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THE EFFECTIVENESS OF A STRUCTURED TEACHING PROGRAMME AMONG STUDENT NURSES ON CARDIOPULMONARY RESCUSCITATION IN CHILDREN IN A SELECTED HOSPITAL

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ABSTRACT

The study was aimed at assessing the effectiveness of a structured teaching programme among nursing students regarding cardiopulmonary res n   in children.Here, a quasi experimental (one group pre test post test design) research approach was adopted. 100 samples were selected using a sample free technique.A structured questionnaire was used to collect the data. Post test was conducted one week after the teaching programme.Data analysis showed that there is a significant difference in pretest and posttest knowledge of student nurses on cardiopulmonary resuscitation in children at $p= <0.05$ level. Hence it is found that education provided to student nurses on cardiopulmonary resuscitation in children had helped them to improve their knowledge which may directly influence their future practice.

INTRODUCTION

Cardiopulmonary arrest is a situation which is considered as a vital emergency. Quick and appropriate attention by trained personnel is basic for casualities' survival. Nurses must be prepared to deal effectively with these situations. Application of resuscitation science to improve patient care and outcomes requires effective strategies for education and implementation. Systematic reviews suggest that there are significant opportunities to improve education, enhance individual and team performance, and avoid delays in implementation of guidelines into practice.

Cardiopulmonary resuscitation (CPR) coupled with the prompt delivery of advanced cardiac life support significantly improves the prognosis for infants and children suffering a cardiac or respiratory arrest outside the hospital. This reality is particularly true for infants, who are most likely to suffer a respiratory arrest that responds quickly to resuscitation. Findings from all studies to date indicate that the prompt delivery of CPR to an infant or child results in lower mortality and fewer neurological complications. Therefore, it is important that the nursing students who are posted in the pediatric critical care area should be able to perform CPR in case of an emergency [1].

Cardiopulmonary resuscitation in children occurs infrequently compared to adults who require resuscitation. However, majority of young children (40-70%) are lesser than one year of age and others (20%) are one to four years of age. Recent reviews demonstrate those children

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who suffer from cardio pulmonary arrests have poor outcome with only 5-20% sharing the hospital discharge. In contrast children who have just respiratory arrest have a much higher survival rate [2].

Need for the study:

Despite improved knowledge and technological advancement the mortality and morbidity rates among children are very high with a delayed cardio pulmonary resuscitation. As cardiopulmonary resuscitation is a life saving procedure, all nurses should be knowledgeable and skilled in doing cardiopulmonary resuscitation. Nursing students are expected to have an understanding of CPR and the ability to perform the basic skills, completing a course prior to entering the nursing program or beginning their clinical practice. Providing a good learning experience to student nurses will act as a strong base to their future clinical practice. Regular training programme and updating the knowledge and skills in cardiopulmonary resuscitation make student nurses competent and confident in performing cardiopulmonary resuscitation. At this time, there is limited research on nursing students' ability to perform CPR. Structured teaching programme will improve the knowledge of student nurses in cardiopulmonary resuscitation in children and help them to identify the role of nurse in reviving the life of children [3,4].

Objectives:

- To assess the knowledge of student nurses on cardiopulmonary resuscitation in children.
- To educate the student nurses on cardiopulmonary resuscitation in children.
- Reassess the knowledge of student nurses on cardiopulmonary resuscitation in children.

Hypothesis:

There will be a significant difference in the pretest and posttest scores of student nurses who participate in teaching programme on cardiopulmonary resuscitation in children.

MATERIALS AND METHODS

One Group Pretest –Posttest Design: One group pre test, post test design was adopted for this study. With the help of this design, the student nurses' knowledge was assessed on cardiopulmonary resuscitation in children, then teaching was given and then post assessment of knowledge is done.

Setting: The study was conducted in a selected hospital in Coimbatore,

Population and sampling: All the students, from various colleges/schools of nursing, who were posted at the time of data collection, were selected as samples. The total number of students posted in the hospital was 100. Sample free technique was used to select samples for the study.

Criteria for Sample Selection:

Inclusion Criteria: IIIrd year B.Sc. Nursing and GNM Students.
Exclusion Criteria: Students who are absent on the day of teaching.

Variables of the study:

Independent Variable: Structured teaching rendered to the student nurses on cardiopulmonary resuscitation in children.
Dependent Variable: Knowledge of student nurses on cardiopulmonary resuscitation in children [5,6].

Instrument and Tool for Data Collection:

The instrument used for the data collection was a structured questionnaire which consisted of 15 questions for assessing the knowledge of nurses on cardiopulmonary resuscitation in children.

Scoring: Each right answer was given a score of one and each wrong answer was given a score of zero. The score is interpreted as follows:

Scoring		Interpretation
>75%	-	Adequate knowledge
51-74%	-	Moderate knowledge
< 51%	-	Inadequate knowledge

DATA ANALYSIS AND INTERPRETATION

Pre assessment of Knowledge on Cardiopulmonary Resuscitation in Children:

In this section the students were given a questionnaire with 15 questions which cover the meaning, indication, initiation, assessment, procedure and advanced technology for cardiopulmonary resuscitation in children.

