RGUHS
Journal of Nursing Sciences

ORIGINAL ARTICLE

Effectiveness of Structured Teaching Programme on Knowledge and Practice Regarding Role of Code Blue Nurses during Cardiac Emergency among Nursing Students at a Selected Nursing College, Bhavnagar

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Received date: January 12, 2022; **Accepted date:** March 28, 2022; **Published date:** July 31, 2022

Abstract

Objectives: To assess the level of knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students and to evaluate the effectiveness of structured teaching programme on knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students. The study also aimed to determine the association between knowledge and practice regarding role of code blue nurses during cardiac emergency among students and selected socio demographic variables.

Hypotheses: There is a statistically significant association between the level of knowledge and practice regarding role of code blue nurses during cardiac emergency and selected socio-demographic variables.

Methodology: Pretest - posttest design was used. Forty-nine subjects were selected using non-probability (purposive) sampling technique. Structured teaching programme was administered. Pretest- posttest score comparison was done by using semi- structured questionnaire.

Results: The findings revealed that mean pre-test knowledge score was 11.47 and the post-test score was 11.97, the difference between thesewas statistically significant ["Z" value (-41.91) for 0.05 level significance].

Conclusion: The knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students at a selected nursing college improved with structured teaching programme.

Keywords: Code Blue, Cardiac emergency, Cardio-pulmonary resuscitation

Introduction

"**Do your part, care for heart**"

Code blue is one of the common emergency codes used in the hospital settings to alert the trained response team of cardiac arrest. The outcome of the code blue situation depends upon the patient condition and the functioning status of the code blue team. The first and most primary objective was to assess the effectiveness of code blue in terms of survival and the other objective was to identify the cardiac emergency among victims and system variables associated with favourable outcome.[1,2]

Code blue is a common emergency code. It indicates a medical emergency situation like cardiac arrest, requiring skilled personnel of advanced life support team to rush to specific location and initiate resuscitative measures.[3]

The initiation of cardiopulmonary Resuscitation (CPR), an early life saving measures is needed during code blue.[1-5] The CPR involves maintaining circulation, to establish an airway, to initiate breathing, and early use of defibrillation. Every minute of delay in treatment reduces survival rate by 10%.[6,7] The estimated incidence of cardiorespiratory arrest is 1 – 5 events per 1000 hospital admissions per year and it is estimated that approximately 200000 patients experience an in- hospital cardiac arrest every year in United States.[8]

The American Heart Association (AHA) update on the guidelines for advanced cardiac life support (ACLS) 2020 is a logical, sequential algorithm for Advanced Cardiac Life Support training and certification is also standardized universally. Yet outcomes are variable. Rate of successful CPR has been reported to be as low as 2.6% even for in-hospital cardiac arrest. Other studies reported wide variable successful CPR rates from 13%-59% survival to hospital discharge rate of 0.42%.[8-10]

Need for the Study

Data was gathered from the code blue report which had details of demographic data, time of code blue team. Further details of individual patient like initial rhythm at the time of code blue, any procedures preceding code blue, outcome of the resuscitative measures with follow-up were tracked from the medical records.

Cardiac arrest was defined as the cessation of cardiac mechanical activity as confirmed by lapse in circulation which was determined by the absence of a palpable central pulse, unresponsiveness as per AHA 2015 guidelines.

As per protocol of the hospital, code blue is activated across the hospital outside emergency critical care units and operation theater which have dedicated stationed advanced cardiac life support (ACLS) providers.

As per protocol, if arrest is detected, resuscitation will begin immediately by the local care providers and continued as per basic life support guidelines till the code blue team arrives to the particular unit and takes charge of the resuscitation services as per AHA guidelines 2020.

Statement of the Problem

"A study to assess the effectiveness of structured teaching programme on knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students at a selected nursing college, Bhavnagar."

Objectives

- To assess the level of knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students at a selected nursing college, Bhavnagar.
- To evaluate the effectiveness of structured teaching programme on knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students at a selected nursing college, Bhavnagar.
- To find the association between knowledge and practice regarding role of code blue nurses during cardiac emergency and the selected socio demographic variables among nursing students.

Hypothesis

H_1: There is a statistically significant association between the level of knowledge and practice regarding role of code blue nurses during cardiac emergency and the selected socio-demographic variables

Operational Definition

Assess

It refers to identification of the level of knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students.

Effectiveness

In this study, effectiveness refers to the ability of structured teaching programme to enhance the knowledge and practice regarding role of code blue nurses during cardiac emergency.

