

Research Article

Effectiveness of Training Program on Knowledge and Practices Regarding Basic Life Support (BLS) Among Nursing Students

Rashmi Goswami*, Kanika and Sembian N

Department of Medical Surgical Nursing, Maharishi Markandeshwar College of Nursing, India

***Corresponding author**

Rashmi Goswami, Department of Medical Surgical Nursing, Maharishi Markandeshwar College of Nursing, Village-Puhara, P.O & Teh. Shahpur, Distt.-Kangra, Himachal Pradesh (176206), India, Tel: 9729299449; Email:rashmigowami1991@gmail.com

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Keywords

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Abstract

Cardiac or respiratory arrests are common emergencies in adults, children and neonatal period. Resuscitation is the art of restoring life or consciousness of one apparently dead. The main aim of the study was to assess and compare knowledge and practices regarding BLS among Nursing Students before and after administration of training program. A quasi experimental study was conducted on 42 B.Sc. Nursing III year students selected by simple random sampling technique of M.M College of Nursing, Mullana, Ambala, Haryana between December and January 2015. Knowledge and practices was assessed using structured knowledge questionnaire and practice checklist. The Nursing Students were divided into seven groups consisting six students per group. On the first day, pre-test to assess knowledge regarding BLS was conducted and on the same day training program was administered and post-test of knowledge was carried out for all the seven groups. On the day 2-8, pre-test of practices regarding BLS was conducted, demonstration was given and post-test was taken on the same day. On the 16th day, 2nd post test of knowledge was conducted for all the groups. Significant findings of the study were that the mean of post test knowledge score 14.12 ± 1.15 was higher than the mean of pre test knowledge score 7.19 ± 2.00 . The study further revealed that mean of post test practice scores of BLS was 23 ± 1.18 was higher than the mean of pre test practice scores 10.31 ± 3.84 . Thus, the training program was effective in enhancing the knowledge and practices of Nursing Students regarding BLS.

INTRODUCTION

Cardiovascular disease is the leading global cause of death, accounting for 17.3 million deaths per year, a number that is expected to grow to more than 23.6 million by 2030 [1]. In India 9 crore Indian suffer from heart disease and 30% more are at high risk [2]. Cardiac or respiratory arrests are common emergencies in adults, children and neonatal period. Resuscitation is the art of restoring life or consciousness of one apparently dead [3]. Doctors, nursing and layperson should know about the BLS, as they are frequently encountering life threatening emergencies [4]. The American Heart Association has adopted, supported and helped develop the concept of emergency cardiovascular care (ECC) systems for many years. The term chain of survival provides a useful metaphor for the elements of the ECC systems concept. The 5 links in the adult chain of survival are: Immediate recognition of cardiac arrest and activation of the emergency

response system, early cardiopulmonary resuscitation (CPR) with an emphasis on chest compressions, Rapid defibrillation, Effective advanced life support and integrated post cardiac arrest care [5].

Nurses are generally the first responders to an in-hospital cardiac arrest and initiate basic life support while waiting for the advanced cardiac life support [6]. In recent years, nursing education focused on theoretical education and deep gap between theoretical and clinical education created. Many nursing researchers reported that nursing students, in spite of good knowledge base, weren't skilful in clinical settings. Clinical practice is essential in clinical education for the students of college of nursing [7].

The development of knowledge and skills is an essential component of professional development in nurse education

programs. In order to enhance the retention of knowledge and skill, repeated training is needed. However, some students have difficulties in developing competence in cardiopulmonary resuscitation and evidence suggests that resuscitation skill may only be retained for several months. So further training is necessary for developing and retaining the skills.

Dal Umran, Sarpkaya Dilek, (2013) conducted a longitudinal study in North Cyprus to evaluate the effects of CPR training and found that Nursing students tend to forget theoretical and applied CPR training after couple of months. Hence there is a need for continuous CPR training and education and repeating the skills at regular intervals even after they have graduated to ensure sustainability in the CPR skills [8]. Another study conducted by K. Shreedhara Avabratha, K Bhagyalakshmi et al (2012) conducted a cross sectional study to assess the resuscitation knowledge among interns and analysed that Interns have islands of scattered knowledge about resuscitation, which is not adequate. Introduction of structured resuscitation program in the undergraduate curriculum is needed and effort should be made to determine an appropriate and efficient course design [9].

