



ASSESS THE EFFECTIVENESS OF TRAINING MODULE ON KNOWLEDGE AND SKILL IN BASIC LIFE SUPPORT (BLS) AMONG THE CARE GIVERS OF CLIENTS

E.VARALAKSHMI*

Assistant Professor, Saveetha college of nursing, Saveetha University, Chennai.

ABSTRACT

Sudden Cardiac Arrest (SCA) can lead to death of an individual within a few minutes. In India, approximately 4280 out of every one lakh people die every year from SCA. Clients who suffered from cardiac arrest mostly lost their life before reaching the hospital. BLS training to the caregivers can greatly minimize the mortality rate among the clients through early and timely resuscitative measures. To assess the effectiveness of training module on BLS among the care givers of cardiac clients. Pre experimental one group pre test –post test design was used. The study was conducted in the medical cardiac unit and intensive care unit at Railway Hospital, Chennai. 60 caregivers of cardiac clients, who satisfied the inclusive criteria, were selected using non-probability convenience sampling technique. A training module on knowledge and skill in BLS which contained information (lecture), education (video show), demonstration (manikin) and communication (pamphlet) module on BLS was provided. The level of knowledge was assessed by using structured questionnaire. The skill was assessed by observational check list. Descriptive and inferential statistics was used to analyze the comparison of pre and post assessment level of knowledge. It revealed that the mean improved knowledge score was 23.05 and 98.06. The calculated 't' value of 41.05 was found to be highly significant at $p < 0.001$ level. The analysis of the post training level of skill revealed, that majority 56(93.33%) showed improved skill. The study concluded that there was a significant difference between the pre and post test level of knowledge and skill. Training module is more effective in improving the knowledge and skill in BLS among the care givers of clients. This can significantly enhance the reduction of mortality rate among cardiac clients.

KEYWORDS: Basic Life Support (BLS), Cardiac arrest.



E.VARALAKSHMI

Assistant Professor, Saveetha college of nursing, Saveetha University, Chennai

INTRODUCTION

Heart disease is the most feared of all the diseases even more than cancer. Cardiac arrest refers to the condition in which the heart ceases to produce an effective pulse and circulation. Sudden Cardiac Arrest (SCA) can lead to death of an individual within a few minutes. As per WHO census statistics (2008) mortality due to cardiac causes has overtaken mortality due to all cancers put together. In India, approximately 4280 out of every one lakh people die every year from SCA. In Tamilnadu, the incidence of cardiac arrest has increased and is higher mainly outside of the hospital with 5638 patient dying every year Tamil Nadu Government, 2008.¹ The WHO estimates that by 2015 deaths due to heart disease will double in India. The risk of CAD among Indians is 3 to 4 times higher than that of Americans, 6 times higher than that of the Chinese and 20 times higher than of Japanese. Since the incidence of diabetes mellitus and hypertension is high among the Indian population Indian National Magazine, 2001.² Maheswari, A. Meharotra 2007³ conducted a study among 569 clients who had out-of-hospital cardiac arrest in U.S.A, among this 368 clients died before reaching the hospital and the remaining patients survived since health care personnel practiced timely BLS in community setting. The study showed the severity of cardiac arrest and the role of health personnel. It also recommended that, training in schools and communities improves the knowledge and skill among students and by standers of the client. Kuisma M., Jaara 2007⁴ reports on a prospective cohort study conducted in Finland with the aim of determining the epidemiology of out-of-hospital cardiac arrest. Among 809 patients for whom resuscitation was considered, the study findings revealed that 290 patients died on the way to hospital due to cardiac arrest, 150 of the patients with non-cardiac cases died because of cardiac arrest and 369 patients were saved by BLS given by the care givers and volunteers. The survey result revealed that survival after unwitnessed out-of-hospital cardiac arrest is maintained with BLS alone. Hodgetts, 2006⁵ performed a retrospective study using ambulance reports of pre hospital cardiac arrest in New South Wales Australia. Over 100 consecutive patients who suffered cardiac arrest out of hospital where brought to the EMS department. Only 4 of 100 patients were successfully resuscitated out of hospital. The study revealed that survival from pre-hospital cardiac arrest in community is worse than the national average. They recommended that training to care givers regarding BLS decreases the mortality rate due to cardiac arrest. Christoph 2008⁶ carried out a prospective study in Germany. The aim of the study was to examine the performance of BLS by the care givers in out of hospital emergency situation. The study findings showed that 69% of the participants were able to perform BLS satisfactorily as per the guidelines. Jones SE 2008⁷

reported in a pre hospital BLS research in North Ridge Hospital, U.K, among nine bystanders who underwent training with manikins. Post test conducted on the next day showed that about 70% of the participants demonstrated effective skill in BLS. The study recommended that training with manikin improves the skill among care givers. Clients who suffered from cardiac arrest mostly lost their life before reaching the hospital. BLS training to the caregivers can greatly minimize the mortality rate among the clients through early and timely resuscitative measures. BLS effort can be life saving, if provided within the first few golden minutes of onset of symptoms. Optimal survival of heart is achieved only if CPR is started within 0-4 minutes and the underlying causes of cardio pulmonary arrest are treated. Basic life support training to the care givers can help to prevent the death of their dear ones during out-of-hospital cardiac arrest, if initiated immediately. The health care personnel especially nurses have key role in providing training on BLS to care givers of the cardiac clients.