Structured teaching programme

In this study, it refers to provision of education or information with the help of structured teaching programme about knowledge and practice regarding role of code blue nurses during cardiac emergency.

Knowledge

It refers to responses of nursing students to self-administered questionnaire about the role of code blue nurses during cardiac emergency.

Practice

It refers to performance role of code blue nurses during cardiac emergency.

Role of code blue nurses

It is an emergency protocol in a hospital or institution in which a patient is in cardiopulmonary arrest, requiring

a team of providers to rush to the specific location and begin immediate resuscitative efforts.

Cardiac emergency

It is a life-threatening disorder that must be recognized immediately to avoid delay in treatment and to minimize morbidity and mortality.

Assumption

- ✓ The nursing students of selected nursing school will gain knowledge and practice regarding role of code blue nurses.
- ✓ The result of the study would help to enhance the knowledge and practice of role of code blue nurses during cardiac emergency

Delimitation

The study was limited to

- ✓ II year, B. SC + N students at a selected nursing college, Bhavnagar
- ✓ Sample size was limited to 40 students
- ✓ Study period was 4 - 5 weeks.

Projected outcome

The study will help to identify the level of knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students of a selected nursing college, Bhavnagar.

Review of Literature

"Books are companions' teacher, magicians, and bankers of the treasures of the mind. Books are humanity in print." -Barbara W Tuchman

This chapter explains in detail about the review of literature and conceptual framework used for the study. A literature review is a body of text that aims to review the critical points of current knowledge including substantive findings as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources, and as such do not report any new or original experimental work. Also, a literature review can be interpreted as a review of an abstract accomplishment.

Review of literature in the study is organized under the following headings:

Review of literature related to knowledge of code blue nurses during cardiac emergency

Lina Munawaroh, Wisnu Barlianto, Setyoadi *et al.,* (2020) conducted a study to determine the knowledge related to code blue nurses at RUSD bangil pasuruan. It was a quantitative study using observation analytic design conducted through a cross sectional study approach using probability sampling with a sample of 101 respondents. Bivariate analysis was used and the study concluded that there was a significant and positive relationship between nurses' knowledge and code blue activation decision making in RSUD bangil posuraan. Nurses had good knowledge and decision on the activation of code blue. However, there were several sub-components in decision making that were still considered to be lacking or low ($p<0.05$).

Manasu Mitra, Dipak Sinha, Nupur Biswas, Maitrage Busu, *et al.,* (2020) conducted a study to evaluate the knowledge related to code blue among nurses at a multispecialty teaching hospital in Bihar. It was a cross sectional retrospective study conducted in a multispecialty teaching hospital in Bihar during the period from April 2018 to March 2019. Purposive sampling was adopted and descriptive and inferential statistics were used and the study concluded that the difference was statistically significant (p value-0.000). This outcome however got reversed at discharge. The survival rate at discharge was more in females ($p<0.01$).

