



# **A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Basic Life Support among First Year Undergraduate Nursing Students**

**D. Ravivarman<sup>1\*</sup> and K. Kamala<sup>1</sup>**

<sup>1</sup>*Vinayaka Mission's College of Nursing, Karaikal, Pudhucherry (UT), Vinayaka Mission's Research Foundation (Deemed to be University), Salem, India.*

## **Authors' contributions**

*This work was carried out in collaboration between both authors. Author VR contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript. Data analysis and interpretation, drafting the article, critical revision of the article and final approval of the version to be published was done by author KK.*

## **Article Information**

DOI: 10.9734/JPRI/2020/v32i4531090

### Editor(s):

(1) Dr. Ana Cláudia Coelho, University of Trás-os-Montes and Alto Douro, Portugal.

### Reviewers:

(1) Luciene Rodrigues Barbosa, University Federal of São Paulo, Brazil.

(2) Fabíola de Campos Braga Mattozinhos, University of São Paulo, Brazil.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/64099>

**Original Research Article**

**Received 25 October 2020**  
**Accepted 29 December 2020**  
**Published 30 January 2021**

## **ABSTRACT**

**Introduction:** Early initiation of Basic life support (BLS) with Cardiopulmonary resuscitation (CPR) is an important contributory factor in the survival of Cardiac arrest. Effective and timely CPR reduces the likelihood of death following sudden cardiac arrest. Adequate knowledge and skills regarding BLS and appropriate application of the same is an essential requisite for nursing students.

**Aim:** To assess the effectiveness of structured teaching programme on knowledge regarding Basic life support among first year undergraduate Nursing students.

**Materials and Methods:** Quantitative pre experimental research design was adopted for this present study. First year 59 undergraduate Nursing students were chosen by Purposive sampling technique. The data were collected by using demographic proforma and self structured knowledge questionnaire.

\*Corresponding author: [ravivarman.d@gmail.com](mailto:ravivarman.d@gmail.com);

**Results:** Pre-test and post- test knowledge scores revealed that during pre-test, the mean score  $8.6 \pm 3.07$  (SD) which is 43% of the total mean score, whereas in post-test, the mean score was  $15.13 \pm 2.26$ (SD) which is 75.65% of the total mean score depicting difference of 32.65% increase in mean percentage of score. The calculated 't' value 24.89 which is higher than the  $P < 0.05$ , stated that highly significant difference between the pre-test and post-test. It proved that the structured teaching programme was highly effective to improve the student's knowledge.

*Keywords: Effectiveness; structured teaching programme; knowledge; basic life support.*

## 1. INTRODUCTION

Cardiac diseases are among the leading causes of death worldwide. Cardiac arrest is an important public health concern. It is the leading cause of death worldwide generally develops the ages between of 45-75. Permanent brain damage is seen in more than quarter of the patients who survived after early resuscitation. The sudden cardiac arrest requires emergency interventions. Successful cardio pulmonary resuscitation application is the first step for patients having cardiac arrest to continue to their normal life [1,2]. Life-saving interventions are vital for the prevention of sudden cardiac arrest associated deaths [3-5]. BLS includes both prompt recognition, immediate support of ventilation and circulation in case of respiratory or cardiac arrest [6-8]. Health team members are playing a vital role in decreasing mortality rates due to cardiac arrest [9].

Cardiopulmonary resuscitation (CPR) helps to restore the partial flow of oxygen to the vital organs like brain and heart [10]. The first 10 minute immediately after an arrest are crucial and called as the "Golden minutes" or the "Golden 10" because if nothing is done within that time, the victim is not likely to survive [11]. According to American Heart Association, CPR should start within 10 seconds of recognition of cardiac arrest [12]. Resuscitation is the art of restoring life or consciousness of one apparently dead [13].

Competent administration of BLS/CPR can have a great impact in a person's lives but carrying out incompetent resuscitation may have devastating outcomes [14]. Every person should know about basic life support resuscitation (BLS) skill, but its knowledge is vital for medical and paramedical personnel. Structured training & retraining is required for its efficient execution [15,16,17].

Nurses are an integral part of the health care system and are perceived knowledgeable in

providing, institutional care to the patients. Assessments of knowledge regarding CPR technique among degree students and teaching them about CPR techniques were the main concept of the study. This will help students to gain knowledge and skills regarding CPR technique. Structured health teaching of the masses is one of the most effective means of health promotion; hence the researcher has chosen this present study.

