A Study to Assess the Effectiveness of Structured Teaching Programme on Progressive Improvement in Knowledge and Skill of Administrating Basic Life Support Aamong Staff Nurses at Goba Referral Hospital, Bale-Goba, Ethiopia

Shabiya Ranjit[1], Dr. Khaleel Nagarchi[2]

[1]Associate professor, Dept of Critical care Nursing, Maddawalabu University of Health sciences, Ethiopia

[2]Associate professor, Dept of Anatomy, College of Medicine Taibh University, KSA

Abstract: _Background and Objectives: This study was under taken to evaluate the effectiveness of structured teaching programme on progressive improvement in knowledge and skill of administering basic life support among the staff nurses working at Goba referral hospitals, Ethiopia._ _Objective of the Study: To assess the existing knowledge of staff nurses in both experimental group and control group regarding Basic Life Support by administering a knowledge questionnaire. 1) To determine the skill of administering Basic Life Support among staff nurses in both experimental group and control group by using an observational checklist. 2) To evaluate the effectiveness of structured teaching programme as measured by progressive improvement in knowledge scores on Basic Life Support among experimental group by administering a knowledge questionnaire at four different time points after a gap of one week interval. 3) To evaluate the progressive improvement in knowledge scores on Basic Life Support among control group by administering knowledge questionnaire at four different time points after a gap of one-week interval without administering structured teaching programme. 4) To evaluate the effectiveness of structured teaching programme as measured by progressive improvement in skill of administering of Basic Life Support among experimental group and control group by using an observational checklist at four different time points after a gap of one week interval. 5) To compare the Post-test knowledge and skill scores between experimental and control groups. 6) To find an association between knowledge and skill scores of staff nurses on Basic Life Support with selected demographic variables._ _Methods: The study involved evaluatory approach with Quasi experimental research design, a non-probability purposive sampling technique was used to draw the sample. Sample size of 80 staff nurses were selected and 40 samples were allocated to experimental group and 40 samples to control group by following inclusion and exclusion criteria. Pre test followed by structured teaching programme (STP) on BLS and post-test were given to experimental group. The control group received no teaching but pre test and post-tests were given to them. After the first administration of STP, a second and third reinforcement was given with STP to the experimental group to improve their knowledge and skill with one-week interval. Seven days after each STP a post-test was given to both control and experimental group. So totally post test I, post test II and post test III were conducted using a structured multiple-choice questionnaire and an observational checklist. The results were described by using descriptive and inferential statistical analysis._ _Results: The demographic features of the staff nurses were almost similar in both the groups. The experimental group staff nurses gained much better knowledge and skill compared to control group who was not received any intervention. The independent 't' test applied shows a highly significant improvement among experimental group compared to control group, both in knowledge and skill were found to be significant at 0.05 percent level for all the aspects under the study. . The improvement of knowledge within experimental group as well as the control group was computed using repeated measures of analysis of variance (r-ANOVA). The result shows a significant improvement of knowledge and skill in both the groups from pre test through the post-test. However, the improvement was much higher in experimental group compared to control group indicates the effectiveness of STP._ _Conclusion: The overall findings of the study clearly showed that the repeated administration of structured teaching programme was significantly effective in improving the knowledge and skill on BLS among staff nurses._

Keywords: Evaluate, effectiveness, Structured teaching programme, BLS, Staff nurses

1. Introduction

"To think too long about doing a thing often becomes its undoing."

(Eva Young)

Health data compiled from more than 190 countries show heart disease remains the NO.1 global cause of death with 1.7 million deaths each year, according to " Heart Disease and Stroke Statistics- 2015 update: A report from the American heart association." That number is expected to rise to more than 23.6 million by 2030, the report found. Globally, the AHA is working with the United Nations and international cardiology groups to adapt its evidence – based

programs for use in other countries. The report cited estimates that 11.4 million deaths among 30– to – 69 year-olds and 15.9 million deaths among people 70 and older could be delayed or prevented in 2025 if global targets are met for reducing risk factors.[1]