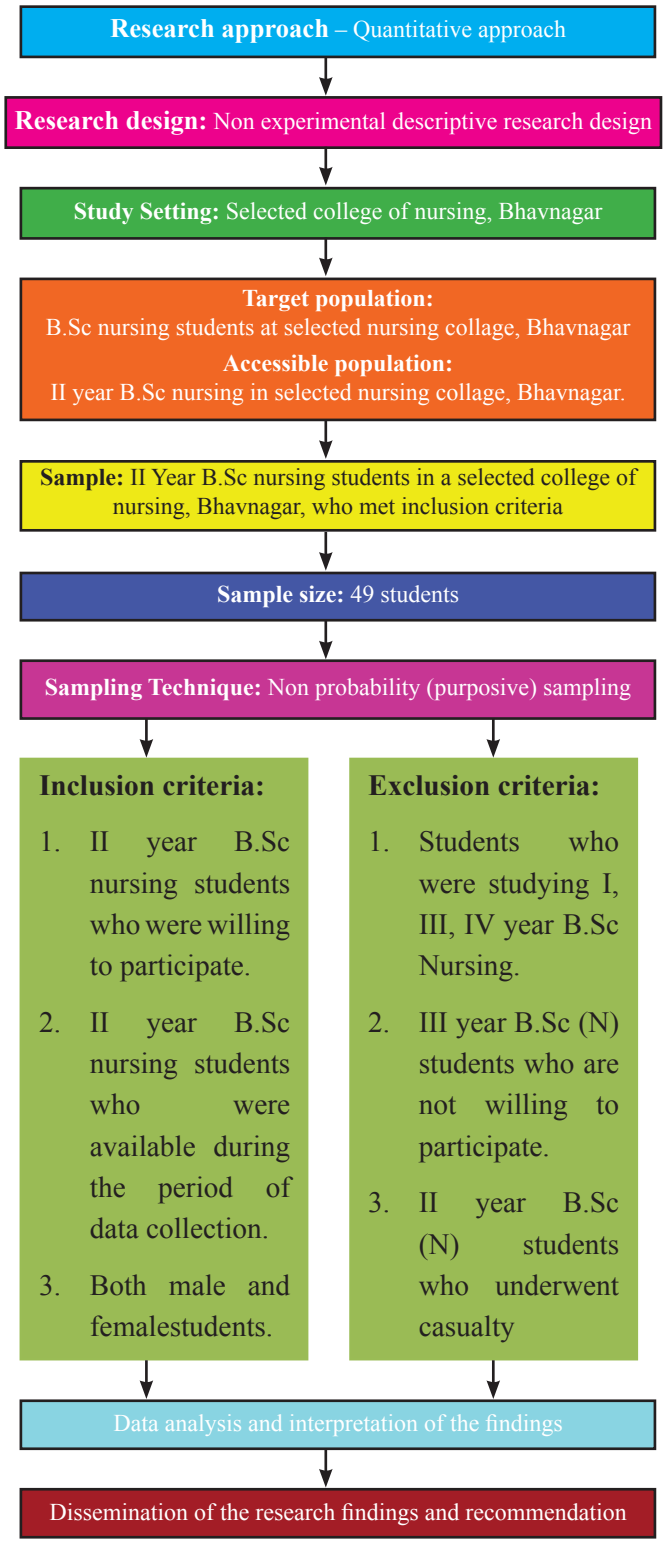
Review of literature related to practice of code blue Nurses during cardiac emergency

John Bosco Tamu Munezero, Catherine Atuhaire, Samuel Nambile Chamber *et al.,* (2020) conducted a study on practices related to code blue nurses at Mbarara regional referral hospital. Prospective pre/post intervention design was adopted with consecutive sampling technique including 436 samples. The study concluded that percentage change in respondents knowledge and skills ranged from 16.8% to 137.2% with a mean of 59.9% for knowledge and from 19.18% to 2115.6% with a mean of 159.8% for the skills assessment. There was a statically significant improvement in the CPR knowledge ($p<0.001$) and CPR skills ($p=0.02$).

Audrey L Blewer, Jiaqi Li, Benjamin S Abella *et al.,* (2016) conducted a study on practice related to code blue nurses with mixed research method, consecutive sampling technique from 02/2012 to 11/2014 including 260 hospital personnel (167 nurses and 93 students). The study concluded that among those who enrolled at least one subject, nurses enrolled a mean of 0.51 (95% CI 0.42, 0.59) subjects monthly, while students enrolled 1.63 (95%CI: 1.37, 1.90) per month ($p<0.01$). Of 198 surveyed hospital personnel (127 nurses, 71 students),

168/198 (85%) felt confident conducting enrolment. The variable cost per enrollee recruited was $25.38 per subject for nurses and $23.30 per subject for students.

Materials and Method



Description of Research Tool

Development of Tool for Data Collection

The following tools were included in this study. According to the objectives of the study, the tool was comprised of two sections.

Section -I: Demographic data

Socio-demographic data included demographic variables such as age, gender, education, religion, socio economic status, place of domicile and type of family.

Section- II: Structured questionnaire

Consisted of 15 multiple choice questions regarding role of code blue nurses during cardiac emergency.

Scoring Procedure

Section-I: There was no score allotted for socio demographic variables.

Section-II: Knowledge & practice questionnaire- 15 items. One mark was awarded for correct answer and zero mark for wrong answer for all the items. Thus, a total of 15 marks were allotted under knowledge and practice. To interpret the level of knowledge & practice, the scores were distributed as follows (Table 1).

Table 1: Scores to interpret the level of knowledge

Knowledge	Marks	Percentage
Inadequate	<_ 7.5	<50%
Moderate	7.5-11.25	51-75%
Adequate	>_ 11.25	>75%

Reliability of the Tool

The reliability of an instrument is the degree of consistency with which it measures the attribute and supposed to be measuring over a period of time.

Validity of the Tool

The tool used in this study was structured. It was validated by nursing experts in the field of nursing research. The experts were requested to check the relevance, sequence and adequacy of the items in structured questionnaire technique.

Procedure for Data Collection

The data was collected within the prescribed time period. The objective of the study was explained to II year B.Sc. nursing students before starting the data collection.

