Original Research Article

A Pre-Experimental Study to Assess the Effectiveness of STP on Knowledge Regarding Cardiopulmonary Resuscitation among B.Sc. Nursing Students

Prateeksha Gurung[1], Salakha Mishra[1], Kavita Chandrakar[2]

[1]College of Nursing Sciences, Dayananda Sagar University, Shavige Malleshwara Hills, Kumaraswamy layout, Bangalore, Karnataka
[2]Assistant Professor, College of Nursing Sciences, Dayananda Sagar University, Shavige Malleshwara Hills, Kumaraswamy layout, Bangalore, Karnataka, India

Corresponding Author: Kavita Chandrakar

ABSTRACT

Cardiopulmonary Resuscitation is an emergency procedure used to treat victims of cardiac and respiratory arrest. It is done with great urgency to avoid the brain damage or death results from 4-6 min without oxygen. Basic life support is that particular phase of emergency cardiac care that externally supports the circulation and ventilation of the victim of cardiac arrest or respiratory arrest through Cardiopulmonary Resuscitation. One of the key factors that student nurses develop during their graduation training is to be prepared for emergency life saving measures like CPR anytime, anywhere. The investigator found it is desirable to assess the knowledge of Cardiopulmonary Resuscitation among the degree students by conducting a pre-experimental study among 30 B.Sc. Nursing student nurses at Dayananada Sagar College of Nursing Sciences, Bangalore. The researcher had adopted a Pre-Experimental one group Pre-test - Post-test design to conduct the study. The objectives of the study were to assess the level of knowledge regarding Cardiopulmonary Resuscitation among B.Sc. Nursing students and to find out the effectiveness of STP on Cardiopulmonary Resuscitation. In view of the nature of the problem, the tool prepared consisted of demographic variables & self-structured knowledge questionnaire regarding Cardiopulmonary Resuscitation. Random sampling was used to select 30 student nurses & the data was collected & analyzed by using descriptive & inferential statistics. The present study showed that the level of knowledge of student nurses revealed that 73.33% of students had inadequate knowledge, 26.66% had moderate knowledge in the pre-test whereas after administration of STP, 43.33% had inadequate knowledge,40% had moderate knowledge and 16.67% had adequate knowledge in the post-test . The calculated paired 't' value was 5.7 which comprises a significant at the level of $p < 0.05$. Hence, there was a statistically significant difference between pre-test and post-test level of knowledge regarding Cardiopulmonary Resuscitation among the students at the level of $p<0.05$.

*Keywords***:** STP, Structured Teaching Programme, CPR, Cardiopulmonary Resuscitation, effectiveness

INTRODUCTION

Health is defined as a state of complete physical, mental and social-being and not merely an absence of disease or infirmity.[1] The heart is the center of cardiovascular system and it is vitally responsible for just about everything that gives body life ranging from the transportation of oxygen to the success of the immune system. According to World Health Organization (WHO), cardiovascular diseases (CVD) are the number one cause of death globally: more people die annually from CVDs than from any other cause.[2] Cardiopulmonary Resuscitation is an

emergency procedure used to treat victims of cardiac and respiratory arrest. It is done with great urgency to avoid the brain damage or death results from 4-6 min without oxygen.[3]Cardiopulmonary Resuscitation involves chest compressions at least 5 cm deep and at a rate of at least 100 per min in an effort to create artificial circulation by manually pumping blood through the heart. In addition, the rescuer may provide breaths by either exhaling into the subject's mouth or utilizing a device that pushes air into the subject's lung. This process of externally providing ventilation is termed artificial respiration. Current recommendation place emphasis on high-quality chest compressions over artificial respiration; a simplified Cardiopulmonary Resuscitation method involving chest compressions only is recommended for untrained rescuers.[4]Being at the heart of the health care delivery is an enormous challenge for nurses, but it is also a golden opportunity to save the life of the patient. A high level of knowledge and skill of CPR is expected of all nurses to save the life of the victims who had cardiac arrest.[5] According to the article in "Nursing Times", the physicians, dentists, nurses and health care professionals should be adequately and regularly trained in CPR. Hospital resuscitation is an important life saving measure and warrants appropriate attention, training co-ordination and equipments.[6]The American Heart Association estimated that in the world among the overall population the incidence of death due to Cardiac arrest varies between 0.2 to 0.4 percent per year.[7]The student nurses play integral role in learning, mastering and inculcating the most pragmatic clinical skill of CPR. In the light of above, the investigator found it is desirable to assess the knowledge and technique of Cardiopulmonary Resuscitation among the degree students and also to update the knowledge. Educating the students and creating awareness in helping them to learn more about Cardiopulmonary Resuscitation and it

help to prevent death occurring due to cardiac arrest.