MATERIALS AND METHODS

Quantitative research approach was followed with the Pre experimental one group pre test and post test design. Training module was given to the care givers as intervention. The tool was developed by the investigator after extensive review of literature, previous knowledge, internet search and discussion with experts in selection of suitable items. The tool for data collection consists of: Structured questionnaire which comprises of general information, disease condition and BLS. Demographic variables of the care givers. Structured questionnaire for collecting data regarding the knowledge of BLS among the care givers. It includes 30 multiple choice questions regarding BLS. Each question carries one mark for the correct answer and '0' mark for the wrong answer, the overall knowledge score was converted in to percentage.

DEVELOPMENT AND DESCRIPTION OF TOOL

The tool was developed by the investigator after extensive review of literature, previous knowledge, internet search and discussion with experts in selection of suitable items. The tool for data collection consists of: part I: Structured questionnaire which comprises of general information, disease condition and BLS. Part A: Demographic variables of the care givers. Part B: Structured questionnaire for collecting data regarding the knowledge of BLS among the care givers. It includes 30 multiple choice questions regarding BLS. Each question carries one mark for the correct answer and '0' mark for the wrong answer, the overall knowledge score was converted in to percentage.

scoring Key

Percentage Level of knowledge

<50% - Inadequate knowledge.

50-75% - Moderately adequate knowledge.

>75% - Adequate knowledge.

Maximum score 30, Minimum score 0,

Part II

The assessment of skill was done using observational checklist It comprises of 20 items.

- Most Appropriate - 1
- Appropriate - 0.5
- Inappropriate - 0
- Total Score: 20

RESULTS AND DISCUSSIONS

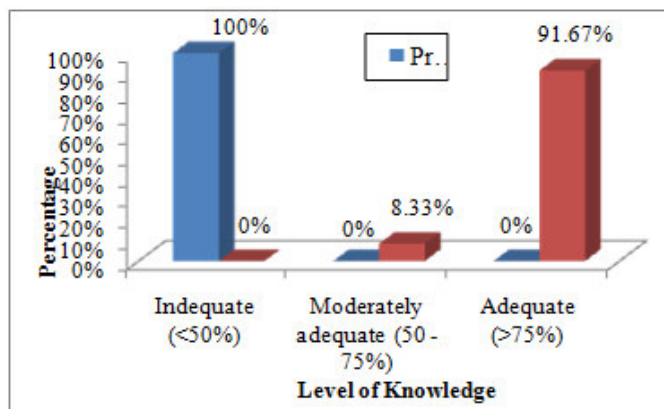


Figure 1
COMPARISON OF OVERALL LEVEL OF KNOWLEDGE AMONG THE CARE GIVERS IN THE PRE AND POST TEST.

Figure 1 reveals the overall level of knowledge in the pre test. 60(100%) had inadequate knowledge and none of them had moderately adequate and adequate knowledge on BLS. The post test overall level of knowledge showed that 55 (91.67%) had adequate knowledge, 5 (8.33%) had moderately adequate and none of them had inadequate knowledge.

Table 1
ASSESSMENT OF THE POST TEST LEVEL OF SKILL IN BLS AMONG THE CARE GIVERS OF CLIENTS.

N=60						
Level of skill	Inadequate skill (<50%)		Moderately adequate skill (50-75%)		Adequate skill (>75%)	
	No	%	No	%	No	%
	0	0	4	6.67	56	93.33

Table 1 shows that majority 56 (93.33%) had adequate skill, 4 (6.67%) had moderately adequate skill and none of them had inadequate skill.

Table 2
COMPARISON BETWEEN THE PRE AND POST TEST LEVEL OF KNOWLEDGE ON BLS AMONG THE CARE GIVERS OF CLIENTS.
N=60

Knowledge	Samples		't' value
	Mean	S.D	
Pre test	23.05	2.36	41.05 (S)***
Post test	98.06	2.38	

***p <0.001, ** p<0.01, * p<0.05

Table 2 depicts that the overall mean score was 23.05 with S.D 2.36 and post test mean score was 98.06 with S.D of 2.38. The calculated 't' value was 41.05 which was higher than the table value. Hence there was a high statistical significant difference between the pre test and post test score in BLS among the care givers of clients at p<0.001 level.