Plan for Data Analysis

The data analysis involved the translation of information collected during the course of research project into an interpretable and managerial form. It involved the use of statistical procedure to give an organization and meaning to the data. To compare the data, a master sheet was prepared by the investigator. Descriptive and inferential statistics were used for data analysis.

Descriptive statistics

Frequency and percentage distribution was used to analyze the socio demographic variables of II year B.Sc nursing students in a selected college, Bhavnagar.

Frequency and percentage distribution was used to assess the knowledge on transfusion reaction among II year, B.Sc. nursing students in a selected college, Bhavnagar.

Inferential statistics

Chi-square test was used to determine the association between the knowledge and practice of role of code blue nurses during cardiac emergency among selected nursing students and their socio demographic variables.

Protection of Human Rights

The investigator obtained approval from the Principal of selected college of Nursing, Bhavnagar and II year B.Sc., Nursing coordinator of the selected college of Nursing, Bhavnagar to conduct the study. Each individual was informed about the purpose of the study and confidentiality was promised and ensured. Verbal and written informed consent was obtained from all the study subjects and data collected was kept confidential. The subjects were informed that they can withdraw from the study without any penalty. Confidentiality and anonymity was maintained throughout the study.

Analysis and Interpretation of Data

Analysis and interpretation of the samples according to knowledge and practice regarding role of code blue nurses during cardiac emergency

Table 2: Frequency and percentage distribution of students according to knowledge regarding the role of code blue nurses during cardiac emergency (n= 49)

Sr. no	Knowledge scores		Pre-test Scores		Post-test Scores	
	Level of knowledge	Scores	Frequency (f)	(%)	Frequency (f)	(%)
1.	Poor	0-5	1	2.04%	1	2.04%
2.	Average	5-10	10	20.40%	4	8.16%
3.	Good	10-15	38	77.55%	44	89.79%

Table 2 shows the frequency and percentage wise distribution of students according to knowledge and practices of code blue nurses during cardiac emergency. The pretest score shows that majority 77.55% (38) students had good knowledge with score ranging from 10-15, 20.40% had average knowledge score (10) and 2.04% had poor knowledge (1).

In post-test, majority of the subjects 89.79% (44) had good knowledge score, 8.16% (4) of subjects had average knowledge, 2.04% (1) subjects had poor knowledge score.

The below diagram (Figure 1) shows that in pretest, one student had poor knowledge with score 0-5, majority 77.55% (38) of students showed good knowledge score (10-15) and 20.40% (10) showed average knowledge score (5-10). In the post-test, majority of the students 89.79% (44) had good knowledge score and 8.16% (04) had average knowledge, 2.04% (1) students had poor knowledge score.

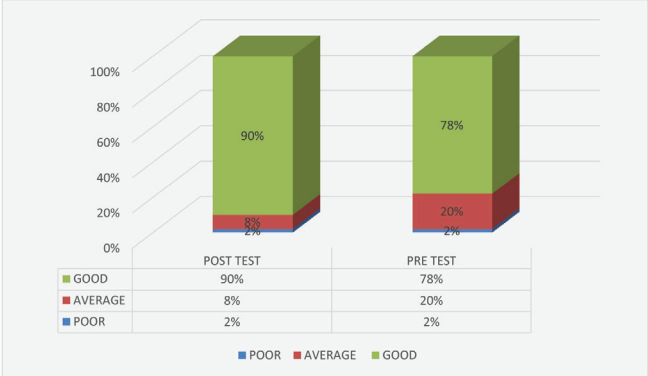


Figure 1: Graph showing percentage distribution of pretest and posttest knowledge and practice scores of nursing students regarding role of code blue nurses during cardiac emergency

Analysis of data to determine the effectiveness of structured teaching programme on knowledge and practice scores of the study subjects

Table 3: Pretest and post-test mean scores and standard deviation

Test	Mean	SD
Pre-test	11.47	2.35
Post-test	11.96	1.92

Figure 2: Pretest and post-test mean scores and standard deviation

The study sample included 10 males and 39 females. In the sample, each subject answered 15 questions. Their pretest and post-test correct answers were recorded and mean and standard deviation of test scores were obtained as below.

Table 4: Analysis of data of pre-test and post-test knowledge scores of subjects using "Z" test **(n=49)**

Knowledge score	Mean	Mean difference	SD	SE	'Z' test calculated
Pre-test	11.47	23.43	2.35	10.04	- 41.91
Post-test	11.96		1.92		

The mean pretest knowledge score was 11.47 and the mean post-test score was 11.97. The difference between these means was found to be statistically significant ["Z" value (-41.91) for 0.05 level significance]. Therefore, it can be established that the structured teaching programme related to role of code blue nurses during cardiac emergency was effective.

