

Study to Assess the Effectiveness of VAT on the Knowledge regarding the Selected Aspects of Cardiac Monitoring among the Staff Nurses in Selected Hospitals

Megha Sarah Mathews*, Pricey Jimmy Pudussery*

Abstract

Cardiac monitoring generally refers to continuous monitoring of heart activity, generally by electrocardiography with assessment of the patient's condition relative to their cardiac rhythm. An electrocardiogram (also called ECG) is a test that records the electrical activity of your heart through small electrode patches attached to the skin of your chest, arms, and legs. An ECG may be part of a routine physical exam or it may be used as a test for heart disease. There is a lack of reliable and valid performance of ICU nurses in interpreting the ECG of patients. *Purpose:* This study develops a video on ECG and checks the effectiveness of the video among the staff nurses of ICU with respect to their level of knowledge in interpreting an ECG. *Method:* A Pre -Experimental study with one group pre- test post- test design was adopted. The reliability of the tool was done using Cronbach's alpha and the validity of the tool was evaluated by 15 experts from the field after which the pilot study was carried out on 5 staff nurses. Purposive sampling technique was used to collect the data from 50 ICU staff nurses. The 32 item semi structured questionnaire was given to 50 ICU staff nurses who enrolled for the research. *Results:* A pre -test was conducted (n=50) and the result's showed that the mean score for knowledge on selected aspects of cardiac monitoring was 13.1000 with a standard deviation of 3.41216. However, after the VAT there was a significant increase in the post test mean score for knowledge on selected aspects of cardiac monitoring and standard deviation scores with 24.0400 and 4.47195 respectively. In the pretest it was seen that 38 staff nurses had inadequate knowledge and 12 staff nurses had moderately adequate knowledge however in the post test it is seen that only 7 staff nurses had inadequate knowledge, 23 staff nurses had moderately adequate knowledge and 20 staff nurses had adequate knowledge. *Conclusion:* The video assisted tool created on selected aspect of cardiac monitoring (ECG) was a sound tool and it helped the nurses to gain knowledge and put that into practice. It is also recommended that more broader aspect of ECG can be taught to the staff-nurses.

Keywords: Effect; VAT; Knowledge; ICU; Cardiac Monitoring; ECG.

Introduction

"The character of a nurse is just as important as the knowledge he/she possesses" [1].

- Carolyn Jarvis

Author Affiliation: *M.Sc Nursing (Medical Surgical Nursing), Dr. D. Y. Patil College of Nursing, Sector 7, Nerul, Navi Mumbai, Maharashtra 400706, India.

Corresponding Author: Megha Sarah Mathews, M.Sc Nursing (Medical Surgical Nursing), Dr. D. Y. Patil College of Nursing, Sector 7, Nerul, Navi Mumbai, Maharashtra 400706, India.

E-mail: mgh.mathews@gmail.com,
ajujohnajitha@gmail.com

Received on 25.07.2017, Accepted on 17.08.2017

Nurses are looked upon as both the front lines of health care, as well as the backbone of patient treatment. We see nurses as innovators in health care. We see how their observational skills, advanced knowledge, interventions and compassionate care help patients manage their medical needs. "Nurses" also explore critical issues in the health care system that, if changed, could allow nurses to practice to the full extent of their education across the country [2].

One of the areas of clinical management where nurses have the most diagnostic influence is cardiac rhythm monitoring and dysrhythmia detection. The critical care nurse must recognize that continuous monitoring is a nursing responsibility, and competence in this skill must be assured. It is essential that nurses understand the significance of accurate

electrode placement in obtaining a specific monitoring lead. In addition, the nurse must use current research in determining which monitoring lead is most appropriate for the patient requiring cardiac monitoring in the critical care environment [3].

The electrocardiogram is diagnostic tools that measures and records the electrical activity of the heart in execute detail. Interpretation of ECG allows diagnosis of a wide range of heart conditions. These conditions are varying from minor to life threatening. ECG terminology and diagnostic criteria and interpretation often vary from book to book and from one teacher to another. Finally, it is important to recognize that the mastery of ECG interpretation, one of the most useful clinical tools in medicine, can only occur if one acquires considerable experience in reading ECG's and correlating the specific ECG findings with the pathophysiology and clinical status of the patient. ECG can act as a diagnostic procedure for all clinical findings [4].

Background

Cardiac monitoring generally refers to continuous monitoring of heart activity, generally by electrocardiography with assessment of the patient's condition relative to their cardiac rhythm. An electrocardiogram (also called ECG) is a test that records the electrical activity of your heart through small electrode patches attached to the skin of your chest, arms, and legs. An ECG may be part of a routine physical exam or it may be used as a test for heart disease.

