

Correlational Study between Knowledge and Practices about Pediatric Basic Life Support among Nursing Students

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ABSTRACT

Aim: The study was conducted to evaluate the effect of structured teaching program on knowledge and practice of nursing students regarding pediatric basic life support.

Background: Pediatric Basic Life Support (PBLs) training is vital for nurses, especially considering the alarming statistics of newborn mortality. It provides them with the necessary knowledge and skills to respond effectively in life threatening situations involving infants and children. Comprehensive PBLs training for future nurses ensures that they are equipped to deliver high-quality care, implementing evidence-based practices and ultimately improving outcomes for newborns and their families. Bridging the gap between theoretical knowledge and clinical skills in nursing education requires more frequent and immersive clinical practice opportunities. Continuous training and practice are essential for nurses to remain prepared and capable of delivering timely and effective interventions. The structured teaching programme is an effective method to improve nursing student's knowledge and practices related to Pediatric Basic Life Support with video and hand- on- training.

Design: This study has a non-randomized one group pre-test post-test design; quantitative research approach.

Method: The study sample size consisted of 80 nursing students of GNM 2nd year, B.Sc. Nursing 3rd year and Post Basic B.Sc. Nursing 1st year by using non-probability purposive sampling technique. The data was collected by using "Structured Knowledge Questionnaires and Observational Checklist" from nursing students.

Result: The result revealed that the mean post-test knowledge score, was 27.78 significantly higher than the mean pre-test knowledge score 19.125 as evident from "t-test" value 41.680 (P =0.00*) at 0.05 level of significance whereas the mean post-test practice score, was 19.25 significantly higher than the mean pre-test practice score 8.43 as evident from "t-test" value

109.79 (P =0.00*) at 0.05 level of significance. Positive correlation was found between knowledge and practices regarding Pediatric Basic Life Support among nursing students at 0.05 level of significance. The association of knowledge scores and practices scores with selected demographic variables regarding Pediatric Basic Life Support among nursing students was not statistically significant. This suggests that the structured teaching program effectively improved both knowledge and practices, regardless of demographic differences among nursing students.

Conclusion: The study concluded that structured teaching programme effectively enhanced knowledge and improved practice regarding Pediatric Basic Life Support. It suggests that educational training programs can effectively improve understanding and implementation of PBLs techniques. This highlights the importance of structured educational training programme could be used as an effective teaching strategy for nursing students.

Keywords: STP, Knowledge, Correlation.

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INTRODUCTION

Pediatric Basic life support is a type of institutional care provided to children who are afflicted with a life-threatening illness or accident. Pediatric Basic life support refers to providing emergency treatment to children without the use of equipment.¹ According to World Health Organization reports, Heart problems are the leading cause

of mortality worldwide, claiming the human life of nearly 23.6% million people annually.⁴ Heart illnesses, which account for 32% of all fatalities globally, are the main cause of death.

According to the American Heart Association, more than 20,000 newborns and children die of cardiac arrest in

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the United States each year. **In India**, 1000 children died outside of hospitals from Sudden Cardiac Death in **2017**, with a 1% survival rate.¹ Birth asphyxia, congenital malformation and sepsis are all cause of mortality. Every year, more than 5 million newborns die around the world, with hypoxia at birth accounting for nearly 19% of these deaths. A million infants may be saved each year if relatively simple resuscitation treatments were implemented. More than 90% of children under the age of five years die as a result of foreign-body aspiration, with babies accounting for 65% of the victims.²

According to United Medical Education BLS Algorithms and Training 2020, CPR is recommended for infants 0 to 1 years old and for children older than 1 year old, until adolescence (Circulation, Airway, Breathing, Defibrillate). To treat choking, utilize the Heimlich manoeuvre, back strikes, and chest plunges.