Discussion

The finding of the study has been discussed regarding the objective and hypothesis. The pre-test knowledge scores regarding role of code blue nurse during cardiac emergency showed that nursing students have less information which indicates the need for impairing the necessary education and information.

Majority of nursing students (91.83%, 45 students) belonged to age group of 19 to 20 years, followed by 2 students in age group of 18 to 19 years, 4.082 students (>20 years) and 17 to 18 year (0%). On comparing the genders, majority of the students 79.59% were females. Regarding religion, 47 students belonged to Hinduism (95.91%), 1 student belonged to Christianity (2.04%), 1 student was a Muslim (2.04%).%). Regarding socio-economic status, one student belonged to lower socio-economic status (2.04%), 48 students were from middle socio-economic status (97.95%), with none of the students belonging to high socio-economic status (0%). As per type of family, 32 (65.30%) students belonged to nuclear families, 17 (34.69%) students belonged to joint families.

On assessment of pre-test knowledge scores, 1 student exhibited poor knowledge with score of 0-5, while majority 77.55% (38) of the students showed good knowledge with score 10-15 and 20.40% (10) showed average knowledge with score 5-10. The post-test results showed 89.79% (44) students with good knowledge scores, 8.16% (04) with average knowledge and 2.04% (1) students with poor knowledge scores indicating that structured teaching programme was effective.

The knowledge score of subjects showed a marked increase in post-test, which indicates that the structured teaching programme was effective in increasing knowledge and practice scores regarding role of code blue nurses during cardiac emergency among nursing students at a selected nursing college.

Conclusion

The various findings of the study showed that the knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing students at a selected nursing college improved with structured teaching programme.

Implication

An active search for role of code blue nurses during cardiac emergency and its impact on quality of life among nursing students studying in nursing college, it is the knowledge and right of individual 49 attend a positive state of knowledge and practice regarding role of code blue nurses during cardiac emergency among nursing student at selected nursing college.

Nursing Practice

The major issue about there has been growing concern throughout the nursing student. Primary knowledge of the role of code blue nurses during cardiac emergency and maintain the health nurse working in various setting like hospital, community centers, schools, college, multi specialist hospitals etc. should make the use of opportunity for providing to correct information regarding role of code blue nurses during cardiac emergency its impact on quality of life. The nurses working in the hospital and college, both in-patient and

out-patient services play an important role in educating patient and nursing students about its management, preventive, measures their carry out education both on one to one basic and its group in various setting. The nurse can teach the person to recognized role of code blue nurses during cardiac emergency to be aware of health emergency. Posters and charts can be displayed in hospitals and nursing colleges.

Nursing Education

Now a day, much important is given to awareness and promotion of health rather than curative aspect, nursing education is developing reality in India in nurse from our country and can be found all the world providing education curriculum must include imparting knowledge about use of various teaching and principles of effective structured teaching programmed.

The nursing teacher can use the result of research study as an informative illustration for the students. Nursing a should helped in including values and sense of responsibility in the Fourth-Year B.Sc. Nursing student about role of code blue nurses during cardiac emergency and its impact on quality of life among nursing student and patient.

Nursing Administration

This will enable the nurse in updating their knowledge and education programmed in special effect of health role of code blue nurse during cardiac emergency. nursing personal should be motivated to devote their time for development for education material such as posture, chart and model on effect of health in role of code blue nurses in cardiac emergency the findings of the study is used basis of in services education programmed for nursing students to make them aware for role of code blue nurse during cardiac emergency.

Nursing Research

Nursing research is an essential aspect of nursing as it upright the professional and develops new nursing norms, and a body of knowledge has been added to the nursing literature. Very few nursing students has been done on similar basis of the research design finding and the tool can be used as for further research.

Through the nursing research in medical surgical nursing regarding role of code blue nurses during cardiac emergency among nursing student.

There is need for extensive and intensive nursing research in this area so that strategies for the education people on the regarding role of code blue nurses during cardiac emergency among nursing student.

Recommendation

There is a need for more education on effect of role of code blue nurse among nursing student to increase the level of knowledge, to have a positive and proper knowledge. Behavior change modification should be aware about knowledge and practice regarding role of code blue nurse during cardiac emergency.

Through the respondent have lack of knowledge need more education on effect of role of code blue nurse during cardiac emergency.

The guidelines need to be reviewed regularly and updated to address the upcoming issue regarding role of code blue nurse during cardiac emergency.

Conflict of interest

None

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