There is a lack of a reliable and valid measurement of ICU nurses in interpreting the ECG of patients.

Problem Statement

"A study to assess the effectiveness of Video Assisted Teaching Programme on the knowledge regarding the selected aspects of cardiac monitoring among the staff nurses working in the ICU Departments of selected hospitals in Navi Mumbai."

Objectives

- To assess and evaluate the effectiveness of video assisted teaching program on selected aspects of cardiac monitoring among the staff nurses with their obtained pretest and post test scores.
- To find the association between the demographic characteristics and with the level of knowledge on selected aspects of cardiac monitoring among

the staff nurses of ICU with their obtained pre test and post test scores.

Purpose

This study develops a video on ECG and checks the effectiveness of the video among the staff nurses of ICU with respect to their level of knowledge in interpreting an ECG.

Assumptions

The study assumes that:

- The staff nurses play an important role in recognizing the cardiac abnormality and they may/may not possess competitive skills in cardiac monitoring.
- The staff nurses may/may not possess knowledge regarding cardiac monitoring.
- Video assisted teaching may/may not increase the level of knowledge on selected aspects of cardiac monitoring among the staff nurses.
- Appropriate and adequate knowledge regarding selected aspects of cardiac monitoring may/may not influence the practice of staff nurses.

Hypotheses

H₀₁:- There will be no significant difference in the mean knowledge score of staff nurses on selected aspects of cardiac monitoring between pretest and post-test scores.

H₀₂:- There will be no significant association between the level of knowledge regarding selected aspects of cardiac monitoring with selected demographic variable.

H₀₃:- There will be a significant difference in the mean knowledge score of staff nurses on selected aspects of cardiac monitoring between pretest and post-test scores.

H₀₄:- There will be a significant association between the level of knowledge regarding selected aspects of cardiac monitoring with selected demographic variable.

Method

A Pre -Experimental study with one group pre-test post- test design was adopted. The reliability of the tool was done using Cronbach's alpha and the validity of the tool was evaluated by 15 experts from

the field after which the pilot study was carried out on 5 staff nurses. Purposive sampling technique was used to collect the data from 50 ICU staff nurses. The 32 item semi structured questionnaire was given to 50 ICU staff nurses who enrolled for the research.

Results

A pre -test was conducted (n=50) and the result’s showed that the mean score for knowledge on selected aspects of cardiac monitoring was 13.1000

with a standard deviation of 3.41216. However, after the VAT there was a significant increase in the post test mean score for knowledge on selected aspects of cardiac monitoring and standard deviation scores with 24.0400 and 4.47195 respectively. In the pretest, it was seen that 38 staff nurses had inadequate knowledge and 12 staff nurses had moderately adequate knowledge. However, in the post test it is seen that only 7 staff nurses had inadequate knowledge, 23 staff nurses had moderately adequate knowledge and 20 staff nurses had adequate knowledge.

Table 1: Distribution of sample according to Age

Age Category	Frequency	Percentage
21-25 years	31	62.0
26-30 years	14	28.0
31-35 years	4	8.0
36-40 years	1	2.0
Total	50	100.0

Distribution of the demographic variables among the staff nurses working in the ICU of selected hospitals, Navi Mumbai.

According to Table 1 and Fig. 1, the sample is distributed into 4 categories ie: age 21-25 years, 26-

30 years ,31-35 years and 36-40 years. The maximum number of samples were found in the age group of 21-25 years with the frequency of 31(62%) and the least is seen in the age group of 36-40 years with the frequency of 1(2%).

Table 2: Distribution of sample according to gender

Gender	Frequency	Percentage
Male	5	10.0
Female	45	90.0
Total	50	100.0

Table 3: Showing difference in mean score of Pretest and Post-Test.

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Pre total score	50	6.00	20.00	655.00	13.1000	3.41216
Post total score	50	12.00	30.00	1202.00	24.0400	4.47195