The nursing profession is an essential component of the healthcare system, and nurses are recognized for their competence in providing the patients quality institutional care. Nurses may be life-saving rescuer for a cardiac arrest victim. Whenever come across a victim who has suffered a cardiac arrest, must analyse the situation quickly since time is of the essence, and act quickly to resuscitate the heart and lungs.³It's crucial to emphasize the need of teach Pediatric Basic life support to undergraduate nursing students so that they will be ready to handle critical cases during their training and, subsequently, in their careers.

Hence, from the researchers own clinical experience and neonatal statistics, it was felt that more deaths, respiratory distress and decrease in survival rate of children are due to lack of utilization of facilities, knowledge and correct practices among nursing student. Sometimes babies have to lose their lives, therefore it's terribly essential for the nursing student to become skilled and perfect in practicing Pediatric Basic Life Support, so that many lives can be saved.

METHODOLOGY:

This research study adopted Quantitative pre-experimental one group pre- test post- test design in order to accomplish its objectives. Study was conducted in the selected nursing college, Shimla, Himachal Pradesh. The study was approved by institution ethical committee. Written Permission was taken from Principal of selected nursing college, Shimla, Himachal Pradesh.

The study sample's written informed permission regarding their readiness to taking part in the investigation was obtained and confidentiality was maintained. The sample size was calculated by Yamane Formula and 80 nursing students (GNM 2nd year, B.Sc. (N) 3th year and Post Basic B.Sc. (N) 1st year) were enrolled by using Non probability purposive sampling technique. The Self-Structured knowledge questionnaire and observational checklist used to gather data from the nursing students.

The questionnaire, which had three sections, dealt with

demographic profile, section second related to structured knowledge questionnaire (introduction and development of Pediatric Basic life support, Anatomy and physiology of heart, indication and contraindication, Chain of Survival, Compression, Airway, Breathing, Automated External Defibrillation and choking relief) and section third related to observation checklist (Activation of CPR, Chest compression, airway, breathing techniques and Automated External Defibrillation and choking relief) regarding Pediatric Basic life support. The knowledge questionnaire had a r value of 0.94 and the observational checklist had a r value of 0.79, so the tool was deemed reliable to continue with the study.

The data was collected from selected Nursing College, Shimla. "Structured knowledge questionnaire" and observational checklist was administered to the gather the data. The researcher assessed the pre-existing knowledge regarding Pediatric Basic life support by using Pre-test. After that Structured teaching programme was administered to study sample for 5 days with demonstration and redemonstration including introduction of Pediatric Basic life support, Chain of Survival, Chest compression, airway and breathing, health care provider Cardiac Algorithm for Single and more Rescuer, Automated External Defibrillation and choking relief. Then Post-test was conducted by the after one week of training. The collected data was then organised for analysis. Data was analyzed through both descriptive and inferential statistics.

RESULT:

Nursing students' frequency and percentage distribution by personal attributes revealed that 48 (60%) were in the age group of 20-21 years. According to academic qualification, 33 (41.25%) were from B. Sc. Nursing 3rd Year. In terms of marital status, 77 (96.25%) were unmarried. According to the father's educational status, 27 (33.75%) were in graduation. According to the mother's educational status, 23 (28.75%) were in senior secondary education. According to the type of family, 60 (75%) were residing in nuclear family. In terms of Area Residence, 38 (47.5%) lived in rural area. With regard to any knowledge regarding Pediatric Basic Life Support, 53 (66.25%) had knowledge regarding Pediatric Basic Life Support. On the basis of if yes, source of information regarding Pediatric Basic Life Support, 36 (45%) got information from Nursing Tutor. According to area of clinical posting, 80 (100%) were posting in government hospital during their training. In terms of any practical exposure regarding Pediatric Basic Life Support, 61 (76.25%) don't have any practical exposure regarding Pediatric Basic Life Support. According to area of exposure to Pediatric Basic Life Support, 61 (76.25%) had no area of exposure. According to number of Pediatric Basic Life Support observed, 57 (71.25%) have not observed Pediatric Basic Life Support. According to Duration of Clinical Posting in Pediatric Department, 56 (70%) had posting for <1 Month.

