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A study to assess effectiveness of structured teaching programme regarding knowledge skills about the basic life support in Pediatric emergency among B.Sc. (N) III-Year students of Govt. / Private Nursing College at Bikaner

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Abstract
Basic life support is a lifesaving procedure that is performed both inside and outside of hospital on people who are enduring cardiac arrest. There are scarce data on knowledge of B.Sc. Nursing III Year Students regarding the basic life support.
Aim of the Study: To assess the knowledge on effectiveness of structured teaching programme regarding basic life support in paediatric emergencies among B.Sc. Nursing III Year students.
Objectives: 1. To assess the existing level of knowledge of student nurses regarding Basic Life Support in Paediatric emergencies. 2. To identify the level of practice of student nurses regarding Basic Life Support in Paediatric emergencies. 3. To assess the post-test knowledge of student nurses regarding Basic Life Support in Paediatric emergencies. 4. To assess the practice of student nurses regarding Basic Life Support in Paediatric emergencies after administration of structured teaching programme. 5. To find out the association between level of knowledge of student nurses regarding Basic Life Support in Paediatric emergencies and their selected demographic variables.
Methodology: The research design used by the researcher is quasi experimental with one group pre-test post-test design. The approach used is evaluative approach with sample size of 60 B.Sc. III Year Nursing students. The sampling technique used is convenient sampling in a setting of Govt. college of Nursing and Bikaner college of Nursing. The Data collection tool used is structured questionnaire and check list.
Result: The knowledge was assessed first and was divided into categories such as poor, average and excellent Knowledge and skills. The association of level of knowledge and demographic variables was done by using $\chi2$ formula was found that some of the socio demographic variables were associated with level of knowledge. The effectiveness of structured teaching programme was determined by using the paired "T" test. Before the administration of STP and demonstration the level of knowledge and skills was less as compared to the level of knowledge and skills after the STP and demonstration.
Conclusion: It was estimated that the knowledge and skills level of B.Sc. (N) III Year Students regarding the basic life support was poor and after the administration of structured teaching programme and demonstration the level of knowledge has improved.

Keywords: BLS, STP, knowledge and, B.Sc. Nursing III Year Students

Introduction

Basic life support (BLS) entails performing cardiopulmonary resuscitation (CPR) and defibrillation using an automated external defibrillator as well as recognising the symptoms of sudden cardiac arrest, heart attack, stroke, and foreign body airway obstruction. The most frequent emergencies with serious effects are cardiac arrests and accidents, but with a few simple skills and manoeuvres, the prognosis can be improved, and prompt CPR can more than double or triple the likelihood of survival. The chances of survival are decreased because the majority of patients who encounter an out-of-hospital cardiac arrest do not obtain effective resuscitation from medical personnel within the crucial window of time, which is 3-5 minutes after onset. Within three to five minutes following collapse, the use of a defibrillator and the administration of a shock can increase survival rates by 49 to 75 percent. [1].

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Simple CPR procedures and BLS training improve the patient's chances of surviving until skilled medical assistance comes and, in most situations, are sufficient for survival on their own. The general public anticipates that all hospital medical and nursing staff will be highly competent in CPR and BLS.

Since cardiorespiratory arrest affects children less frequently than it does adults, it is crucial for healthcare professionals and the general public to regularly receive training in paediatric BLS. Although the ideal period between retraining sessions is unknown, regular top-ups, several times a year, are probably more beneficial. A unique paediatric BLS strategy is offered since healthcare personnel are required to provide more thorough treatment and have a duty to respond to paediatric emergencies [2].

Basic life support is a lifesaving procedure that is performed both inside and outside of hospital on people who are enduring cardiac arrest. There are scarce data on knowledge of B.Sc. (N) III Year Students regarding the basic life support. The aim of the study is to assess the knowledge on effectiveness of structured teaching programme regarding basic life support in paediatric emergencies among B.Sc. Nursing III Year students.