### 1.1 Statement of the Problem

A study to assess the effectiveness of structured teaching programme on knowledge regarding Basic life support among first year undergraduate Nursing students.

## 2. MATERIALS AND METHODS

The Quantitative pre experimental Research design was adopted for this present study to found the effectiveness of structured teaching programme on knowledge regarding Basic life support among first year undergraduate Nursing students. The study setting was Vinayaka Mission's College of Nursing, Karaikal. The populations for this study were all the students of first year undergraduate Nursing students. A total 59 nursing students were selected by Non probability purposive sampling technique. The data was collected by using the demographic proforma and structured questionnaire. A structured questionnaire was prepared by the researcher and it's consisted of 20 multiple choice questions to assess the knowledge regarding Basic life support.

Each correct answer carries one mark and incorrect answer carries zero mark. Above 75% of score was consider as adequate knowledge, 51to75% was considered as moderately adequate knowledge and below or equal to 50% considered as the inadequate knowledge. The reliability of the tool was tested by split half method and the score was  $r=0.82$ . Data analysis was done by using both descriptive and

inferential statistics. Descriptive analysis used to found central tendency like mean, standard deviation and inferential statistics like chi square used to found the association, Paired t test used for reveal the effectiveness of structured teaching programme.

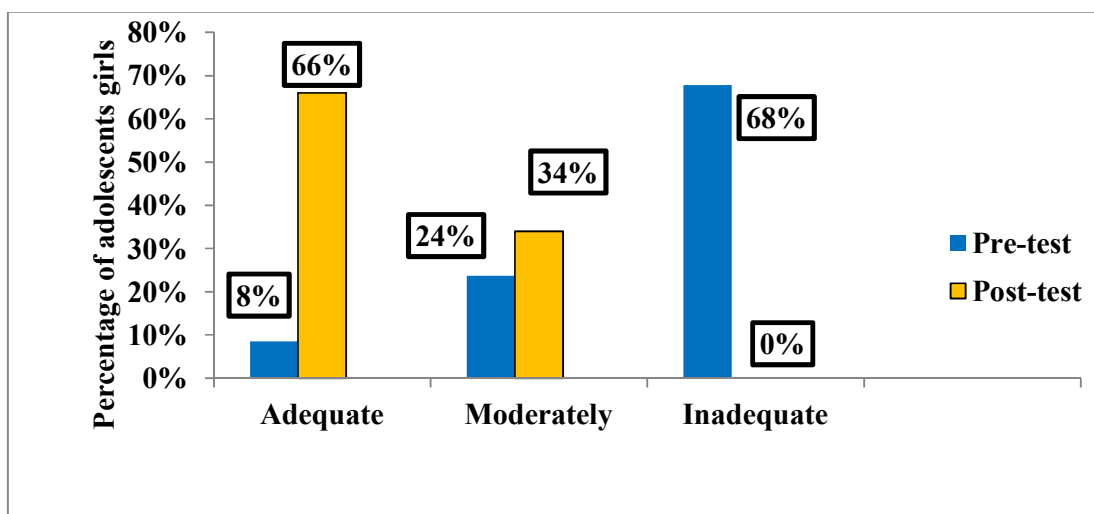
### 3. RESULTS

The Table 1 showed that in pre-test 5 (8%) of students had adequate knowledge, 14(24%) of students had moderately adequate knowledge and 40(68%) of students had inadequate knowledge whereas, in post-test 39(66%) of students had moderately adequate knowledge and 20(34%) of students had adequate knowledge.

Table 2 showed that the comparison of overall mean, SD and mean percentage of pre-test and post- test knowledge scores reveals that during pre-test, the mean score  $8.6 \pm 3.07$  (SD) which is 43% of the total mean score, whereas in post-test, the mean score was  $15.13 \pm 2.26$ (SD) which is 75.65% of the total mean score depicting difference of 32.65% increase in mean percentage of score. The calculated 't' value 24.89 which is higher than the  $P < 0.05$ , states that highly significant difference between the pre-test and post-test. It proved that the structured teaching programme was highly effective in improving the knowledge regarding Basic life support among first year undergraduate Nursing students. So  $H_1$  was accepted.