The new nursing generation needs to grow in proper and time provision of essential care to their patients. For that, nursing students need necessary knowledge and skill by repeated training and practice. With this background, the study was aimed to assess the effectiveness of training program on Advanced Cardiovascular Life Support among Nursing students.

METHODOLOGY

Design and Setting

A quasi experimental (one group pre test post test) design was used to examine the effectiveness of BLS training program on knowledge and practices of Nursing students. The study was conducted in the Demonstration lab of M.M College of Nursing, Mullana, Ambala, Haryana between December 2014 and January 2015 after obtaining ethical permission from "Institutional ethical committee".

Participants

The study participants comprised of 42 B.Sc. Nursing III year students and seven groups of six students each were made by using simple random sampling technique. B.Sc. Nursing students who were willing to participate were included in the study and Nursing students who were not available at the time of data collection were excluded from the study. Written informed consent was obtained from all the study participants before starting the study.

Assessment Tools (Pre/post intervention)

Assessment tools used were structured knowledge questionnaire to assess knowledge and practice checklist to assess practices regarding BLS. Knowledge was assessed initially, immediately after training and again after 15 days by a structured knowledge questionnaire comprised of 15 multiple choice questions (each given 1 mark for correct answer and 0 for wrong answer) validated by 9 experts independently.

Practices were assessed on CPR adult manikin, through observation checklist. Practice checklist of BLS contains 24 steps of procedure. The reliability coefficient of structured knowledge questionnaire was found 0.88 computed by Kudar Richardson-20 formula and for practice checklist it was found 0.86 by inter rater reliability.

Intervention

Training program regarding BLS was developed for Nursing Students on the review of related research, non research literature and the objectives of the study. Training program was structured for enhancing knowledge and practices regarding BLS. Teaching method adopted to make the students aware was through lecture cum discussion method. The time duration for the training program was 1 hour and for demonstration the time duration was also 1 hour. The Audio visual aids were Power point slides and adult CPR manikin.

Procedure

After obtaining formal approval from the Principal of M.M College of Nursing, Mullana, Ambala, Haryana Data was collected from 29th December, 2014 to 15th January, 2015. Consent was taken from the students. The Nursing Students were divided into seven groups consisting six students per group. On the first day, pre-test to assess knowledge regarding BLS was conducted and on the same day training program was administered to the students and post-test of knowledge was carried out for all the seven groups. On the day 2-8, pre-test of practices regarding BLS was conducted, demonstration was given and post-test was taken on the same day for all the groups. On the 16th day, 2nd post test of knowledge was conducted for all the groups.

Data analysis

The data was analyzed according to the objectives and hypothesis of the study using both descriptive and inferential statistics. Calculation was carried out with the help of Microsoft Excel and Statistical Package for Social Science (SPSS version 20) Program. The various statistical measures used were the frequency distribution, mean, mean difference, standard error of mean difference standard deviation, t test and ANOVA to find the statistical significance.

RESULTS

Description of sample characteristics: Frequency and percentage were computed for describing sample characteristics. The findings are presented in Table 1. The data presented in Table 1 showed that all the Nursing Students (100%) were in the age group of 19-22 years. Majority of subjects (78.6%) were females and 21.4% were male. Most of the subjects (76.2%) had previous knowledge about Basic Life Support. Most of the subjects (61.9%) got information from curriculum and 14.3% from the internet/broadcasting. Only 7.1% of the subjects had practical exposure to Basic Life Support and witnessed in ICU.

Assessment of effectiveness of training program on knowledge regarding BLS among Nursing students

The mean of first post test knowledge score (13.76 ± 1.16) was higher than the mean of pre test knowledge score (7.19 ± 2.00).

Table 1: Frequency and Percentage Distribution of Nursing Students According to Sample Characteristics.

S. No.	Sample Characteristics	Frequency	(%)
1.	Age in years		
1.1	19-22	42	(100)
2.	Gender		
2.1	Male	9	(21.4)
2.2	Female	33	(78.6)
3.	Previous knowledge about Basic Life Support		
3.1	Yes	32	(76.2)
3.2	No	10	(23.8)
4.	Source of knowledge		
4.1	Curriculum	26	(61.9)
4.2	Print media	0	(0)
4.3	Internet/ broadcasting	6	(14.3)
5.	Practical exposure to Basic Life Support		
5.1	Yes	3	(7.1)
5.2	No	39	(92.9)
6.	Witnessed or performed		
6.1	Witnessed	3	(7.1)
7.	Area of exposure		
7.1	ICU	3	(7.1)

N=42

Table 2: Repeated Measures ANOVA Test Showing Mean, Standard Deviation of Knowledge Score Before & After Training Program Regarding BLS among Nursing Students.