Table no. 1: Pediatric Basic Life Support knowledge scores among nursing students, including frequency and percentage distribution of pre-and post-test knowledge scores.

N = 80

S.No.	Level of Knowledge	Range of Knowledge	Pre – test Frequency (%)	Post – test Frequency (%)
1.	Inadequate Knowledge	0-12	3 (3.75%)	0 (0%)
2.	Moderately Adequate Knowledge	13-24	75 (93.75%)	10 (12.5%)
3.	Adequate Knowledge	25-36	2 (2.5%)	70 (87.5%)

Minimum Marks = 0

Maximum Marks = 36

Above table shows nursing students score, with the majority of students in pre- test 75 (93.75%) having moderately adequate knowledge of Pediatric Basic life support, and the majority of the nursing students in post-test 70(87.5%) having adequate knowledge of Pediatric Basic life support.

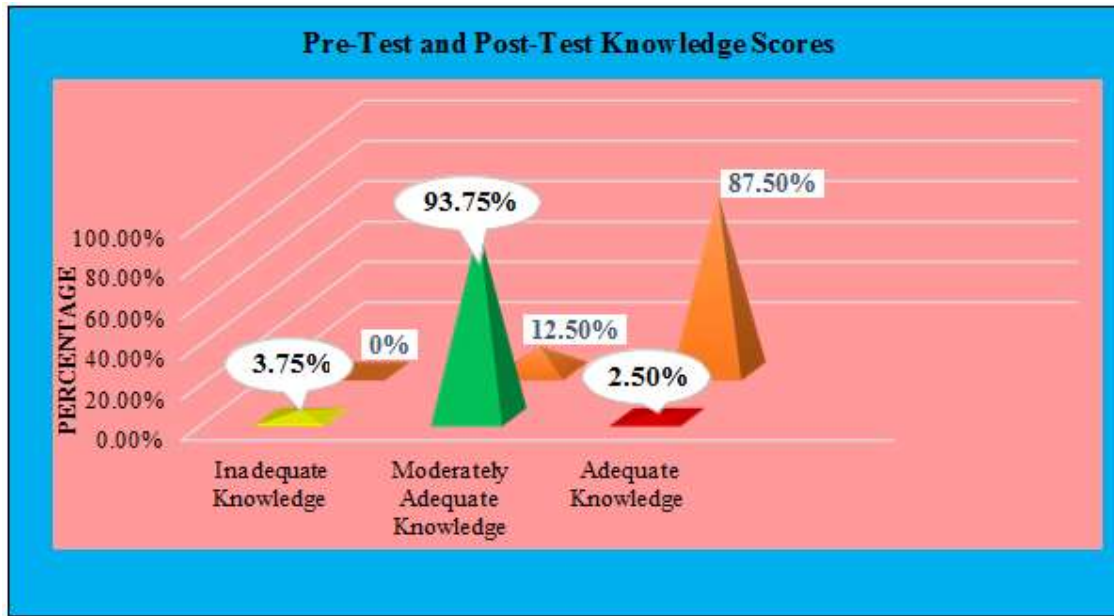


Fig. 1 Depicts Pyramid diagram regarding percentage distribution of nursing students as per Pre-Test and Post-Test Knowledge Scores.

Table no. 2: Frequency and percentage distribution of Pre - test and Post – test practices scores regarding Pediatric Basic life support.

N = 80

S.No.	Level of Practice	Range of Practice	Pre – test Frequency (%)	Post – test Frequency (%)
1.	Average Practice	0-9	77 (96.25%)	0 (0%)
2.	Good Practice	10-18	3.75 (3.75%)	23 (28.75%)
3.	Excellent Practice	19-27	0 (0%)	57 (71.25%)

Minimum Marks = 0

Maximum Marks = 27

The score for both pre-and post-tests for nursing students is shown in the table above, with pre-test representing the majority of the nursing students i.e.77 (96.25%) having average practices of Pediatric Basic life support, and the majority of nursing students in post-test 57 (71.25%) having excellent practices of Pediatric Basic life support.

