

A Quasi-Experimental Study To Assess The Effectiveness Of Lecture Method Versus Information Booklet On Interpretation Of Electrocardiogram Among Staff Nurses Working In Selected Hospital.

Netranjali Agashe¹, Ancy Ramesh², Madhavi Narayane³, Vikrant Mankar⁴Dr. Anjalee Chiwane⁵

¹Clinical Instructor/ tutor (Medical Surgical Nursing), Datta Meghe College of Nursing, Nagpur- 441110 , Mob. No. 9665253703 Email id- netranjaliagashe19@gmail.com

²Professor cum Principal, Kasturba Nursing College, Sewagram, Wardha.

³Clinical Instructor/ tutor (Medical Surgical Nursing), Datta Meghe College of Nursing, Nagpur- 441110

⁴Clinical Instructor/ tutor (Child Health Nursing), Datta Meghe College of Nursing, Nagpur- 441110

⁵Professor Dept. of Medicine Jawaharlal Nehru Medical College, Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha-442001

Abstract

Background:In medical education, lecture is one of the most common teaching method. It has been suggested that teaching methods that enhance engagement and encourage self-learning concepts leading to increased knowledge. Information booklet is one of the educational materials that help individual learning. A century after its introduction into clinical practice, ECG remains one of the most commonly used tests for the assessment of cardiac conditions. Therefore ECG interpretation is an important skill, medical practitioners and nursing personnel were expected to be proficient at reading ECG changes. **Research question:**Is there any difference between lecture method and information booklet in improving the knowledge of staff nurses regarding interpretation of electrocardiogram? **Primary objective:**To study the effectiveness of lecture method versus information booklet on interpretation of electrocardiogram among staff nurses working in selected hospital. **Secondary objectives were:** 1) To study the existing knowledge regarding interpretation of electrocardiogram among staff nurses receiving lecture method. 2) To study the existing knowledge regarding interpretation of electrocardiogram among staff nurses receiving information booklet. **Purpose:**Nurses should be able to interpret ECG and implement the acquired knowledge which helps in saving the life of the patient. Lecture method is easy to understand, motivating and encourage able for nurses. Information booklet is handy, easy to take along with nurses and can clarify their doubts anywhere at anytime by information booklet. **Methodology:**The investigator developed the conceptual framework based on Imogine King's Goal Attainment theory. A quantitative research approach was used with quasi experimental two group pre-test post-test design. The subject consisted of 150 staff nurses selected by Non-probability convenient sampling technique. A structured knowledge questionnaire was used to collect the data which includes two sections; Section A - Demographic variables includes, Age, Gender, Professional qualification, Year of experience and the area in which they work. Section B, consist of 35 multiple choice questions which includes 16 image based questions. Validity of the tool is obtained from 12 experts and the tool was found valid. Reliability of the tool was established by test-re-test method and the reliability coefficient was $r= 0.98$. thus the tool was found to be reliable. The data was collected

individually through paper and pencil test. The data collected were organised, tabulated and analysed using both descriptive and inferential statistics in terms of frequency, percentage, mean, standard deviation and 'z' test. Result: Comparison of post test knowledge score of participants received lecture method and information booklet on interpretation of electrocardiogram. In lecture method and information booklet no any subject had poor knowledge score. Average knowledge score is obtained only in lecture method. 4 (5.33%) of subjects in lecture method and 15 (20%) of subjects in information booklet had good knowledge score. 37 (49.33%) subjects in lecture method and 48 (64%) of subjects in information booklet had very good knowledge score. 32 (42.68%) of subjects in lecture method and 12 (16%) subjects in information booklet had excellent knowledge score. Mean, standard deviation and mean difference values are compared and z-test for difference between two means is applied at 5% level of significance. Conclusion: The difference between post-test knowledge score of subjects receiving lecture method and information booklet, lecture method was effective in increasing the knowledge regarding interpretation of electrocardiogram among staff nurses working in selected hospital.

Keywords: effectiveness, lecture, information booklet, interpretation, electrocardiogram, staff nurses.