**Table 1. Comparison of pre-test and post-test level of knowledge regarding basic life support among first year undergraduate nursing students**

Level of knowledge	Pre test		Post test	
	Frequency	Percentage	Frequency	Percentage
Adequate (>76%)	5	8%	39	66%
Moderate (51-75%)	14	24%	20	34%
Inadequate (<50%)	40	68%	0	0



**Fig. 1. Level of knowledge on basic life support**

**Table 2. Comparison of Mean, SD, and mean percentage of pre-test and post- test knowledge regarding basic life support among first year undergraduate nursing students**

Area	Max score	Pre test scores		Post test score			Difference in mean (%)	't' test Value	
		Mean	SD	Mean %	Mean	SD			Mean %
Knowledge on Dental Hygiene	20	8.6	3.07	43	15.13	2.26	75.65	32.65	24.89 *** HS

**Table 3. Association between pre-test levels of knowledge regarding basic life support among first year undergraduate nursing students with their selected demographic variables**

Demographic Variables	Pretest knowledge						Chi square
	Inadequate		Moderate		Adequate		
	F	%	F	%	F	%	
1.Age in years							X <sup>2</sup> =16.425
a)18-19	39	66.1	12	20.3	2	3.3	df=2
b)Above 19	1	2	2	3.3	3	5	S*
2.Gender							X <sup>2</sup> =7.216
Male	35	59.3	12	20.3	2	3.3	df=2
Female	5	8	2	3.3	3	5	S*
3. Previous source of information regarding BLS							X <sup>2</sup> =2.894
a) Class room	25	42	8	14	4	6	df=4
b) Internet	14	24	5	8	1	2	NS
c) Journals	1	2	1	2	0	0	
4) Interest in emergency care							X <sup>2</sup> =15.895
a) No interest	1	2	6	10	1	2	df =4
b) Moderate interest	17	29	5	8	1	2	S*
c) High interest	22	37	3	5	3	5	
5) Area of Living							X <sup>2</sup> =13.445
a) urban	5	8	8	14	3	5	df =2
b)Rural	35	59.3	6	10	2	3.3	S*
6) Previous experience on BLS							X <sup>2</sup> =16.857
a) Not witnessed	37	62	11	19	1	2	df =2
b) witnessed	3	5	3	5	4	7	S*

The Table 3 revealed that there was a significant association with the pre test level of knowledge regarding Basic life support among first year undergraduate Nursing students with their selected demographic variables except source of information regarding BLS. So H<sub>2</sub> was accepted.

#### 4. DISCUSSION

The present study result showed that in pretest majority of the first year undergraduate Nursing students had inadequate knowledge and after the structured teaching programme the knowledge was improved among first year undergraduate Nursing students.

So this study proved that significant difference was there between pre test, post test knowledge and also found that structured teaching programme was effective in improving the knowledge regarding Basic life support among first year undergraduate Nursing students.

The study conducted to assess the effectiveness of basic life support training on nursing students' knowledge and basic life support practices. The study result has stated that after basic life

support training, level of knowledge and practical skill scores were higher compared to pre-training scores (t= -12.442, p=0.000; t= -22.899, p=0.000).Also the study proved that basic life support training improved knowledge and skills related to basic life support practices in nursing students. Periodic basic life support training is very important for competency in this area among nursing students. Selmin Kose [18].

Another one study was conducted to assess the knowledge, awareness and attitude towards BLS among healthcare interns in different university hospitals across Saudi Arabia. Among the participants of the study, overall awareness score was average, whereas the knowledge score was below average. Further, the participants showed a positive attitude toward BLS training. Shahabe A. Saquib et al. [19].

A similar type of study had conducted to assess the existing level of knowledge and practice of B.Sc nursing students on BLS. The study Findings indicated that PTP given on knowledge and practice regarding BLS was effective. Level of knowledge and practice increased in the subjects of experimental group as compare to

subjects of control group. Mayanlambam P, Devi AM [20].

A cross-sectional survey was used to study 320 health-college students. They were selected by convenience sampling technique. A 20 items questionnaire developed by the researchers was used to collect data about awareness of participants on CPR. The study result showed that most of the participants had scored less than 50%. Students of the bridging program on BLS had higher score than regular students. All questions were answered correctly by at least third of participants. Low rate of correct answers were found in infant CPR, steps of doing CPR and update information of CPR. Khaled Khader et al, [21].