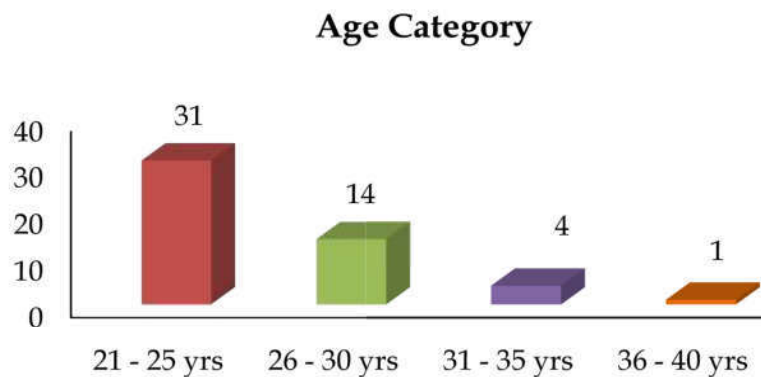


Fig. 1: Distribution of sample according to age

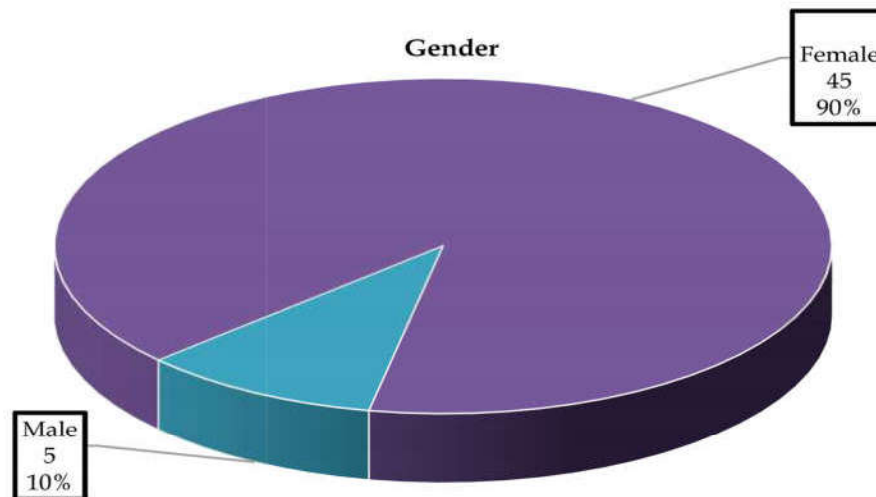


Fig. 2: Distribution of sample according to Gender

Table 4: Association of data with demographic variables

Criteria	Improvement<50	Improvement>50	Total	p value	Inference
Age					
20-25	12	19	31	0.52	NS
26-40	8	11	19		
Gender					
Male	2	3	5	0.69	NS
Female	18	27	45		
Qualification					
BSc Nsg	17	21	38		NS
GNM	3	9	12	0.19	
Experience overall					
< 1year	3	1	4	0.29	NS
1-2 years	7	10	17		
2-5 years	8	11	19		
> 5 years	2	8	10		
Experience ICU					
no exp	2	4	6	0.13	NS
<1year	9	6	15		
1-2years	8	12	20		
>2years	1	8	9		
Class/seminar					
YES	7	10	17	0.57	NS
NO	13	20	33		

According to Table 2 and Fig. 2, the sample is distributed into two categories ie: male and female. The maximum number of samples were found in the female group with the frequency of 45(90%) whereas males constituted only 10% with a frequency of 5.

Evaluation of the effectiveness of Video Assisted Teaching Programme with their obtained pre-test and post-test mean scores on selected aspect of cardiac monitoring (ECG) among the staff nurses.

The above Table. 3 indicates that there has been an improvement in the mean score from 13.1000 (pretest) to 24.0400 (post-test). This implies that there

is an increase in knowledge among the staff nurses due to Video Assisted Teaching on selected aspects of cardiac monitoring. From the above Table. 4, it is evident that knowledge on selected aspects of cardiac monitoring is not significant with any of the demographic variable.

Implications of the Study

Nursing Service

1. The findings prove that VAT given for a duration of 30 min can improve the knowledge, and hence

would help the staff nurses to save the lives of many patients.

2. Regular practice on the interpretation of the ECG would make the nurses confident and assist the doctors with the line of treatment for the patients.
3. New researches have revealed that ECG contributes not only to Cardiovascular but also in management of patients with stroke. The nurses should be trained using such VAT so that the knowledge is continually revised as well as new knowledge can be updated.

Nursing Education

1. Nursing is a therapeutic and educative process in meeting the needs of the society. Nursing education is the means through which nurses are prepared for practice in various settings. The present study emphasizes that the video assisted teaching is the key element to train the staff nurses on the selected aspects of cardiac monitoring. The video assisted teaching and study findings can be the guidelines for the nurse educators, to teach students, in giving comprehensive care in all settings colleges and even in hospital setting. Every student nurse needs to motivate to provide care and conduct health education regarding the same.
2. As a method of teaching, Video Assisted Teaching has proven to be beneficial in imparting knowledge and hence such AV aids should be used for effective teaching learning process.