Heart disease constitutes an important cause of morbidity and mortality in Ethiopia. Research studies have found between 4.4 and 12.9% of adult medical admissions were for cardiovascular disorders. However, all studies have reported on hospitalized medical patients, and may not represent the true pattern of cardiovascular disorders[2]. An estimated prevalence of cardiovascular emergency in Addis Ababa, based on a cross sectional study conducted among 205

patients admitted in emergency room reveals that, the mean age of the admitted patients was 41 years out of which 55.4% were females and 44.6% were males. The majority of the patients were presented with RHD(40%),followed by HTN (26%), Congestive cardiac failure (44%), IHD (15%), cardiac arrest (11%). 25% of the patient die during hospital stay due to lack of advanced treatment facilities and timely interventions[3.] Despite important advances in prevention, and treatment sudden cardiac arrest continues to be a leading cause of death in many parts of the world including India.[4] The survival rate from sudden cardiac arrest is less than 1% worldwide and close to 5% in the United States, because of the better public awareness about Basic Life Support.[4]
Sudden Cardiac Arrest is a situation in which the heart beat stops abruptly and without any warning signs which, results in no blood being pumped into the rest of the body organs, which include the brain and the heart itself, leaving the patient in a fatal condition. Sudden cardiac arrest is a medical emergency, which can be fatal if not treated immediately.[4] Cardiac arrest is reversible if the victim is administered prompt and appropriate emergency care. After a cardiac arrest, within four minutes the brain cell starts dying. Chances of survival reduce by 7-10 percent with every passing minute. Timely treatment helps bring back patient to their normal functioning of life. If the basic life support techniques are implemented in an effective way, survival rates can approach 50%.[5]

Basic life support (BLS) is the foundation and foundational technique for saving lives following cardiac arrest and it is the only known effective method of keeping someone who has suffered cardiac arrest alive long enough for definitive treatment to be delivered.[6] Fundamental aspects of Basic life support include immediate recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early cardiopulmonary resuscitation (CPR), and rapid defibrillation with an automated external defibrillator (AED).[7] The most important aspects in cardiopulmonary resuscitation are CAB, is nothing but the circulation, airway, and breathing.[8] Failure of the circulation for three to four minutes will lead to irreversible cerebral damage. For every minute that passes after a patient goes into cardiac arrest their chance of survival decreases by seven to ten percent until a defibrillator arrives. When delivered promptly, resuscitation can save the lives of many patients in cardiac arrest.[10] Basic Life Support acts to slow down the deterioration of the brain and heart until defibrillation and or advance life support can be provided. Prompt recognition of cardiopulmonary arrest and prompt instigation of Basic life support can double the patient's chance of survival.[9] In 1954, James Elam was the first to demonstrate experimentally that cardiopulmonary resuscitation (CPR) was a sound technique, and along with Dr. Peter Safar, he demonstrated its superiority to previous methods. Peter Safar wrote the book ABC of resuscitation in 1957 and he is considered as the father of modern day CPR. Over the last decade, the resuscitation principles have changed repeatedly.[6] American heart association in 2010 presented the recent guidelines about basic life support.[8]

Being trained to perform Basic Life Support can make the difference between life and death for a victim.[9] The Basic Life Support is an essential skill taught to the staff nurses.

Nurses require skills of assessment for cardiac arrest and need to initiate Basic Life Support, involving maintaining respiration and circulation for the casualty until emergency services, or advanced life support services, arrive. Another key factor is the ability of those first on the scene to administer basic life support. Basic Life Support training is gaining more importance in nursing education and nurses in particular should be competent in basic life support, as they are the ones most likely to be the first respondents to an in-hospital cardiac arrest. Basic Life Support training is mandatory for nursing staff and is important as nurses often discover the victims of in-hospital cardiac arrest. They are those who frequently call the assistance team. Thus, these professionals need to have updated technical knowledge and practical skills developed to contribute more efficiently to cardiac arrest maneuvers. However, the quality of CPR is critical[12], especially in the developing countries like Ethiopia.