MATERIALS AND METHODS

Design and setting: In a view of the nature of the study, *evaluatory approach* was considered as an appropriate one for the present study. The research design used for study was *Pre-Experimental one group Pre-test - Post-test design.* The study was conducted in Dayananada Sagar College of Nursing Sciences, Bangalore**.**

Sample and sampling techniques: A total of 30 study subjects were selected as sample using a random sampling technique.

Data collection & Procedure: Tool for data collection for the study compromises of two sections:

Section-A: It consists of socio-demographic variables which includes age, gender, religion, education of father, education of mother, residence, type of family, occupation of father, occupation of mother, family monthly income& previous knowledge of students.

Section-B: This section consists of items regarding Knowledge Questionnaire knowledge regarding Cardiopulmonary Resuscitation, which consisted of 25 mcq items. Each carries 1 mark for correct answer & 0 for wrong answer.

A formal permission was obtained from Principal of Dayananda Sagar college of Nursing to conduct the study. Written informed consent from subjects to participate in the study was obtained followed by collection of pre-test data by providing the tools. After that Structured Teaching Programme to the subjects on Cardiopulmonary Resuscitation was implemented on the same day. After one week, post-test data was taken. The data collection was done within a given period of 2 weeks.

Data analysis: Data was analyzed by using descriptive and inferential statistics. The master data sheet was prepared to compute the data. Frequency and percentage distribution were used to depict socio-demographic variables. The data was

presented in the form of tables and diagrams. Frequency, percentage were used to depict the knowledge pre-test & post-test scores. t-test was used to analyze the effectiveness of STP & level of significance was set at a level of 0.05 to interpret the hypotheses and findings. The knowledge index was categorized as inadequate <50%, 51-75% as moderately adequate and more than 75% as adequate level of knowledge.

Ethical consideration: For the present study the investigator, took into considerations the following ethical issues: The research problem and objectives were approved by the research committee. Due permission from authorities was sought and obtained. Informed consent from participants was taken. Anonymity of the participants was assured & freedom to withdraw from the study at any time was provided.

RESULTS
SECTION: A- Distribution of study subjects according to socio-demographic variables using frequency and percentage.

TABLE - 1: SOCIO-DEMOGRAPHIC PROFILE OF SUBJECTS N=30

S.No.	DEMOGRAPHIC VARIABLES		FREQUENCY	PERCENTAGE
	Age	18 years	12	40
		19 years	13	43.33
		20 years	3	10
		21 years	2	6.67
	Gender	Male	8	26.67
		Female	22	73.33
	Religion	Hindu	20	66.67
		Muslim	5	16.67
		Christians	4	13.33
		Others	1	3.33
	Father's Educational Status	No Formal Education	2	6.67
		Primary	1	3.33
		Secondary	6	20
		PUC	4	13.33
		Graduate	12	40
		Post-Graduate	5	16.67
	Mother's Educational Status	No Formal Education	4	13.33
		Primary	1	3.33
		Secondary	5	16.67
		PUC	9	30
		Graduate	7	23.33
		Post-Graduate	4	13.33
	Area Of Residence	Urban	22	73.33
		Rural	8	26.67
	Type of Family	Joint	10	33.33
		Nuclear	20	66.67
	Father's Occupational Status	Government	11	36.67
		Private	9	30
		Business Or Self Employed	5	16.67
		Others	9	30
	Mother's Occupational Status	Government	3	10
		Private	2	6.67
		Business Or Self Employed	1	3.33
		Homemaker	22	73.33
		Others	2	6.67
	Monthly Income of Family	<Rs.50,000/-	16	53.33
		Rs.50,001-Rs.60,000	6	20
		Rs.60,001-Rs.70,000/-/-	3	10
		Rs.70,001-Rs.80,001/-	3	10
		>Rs. 80,001/-	2	6.67
	Previous Knowledge of CPR	Yes	12	40
		No	18	60