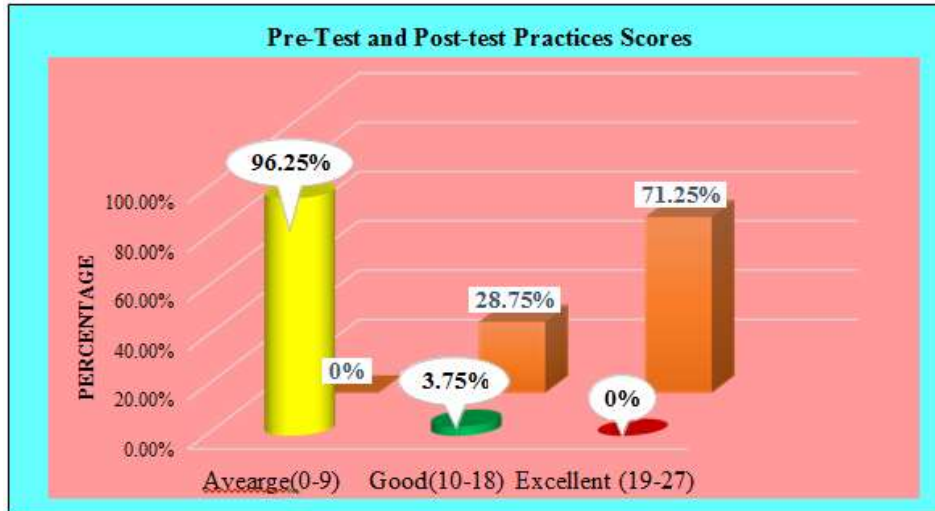


Fig. 2 Depicts Cylindrical diagram regarding distribution of nursing students as per Pre-Test and Post-Test Practices Scores.

Table no. 3: Comparison of pre- test and post- test knowledge scores among students

N = 80

Group	Knowledge Score	Mean	SD	MD	df	Paired t-test		
						t-test	T value	p - value
Research Group	Pre – Test	19.12	3.103	8.655	79	41.68	1.99	0.00**
	Post – Test	27.78	3.002					

Minimum Marks = 0

Maximum Marks = 36

**Significant, NS Non-Significant

Paired t-test results 41.68 (p=0.00**) at the 0.05 level of significance among nursing students demonstrates that the mean post-test knowledge score of 27.78. It indicated how

a structured teaching Programme was successful in enhancing the knowledge among nursing students of pediatric basic life support.

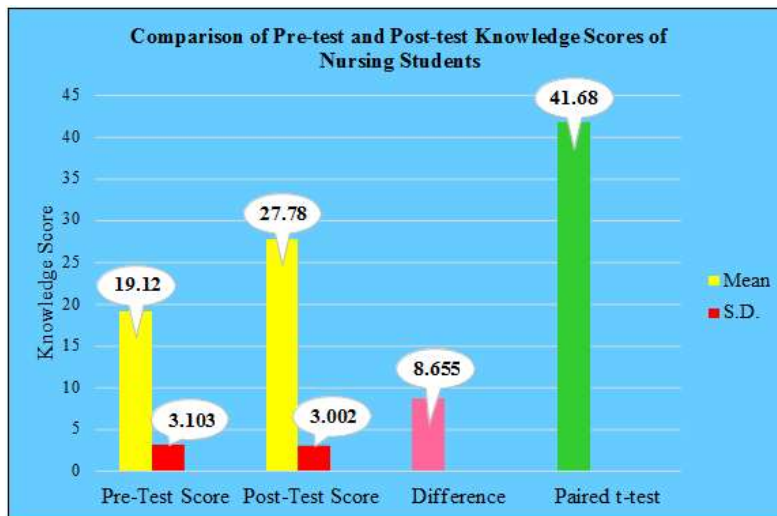


Fig. 3 Depicts Bar diagram regarding comparison of Pre-test and Post-test Knowledge scores regarding Pediatric Basic life support by using Paired t-test.