Recognition of cardiac arrest is not always straightforward, especially for nurses.[13] Any confusion on the part of a rescuer can result in a delay in starting Basic life support. Early and good quality Basic life support results in better survival and return the patient to his/her best possible neurological outcome.[11] A study confirmed that there were more than 100 people survived from death every day with the community first aid and basic life support, which had realized community emergency in some countries like Europe and United States.[14] It is well known that in the event of a person suffering a cardiac arrest, successful outcome is dependent on the time taken for resuscitation to commence. Nurses need to know Basic life support to enable them to safely and effectively provide appropriate life saving measures.[15] Successful and unsuccessful cardiopulmonary resuscitation is among the most stressful situations that a nurse has to deal with. Nurses may also suffer physiological and psychological stress following a cardiopulmonary resuscitation attempt. Regular practice and training are necessary to improve Basic life support skills and reduce anxiety among the nursing staff.[16]

The research study showed a high rate of errors occurring in the CPR provided by nursing professionals. More concerning was the lack of professional responsibility in dealing with this inadequacy, and lack of personnel trained in Basic life support. The standardized training of CPR has been emphasized more than ever.[17] Common people in developed countries and regions have received popular education and training of basic life support (BLS). The knowledge and skill about basic life support is considered as the basic requirement and qualification of licensed nurses. BLS is a core competence of nurses but despite of proper training, the quality of Basic life support is often poor and the reasons for this are not well known.[18]

The findings of many research studies suggest that retention of skills and knowledge quickly deteriorates if not used or updated regularly.[19] many different methods of improving this retention have been devised and evaluated. However, the content and style of this training lack standardization.[20] Many victims of cardiac arrest do not receive CPR and, even when it is given by trained nurses, the technique may be inadequate or incorrect.[21] Current style of teaching is

unlikely to result in students being able to perform adequate Basic Life Support. [22]

A study was conducted on assessment of cardiopulmonary resuscitation and defibrillation (CPR-D) skills of staff nurses in two institutions. The purpose of this study was to use Objective Structured Clinical Examination (OSCE) test in assessing guideline based CPR-D skills of newly qualified nurses. The CPR-D skills of newly qualified registered nurses studying in Halmstad University (n=30) Sweden, and Helsinki Metropolia University of Applied Sciences (n=30) Finland, were assessed using an Objective Structured Clinical Examination (OSCE) which was built up with a case of cardiac arrest with ventricular fibrillation as the initial rhythm. Forty-seven percent of the students in the Swedish group and 13% of the students in the Finnish group passed the OSCE (P<0.0001). Performance grade for the Swedish group was 2.9/5.0 and for the Finnish group 2.1/5.0 (P<0.0001). The results shows, CPR-D skills of the newly qualified nurses in both the institutes were clearly under par and were not adequate according to the resuscitation guidelines.[21]

It is very important that every person in the community know about Basic Life Support to save lives and improve the quality of community health. At least the doctors, nursing and paramedical staff are expected to know about it, as they are frequently facing life threatening situations and the knowledge of BLS will be definitely useful.[23] This study aimed to provide hands-on experience in basic life support training in ensuring that staff nurses progress to competent and confident responders in the event of a cardiac related emergency.

2. Objective of the Study

1) To assess the existing knowledge of staff nurses in both experimental group and control group regarding Basic Life Support by administering a knowledge questionnaire.
2) To determine the skill of administering Basic Life Support among staff nurses in both experimental group and control group by using an observational checklist.
3) To evaluate the effectiveness of structured teaching programme as measured by progressive improvement in knowledge scores on Basic Life Support among experimental group by administering a knowledge questionnaire at four different time points after a gap of one week interval.
4) To evaluate the progressive improvement in knowledge scores on Basic Life Support among control group by administering knowledge questionnaire at four different time points after a gap of one-week interval without administering structured teaching programme.
5) To evaluate the effectiveness of structured teaching programme as measured by progressive improvement in skill of administering of Basic Life Support among experimental group and control group by using an observational checklist at four different time points after a gap of one week interval.
6) To compare the Post-test knowledge and skill scores between experimental and control groups.

7) To find an association between knowledge and skill scores of staff nurses on Basic Life Support with selected demographic variables.

3. Methodology

A quasi experimental research with Evaluative approach was used to assess the effect of structured teaching programme on progressive improvement in knowledge and skill in administering BLS among staff nurses Sample size of 80 staff nurses were selected and 40 samples were allocated to experimental group and 40 samples to control group by following inclusion and exclusion criteria using A non probability purposive sampling technique.