In the pre assessment, 91 students gave correct answer for the expansion of ABC as airway, breathing and circulation. Thirty five (35) students gave correct answer for the expansion of BCLS and only 12 students answered correctly for the expansion of PALS.

Thirteen (13) students were aware of the indication to start cardiopulmonary resuscitation in children. Regarding the position to be maintained in during cardiopulmonary resuscitation in children, 50 students answered correctly.

Two (2) students answered correctly for the question to identify the area to check pulse in an infant. Regarding the method to open the airway in a child with spinal cord injury one (1) student answered correctly as jaw thrust method.

Regarding the cardiac compression site in

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younger children, only one (1) student gave correct answer. Only two (2) students were aware of the one hand heel technique used for younger children.

Regarding the ventilation compression ratio in used in older children 15 students answered correctly. Twenty four (24) students answered correctly for the complication of chest compression.

Only two (2) students were aware of the size of ET tube used for infants and nobody (0) could give a correct answer to the formula to calculate the ET tube size.

Regarding the percentage of oxygen delivered during CPR, five (5) students gave correct answer and regarding the indication of Inj. Atropine five (5) students gave correct answer.

The total score calculation showed that majority (30) of students had a score of 2(13.33%). 25 students had a score of one (6.66%). Fifteen students had a score of three (20%) and 13 students had a score of 4 (26.66%).Seven students gave 5 (33.33%) correct answers and six students gave 6 (40%) correct answers.

The mean pre test score was 2.53.This showed that all (100%) students were having an inadequate knowledge regarding cardiopulmonary resuscitation in children.

Post assessment of Knowledge of Student nurses on Cardiopulmonary Resuscitation in Children:

In the post assessment, 98 students gave correct answer for the expansion of ABC as airway, breathing and circulation. Ninety five (95) students gave correct answer for the expansion of BCLS and 86 students answered correctly for the expansion of PALS.

Ninety three (93) students were aware of the indication to start cardiopulmonary resuscitation in children. Regarding the positioned to be maintained in during cardiopulmonary resuscitation in children, 91 students answered correctly. Sixty nine (69) students answered correctly for the question to identify the area to check pulse in an infant. Regarding the method to open the airway in a child with spinal cord injury sixty (60) students answered correctly as jaw thrust method.

Regarding the cardiac compression site in younger children, thirty (30) students gave correct answer. Sixty (60) students were aware of the one hand heel technique used for younger children.

Regarding the ventilation compression ratio in used in older children 65 students answered correctly. Seventy four (74) students answered correctly for the complication of chest compression [7-10].

Thirty (30) students were aware of the size of ET tube used for infants and fifty seven (57) could give a correct answer to the formula to calculate the ET tube size.

Regarding the percentage of oxygen delivered during CPR, seventy seven (77) students gave correct answer and regarding the indication of Inj. Atropine forty eight (48) students gave correct answer.

The total score calculation showed that 2 students answered correctly to all the questions (score 15 (100%)). Majority (22) of the students were having a score of 8 (53.33%). 17 students had a score of 9 (60%), 16 students had a score of 10 (66.66%) and 15 had a score of 11(73.33%). A score of 12 (80%) was obtained by 14 students and 7 students had a score of 13 (86.66%). Three students had a score of 14 (93.33%). A least score of 6 (40%) and 7 (46.66%) were obtained by 2 students each.

The mean post test score was 9.91.This showed that in the post assessment, majority (70%) of the students gained moderate knowledge regarding cardiopulmonary resuscitation in children. 26 students had adequate knowledge whereas 4 students had inadequate knowledge regarding cardiopulmonary resuscitation in children.

Comparison of Pre and Posttest Knowledge of Nurses on Cardiopulmonary Resuscitation in Children using Paired 't' Test Analysis:

Paired 't' test was used to assess the differences in pre and posttest knowledge scores of cardiopulmonary resuscitation in children. The calculated values of 't' (29.60) is greater than the tabulated value at $p= <0.05$ level. This shows that there is a significant difference in pretest and posttest knowledge of student nurses on cardiopulmonary resuscitation in children.

Major Findings of the Study:

• All (100%) students were having an inadequate knowledge regarding cardiopulmonary resuscitation in children in the pre test.

• After the education, 26 students gained adequate knowledge regarding cardiopulmonary resuscitation in children.

• In the post test majority (70%) of the students gained moderate knowledge regarding cardiopulmonary resuscitation in children.

• There was a significant difference between pre and post test knowledge on various aspects of CPR in children and this showed that the education was very effective [11,12].

Table 1. Pretest and Posttest Knowledge Score Interpretation

Sl.No	Knowledge Score	Pretest		Posttest	
		Frequency	Percentage	Frequency	Percentage
1	Adequate Knowledge (>75%)	0	0	26	26
2	Moderate Knowledge (51-74%)	0	0	70	70
3	Inadequate Knowledge (< 51%)	100	100	4	4

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CONCLUSION

The study was conducted to assess the effectiveness of structured teaching programme in improving the knowledge level of nursing students on cardiopulmonary resuscitation in children. The study found that their pretest knowledge was inadequate and the post test knowledge has improved drastically. Hence it is found that education provided to student nurses on cardiopulmonary resuscitation in children will help them to improve their knowledge which may directly influence their future practice. The study concludes that their knowledge needs to be updated with proper education, training and supervision.

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