ABSTRACT

In cardiology, most common diagnostic test is Electrocardiography. It contributes significantly to the diagnosis and management of patients with cardiac disorders if properly interpreted therefore it is important to identify the minor changes in cardiovascular status and ECG helps to monitor changes continuously.¹ Teaching ECG interpretation is complex and the best methods for ECG teaching to recognize and interpret abnormalities remains unclear. Understanding and interpreting a standard 12-lead ECG can prove to be a quite difficult task, especially for student nurses at their first contact with clinical cases requiring an accurate interpretation of an ECG.² A good basic ECG interpretation may depend on the ability to combine clinical skills with basic ECG interpretation.³

According to Shankarnarayan B; "lectures is a teaching activity whereby the teacher the teacher presents the presents the content in a comprehensible manner by explaining the facts, principles, and relationships, during which the teacher is expected to get reaction of students by participation in appropriate techniques." Lectures clarifies difficult concept, encourage students in discussions and promote the critical thinking.⁴ Information booklet can be used for a single class period, an entire course, enrichment and remedial learning. It is good for the adult learners; who has busy lives and limited traditional study times. Learning will occur by student by self. Learning can occur without teacher. It is good for teaching psychomotor skills.⁵

Nurses are taking care to the patients in all the departments and they monitor there conditions every time. ECG is one of the main component to monitor the function of heart. Nurses should be able to interpret ECG and implement the acquired knowledge which helps in saving the life of the patient. Lecture method is easy to understand, motivating and encourage able for nurses. Information booklet is handy, easy to take along with nurses and can clarify their doubts anywhere at anytime by information booklet. Therefore researcher taken these two methods to help the nurses to improve the knowledge on interpretation of electrocardiogram among the subjects, which can save many lives.

This study aims at identifying the effectiveness of lecture method versus information booklet on interpretation of electrocardiogram among staff nurses working in selected hospital.

OBJECTIVES OF THE STUDY:

Primary objective:

To study the effectiveness of lecture method versus information booklet on interpretation of electrocardiogram among staff nurses working in selected hospital.

Other objectives:

1. To study the existing knowledge regarding interpretation of electrocardiogram among staff nurses receiving lecture method.
2. To study the existing knowledge regarding interpretation of electrocardiogram among staff nurses receiving information booklet.

MATERIAL AND METHOD:

Study setting:The present study was conducted in Kasturba Hospital, Sewagram, Wardha. The rationale for selecting this study setting was due to easy transport, familiarity with the setting, co-operative and availability of the subjects.

Research design: Quasi – experimental research design.

Research Approach: Quantitative research approach

Population: The population selected for present study, were staff nurses working in hospital.

Target population: All the staff nurses working in medicine ward, surgical ward, ICU and casualty department of selected hospital.

Accessible population: staff nurses working in in medicine ward, surgical ward, ICU and casualty department of selected hospital, and those who are fulfilling the inclusion criterion.

Sample Size:150 (Lecture method -75 Information booklet- 75)

Sampling technique:Non probability convenient sampling technique.

Inclusion criteria:Staff nurses who are willing to participate in the study and able to read and write English.

Exclusion criteria:Staff nurses who are not interested to participate in study and who attended any special training regarding interpretation of electrocardiogram after obtaining their nursing diploma or degree.

Withdrawal criteria:Staff nurses were informed that they can withdraw from study at any time if they wish to do so.

Material:

The instrument used in the study for data collection is structured knowledge questionnaire. The questionnaires consist of 35 multiple choice questions which includes 16 image based questions. Each knowledge question score has 4 options, out of which only one is correct option and remaining 3 are wrong. Each correct option is awarded a score of 1(one) and all incorrect or unanswered option awarded as 0 (zero). The possible range of knowledge score varied between 0-35. Based on total score, grading of the knowledge is levelled in 5 categories such as poor, average, good, very good and excellent based on total scores of the questionnaire. Feasibility of study is conducted by paper pencil test on 20 staff nurses and questionnaire was found to be understandable, feasibility and unambiguous. In order to obtain content validity, the structured knowledge questionnaire was given to 12 experts and consultation with the guide some modifications were made in framing the items and same were incorporated in the tool. Reliability of structured knowledge questionnaire by test re test method using Karl Pearson's coefficient formula. The correlation and coefficient 'r' of the questionnaire was 0.98 which is more than 0.80. hence the questionnaire was found to be reliable.