After an extensive review of literature and discussion with the experts, a structured questionnaire was developed to assess knowledge, and an observational checklist was developed to assess the skill of staff nurses regarding BLS. The tool developed is based on the modified BLS guidelines given by the American Heart Association (AHA) in 2010. The tool consists of three sections, **Section A**- Demographic data of staff nurses such as gender, age, course, parental income, place of living, BLS training, witnessing somebody giving BLS, and participation BLS. **Section B -** Structured questionnaire to assess the knowledge of staff nurses. It contains 75 multiple choice questions with four options covering all aspects of BLS. The staff nurses were given one and a half hour to complete the questionnaire. The knowledge regarding BLS was measured in terms of knowledge score. Each correct answer was given a score of one mark and wrong answer or unanswered was given a score of zero. The maximum score was 75. To interpret level of knowledge the scores were distributed as follows; Inadequate knowledge - < 50%, Moderate knowledge – 50-75%, Adequate knowledge - > 75%. **Section C:** Observational checklist to assess skill in administering the BLS on a manikin by staff nurses. This contains the statements, which represents the sequential step to be followed while administering the BLS. A score of one was given if the staff nurse performed one-step correctly in order and a score of zero was given if the staff nurse failed to perform the step as per the guidelines given by American Heart Association. The scores were categorized as; Poor skill: <50%, Moderate skill: 50-75%, Adequate skill: >75%.

The tool was validated by 10 experts in the field of medical surgical nursing, anesthesia, emergency medicine, Statistics, and English language expert. Modifications were made on the basis of recommendations and suggestions of the experts. Reliability of the knowledge questionnaire and observational checklist were established by test-retest reliability technique using these values co-efficient correlation was done with the help of Karl Pearson's formula. The reliability score obtained was r= 0.93 for knowledge and r= 0.92 for skill which showed knowledge questionnaire and observational checklist were highly reliable. Hence, the tool was found to be statistically reliable for the main study. The first draft of STP was developed based on the objectives, literature review, and criterion checklist and experts opinion. The other factors that are considered in the development of STP are the understanding

level of samples, their attention span, methods of teaching aids to be adopted, and feasibility of teaching aids.

Permission for data collection was obtained from the ethical committee of the hospital and consent was taken from staff nurses. The main study was conducted during September 2017 and November 2017 for period of 8 weeks at goba referral hospital. Pre test followed by structured teaching programme (STP) on BLS and post-test were given to experimental group. The control group received no teaching but pre- test and post-tests were given to them. After the first administration of STP, a second and third reinforcement was given with STP to the experimental group to improve their knowledge and skill with one-week interval. Seven days after each STP a post-test was given to both control and experimental group. So totally post test I, post test II and post test III were conducted using a structured multiple-choice questionnaire and an observational checklist. The results were described by using descriptive and inferential statistical analysis.

4. Results

Table 1: Association between Experimental Group Post-Test-3 Knowledge Scores With Selected Demographic Variables, N=80

Demographic variables	Categories	Combined knowledge score		Chi-square value	df	P-value	Infer-ence
		Below median	Above median				
Age (yrs)	18-19	17	13	Fisher's exact probabilities = 0.473			NS
	> 20	4	6				
Gender	Male	4	4	Fisher's exact probabilities = 0.592			NS
	Female	17	15				
Place of living	Urban	4	12	8.087	1	0.004	**HS**
	Rural	17	7				
Course	GNM	13	2	11.235	1	0.001	**HS**
	BSc	8	17				
Parental income	<= 20000	16	13	0.302	1	0.583	NS
	> 20000	5	6				
BLS training	Yes	8	17	11.235	1	0.001	**HS**
	No	13	2				
BLS witnessed	Yes	11	8	0.422	1	0.516	NS
	No	10	11				
BLS participated	Yes	1	2	Fisher's exact probabilities = 0.462			NS
	No	20	17				

It can be seen from the table-1 that there is a significant association between improvement in knowledge and place of residence. Staff nurses from urban area had a significant gain in knowledge than staffs from rural area. Similarly, the increment in knowledge was higher among staff nurses completed B.Sc nursing programme compare to GNM programme. As in the pre-test in the post-test-3, also there is significant association between knowledge gain and previous attendance of BLS training. Those staff nurses who attended the BLS training programme previously tent to score more in the post-test than students who never participated in any of the BLS training programme.

