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A Descriptve Study To Assess The Knowledge Regarding Arrythmias Among Staff Nurses Working In Selected Hospitals Of Pune City

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Abstract

Background: In health services, ECG plays important role in diagnosing the cardiac event and prevent from life threatening conditions. Arrythmias shows graphical representation of abnormal cardiac rhythms which helps to understand the disease conditions. That's why it is need to understand about arrythmias to prevent from any cardiac accidents. Research question: is there adequate knowledge regarding arrythmia's among staff nurses in selected hospitals of Pune city? Objectives: To assess the knowledge regarding arrhythmias among staff nurses in selected hospitals. Purpose: to identify knowledge of arrythmias and implement the acquired knowledge which helps in saving the life of the patient. Methodology: a quantitative study approached was used with descriptive study design. 150 staff nurses were selected by non- probability purposive sampling technique from selected hospitals of Pune city. A structured knowledge questionnaire was select to get the data in that includes section A- demographic variables includes, Age, Gender, Professional qualification, Year of experience and the area in which they work and section B - 20 structures knowledge questionnaire along with 6 image-based questions. validity and reliability of tools obtained by experts. 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. Result: The findings of study shows that the score of knowledge regarding Arrythmias Mean was 10.49±4.58 Mean percentage score was 29.98±13.09 Mean, standard deviation and mean difference values are compared and 'o\p' test is applied at 5% level of significance. The tabulated value for n=150 i.e. degrees of freedom (df-148) was 1.96. The calculated 'p' 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. In demographic variables, professional Education, year of experience and working area also associated with demographic variables. Conclusion: overall study stated as knowledge regarding arrythmias are average in staff nurses in selected hospitals of Pune City.

Keywords: Arrythmias, staff nurses, Pune city,

Introduction

16 million deaths were reported globally due to cardiovascular disorders. Cardiac arrhythmias are some of the conditions which carry life threatening risks leading to heart failure or death, where early actions can play a great role in bringing back a patient from the clutches of death. Ventricular fibrillation is the most common dysrhythmia associated with sudden cardiac death, accounting for 65% to 80% of cardiac arrests[1]

The ongoing pandemic coronavirus disease 2019 (COVID-19) has led to a number of changes in clinical processes in an effort to provide large numbers of patients with optimal care.[2]

Many of the drugs being used in the treatment of the ongoing pandemic coronavirus disease 2019 (COVID-**19)** are associated with QT prolongation. Expert guidance supports electrocardiographic (ECG) monitoring to optimize patient safety.An arrhythmia is an irregular heartbeat, meaning the heart beats too quickly, too slowly, or in an irregular pattern. Some types of arrhythmia are harmless, but others can be life-threatening A good basic ECG interpretation may depend on the ability to combine clinical skills with basic ECG interpretation.[3]

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. Therefore researcher takes this study to identify the further need for giving education to staff nurses related Arrythmias to save from life threatening conditions.[4]

This study aims at identifying the knowledge regarding Arrythmias among staff nurses working in selected hospitals of Pune city.

1.1 OBJECTIVES:

- To assess the knowledge regarding arrhythmia's among staff nurses in selected hospitals.
- To find out the association between selected demographic variables and knowledge regarding arrhythmia among staff nurses.

MATERIAL AND METHOD:

- **Research setting:** selected hospitals in Pune city.
  - Bharati hospital and research Centre,Pune
  - Rao nursinghome
  - Mai Mangeshkar hospitalPune
- **Research design:** Descriptive design
- **Research approach:**Quantitative research approach
- **Population:**
  - **Target population:** staff nurses.
  - **Accessible population:** Staff nurses working in emergency department, cardiac department and ICU

Sampling method: Non probability – purposivesampling

1.2 **Sample selectioncriteria:**

1.3 **Inclusion criteria: Sample whoare**

- **Willing to participate in study**
- **Who are available during data collection.**
- **Working in HDU, ICU, Cardiac ICU, Emergency / Casualty**

1.4 Exclusioncriteria:

- **Who are not available at the time of data collection**

1.5 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 20 multiple choice questions which includes 6 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 0-20. 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 15 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 7

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 coeffient 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 15 staff nurses on Arrythmias on staff nurses working in selected hospital, Pune. The finding of the study indicated that nurses has inadequate knowledge regarding Arrythmias.

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 necessarypermission 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 data. Data were collected approximately from 20-25participants every day. Once the questionnaire was completed, researcher collected it back. The staff nurses required30 minutes to complete the structured knowledge questionnaire.

The collection of data was completed within the stipulated time. After the data gatheringprocess, 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, 50.66% of the subjects were from the age group of 21-30 years, 25.3% of the subjects were in the age group of 31-40 years and 18.7% of the subjects were in the age group of 41-50 years and 5.30% of the subjects were more than 50 years of age. With regards to gender, 54.66% of the subjects' males and 45.33% were females. With regards to educational qualification, 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. In terms of working experience, 53.30% of the subjectswere having professional experience of 0-5 years, 13.30% of the subjects were having professional experience of 6-10 years, 5.30% of the subjects were having professional experience of 11-15 years and 28% of the subjects were having professional experience of more than 15 years. With regard to area of work, subjects 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.