Area	Mean	SD	F value	pvalue
Pre-test	7.19	2.00	428.799*	0.001
Post-test 1	13.76	1.16		0.001
Post-test 2	14.12	1.15		0.001

N= 42
 (F value df 2/39=1.69)
 *Significant (p≤0.05)
 Table 2 showed the repeated measure ANOVA was to compare mean knowledge score between pre-test, post-test 1 and post-test 2. The calculated f value (428.799) was found to be statistically significant at 0.05 level of significance. Thus it indicated that training program was effective in increasing the knowledge of nursing students regarding BLS.

Table 3: Mean, Mean Difference, Standard Deviation of Difference, Standard Error of Mean Difference and 't' Value of Pre Test to Post Test Practice Scores of Nursing Students.

Area	Pre test Mean	Post test Mean	Mean _D	SD _D	SE _{MD}	t value	P value
BLS	10.31	23	12.69	4.14	0.64	19.83*	0.001

N=42
 't' (41)=2.02
 *Significant (p ≤0.05)

The findings further indicate that the mean of second post test knowledge score (14.12± 1.15) was higher than the mean of pre test knowledge score (7.19±2.00) as shown in Figure 1. Table 2 showed the repeated measure ANOVA was to compare mean knowledge score between pre-test, post-test 1 and post-test 2. The calculated f value (428.799) was found to be statistically significant at 0.05 level of significance. Thus it indicated that

training program was effective in increasing the knowledge of nursing students regarding BLS.

Post hoc test also revealed further difference between mean knowledge scores in pre-test and post-test that was responsible for significant difference among the values. Data further showed that there was significant mean difference between knowledge among pre and post-test at p value of 0.001. Therefore, it inferred

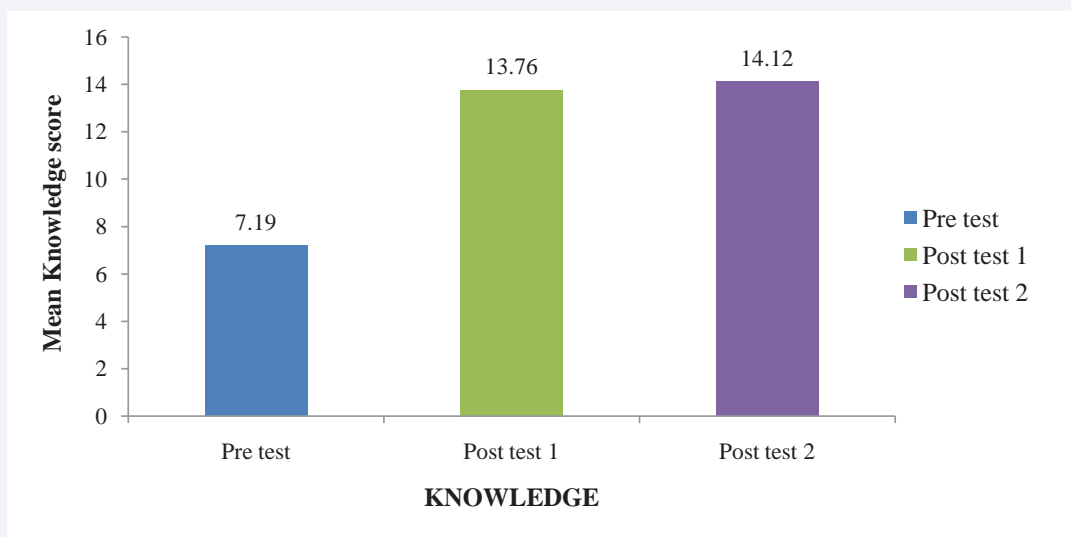


Figure 1 Bar graph showing the mean of pre-test and post-test knowledge scores of Nursing Students regarding BLS.