Table 2: The Pre Test, Means, Standard Deviation, T, and P Value of Experimental and Control Group, N=80

Pre-test scores	Experimental group		Control group		t-value	P-value	Inference
	Mean	SD	Mean	SD			
Emergency action principle	2.18	1.08	1.78	1.14	1.606	0.112	NS
Steps involved in BLS	1.20	0.79	0.88	0.79	1.838	0.070	NS
General aspects of CPR	2.48	1.47	2.25	1.39	0.704	0.484	NS
Circulation/ compression	6.03	2.62	4.53	2.29	2.730	0.008	**HS**
Airway and breathing	3.63	2.88	3.60	2.44	0.042	0.967	NS
Defibrillation	0.45	0.60	0.20	0.41	2.192	0.031	**S**
Child and infant CPR	1.70	1.40	1.25	0.93	1.695	0.094	NS
Newborn CPR	0.28	0.68	0.30	0.61	-0.174	0.863	NS
Foreign body airway obstruction	2.75	2.06	2.10	1.19	1.727	0.088	NS
Foreign body airway obstruction in Infant	0.78	1.05	0.98	0.97	-0.883	0.380	NS
Combined knowledge score	**21.45**	**7.99**	**17.85**	**6.33**	**2.234**	**0.028**	**S**
Total skill score	**8.40**	**5.04**	**7.70**	**4.96**	**0.626**	**0.533**	**NS**

It can be seen from the table -2 that an independent 't' test done to determine the level of significance between mean post test skill score among experimental and control group showed that the difference was not significant. Thus, any difference in mean score observed is purely a chance factor and not a true difference.

Table 3: Distribution of Samples in the Experimental Group According to their Post Test-3 Score, N=80

Level of scores of different areas (Experimental group): Post-test 3	Inadequate		Moderately adequate		Adequate		Total
	Number	Percent	Number	Percent	Number	Percent	
Emergency action principle	4	10.0	15	37.5	21	52.5	40
Steps involved in BLS	2	5.0	15	37.5	23	57.5	40
General aspects of CPR		0.0	3	7.5	37	92.5	40
Circulation/ compression		0.0	3	7.5	37	92.5	40
Airway and breathing		0.0	11	27.5	29	72.5	40
Defibrillation	13	32.5		0.0	27	67.5	40
Child and infant CPR	1	2.5	6	15.0	33	82.5	40
Newborn CPR	3	7.5	14	35.0	23	57.5	40
Foreign body airway obstruction		0.0	7	17.5	33	82.5	40
Foreign body airway obstruction in Infant		0.0	4	10.0	36	90.0	40
Combined knowledge score		0.0	5	12.5	35	87.5	40
Total skill score		0.0		0.0	40	100.0	40

It can be seen from the table-3 that none of the respondents have inadequate knowledge and only 5 (12.5%) has moderately adequate knowledge and 35 (87.5%) has adequate knowledge. In terms of skill by the time, third reinforcement had given all 40 (100%) samples gained adequate skill, which confirms a repeated reinforcement of knowledge, and skill definitely improves the knowledge and skill of the participants.

Table 4: A repeated measure of Analysis of Variance (r ANOVA) applied to measure the improvement in the knowledge from pre-test through post-test within experimental group

Comparison of combined knowledge score within experimental group	Mean	SD	Mauchly's Chi-square value	P-value	Greenhouse-Geisser F-value	P-value
Pre-test	21.45	7.99				
Post-test-1	42.60	8.33	13.127	0.022	1095.22	0.001
Post-test-2	55.43	8.57				
Post-test-3	65.43	6.12				

The above table shows testing for equality of means from pre-test through different readings to post-test suggests that the knowledge was statistically highly significant (F = 160.699, P = 0.001). This indicates that there is a progressive improvement of knowledge among staff nurses in the experimental group due to administration of structured teaching programme on Basic Life Support. This finding is also supported by the line graph:1- given below.
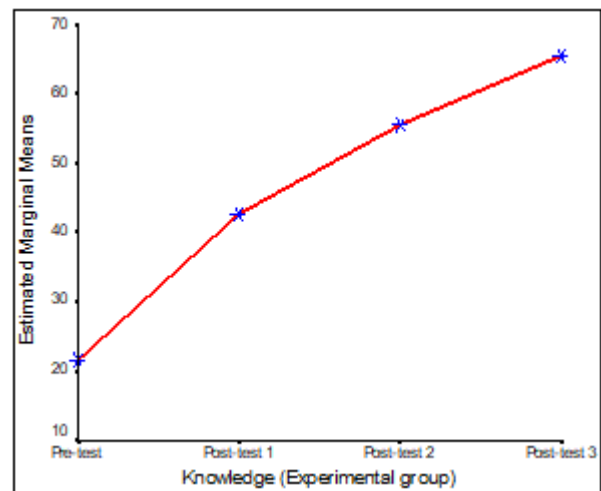