Pilot study was conducted on 10 staff nurses to lecture method and 10 staff nurses to information booklet on interpretation of electrocardiogram on staff nurses working in shrikrishna Heart hospital, Nagpur. The finding of the study indicated that lecture method is more effective than information booklet on interpretation of electrocardiogram.

Method of data collection:

The study proposal was approved by the Institutional Ethics Committee of the University.

The researcher visited the selected hospital in advance and obtained the necessary permission from the concerned authorities. Investigator introduced herself to the staff nurses, and explained

the purpose of the study so as to ensure co-operation during data collection. The participant was collected in the teaching room available in hospital and structured knowledge questionnaire was administered. As the sample of study was 150 staff nurses, it requires 6 days for collection of pre-test data and intervention. Data were collected approximately from 20-25 participants everyday. Once the questionnaire was completed, researcher collected it back. The staff nurses required 40 minutes to complete the structured knowledge questionnaire.

After the pre-test 45 minutes lecture conducted on 75 staff nurses and information booklet was given to 75 staff nurses on interpretation of electrocardiogram. On 15th day of the pre-test, the post test was administered in the same manner using same questionnaire. As the staff nurses included in the study was on different shift duty, the investigator approached the staff nurses in all 3 shifts according to the convenience and availability of the staff nurses for conducting the post test. The collection of data was completed within the stipulated time. After the data gathering process the researcher thanked all the study samples as well as the authorities for their co-operation.

Data analysis: The data was decided to be analysed, using descriptive and inferential statistics on the basis of objectives of the study.

RESULT:

It is observed from table 1 that, out of 150 subjects, 75 subjects were included to lecture method of teaching and 75 subjects were distributed information booklet on interpretation of electrocardiogram. 50.66% of the subjects who received lecture method and 48% who received information booklet were from the age group of 21-30 years, 25.3% of the subjects who received lecture method and 29.30% who received information booklet were in the age group of 31-40 years and 18.7% of the subjects who received lecture method and 20% who received information booklet were in the age group of 41-50 years and 5.30% of the subjects who received lecture method and 2.70% who received information booklet were more than 50 years of age. With regards to gender, 4% of the subjects who received information booklet were males and 100% of the subjects who received information booklet and 96% of the subjects who received information booklet were females. With regards to educational qualification, number of subjects were equally divided in both the groups. 92% of the subjects were having professional education of GNM, 6.70% of subjects were BSc/PBBSc nursing, and 1.30% subjects were M.SC nursing who received lecture method and information booklet. In terms of working experience, 53.30% of the subjects who underwent lecture method and 46.70% who underwent information booklet were having professional experience of 0-5 years, 13.30% of the subjects who underwent lecture method and 17.30% received information booklet were having professional experience of 6-10 years, 5.30% of the subjects in lecture method and 6.70% received information booklet were having professional experience of 11-15 years and 28% of the subjects in lecture method and 29.30% received information booklet were having professional experience of more than 15 years. With regard to area of work, subjects who received lecture method, 26.7% of subjects were working in medical area, 49.3% in surgical area, 20% were in ICU and 4% were in emergency/ casualty department, where as, subjects received information booklet were 22.7% from medical ward, 38.7% in surgical ward, 29.3% in ICU and 9.3% in emergency/ casualty department.