Need of the study

It is crucial that everybody who might be at the scene of a cardiac arrest, including onlookers, has knowledge of the proper resuscitation techniques and the capacity to use them. Medical students can teach CPR to others after receiving instruction, even if they have limited prior experience. Therefore, BLS education is essential for everyone working in the medical area. Since cardiorespiratory arrest affects children less frequently than it does adults, it is crucial for healthcare professionals and the general public to regularly receive training in paediatric BLS.

Basic life support (BLS) is a set of actions that, without the aid of technical adjuncts, detects a child who is experiencing cardiopulmonary arrest and starts replacing their respiratory and circulatory systems until they can receive more sophisticated care. BLS entails a series of actions that should be carried out in order: ensuring the safety of the rescuer and the child, determining whether the victim is unconscious, calling for assistance, positioning the victim, opening the airway, determining breathing, ventilating, determining signs of circulation and/or central arterial pulse, giving chest compressions, activating the emergency medical system, and determining the outcome of the resuscitation.

A descriptive study was conducted in United States to assess the effectiveness of basic life support training (basic life support) among nursing students. Students from 10 schools of nursing were randomly assigned to two types of CPR training. The result shows that the students undergone basic life support in Paediatric emergencies have high score compared with those who are not participated in the study. Students who completed the BLS program and practiced CPR were significantly more accurate in their ventilations, compressions, and single-rescuer CPR than students who are not participated in the study [3].

Aim of the study

The aim of the study is to assess the knowledge on effectiveness of structured teaching programme regarding basic life support in paediatric emergencies among B.Sc. Nursing III Year students of selected Government or Private Nursing College at Bikaner.

Material and Method

To address the research problem, an evaluative research approach was chosen, employing a one-group pre-test and post-test quasi-experimental design. The target population consisted of B.Sc. (N) III Year students in Bikaner, Rajasthan, and the accessible population included B.Sc. (N) III Year students in selected government/private nursing colleges in the same area. A sample size of 60 students meeting the inclusion criteria was selected. The researcher developed a structured questionnaire schedule with three sections: A) demographic variables, B) items related to anatomy, physiology, basic life support, and paediatric emergencies, and C) a practice checklist. The study involved administering the knowledge questionnaire as a pre-test on day 1, implementing the structured teaching program on the same day, and conducting a post-test on day 7. Reliability analysis using the Kuder-Richardson formula (KR 20) yielded a high positive correlation, indicating the tool's reliability. A pilot study was conducted at M.N. College of Nursing, Bikaner, and the main study took place at Bikaner College of Nursing and Govt. College of Nursing SPMC AGH Bikaner.