Table no. 4: Comparison of pre- test & post- test practices scores of nursing students

N = 80

Group	Practices Score	Mean	S.D.	M.D.	df	Paired t-test		
						t-test	T value	p - value
Research Group	Pre – Test	8.43	0.89	10.82	79	109.79	1.99	0.00**
	Post – Test	19.25	1.216					

Minimum Marks = 0

Maximum Marks = 27

**Significant, ^{NS} Non-Significant

According to the Paired t-test value of 109.79 (p=0.00**) at 0.05 level of significance among nursing students, the mean post-test practices score of 19.25 was considerably

greater than mean pre-test practices score of 8.43. It demonstrated how a structured teaching program was successful in enhancing the paediatric basic life support practices of nursing students.

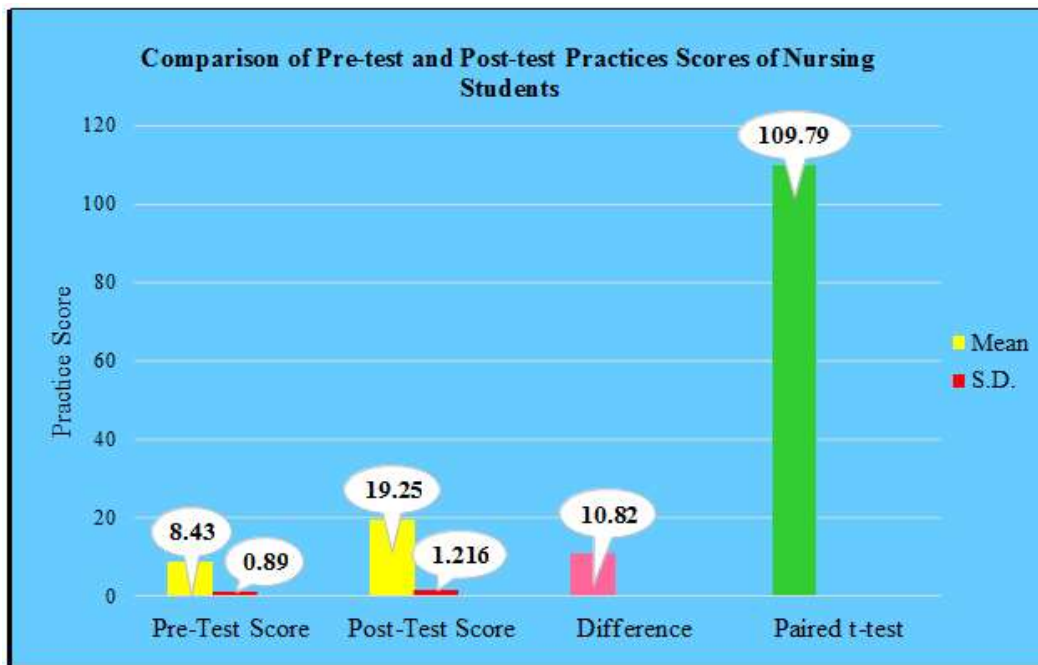


Fig. 4 Depicts Bar diagram regarding comparison of Pre-test and Post-test practices scores regarding Pediatric Basic life support by using Paired t-test.

Table no. 5: Correlation between knowledge and practices scores of nursing students

N = 80

S.No.	Correlation	r value	p - value
1.	Pre-test Knowledge and Post-test Knowledge	0.8167	<0.00001**
2.	Pre-test Knowledge and Pre-test Practices	0.1753	0.119869 ^{NS}
3.	Pre-test Knowledge and Post-test Practices	0.2476	0.026805*
4.	Post-test Knowledge and Pre-test Practices	0.1991	0.076636 ^{NS}
5.	Post-test Knowledge and Post-test Practices	0.227	0.042876*
6.	Pre-test Practices and Post-test Practices	0.6897	<0.00001**

**Significant, ^{NS} Non Significant

*Significant at 0.05 level

Above table shows positive correlation was found between Pre-test Knowledge and Post-test Knowledge (0.8167), Pre-test Knowledge and Post-test Practices (0.2476), Post-test Knowledge and Post-test Practices (0.227) and Pre-

test Practices and Post-test Practices (0.6897) at 0.05 level of significance computed by using Karl Pearson Coefficient of Correlation method.