One more study had conducted to assess the Effectiveness of Training Program on Knowledge and Practices Regarding Basic Life Support (BLS) Among Nursing Students. The study revealed that mean of post test practice scores of BLS was  $23 \pm 1.18$  was higher than the mean of pre test practice scores  $10.31 \pm 3.84$ . Thus, the training program was effective in enhancing the knowledge and practices of Nursing Students regarding BLS. by Rashmi Goswami et al. [22].

Another one study has conducted to assess the Effects of two retraining strategies on nursing students' acquisition and retention of BLS/AED skills. 177 Nursing students from two European universities were randomly assigned to either an instructor-directed (IDG) or a student-directed (SDG) 4-h retraining session in BLS/AED. A multiple-choice questionnaire, and a self-efficacy scale were used to assess students' overall competency (knowledge, psychomotor skills and self-efficacy) in BLS/AED at pre-test, post-test and 3-month retention-test. This study demonstrated that using a student-directed strategy to retrain BLS/AED skills has resulted in a higher proportion of nursing students achieving and retaining competency in BLS/AED at three months when compared to an instructor-directed strategy. Hernández-Padilla JM, et al. [23].

The study has conducted to assess the Knowledge of first aid and basic life support amongst medical students. The result of study revealed that lack of awareness of CPR in most medical colleges. This agreed with most previous studies [24].

## 5. CONCLUSION

Cardiac arrest is the cause of death for thousands of people. Knowledge of

Cardiopulmonary resuscitation (CPR) and practice of simple CPR techniques increase the chances of survival of the patient. Most victims of cardiac arrest don't receive adequate resuscitation within the critical time which reduces the chance of survival. BLS is a core skill in which all health care professionals should be proficient, but there is a great deal of variation in the training provided at the undergraduate level [25]. Therefore, it is crucial that everyone in the medical field has knowledge of CPR. The purpose of this study was to assess the effectiveness of structured teaching programme on knowledge regarding Basic life support among first year undergraduate Nursing students. The result of the study has revealed that most of the first year student's knowledge was not up to the mark before the intervention. The STP facilitated among degree students to learn more about BLS. This study showed that STP was effective in improving the knowledge of First year nursing students regarding Basic Life support. The reason for low scores is lack of theoretical and clinical training on BLS. This study recommended that giving adequate BLS knowledge and training for all health professionals and included a special training session for BLS can help to improve the skill of nursing students on BLS.

## CONSENT

The informed consent had obtained from the students.

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Uslu Y, Korkmaz FD. Kardiyopulmoner resüsitasyon sonrası hasta yönetimi [Patient management after cardiopulmonary resuscitation]. Turkish Journal of Cardiovascular Nursing. 2015; 6(10):99-111.
2. Rajashekar S, Nagendra Gowda MR, Anthony A. Knowledge of basic life support among health care professionals in a tertiary care hospital in Chitradurga. Int J