Table 1: Percentage wise distribution of subjects according to their demographic characteristics.

n=150

Demographic variables	Lecture method (N=75)		Information Booklet (N=75)	
	Frequency(f)	Percentage(%)	Frequency(f)	Percentage(%)
Age (years)				
21-30 yrs	38	50.66%	36	48%
31-40 yrs	19	25.3%	22	29.3%
41-50 yrs	14	18.7%	15	20%
>50 yrs	4	5.3%	2	2.7%
Gender				
Male	0	0%	3	4%
Female	75	100%	72	96%
Transgender	0	0%	0	0%
Professional Education				
GNM	69	92%	69	92%
B.SC/ P.B.B.SC Nursing	5	6.7%	5	6.7%
M.SC. Nursing	1	1.3%	1	1.3%
Experience in completed years				
0-5 yrs	40	53.3%	35	46.7%
6-10yrs	10	13.3%	13	17.3%
11-15 yrs	4	5.3%	5	6.7%
>15 yrs	21	28%	22	29.3%
Present working area				
Medical area	20	26.7%	17	22.7%
Surgical area	37	49.3%	29	38.7%
ICU	15	20%	22	29.3%
Emergency/ casualty	3	4%	7	9.3%

Table 2 shows that, Comparison of pre-test and post-test knowledge scores of interpretation of electrocardiogram among subjects received lecture method shows that, in pre-test 25.33% of the subjects had poor level of knowledge where as in post-test none having poor level of knowledge. In pre-test 56% had average level of knowledge and where as in post-test 2.67% had average level of knowledge. In pre-test 18.67 had good level of knowledge and in post-test 5.33 % had good level of knowledge. No subjects were having very good and excellent level of knowledge in pre-test where as it is increased in post-test to 49.33% in very good level and 42.68% in excellent level of knowledge regarding interpretation of electrocardiogram. The mean gain in average level of knowledge was 53.33% and good level of knowledge was 13.33%. The comparison of pre-test and post-test knowledge score indicate that after lecture method of teaching the knowledge of subjects about interpretation of electrocardiogram has increased. Thus it can be deduced that the lecture method of teaching was effective in increasing the knowledge of subjects regarding interpretation of electrocardiogram.

Table 2: Comparison of pre-test and post-test knowledge score among subjects receiving lecture method of teaching.

n= 75

Level of knowledge score	Score range		Pre-test level of knowledge score		Post-test level of knowledge score		Mean % gain in knowledge
	Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)	
Poor	1-7	0-20%	19	25.33%	0	0%	-
Average	8-14	21-40%	42	56%	2	2.67%	53.33%
Good	15-21	41-60%	14	18.67%	4	5.33%	13.33%
Very good	22-28	61-80%	0	0%	37	49.33%	-
Excellent	29-35	81-100%	0	0%	32	42.67%	-

Table 3 depicted as, comparison of pre-test and post-test knowledge scores of subjects who received information booklet regarding interpretation of electrocardiogram. In pre-test 21.33% of the subjects had poor level of knowledge where as in post-test none having poor level of knowledge, in pre-test 56% had average level of knowledge and in post-test no one has average level of knowledge; in pre-test 18.67% had good level of knowledge and in post-test it is increased to 5.33%. In pre-test no one had very good level of knowledge and in post-test 64% of subjects having very good level of knowledge. No subjects were having excellent level of knowledge in pre-test where as it is increased in post-test to 42.67% in excellent level of knowledge regarding interpretation of electrocardiogram. The mean gain in good level of knowledge was 10.67%. The comparison of pre-test and post-test knowledge score indicate that after receiving information booklet as self- directed learning the knowledge of subjects about interpretation of electrocardiogram has increased. Thus it can be deduced that the information booklet as self-directed learning was effective in increasing the knowledge of subjects regarding interpretation of electrocardiogram.

Table 3: Comparison of level of pre-test and post-test knowledge score among subjects received information booklet.

n= 75

Level of knowledge score	Score range		Pre-test level of knowledge score		Post-test level of knowledge score		Mean % gain in knowledge
	Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)	
Poor	1-7	0-20%	16	21.33%	0	0%	-
Average	8-14	21-40%	52	69.33%	0	0%	-
Good	15-21	41-60%	7	9.33%	15	20%	10.67%
Very good	22-28	61-80%	0	0%	48	64%	-
Excellent	29-35	81-100%	0	0%	12	16%	-