Nursing Administration

The nursing administrators are responsible for management of the nursing staff in a health care facility.

1. The nursing administrator should arrange training sessions frequently to keep the nurses abreast of recent technological advancements in the field of medicine.
2. It is also important to train the nurses (especially in the ICU departments), on topics like cardiac monitoring and ECG as they look after the critical patients which will enable them to be competent and skillful in their practices.

Nursing Research

The present study contributes to the body of knowledge and practice of nurses. The research study findings have added inputs to the nursing literature.

The investigator can use the findings and methodology as a reference in the future and can emphasize on areas which needs further exploration.

Recommendations for Further Study

- A similar study on a larger and a wider sample, for a long period would be more pertinent in making broad generalizations.
- A similar study can be undertaken in a different setting.
- A comparative study can also be planned.
- A similar study on the broader aspect of cardiac monitoring can also be done.
- This study can also be carried out using various teaching modalities to check for effectiveness.
- A study can be done to assess knowledge, attitude and practice of staff nurses working in the ICU.

Conclusion

“ It is a sign of intellectual maturity to always crawl to conclusions.”

-MokokomaMokhonoana

This chapter deals with discussion of the findings in accordance with the study and its objectives. The findings of the study facilitate sufficient information needed for evidence-based practice to be used in nursing practice and discipline. It relates the interpretations with the results and study limits. The recommendations of the study provide a platform for further research discussions and implications.

The video assisted tool created on selected aspect of cardiac monitoring (ECG) was a sound tool and it helped the nurses to gain knowledge and put that into practice. It is also recommended that more broader aspect of ECG can be taught to the staff-nurses.

References

1. Carolyn Jarvis. <http://www.nursetheory.com/nursing-quotes/>.
2. Stephen M Salerno, Patrick C Aguirre, HerebertS. Waxman. Training and Competency Evaluation For Interpretation of 12 Lead Electrocardiogram. 138-247.
3. NRSKaren RN, BSN, RN. NURSES: Their Vital Role in Transforming Healthcare.20 December 2016. Available form: <http://allnurses.com/nurses-rock/nurses-their-vital-960944.html>.

- 124 Megha Sarah Mathews & Pricey Jimmy Pudussery / Study to Assess the Effectiveness of VAT on the Knowledge regarding the Selected Aspects of Cardiac Monitoring among the Staff Nurses in Selected Hospitals
4. Jennifer D. Hebra. The Nurse's Role In Continuous Dysrhythmia Monitoring. Pennsylvania: AACN Advanced Critical Care; May 1994. Available form: <http://acc.aacnjournals.org/content/5/2/178.abstract>.
 5. F.G. and H.W. Fowler. The pocket oxford dictionary of current English. Indian edition 2008.s
 6. Sankaranarayan .Textbook of learning and teaching nursing. 1st edition. New Delhi: Jaypee publication; 2012.
 7. Tabers Cyclopedic Dictionary. volume1&2. 20th edition, Jaypee publications 2008.p.1120.
 8. Von Bertalanffy. General Systems Theory. Available form: <http://www.statpac.org/walonick/systems-theory.htm>.
 9. Extrapolation of prevalence rate of arrhythmias to countries and regions. Prevalence rate for arrhythmias Available form: <http://www.rightdiagnosis.com/a/arrhythmias/stats-country.htm>.
 10. Stephen M. Salerno, Patrick C. Aguirre, and Herbert S. Waxman, Training and Competency Evaluation for Interpretation of 12 Lead Electrocardiogram, Recommendations from the American College of Physicians, Ann Intern Med May 6, 2003.
 11. ECG-id.scribd.com. Available form: <https://id.scribd.com/document/44310777/ECG>.
 12. Kathryn Buchanan Keller, Deborah A. Raines, Arrhythmia knowledge: A qualitative study. Florida: Science direct; 10 September 2005. Available form: <http://www.sciencedirect.com/science/article/pii/S0147956305000889>.
 13. Martin H Fischer. Available form: <https://www.brainyquote.com/quotes/quotes/m/martinhfi404982.html>.
 14. Mozaffarian D, Benjamin EJ, Go AS, Arnett DK, Blaha MJ, Cushman M, de Ferranti S. e American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart Disease and Stroke Statistics 2015; 17 December 2014. Available form: https://www.heart.org/idc/groups/ahamah-public/%40wcm/%40sop/%40smd/documents/downloadable/ucm_470704.pdf.
 15. Meekhay 10707. ECG. Available form: <https://www.scribd.com/document/44310777/ECG>.
-