, Television, Internet etc.)				10	08	03	3.64 NS	0.30
Peer group				00			00	
Health professionals				00			03	
Classroom Teachings				10			14	
Clinical experience				09			08	
Have you ever seen any person having cardiac dysrhythmias during your clinical posting?						
a.	Yes	22	16	01	2.38 NS	0.12
b.	No	26	36			

Major findings

The findings of present study regarding socio demographic profile revealed that The majority of nursing students (89%) were between the ages of 20 and 22 years old, with the majority (97%) being female, nearly half of the nursing students 61 (61%) were residing in urban area, 63 (63%) nursing students were currently residing as hostler, 81 (81%) nursing students were from nuclear family, most of the mothers of nursing students were unemployed i.e. 51 (51%), Most of the fathers of nursing students 90 (90%) were doing other jobs, 62 (62%) of nursing students had previous information regarding cardiac dysrhythmias and its interpretation, most of the nursing students 62 (62%) had not seen any patient with cardiac dysrhythmias and its interpretation during their clinical posting.

Recommendations

1. A similar research may be carried out on a broader sample size, encompassing all of the students in Jalandhar who are in their last year of nursing school.
2. The prevalence of cardiac arrhythmias among hospitalised patients may be determined by the use of a survey research method.
3. A true experimental study can be conducted to assess the effectiveness of video assisted teaching on

knowledge regarding cardiac dysrhythmias and its interpretation among nursing students.

Conflict of Interest
Not available

Financial Support
Not available

References

1. Tortora GJ, Derrickson B. Tortora's Principles of Anatomy & Physiology. 15th ed. Noida: Willey; c2017.
2. Smeltzer SC, Bare BG, Hinkle JL, Cheever KH. Suddarth's and Brunner Textbook of Medical- Surgical Nursing. 12th ed. Wolter Kulwer & Lippincott Williams & Wilkins; c2012;1.
3. World Health Organization. Cardiovascular diseases (CVDs). [Internet]; c2021 June 11. Available from: https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds).
4. Soos MP, McComb D. Sinus Arrhythmia. In: StatPearls. Treasure Island (FL): [Internet]. 2022 September 24. Available from: http://www.ncbi.nlm.nih.gov/books/NBK537011/
5. Saggu DK, Sundar G, Nair SG, Bhargava VC, Lalukota K, Chennapragada S, *et al*. Prevalence of atrial fibrillation in an urban population in India: The Nagpur pilot study, Heart Asia. 2016 Apr 18;8(1):56-59. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4898624/
6. Luthra A. ECG made easy. 4th ed. New Delhi: Jaypee Brothers Medical Publishers; c2012.
7. Initial ECG Acquisition within 10 Minutes of Arrival at the Emergency Department in Persons with Chest Pain: Time and Gender Differences [Internet]; c2011 January. Available from: https://www.researchgate.net/publication/49757767_Initial_ECG_Acquisition_Within_10_Minutes_of_Arrival_at_the_Emergency_Department_in_Persons_With_Chest_Pain_Time_and_Gender_Differences.
8. Sila NA, Nursalam, Asegaf MY. Description of Knowledge and Skill of Nurses to Interpret Basic ECG In The Hospital. [Internet]; c2018. p. 244-249. Available from: https://www.scitepress.org/Papers/2018/83233/83233.pdf.
9. Patil PR, Khatana P, Patil DR. Incidence of cardiac arrhythmias in patients with acute myocardial infarction during the first 48 hours of the onset of chest pain. International Journal of Advances in Medicine. 2021 Jul 20;4(4):1144-1149.
10. Umar S. A study to assess the effectiveness of structured teaching programme on knowledge regarding cardiac arrhythmia and its management among student nurses of Adesh University Bathinda, Punjab India. International Journal of Advance Research in Medical Surgical Nursing. 2021;3(2):65-74.
11. Loveson MMR. A study to assess the effectiveness of Video Assisted Teaching Module on knowledge regarding ECG changes in Cardiac Arrhythmias among staff nurses at Rama Hospital. Journal of Nursing Practice & Education. [Internet]. 2019 Sep 1;5:63-66. Available from: https://www.researchgate.net/publication/337591889_A_study_to_assess_the_effectiveness_of_Video_Assisted_Teaching_Module_on_knowledge_regarding_ECG_changes_in_Cardiac_Arrhythmias_among_staff_nurses_at_Rama_Hospital.
12. Singhal G, Salvi S. The effectiveness of planned teaching program on knowledge regarding identification and emergency management of cardiac dysrhythmias among staff nurses. International Journal of Nursing Education. 2019;11(1):23.
13. Habibzadeh H, Rahmani A, Rahimi B, Rezai SA, Aghakhani N, Hosseinzadegan F. Comparative study of virtual and traditional teaching methods on the interpretation of cardiac dysrhythmia in nursing students. Journal of Education Health Promotion. 2019;8:202.
14. Kausik NK, Pareek S. The effectiveness of planned teaching programme on knowledge regarding interpretation and management of lethal arrhythmias in terms of knowledge and ability of final year B.Sc. nursing students. International Journal of Advances in Nursing Management. [Internet]. 2018;6(4). Available from: https://ijanm.com/AbstractView.aspx?PID=2018-6-4-1
15. Jacob J, Tryambake R, Jamdade V, Sakhardande V. A Study to Assess the Effect of Planned Teaching Program on Knowledge Regarding Interpretation of Cardiac Arrhythmias and its Management among Staff Nurses in Selected Hospitals of Pune City. Journal of Nursing and Care [Internet]. 2018;07(04). Available from: https://www.omicsonline.org/open-access/a-study-to-assess-the-effect-of-planned-teaching-program-on-knowledge-regarding-interpretation- of-cardiac-arrhythmias-and-its-mana-2167-1168-1000463-105960.html
16. Ajith VM, Gowri, Rani J. Effectiveness of Video Assisted Teaching Programme on Knowledge regarding Identification and Management of selected Cardiac Arrhythmias among Staff Nurses. International Journal of Advances in Nursing Management. 2016 Mar 28;4(1):6-10.

How to Cite This Article
Kaur P, Veena W. To assess the effectiveness of planned teaching Programme on knowledge regarding cardiac dysrhythmias and its interpretation among nursing students in selected nursing institutions, Jalandhar, Punjab.. International Journal of Advance Research in Medical Surgical Nursing. 2023;5(1):121-125.