Association of knowledge and practices score of nursing students with selected demographic variables was computed by using Chi-square which revealed that there was no significant association was found in knowledge and practices score regarding Pediatric Basic life support with selected with demographic variables

DISCUSSION

In this study, knowledge scores majority of nursing students in pre-test i.e., 75 (93.75%) had moderately adequate knowledge, 3 (3.75%) had inadequate knowledge and 2 (2.5%) had adequate knowledge with (mean \pm SD) of 19.125 ± 3.103 whereas in post-test i.e., 70 (87.5%) had adequate knowledge, 10 (12.5%) had moderately adequate knowledge and 0 (0%) had inadequate knowledge with (mean \pm SD) of 27.78 ± 3.002 . The ‘Paired t-test’ value of pre-test and post-test Knowledge score of nursing students was 41.680 with p value of 0.00** at 0.05 level of significant. In pre-test practices scores, majority of nursing students i.e., 77 (96.25%) had average practice and 3 (3.75%) had good practice with (mean \pm SD) of 8.43 ± 0.89 whereas in post-test i.e., 57 (71.25%) had excellent practice and 23 (28.75%) had good practice with (mean

\pm SD) of 19.25 ± 1.216 . The ‘Paired t-test’ value of pre-test 8.43 ± 0.89 and post-test $19.25 \pm$

1.216 practices score of nursing students was 109.79 with p value of 0.00** at 0.05 level of significant **was supported by Arora Swati et.al., Delhi (2017)**, showed that nursing students had inadequate knowledge 43.3% and poor practice 60.68% about newborn resuscitation and **was supported by Goswami Rashmi, Kanika (et.al.) Ambala (2015)** showed that mean of posttest knowledge score 14.12 ± 1.15 was higher than the mean of pretest knowledge score

7.19 ± 2.00 whereas mean of posttest practice scores 23 ± 1.18 was higher than the mean of pretest practice scores 10.31 ± 3.84 and ‘t’ value for comparison of knowledge score was 3.716 and practice score was 2.330 at $p < 0.05$.

Positive correlation was found between Pre-test Knowledge and Post-test Knowledge (0.8167), Pre-test Knowledge and Post-test Practices (0.2476), Post-test Knowledge and Post-test Practices (0.227) and Pre-test Practices and Post-test Practices (0.6897) at 0.05 level of significance **was supported by V Lavanya, Tamil Nadu (2016)** showed positive correlation between the knowledge and practice scores in pre-test and post-test regarding revised CPR among nursing students.

No significant association was found in Post-test Knowledge and practices scores among nursing students regarding Pediatric Basic Life Support with demographic variables **was supported by S Jelinselva, Kanyakumari (2015)** showed that mean of knowledge of nursing students was 12.73 and mean of skill of nursing students was 3.61. The result showed that there is no relationship between any of the demographic variable with level of knowledge and skills at $p < 0.05$.

CONCLUSION

The current study also demonstrated that a significant proportion of nursing students had a adequate knowledge and positive attitude towards Pediatric Basic life support. These assertions, nonetheless, warrant additional scrutiny, particularly one that adopts a comprehensive and analytical methodology to examine knowledge and practices. There was also a positive correlation observed between the knowledge and practices towards Pediatric Basic life support.

Additional research is necessary to investigate other variables that impact the decision-making process of nursing students, including specific attitudes towards practical teaching, BLS training, and personal development.

AUTHOR CONTRIBUTION

Author conceived and designed the study, conducted research, provided research materials, and collected and organized data, analysed and interpreted data and wrote the draft of article, and guide provided logistic support. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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Conflict of Interest: The authors do not have any conflicts of interest to declare a relation to this study.

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