Table 4 depicts the comparison of post-test knowledge score of lecture method and information booklet on interpretation of electrocardiogram. In lecture method and information booklet none of the subjects had poor knowledge score. Average knowledge score is obtained only in 2(2.67%) of subjects in lecture method where as these none was in average level who receive information booklet. 4 (5.33%) of subjects in lecture method and 15 (20%) of subjects in information booklet had good knowledge score. 37 (49.33%) of subjects in lecture method and 48 (64%) of subjects in information booklet had very good knowledge score. 32 (42.68%) of subjects in lecture method and 12 (16%) of subjects in information booklet had excellent level of knowledge. Thus it can be deduced that the lecture method of teaching was effective in increasing the knowledge of subjects regarding interpretation of electrocardiogram.

Table 4: Comparison of post-test knowledge score of subjects received lecture method and information booklet on interpretation of electrocardiogram.

n=150

Level of knowledge score	Post-test Score range		Lecture method		Information booklet	
	Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)	Frequency(f)	Percentage (%)
Poor	1-7	0-20%	0	0%	0	0%
Average	8-14	21-40%	2	2.67%	0	0%
Good	15-21	41-60%	4	5.33%	15	20%
Very good	22-28	61-80%	37	49.33%	48	64%

excellent	89-35	81-100%	32	42.68%	12	16%
-----------	-------	---------	----	--------	----	-----

Table 5 depicts the comparison of post-test knowledge scores of subjects regarding interpretation of electrocardiogram receiving lecture method and information booklet. The post-test mean knowledge score of lecture method was 27.30 with SD 4.26 compared with post-test mean knowledge score of information booklet which was 24.54 with SD 3.96. Mean, standard deviation and mean difference values are compared and z-test for difference between two means is applied at 5% level of significance. The tabulated value for z-test for 5% level of significance was 1.96. The calculated 'z' value i.e. 4.12 are much higher than the tabulated value at 5% level of significance for overall knowledge score of subjects which is statistically acceptable level of significance. Hence it is interpreted that there is a statistically significant difference was found in post-test knowledge score of subjects receiving lecture method of teaching and information booklet. It is found that the lecture method is more effective in comparison with information booklet. There is no evidence to accept the null hypothesis (H_0) 'There is no difference in knowledge level of interpretation of electrocardiogram among staff nurses who attended lecture method and information booklet which is measured by structured knowledge questionnaire at $p < 0.05$ level of significance.' research hypothesis (H_1) 'There is difference in knowledge level of interpretation of electrocardiogram among staff nurses who attended lecture method and information booklet which is measured by structured knowledge questionnaire at $p < 0.05$ level of significance' is accepted.

Table 5: Effectiveness of lecture method versus information booklet on interpretation of electrocardiogram.

Overall	Post-test Mean	SD	Mean Difference	z-value	p-value
Lecture method	27.30	4.26	2.76±0.67	4.12	0.0001 S, $p < 0.05$
Information booklet	24.54	3.96			

n=75

DISSCUSSION:

The findings of study shows that the comparison of difference between pre-test and post test score of subjects received lecture method and information booklet regarding interpretation of electrocardiogram. Mean pre-test score in lecture method was 10.49±4.58 and post-test it was 27.30±4.26. whereas Mean pre-test score in information booklet was 10.42±3.79 and post-test it was 24.54±3.96. Mean percentage score in lecture method of pre-test was 29.98±13.09 and post-test it was 78.01±12.17. whereas Mean percentage score in pre-test of subjects received information booklet was 29.79±10.84 and in post-test it was 70.13±11.31. The difference between pre and post-test level of lecture method and information booklet score is found to be statistically significant.

Mean, standard deviation and mean difference values are compared and 'z' test is applied at 5% level of significance. The tabulated value for $n=75 + 75 - 2$ i.e. degrees of freedom (df-148) was 1.96. The calculated 'z' value i.e. 4.10 was much higher than the tabulated value at 5% level of significance for overall knowledge score of subjects which is statistically acceptable level of significance. Hence it is statistically interpreted that difference in post-test knowledge score of subjects receiving lecture method and information booklet was effective in improving the knowledge of subjects. Thus the H_1 is accepted.