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

n=150

Demographic variables	**subjects according to their demographic characteristics.**	
	Frequency(f)	**Percentage (%)**
Age (years)		
21-30 yrs	76	50.66%
31-40 yrs	38	25.3%
41-50 yrs	28	18.7%
>50 yrs	8	5.3%
Gender		
Male	82	54.66%
Female	68	45.33%
Transgender	0	0%

Professional Education		
GNM	138	92%
B.SC/ P.B.B.SC Nursing	10	6.7%
M.SC. Nursing	2	1.3%
Experience in completed years		
0-5 yrs	80	53.3%
6-10yrs	20	13.3%
11-15 yrs	8	5.3%
>15 yrs	42	28%
Present working area		
Medical area	40	26.7%
Surgical area	74	49.3%
ICU	30	20%
Emergency/ casualty	6	4%

Table 2 shows that, subject has poor level of knowledge regarding Arrythmias were 25.33%, average level were 56%, Good level were 18.67% and No subjects were having very good and excellent level of knowledge regarding Arrythmias. Thus it is reflected that knowledge regarding Arrythmias among staff nurses in selected hospitals of pune city has poor, average and good level of knowledge.

Table 2: knowledge score of subjects regarding Arrythmias **n= 150**

Level of knowledge score	**Score range**		**knowledge score of Arrythmias**	
	Frequency (f)	**Percentage (%)**	**Frequency (f)**	**Percentage (%)**
Poor	1-5	0- 20%	38	25.33%
Average	6-10	21- 40%	84	56%
Good	11-15	41- 60%	28	18.67%
Very good	16-20	61- 80%	0	0%
excellent	21-25	81- 100%	0	0%

Table 3 shows the association of knowledge score with demographic variables of subjects.

The association of knowledge score with Age of subjects. The tabulated „ϰ2‟ values was 15.51(df=8) which is much higher than the calculated „ϰ2‟ i.e. 4.38 at 5% level of significance. Also, the calculated „p‟=0.82 which was much higher than the acceptable level of significance i.e. „p‟=0.05. Hence it is interpreted that age of subjects is statistically not associated with their knowledge score. The association of knowledge score with Gender of subjects. The tabulated „ϰ2‟ values were 9.49(df=4) which is much higher than the calculated „ϰ2‟ i.e. 6.65 at 5%

level of significance. Also, the calculated „p"=0.15 which was much higher than the acceptable level of significance i.e. „p"=0.05. Hence it is interpreted that gender of subjects is statistically not associated with their knowledge score.

The association of knowledge score with Professionaleducation of subjects The tabulated „ϰ2" values was 21.03(df=12) which is much less than the calculated „ϰ2" i.e. 38.87 at 5% level of significance. Also, the calculated „p"=0.0001 which was much less than the acceptable level of significance i.e. „p"=0.05. Hence it is interpreted that Professional education of subjects is statistically associated with their knowledge score.

The association of knowledge score with Year of Experience of subjects. The tabulated „ϰ2" values were 19.68(df=11) which is much less than the calculated „ϰ2" i.e. 36.83 at 5% level of significance. Also, the calculated „p"=0.0001 which was much less than the acceptable level of significance i.e. „p"=0.05. Hence it is interpreted that Year of Experience of subjects is statistically associated with their knowledge score.

The association of knowledge score with Present working area of subjects. The tabulated „ϰ2" values were 16.92(df=09) which is much less than the calculated „ϰ2" i.e. 30.27 at 5% level of significance. Also, the calculated „p"=0.0001 which was much less than the acceptable level of significance i.e. „p"=0.05. Hence it is interpreted that Year of Experience of subjects is statistically associated with their knowledge score.

Table 3: The association of knowledge score with demographic variables of subjects.

Associated demographic variables	**P value**	**Association**
Age	4.38 „p"=0.82, NS,p>0.05	Not Associated
Gender	10.45 p=0.15 NS,p>0.05	Not Associated
Professional qualification	36.83 p=0.0001 S,p<0.05	Associated
Year of experience	38.87 p=0.0001 S,p<0.05	Associated
Present working area	30.27 p=0.0001 S,p<0.05	Associated

DISSCUSSION:

The findings of study shows that the score of knowledge regarding Arrythmias Mean was 10.49±4.58 Mean percentage score was 29.98±13.09

Mean, standard deviation and mean difference values are compared and chi square test is applied at 5% level of significance. The tabulated value for n=150 i.e. degrees of freedom (df-148) was 1.96. The calculated 'p' 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. In demographic variables, professional Education, year of experience and working area also associated with demographic variables.

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.[5]

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.[6]

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.[7]Similar studies on different teaching approaches were reported [7-10].

RECOMMENDATION:

- 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.

IMPLICATIONS OF THE STUDY:

NURSING PRACTICES: The findings of present study emphasis 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 need for more education and competencies related to arrythmias

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 Arrythmias 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 utilized 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 Arrythmias of the staff nurses.

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