Result

Distribution of socio demographic variables of study samples shows that majority (00%)of the samples were in the age group of 17-18 years, (28.33%) have 19-20 yrs., (55.00%) have 21-22 yrs. and only (16.67%) have a 23-24 yrs. and above. Distribution of samples according to their Type of Family shows that among the 60 samples greater percentages (53.33.00 %) were belongs to nuclear family, (38.33%) were belong to joint family and (8.33%) belongs to single parents. The distribution of samples according to the socio-economic status reveals that most of the student nurses (43.33%) from more than 36000, 15(25%) from 18000-35999, 8(13.33%) were 13000-17999 and 11(18.33%) were below 12999. Among the 27(45%) student nurses have attended seminar/conference areas and 33(55%) student nurses have not attend seminar/conferences. Among the 46 (77%) student nurses were Hindu, 3(5%) were Christian, 5(8.33%) were Muslims and 6(10%) student nurses were other religion and among the father's education of student nurses 7 (11.67%) were Primary, 11(18.33%) were Middle, 14(23.33%) were High School and 28(46.67%) have gradation.
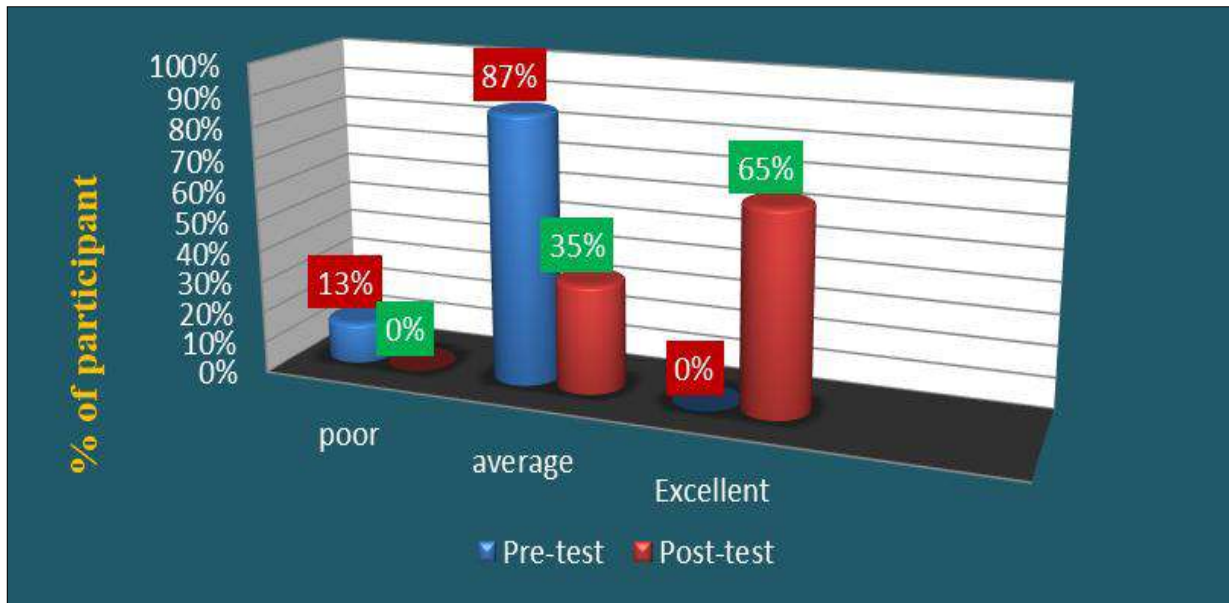
Fig 1: Column diagram showing comparison of knowledge score between pre-test and post test

Pre-interventional knowledge of student nurses regarding basic life support in paediatric emergency shows that among the 60 samples the majority in pre-test 8 (13.33%) samples had poor knowledge, 52(86.67%) samples had average knowledge and none of the samples had excellent knowledge. While analysing the area wise pre-test knowledge score, the mean percentage for meaning basic life support in paediatric emergencies was 55.28% for Anatomy and Physiology, 43.33% for basic life support, and 50% for paediatric emergencies. The study finding shows that student nurses lack knowledge regarding basic life support in paediatric emergencies among student nurse.

Post-interventional knowledge of student nurses regarding basic life support in paediatric emergency shows during the post-test 39(65%) samples had gained excellent level of knowledge, 21 (35%) samples gained average knowledge, while none had poor knowledge regarding Basic Life Support in Paediatric emergencies among student nurse. Considering the area wise post-test knowledge score, the mean percentage for meaning Basic Life Support in Paediatric emergencies was 86.67% for Anatomy and Physiology,72.08% for Basic Life Support, and 70.33% for Paediatric emergencies.
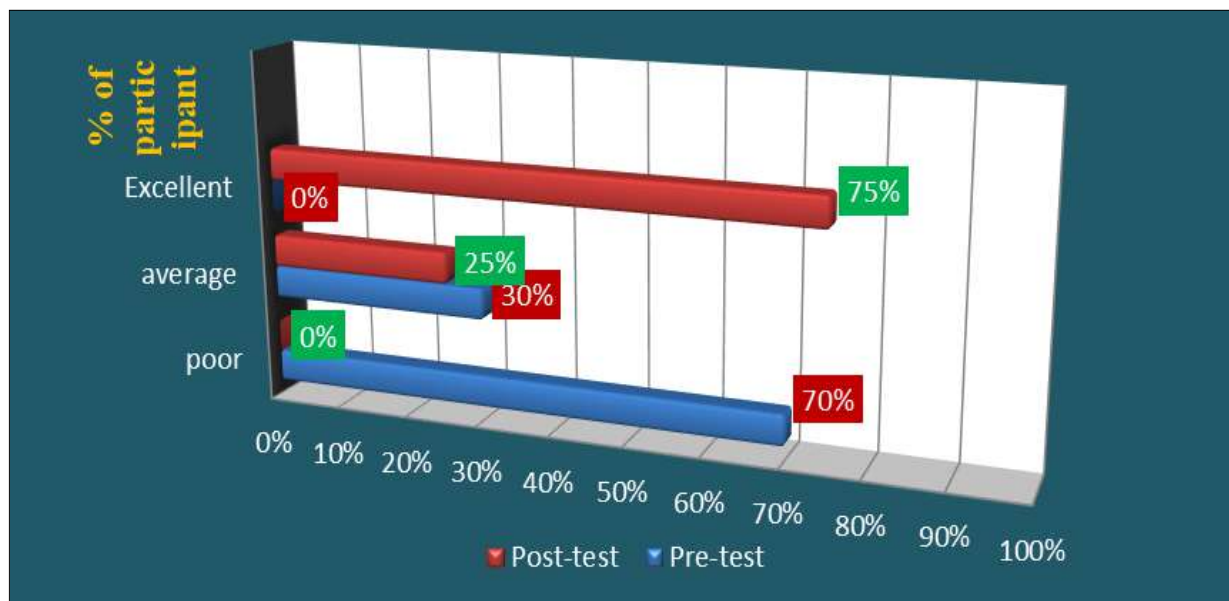