SECTION-B:

TABLE 2:- Comparison of distribution of students according to their Pre-test and Post-test knowledge score regarding CPR. N=30

S.No.	Knowledge regarding CPR	Pre-test		Post-test	
		Frequency	Percentage	Frequency	Percentage
	Inadequate	22	73.33	13	43.33
	Moderately Adequate	8	26.67	12	40
	Adequate	0	0	5	16.66

Evaluation of effectiveness of Structured Teaching Programme on knowledge regarding CPR

TABLE 3:-Mean, S.D and Mean score % of pre-test and post-test knowledge score among the students.   N=30

Knowledge regarding CPR	Max score	Mean	SD	Mean Score %
Pre-test	25	9.9	3.3	39.6
Post-test	25	13.76	6.36	55.08

TABLE 4:-Outcome of paired t-test analysis for pre and post-test knowledge regarding CPR. N=30

Knowledge regarding CPR	Max. score	Mean difference	Mean difference %	df	t-value	P-value
	25	4.06	15.48	29	5.7	$p<0.05$

DISCUSSION

Heart disease is the world's largest killer, claiming 17.5 million lives every year. About every 29 seconds, an Indian dies of heart problem. As many as 20,000 new heart patients develop every day in India, six crore Indians suffer from heart disease and 30 percent more are at high risk. By 2020, India will have the largest coronary heart disease (CAD) burden in the world and will account for one third of all deaths; many of them will be young. The risk of sudden cardiac death from coronary artery disease in adults is estimated to be 1 per 1,000 adults 35 years of age and older per year.[8]

The study findings of demographic data revealed that, with respective to the age, majority of the students, 43.33% belongs to age 19 years,40% belongs to 18 years, 10% belongs to 20 years and others belong to 21 years of age. Most of the subjects 66.67% belong to Hindu religion. About 73.33% of the subjects reside in the urban area and rest in the rural. The most of the subject's father 40% were graduate and mother 30% had completed their PUC. Most of the subject's father 36.67% was government employee. Majority of the subjects mothers 73.33% were homemaker. Majority of the subjects' 53.33% family income was about <Rs.50, 000. Only 40% of the subjects' have previous knowledge on Cardio Pulmonary Resuscitation.

The study findings revealed that (22) 73.33% of students had inadequate knowledge, (8) 26.66% had moderate knowledge in the pre-test whereas (13) 43.33% had inadequate knowledge, (12) 40% had moderate knowledge and (5) 16.67% had adequate knowledge in the post test. Also, the comparison of overall mean, SD and mean percentage of pre-test and post-test knowledge scores shows that over all pre-test mean score was 9.9 which is 39.6% whereas in post-test the mean score was 13.76 which is 55.08% revealing the difference of 15.48% shows the effectiveness of Structured Teaching Programme. The calculated paired 't' value was 5.7 which was significant at the level of p-value < 0.05.The findings were supported by aquasi-experimental study "to evaluate the effectiveness of planned teaching programme on knowledge and practice regarding cardio pulmonary resuscitation among student in Mangalore" was conducted by Anil Kumar Parashar in 2010. The result of the study was that the mean post-test practice score (69.50%) was found to be significantly higher than the mean pre-test practice score (18.11%). (t cal value=30.929, The study showed that majority (35, 87.5%) of the students had inadequate knowledge and 40 (100%) had poor practice. PTP facilitated them to update their knowledge and practice related to BLS.[9] Hence the STP was an effective

teaching strategy to improve the knowledge of sample on CPR.

IMPLICATIONS:
NURSING SERVICE:

- Contents of the Structured Teaching Programme will help the nursing professional working in hospital and community for reinforcing their knowledge and skills on Cardiopulmonary Resuscitation.
- The findings will help the nursing personnel to assess the emergency situations which require Cardiopulmonary Resuscitation and to act appropriately to save the life of the people.
- The study findings will help the nursing personnel to understand about the necessity of providing in- service education programme.
- As a service provider nurses play a vital role in creating awareness about the importance of Cardiopulmonary Resuscitation among B.Sc. Nursing students.