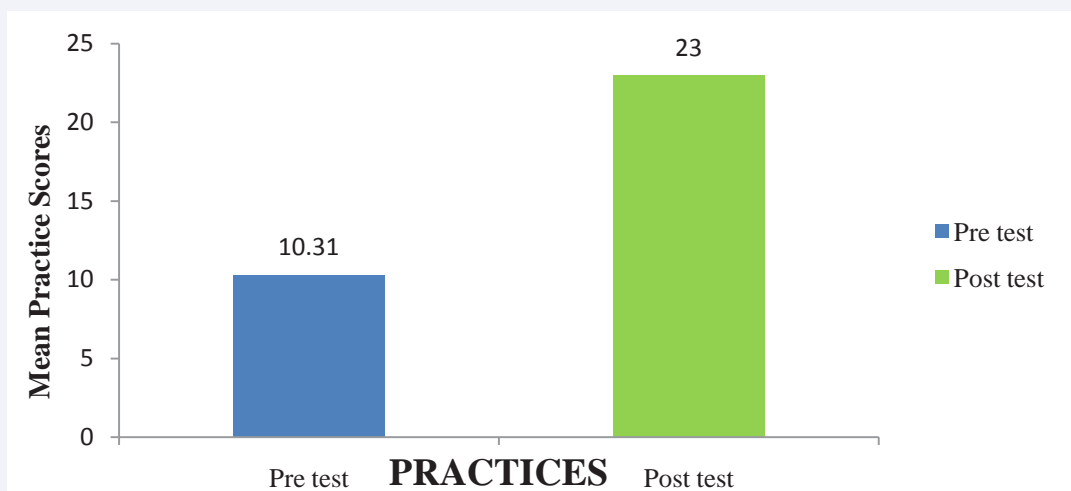


Figure 2 Bar Graph Showing the Mean of Pre-test and Post-test Practice Scores of Nursing Students regarding BLS.

that training program was effective increasing knowledge of Nursing Students regarding BLS.

Assessment of effectiveness of training program on practices regarding BLS among Nursing students

The mean of post test practice score (23.00 ± 1.18) was higher than the mean of pre test practice score (10.31 ± 3.84) as shown in Figure 2. The mean post-test practice score of BLS was 23 with the mean difference of 12.69. The computed 't' value (19.83) was found to be statistically significant at 0.05 level of significance thus suggesting that the mean difference was a true difference not by chance. This indicated that the training program was effective in enhancing the practices of nursing students.

t value showing association of knowledge and practice scores of Nursing Students with sample characteristics

The calculated t value showed that post-test knowledge

scores was found to be statistically significant with previous knowledge about BLS (3.716) and post-test practice scores was found to be statistically significant with gender (2.330) at 0.05 level of significance, suggesting that level of knowledge of Nursing students was dependent on previous knowledge about BLS and male Nursing students had good practices regarding BLS.

DISCUSSION

The result of the present study had shown that the post-test mean knowledge score (14.12) was higher than the pre-test mean knowledge score (7.19). The study findings were consistent with the findings of Ratha kabina et al conducted a quasi-experimental study to evaluate the effectiveness of Planned Teaching Programme regarding Basic Life Support (BLS) at Selected Nursing College, Bhubaneswar, Odisha, findings showed that the Post-test Mean - (13.4) was higher than Pre-test Mean - (9.12) [2].

Similar findings were reported by Adedamola Olutoyin Onyeaso and the findings revealed that the level of pre-training knowledge was 8.9% compared to post training knowledge of 88.6%. The knowledge difference between pre and post training in CPR was statistically significant ($p < 0.05$) [10].

The training program was effective in enhancing knowledge and practices of Nursing students. In the present study the mean of post test practice score regarding BLS (23) was higher than the mean of pre test practice score (10.31). The findings are also consistent with the findings of Umran Dal et al who conducted a study to determine the cardiopulmonary resuscitation (CPR) knowledge and skill levels of nursing students in North Cyprus. The Average CPR knowledge score of these students was 9.3 ± 2.9 out of 23 before the lecture, this average increased to 17.0 ± 1.8 one month after the CPR lecture and decreased by two points back to 14.9 ± 3.8 after six months. Skill score of the students one month after the CPR skills training was 18.4 out of 21, and that this average decreased to 13.8 after six months [8].

CONCLUSION

The mean of post test knowledge score was higher than the mean of pre test knowledge score and the mean of post test practice scores was higher than the mean of pre test practice scores. The knowledge of Nursing students was dependent on previous knowledge about BLS. Male Nursing students had good practices regarding BLS. Thus, the training program was effective in enhancing the knowledge and practices of Nursing Students regarding BLS.

LIMITATIONS OF THE STUDY

Retention level of practices was not assessed and the

reinforcement was not given regarding BLS.

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