Fig 2: Column diagram showing comparison of practice score between pre-test and post test

Assessment of practice of student nurses regarding basic life support in paediatric emergency before the structured teaching program depicts that majority in pre-test 42 (70%) samples had poor practice, 18(30%) samples had average practice and none of the samples had excellent practice.
Assessment of practice of student nurses regarding basic life

support in paediatric emergency after the structured teaching program shows after the STP among the 60 samples the majority in post-test 45 (75%) samples had excellent practice, 15(25%) samples had average practice and none of the samples had poor practice.

Table 1: Area-Wise Effectiveness of knowledge by comparing the pre-test and post-test assessment score.

Area	Score	Pre-test (x)			Post-test (y)			Effectiveness (y-x)		
		Mean	SD	Mean %	Mean	SD	Mean %	Mean	SD	Mean %
Anatomy and Physiology	6	3.32	0.78	55.28	5.2	0.77	86.67	1.88	0.01	31.39
Basic Life Support	20	9.67	2.22	43.33	14.42	2.42	72.08	4.75	0.20	28.75
Paediatric Emergencies	10	5	1.28	50	7.03	1.18	70.33	2.03	-0.10	20.33
Total	36	17.99	4.28	49.95	26.65	4.37	74.03	8.66	0.09	24.08

Effectiveness of knowledge among student nurses on basic life support in paediatric emergencies knowledge By Comparing the Pre-Test and Post-Test assessment score depicts that in pre-test majority of the student nurses (13.33%) had poor level of knowledge, 86.67% of nurses had average level of knowledge and none of them had excellent level of knowledge. In post-test all student nurses had showed improvement in their knowledge, 65.00% of nurses possessed excellent level of knowledge and rest of them (35.00%) possessed average level of knowledge. This showed that the STP was effective in improving the knowledge of student nurses on basic life support in paediatric emergency.

Table 2: Significance difference between pre-test and post-test knowledge scores

S. No.	Knowledge Score	Mean	Mean Effectiveness	SD Effectiveness	"T" Value
1.	Pre test	17.99	8.66	0.09	10.96
2.	Post test	26.65			

One-tailed table 't' value at 5%: t_{59} = 2.26; * Significant; $p<0.05$

Evaluation of The effectiveness of structured teaching programme regarding basic life support in Paediatric Emergencies shows knowledge score on basic life support in paediatric emergencies before and after intervention. The overall mean score was 8.66 (SD=0.09) with the paired 'T' value of 10.96. Thus, it was revealed that the posttest mean score was significantly higher than the pretest mean score. The Table value of paired' test at 5% level of significance and 59 degrees of freedom is 2.26. Hence, the Table value was less than the calculated' value, the Investigator accepted the research hypothesis H1 i.e. there will be significant difference between the pretest and posttest assessment score on basic life support in paediatric emergencies