- Community Med Public Health. 2018; 5:3969-75.
3. TC. Sağlık Bakanlığı Türkiye Kalp ve Damar Hastalıkları Önleme ve Kontrol Programı 2015–2020, author. [Ministry of Health Turkish Cardiovascular Disease Prevention and Control Program 2015–2020] Şti., Ankara: Anıl Reklam Matbaa Ltd.; 2015.
  4. Roshana S, Batajoo KH, Piryani RM, Sharma MW. Basic life support: Knowledge and attitude of medical/paramedical professionals. *World J Emerg Med.* 2012;3(2):141-5.
  5. Kleinman ME, Brennan EE, Goldberger ZD, Swor RA, Terry M, Bentley J, et al. Part 5: Adult basic life support and cardiopulmonary resuscitation quality: 2015 American heart association guidelines update for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation.* 2015; 132(2):414–35.
  6. Perkins GD, Handley AJ, Koster RW, Castrén M, Smyth MA, Olsveengen T, Monsieurs KG, Raffay V, Gräsner JT, Wenzel V, Ristagno G, Soar J. Adult basic life support and automated external defibrillation section collaborators European resuscitation council guidelines for resuscitation 2015: Section 2. Adult basic life support and automated external defibrillation. *Resuscitation.* 2015;95:81-99.
  7. Bhanji F, Donoghue AJ, Wolff MS, et al. Part 14: Education: 2015 American heart association guidelines update for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation.* 2015;132(18):S561–S573.
  8. Aroor AR, Saya RP, Attar NR, Saya GK, Ravinanthanan M. Awareness about basic life support and emergency medical services and its associated factors among students in a tertiary care hospital in South India. *Journal of Emergencies, Trauma, and Shock.* 2014;7(3):166-169.
  9. Aroor AR, Saya RP, Attar NR, Saya GK, Ravinanthanan M. Awareness about basic life support and emergency medical services and its associated factors among students in a tertiary care hospital in South India. *J Emerg Trauma Shock.* 2014; 7(3):166-9.
  10. Khan H, Vora MK, Bose N. An education intervention to assess knowledge and practices about cardiopulmonary resuscitation (CPR) among nurses and nursing students of tertiary care hospital in Gujarat, West India. *Eur J Pharm Med Res.* 2015;2:502-11.
  11. Mani G, Annadurai K, Danasekaran R, Ramasamy JD. A cross-sectional study to assess knowledge and attitudes related to basic life support among undergraduate medical students in Tamil Nadu. *Prog Health Sci.* 2014;4:47-52.
  12. American Heart Association- BLS for Health care Providers-Students manual. Part one; 3. Accessed on 12/12/2013.
  13. Sasson C, Rogers MA, Dahl J, Kellermann AL. Predictors of survival from out-of-hospital cardiac arrest: A systematic review and meta-analysis. *Circ Cardiovasc Qual Outcomes.* 2010;3(1):63-81.
  14. Smith KK, Gilcreast D, Pierce K. Evaluation of staff's retention of ACLS and BLS skills. *Resuscitation.* 2008;78:59-65.
  15. Vausedvan B, et al. *International Journal of Community Medicine and Public Health.* 2016;3(12).
  16. Alsayil SN, Alzahrán SM, Alhawiti WM. Awareness of basic life support among medical and nursing students at Tabuk University. *Basic Res J Med Clin Sci.* 2016;5(3):53-7.
  17. Chandrasekaran S, Kumar S, Bhat SA. Awareness of basic life support among medical, dental, nursing students and doctors. *Indian J Anaesthesia.* 2010;54(2): 121.
  18. Selmin Kose, Semiha Akin, Onur Mendi, Sonay Goktas. The effectiveness of basic life support training on nursing students' knowledge and basic life support practices: A non-randomized quasi-experimental study. *Afr Health Sci.* 2019;19(2):2252–2262.
  19. Shahabe A, Saquib, et al. Knowledge and attitude about basic life Support and emergency medical services amongst healthcare interns in university hospitals: A cross-sectional study, *emergency medicine international.* 2019;2019:8. Article ID 9342892.
  20. Mayanlambam P, Devi AM. Knowledge and practice regarding basic life support among nursing students. *Int J Res Rev.* 2016;3(1):43-47.
  21. Khaled Khader et al. Awareness and knowledge of health-College students of cardiopulmonary resuscitation at taif university, Saudi Arabia. *Int. J. of*

- Multidisciplinary and Current research. 2016;4.
22. Goswami R, Kanika, Sembian N. Effectiveness of training program on knowledge and practices regarding basic life support (BLS) among nursing students. *Int J Clin Anesthesiol.* 2015;3(2):1046.
23. Hernández-Padilla JM, Suthers F, Granero-Molina J, Fernández-Sola C. Effects of two retraining strategies on nursing students' acquisition and retention of BLS/AED skills: A cluster randomised trial. *Resuscitation.* 2015;93:27-34. DOI: 10.1016/j.resuscitation.2015.05.008
- Epub 2015 May 28. PMID: 26026776.
24. Abbas A, Bukhari S, Ahmad F. Knowledge of first aid and basic life support amongst medical students: A comparison between trained and un-trained students. *Journal of Pakistan Medical Association.* 2011;61(6): 613-616.
25. Sudeep C, Sequeira P, Jain J, Jain V, Maliyil M. Awareness of basic life support among students and teaching faculty in a dental college in Coorg, Karnataka. *International Dental Journal of Student's Research.* 2013;2(1):4-9.

© 2020 Ravivarman and Kamala; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:*  
*The peer review history for this paper can be accessed here:*  
<http://www.sdiarticle4.com/review-history/64099>