Lecture method on interpretation of electrocardiogram was found to be more effective in improving the level of knowledge of interpretation of electrocardiogram. Subjects had significant improvement in level of knowledge regarding interpretation of electrocardiogram. Hence, based on above findings, it was concluded undoubtedly that lecture method on interpretation of

electrocardiogram helped the subjects to improve their level of knowledge regarding interpretation of electrocardiogram than information booklet.

A similar study was conducted as a quasi-experimental study design to evaluate the effectiveness of a continuing education program on nurses' knowledge of interpretation of 12-lead electrocardiogram (ECGs), which is conducted in July 2016 at China where the 52 nurses were selected for the study by using non probability convenient sampling technique. Two learning methods were used: a lecture-based education program and a self-learning handbook. The effectiveness of the methods was evaluated using a questionnaire. The result of this study showed before training, nurses who worked in the cardiology department scored higher in basic ECG knowledge than those in the emergency department and ICU; The post-test total and domain scores at 2 weeks, and 4 months after the lecture-based learning and 1 month after a self-learning ECG handbook was presented were higher than the pre test scores. The conclusion of this study is lecture-based education program and self-learning handbook material were effective in improving the nurses' ECG knowledge.⁶

A study to determine the effectiveness of assisted self-directed learning (ASD) and traditional lecture method (TLM) on knowledge of ECG interpretations was assessed at Boston in 2014. There was huge difference between the pre-test and post-test regarding ECG interpretation. The study concluded that self-directed learning and traditional method was very effective in importing the knowledge.⁷

A cross sectional descriptive study conducted at Narayana college of nursing, Nellore, India in 2017, to assess the level of knowledge regarding ECG among final year B.Sc Nursing Students and to identify the connection between the socio demographic variables and knowledge level of final year nursing students. Thirty students were selected by using Non Probability Convenience Sampling Technique. The results revealed that 15 (50%) nursing students have inadequate knowledge, 6(20%) nursing students have moderately adequate knowledge and only 9 (30%) nursing students have adequate knowledge regarding ECG. It shows that majority of nursing students has inadequate knowledge. There is no any association between socio demographic variables with level of knowledge.⁸

The pre- experimental study to evaluate the effectiveness of structured teaching programed on knowledge regarding interpretation of electrocardiogram among second year b.sc nursing students in selected college of nursing at Raipur, Chhattisgarh, India In 2018 which is conducted on 60 second year basic b.sc students. Result of the study shows that in pre-test sample were scored only 26.4% where on after the STP their score was increased to 71% the authors concluded that the intervention is very effective in increasing the knowledge of students by paired t- test.⁹

In 2014, the pre- experimental study to assess the Effectiveness of Self Instructional Module on Knowledge Regarding Dysrhythmias and its Management among Staff Nurses at selected Government Hospitals, Mysore. The overall result of pre-test knowledge scores of Staff Nurses was found to be 45.9% and the overall post-test knowledge scores was found to 78.3% and enhancement in the mean percentage knowledge score was found to be 5% level of significance. Post- test knowledge scores found the significance association. There is knowledge deficit among staff nurses regarding Dysrhythmias and its management and SIM was effective in improving their knowledge.¹⁰ Similar studies on different teaching approaches were reported¹¹⁻¹⁵. Jagzape and Phatak assessed about percolation of medical education terminologies to the level of medical students¹⁶. Baggaet. al. reported about the spectrum of non -alcoholic fatty liver disease in nursing staff¹⁷⁻¹⁹.

RECOMMENDATION:

- Similar studies can be carried out on a large scale to estimate the level of knowledge regarding interpretation of electrocardiogram among staff nurses working in selected hospital.
- Study can be conducted to evaluate the effectiveness of lecture method verses information booklet on interpretation of electrocardiogram among staff nurses working in selected hospital.
- Formal educational programme should be conducted in other hospitals regarding interpretation of electrocardiogram.