The calculated' value (T = 10.96, $p<0.05$) was greater than the table value at 0.05 levels. Therefore, the formulated hypothesis (H1), the mean post-test knowledge score of student nurses regarding Basic Life Support in Paediatric emergencies will be higher than the mean pre-test knowledge score at 0.05 level of significance, is accepted at 0.05 levels of significance. Hence it is concluded that the planned Structured Teaching Programme regarding Basic Life Support in Paediatric emergencies was effective in increasing the knowledge of nursing students.

Association between level of knowledge and demographic variables of student nurses findings depicts that association of age with pre-test knowledge levels at DF = 3, $\chi2$= .89 which is no significant at < 0.05 levels. Associating the type of family with the pre-test knowledge levels at DF = 2, $\chi2$ = 1.72 which is not significant at > 0.05 levels. Associating socio-economic status with the pre-test knowledge score at a DF = 3, $\chi2$ = 4.34, was no significant at > 0.05 levels. Associating seminar/conference with the pre-test knowledge levels at DF = 1, $\chi2$= .05, was no significant at > 0.05 levels. Associating religion with pre-test knowledge score with a DF = 3, $\chi2$ =3.89, was found to be no significant at < 0.05levels and Associating father's education with pre-test knowledge score with a DF =3, $\chi2$ = 2.88, was found to be no significant at < 0.05 levels. The association of pre-test knowledge score and demographic variables shows that there is no significant association between knowledge score and variables like age, type of family, socio-economic status, seminar/conference, religion and father's education. Hence for these demographic variables H1 is accepted.

Discussion

Study findings supported by a study was conducted by Patricia Kitney, et al. on Basic Life Support knowledge of undergraduate nursing students and chiropractic students. The aim of this study was to examine retention of cardiopulmonary resuscitation and basic life-support (CPR/BLS) knowledge among III Year nursing and IV Year chiropractic students. Non-experimental exploratory survey was used. The study was conducted in University Health Sciences School on 87 III Year undergraduate nursing and 43 IV Year undergraduate chiropractic students at Royal Melbourne Institute of Technology (RMIT). The level of knowledge of CPR/BLS was assessed via the number of correct responses to questions regarding CPR/BLS. A visual analogue scale was used for the students to score their self-rated perceived knowledge and skill. Most students (78%) felt they were well prepared to perform CPR/BLS, however there were deficiencies in both groups about knowledge of current guidelines. Chiropractic students were less likely to identify the correct compression rate compared to the nursing group (Spearman's rho 0.669, p-0.001) with 95% of the chiropractic students not able to identify the correct rate. Thirty four percent of the students were unable to identify the correct ventilation compression ratio with nursing students again more likely to respond correctly nursing students scored themselves highly for self-rated knowledge and ability to perform CPR [4].

Other similar study was conducted Gupta P regarding the effectiveness of planned teaching programme (PTP) on knowledge and practice of BLS among high school students in Bangalore. The research design used was quasi-experimental. The sample consisted of 40 rural high school students of Mangalore and the subjects were selected through simple random sampling technique. The study showed that majority (87.5%) of the students had inadequate knowledge and (100%) had poor practice. The planned teaching programme update their knowledge and practice on

Basic Life Support. Hence, the planned teaching programme was an effective teaching strategy to improve knowledge and practice of on BLS [5].

Conclusion

The results of the study indicated that the implementation of a structured teaching program significantly improved the knowledge and skills of the participating students. The program effectively enhanced their understanding of basic life support techniques, including cardiopulmonary resuscitation, airway management, and Pediatric-specific emergency procedures. The students exhibited increased confidence and proficiency in applying these skills during simulated scenarios. By equipping students with the necessary knowledge and skills, such programs contribute to the overall quality of healthcare delivery and improve patient outcomes. Additionally, further research and continuous evaluation of teaching methods and curricula are crucial for the ongoing improvement of nursing education in this vital area of healthcare.

Conflict of Interest
Not available

Financial Support
Not available

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