NURSING EDUCATION:

Education is a key component in improving the knowledge of an individual. The right method of education with an opportunity to practice and apply what has been taught is essential.

"Quality care through excellence in advance nursing education" is just appropriate to meet the increasing demand of good quality of nursing.

Education is an integral part of the governance agenda, which includes education, clinical audit, clinical effectiveness, risk management, research and development and openness. The nursing education programme providing effective and efficient nursing care for patients.

- This study has provided the importance of improving the knowledge of nursing regarding formulation of Structured Teaching Programme.
- The findings will help the nursing students to understand about the need to be equipped with adequate knowledge of CPR and skills for performing it.

- The finding will help the nursing faculty to give more importance for planning and organizing the Structured Teaching Programme to improve the knowledge of clinical practicing skills of the students.

NURSING ADMINISTRATION:

Continuing education is a life-long process, it enable the learner to keep a abreast of changes and development in his her field of specialty. Nursing administrators are the key to plan, organize and conduct in service education programme to nursing personnel. The findings of this study also emphasizes on the need to educate the nursing personnel regarding cardio pulmonary resuscitation.

Nurse as an administrator has a crucial role in planning th polices of imparting health information to the patients. Nursing administration must see that a separate budget should be allocated for in-service education in the nursing department. Optimizing the knowledge and skills on CPR among nurses will develop their professional status, their dignity and will save the lives of people. Nursing world is always changing and challenging.

Nursing administrator may use the continuing education findings to improve the quality of patient care. It high lights the need for nurse administrators to use performance appraisal, nursing audit, develop protocol or guidelines of proper CPR technique and provide evidence on the practice of nurses. Administration can also take initiatives in imparting health information regarding basic life support through different teaching methods. Individual and group teaching can be arranged for people in the hospitals, schools, colleges and other community settings.

CONCLUSION

The finding of the study concluded that the structured teaching programme on knowledge regarding cardiopulmonary resuscitation among B.Sc. Nursing students' first year students was effective.

RECOMMENDATIONS

1. A similar study may be done using a large sample, thereby findings can be generalized.
2. A similar study can be conducted in other aspects of health settings & area.
3. A study can be conducted to find out the attitudes& skills of students regarding Cardiopulmonary Resuscitation.
4. Educational programme regarding Cardiopulmonary Resuscitation can be conducted by the community health sector.
5. A similar study can be done in different settings and in different population.

REFERENCES

1. https://daily bitsof.com/courses/flourish/posts/the-definition-of-health-according-to-who
2. Anil Kumar, "Effectiveness of planned teaching programme on knowledge and practice of Basic Life Support among students in Mangalore", The nursing Journal of India, (2010); 2: 40-41)
3. Priyanka Chaudhary. 2018. A study on Effectiveness of Structured Teaching among Nursing Students. Int. J. Curr. Microbiol. App. Sci. 7(06): 1833-1849.
4. Mr. Alwin Joy k, Mrs. Ambily A J, Ms. Asha Mathew, Rajiv Gandhi University of health sciences, 2012.
5. Jamisen "Advanced cardiopulmonary resuscitation knowledge and skills", Journal of critical care nursing 2002, Feb. 29(1):27-35.
6. Shepperd, "Nurses and cardiopulmonary resuscitation", Nursing times, 2000 Nov.11 (2:28) 36-38
7. American Heart Association "Cardio pulmonary resuscitation" The journal of emergency cardio-vascular disorders 2005 Sept. 28 (90): 160-165 and 172- 176
8. A Robert berg, chair, American heart association guidelines for cardio -pulmonary resuscitation and cardiovascular care science, 2010. Retrieved from http://circ.ahajournals.org/content.
9. Prashar Kumar Anil. Effective planned teaching programme on knowledge & practice of basic life support among students in Mangalore, the nursing journal of india,101(2) 2010, Retrieved from http://www.tnaionline.org/feb-10/10.html.

******