- The study can be replicated on large subjects; and on various settings, so that findings can be generalised to a large population.
- Such studies can be carried out using other teaching strategies like planned teaching, video assisted teaching, web based teaching on interpretation of electrocardiogram.
- Comparative survey can be carried out to assertion the level of competency in interpreting electrocardiogram.

LIMITATION:

Following were the limitations of the study, it includes:

- The study was limited only to staff nurses working in selected hospital.
- Assessment of knowledge of staff nurses only once before and once after administering lecture method of teaching and information booklet as self-directed learning.

IMPLICATIONS OF THE STUDY:

NURSING PRACTICES:

- The findings of present study emphasis on lecture method versus information booklet on interpretation of electrocardiogram which can be put into enhance the knowledge regarding interpretation of electrocardiogram and to manage the life threatening conditions.

NURSING EDUCATION:

- The present study emphasis on lecture method versus information booklet regarding interpretation of electrocardiogram among staff nurses working in selected hospital in order to educate the staff nurses, it is essential that the students have to be competent and have sound level of competency to improve which can be reflected to be public through education.
- The staff nurse can use the instrument prepared for this study for collecting information of interpretation of electrocardiogram to improve themselves in a risk free environment.

NURSING ADMINISTRATION:

- Health administration plays a pivotal role in supervision and management of nursing profession. The nurse educator can utilize the present tool for assessing the level of competency of the students and implement to manage high risk cases.
- Nurse administrator should take the initiative in organizing continuing education programs for nurses regarding various aspects of interpretation of electrocardiogram.
- Appropriate teaching/ learning material needs to be prepared and made available for nurses.
- Knowledge regarding interpretation of electrocardiogram of nurses being concern of medical health care facilities programme at hospital for prospective can be planned and implant country wide to manage high risk case in proper way.

NURSING RESEARCH:

- The finding of the present study can be utilize by nurse investigators to contribute to the profession to accumulate new knowledge regarding interpretation of electrocardiogram And can make professional accountability to educate and motivate the staff nurses.
- The present study helps the students and other health care personal to understand the level of competency in interpreting electrocardiogram of the staff nurses.
- The nurse investigator can use findings of this study as a baseline data to conduct further interventional investigator to identify the level of competency and to determine the comparison between lecture method verses information booklet and to identify the effect of lecture method versus information booklet regarding interpretation of electrocardiogram among staff nurses working in selected hospital.

REFERENCES:

1. Alaagib NA, Musa OA, Saeed AM. Comparison of the effectiveness of lectures based on problems and traditional lectures in physiology teaching in Sudan. BMC Medical Education. 2019;19(1).
2. Are our medical graduates in New Zealand safe and accurate ... [Internet]. [cited 2020Feb9]. Available from: https://www.researchgate.net/publication/24433642_Are_our_medical_graduates_in_New_Zealand_safe_and_accurate_in_ECG_interpretation.