Table 3
CORRELATION OF POST TEST LEVEL OF KNOWLEDGE WITH THE POST TEST LEVEL OF SKILL IN BLS AMONG THE CARE GIVERS OF CLIENTS.
N=60

Variables	Post test		'r' value
	Mean	S.D	
Level of Knowledge	28.45	2.38	0.72***
Level of Skill	19.25	1.66	(S)

***p<0.001, **p<0.01, * p<0.05

Table 3 depicts that a positive correlation in level of knowledge and skill in BLS which was highly significant at p<0.001 level indicating that increasing the level of knowledge, can increases the level of skill in BLS.

Table 4
ASSOCIATION OF POST TEST LEVEL OF SKILL IN BLS WITH SELECTED DEMOGRAPHIC VARIABLES OF THE CAREGIVERS

Demographic Variables	N=60						Chi-Square Value
	Inadequate skill		Moderately Adequate skill		Adequate skill		
	<50%		50 – 75%		>75%		
	No.	%	No.	%	No.	%	
Age (in years)	0	0.00	1	1.67	15	25.00	$\chi^2 = 7.37$ d.f = 5 N.S
20 - 25 yrs	0	0.00	2	3.33	22	36.67	
25 - 30 yrs	0	0.00	1	1.67	11	18.33	
30 - 35 yrs	0	0.00	0	0.00	4	6.67	
35 - 40 yrs	0	0.00	0	0.00	3	5.00	
40 - 45 yrs	0	0.00	0	0.00	1	1.67	
Sex	0	0.00	2	3.33	33	55.00	$\chi^2 = 0.122$ d.f = 1 N.S
Male	0	0.00	2	3.33	23	38.33	
Female	0	0.00	1	1.67	0	0.00	
Education	0	0.00	1	1.67	8	13.33	$\chi^2 = 14.86$ d.f = 2 S***
High school	0	0.00	2	3.33	48	80.00	
Higher secondary	0	0.00	1	1.67	5	8.33	
Occupation	0	0.00	2	3.33	27	45.00	$\chi^2 = 1.845$ d.f = 3 N.S
Housewife	0	0.00	0	0.00	12	20.00	
Skilled worker	0	0.00	1	1.67	12	20.00	
Unskilled worker	0	0.00	2	3.33	27	45.00	
Marital Status	0	0.00	2	3.33	29	48.33	$\chi^2 = 0.0047$ d.f = 1 N.S
Single	0	0.00	0	0.00	0	0.00	
Married	0	0.00	0	0.00	0	0.00	
Widow	0	0.00	0	0.00	0	0.00	
Separated	0	0.00	0	0.00	0	0.00	

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The above table 4 shows that the calculated χ^2 value, 14.84 with regard to education was higher than the table value which indicated that there was a statistically significant association between the post test level of skill and the level of education of the care givers at $p < 0.001$ level. No significant association was found in relation to other demographic variable such as age, sex, occupation and marital status

DISCUSSIONS

In figure 1 the above findings are consistent with the study conducted by Boonmark 2005⁸ reported in a cohort study to assess the knowledge and skill among 30 nurse anesthetist before and after BLS training, consisting of lecture and simulation. They were tested immediately after the training and again after 3 months. The result showed that knowledge and skill scores were significantly improved after education with the difference in score of 25-70 immediately after training. The study recommended the necessity of BLS education periodically among the nurses. Table 1 The above findings are consistent with the study conducted by Niemi-Murola 2007⁹ did a cohort study among the medical and nursing students in Finland. About 55 medical and 50 nursing students, underwent training and demonstration on BLS, the post study conducted after 10 days, 79% showed satisfactory result others need repeated training. The study recommended training on BLS should be added in curriculum. Table 2 The above findings are supported by Hammound 2000¹⁰ carried out a study in Germany, among the 40 registered nurses to assess the retention of nurse's knowledge and clinical skill on BLS who had completed two days of CPR courses. After 18 months, the retention of knowledge and skill was assessed. The result showed 30 nurses passed and 10 nurses required second attempt to pass. The implication of the study focused on the dichotomy between theoretical and practical skill assessment and recommended that

additional studies are needed to determine the optimal time frame work for BLS and educational strategies help to retain skills over life. Table 3 The above findings are consistent with the study conducted by Isbye DL, Rasmussen 2006¹¹ with the aim to improve the knowledge and skill providing BLS training with manikin, in total of 238 care givers of cardiac clients without previous training in BLS. They underwent the training for one day. After a month the post test conducted showed that 72% had improved scores in both skill and knowledge of BLS Table 4 the above findings are consistent with the study conducted by Nandate .K 2006¹² carried out a study among third year medical students in critical care unit, Japan. About 60 medical students underwent training in simulated situation and brain storming session. The result showed 78% marked improvement in knowledge and skill among students. The study recommended that brain storming session with various situations improves critical thinking of the students.

CONCLUSION

The study concluded that training module is more effective.

CONFLICT OF INTEREST

Conflict of interest declared none.

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