3. Rafat Khan, Asha Agarwal (2018) Ameliorative Effect of Vitamin C And E Against The Toxicity of Nitrogen Dioxide Gas on Clotting Factors in Albino Rats International Journal Of Scientific Research And Education.06,09 (Sep-18) 8023-28
4. Hakacova N, Trägårdh-Johansson E, Wagner GS, Maynard C, Pahlm O. Computer-based rhythm diagnosis and its possible influence on nonexpert electrocardiogram readers. *Journal of Electrocardiology*. 2012;45(1):18–22.
5. Sankarnarayan B; sindhu B; learning and teaching nursing; 4th edition; jaypee publication; new dehli; page no. 112-116.
6. sudha R. textbook of nursing education; elsvier publications; new dehli; page no. 97-98.
7. L. M., & H. M. (2016). Pubmed. Comparison of Two Methods for Teaching Advanced Arrhythmias to Nurses. doi:221-6.
8. ElShanti, A., Aldirawi, A., Mehjez, A., Zaida, M., Abu Nada, I., & Abu Nada, M. “The Prevalence and Severity of Gingivitis in High School Students in Gaza Strip - Palestine. *Journal of Medical Research and Health Sciences*, 3(9), (2020), 1098-1105. <https://doi.org/10.15520/jmrhs.v3i9.256>
9. Jarmon RG provider performance in the recognition and treatment of the metered ECG patterns. *JACEP* 2014 dec 6; 5(12); 971-4.
10. Assess the knowledge regarding electro cardiogram among final year b.sc nursing students in Narayana College of nursing, Nellore. *international journal of applied research*. 4AD;3(6):88–90.
11. . R. (2018). *International Education and Research Journal*. A study to evaluate the effectiveness of structured teaching programme on knowledge regarding interpretation of electrocardiogram (ecg) among second year bsc nursing students in selected college of nursing at raipur, *CG*,4(9). Doi:2454-9916.
12. *international journal of advances in nursing management*. (2014). *Effectiveness of Self Instructional Module on Knowledge Regarding Dysrhythmias and Its Management among Staff Nurses at Selected Government Hospitals, Mysore*, 2(4). Retrieved from guruvishu@gmail.com.
13. Mzezewa, S., & makhuvha, livhuwani. “ Non-Accidental Burn Injuries In Adults Admitted At Mankweng Burns Unit. *Journal of Medical Research and Health Sciences*, 3(9), (2020), 1095-1097. <https://doi.org/10.15520/jmrhs.v3i9.252>
14. Debroy, A., A. Ingole, and A. Mudey. “Teachers’ Perceptions on Student Evaluation of Teaching as a Tool for Faculty Development and Quality Assurance in Medical Education.” *Journal of Education and Health Promotion* 8, no. 1 (2019). https://doi.org/10.4103/jehp.jehp_47_19.
15. Thakur, D. V., Thakur, D. R., Kaur, D. M., Kaur, D. J., Kumar, D. A., Viridi, D. D., & Jassal, D. S. (2020). Pregnancy & Oral Health and Dental Management in Pregnant Patient. *Journal of Current Medical Research and Opinion*, 3(11), 724-731. <https://doi.org/10.15520/jcmro.v3i11.360>
16. Gade, S.A., S.N. Chari, and A. Chalak. “Use of Mini-CEX as a Teaching Learning Method in Physiology for Undergraduate Medical Students.” *National Journal of Physiology, Pharmacy and Pharmacology* 7, no. 5 (2017): 482–85. <https://doi.org/10.5455/njppp.2017.7.1029720122016>.
17. Jagzape, A.T., T. Jagzape, and A. Rawekar. “Patient-Based Integrated Teaching Program with the Inclusion of Psychomotor and Affective Domains.” *National Journal of Physiology, Pharmacy and Pharmacology* 7, no. 8 (2017): 788–92. <https://doi.org/10.5455/njppp.2017.7.0306802042017>.
18. Sharma, P., P. Fulzele, M. Chaudhary, M. Gawande, S. Patil, and A. Hande. “Introduction of Key Feature Problem Based Questions in Assessment of Dental Students.” *International Journal of Current Research and Review* 12, no. 14 (2020): 56–61. <https://doi.org/10.31782/IJCRR.2020.121412>.
19. Bains, S.K., P. John, D. Nair, S. Acharya, S. Shukla, and N. Acharya. “Aptitude of Medical Research in Undergraduate Students of a Medical University - Miles to Go before We Sow.” *Journal of Clinical and Diagnostic Research* 11, no. 12 (2017): JC07-JC11. <https://doi.org/10.7860/JCDR/2017/29318.10972>.
20. Jagzape, A., T. Jagzape, and S. Pathak. “Medical Education Terminologies: Do These Really Percolate to the Level of Medical Students? A Survey.” *Journal of Clinical and Diagnostic Research* 11, no. 9 (2017): JC01–5. <https://doi.org/10.7860/JCDR/2017/26582.10631>.

21. Bagga, C., R. Sarode, and S. Kumar. "The Spectrum of Non -Alcoholic Fatty Liver Disease (NAFLD) in Nursing Staff." *European Journal of Molecular and Clinical Medicine* 7, no. 2 (2020): 2542–50.