Figure 1: A line graph showing the improvement in the knowledge from pre-test through post-test in experimental group

Table 5: A pair wise comparison from Pre-test to Post-test 1, Post-test 1 to Post-test 2, and Post-test 2 to Post-test 3 of staff nurses of the experimental group

	Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Skill	Pre-test vs. Post-test 1	16524.23	1	16524.23	546.707	0.001
Skill	Post-test 1 vs. Post-test 2	7049.02	1	7049.02	206.394	0.001
Skill	Post-test 23 vs. Post-test 3	1334.03	1	1334.03	185.166	0.001
Error(Skill)	Pre-test vs. Post-test 1	1178.78	39	30.23		
Error(Skill)	Post-test 1 vs. Post-test 2	1331.98	39	34.15		
Error(Skill)	Post-test 23 vs. Post-test 3	280.98	39	7.20		

A pair wise comparison from Pre-test to Post-test 1, Post-test 1 to Post-test 2, Post-test 2 to Post-test 3 of staff nurses of the experimental group clearly indicates that there is statistically highly significant improvement in their skill (P=0.001).

Table 6: A repeated measure of Analysis of Variance (r ANOVA) applied to measure the improvement in the knowledge from pre-test through post-test within control group

Comparison of knowledge within control group	Mean	SD	Mauchly's Chi-square value	P-value	Greenhouse-Geisser F-value	P-value
Pre-test	17.85	6.33	40.366	0.001	41.933	0.001
Post-test-1	20.03	6.37				
Post-test-2	21.38	6.27				
Post-test-3	22.45	6.84				

The table 6 shows the testing for equality of means from pre-test through different readings to post-test suggests that the knowledge was statistically highly significant (F = 41.933, P = 0.001). This indicates that there is a progressive improvement of knowledge among staff nurses in a within the control group even though they were not administered with the structured teaching programme on Basic Life Support, but the improvement in knowledge is more significant in the experimental group.
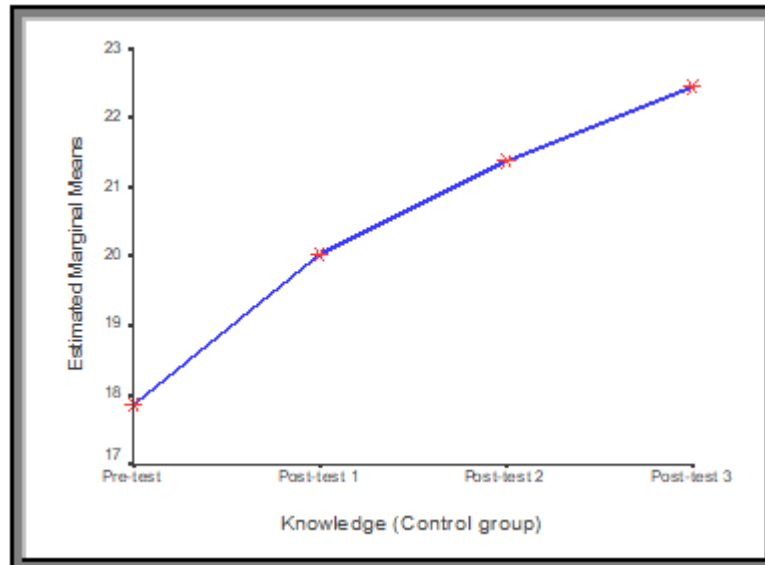

Figure 2: A line graph showing the improvement in the knowledge from pre-test through post-test in control group

Table 7: A pair wise comparison from Pre-test to Post-test 1, Post-test 1 to Post-test 2, Post-test 2 to Post-test 3 of staff nurses of the control group

	Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Knowledge	Pre-test vs. Post-test 1	189.23	1.00	189.23	27.98	0.001
Knowledge	Post-test 1 vs. Post-test 2	72.90	1.00	72.90	15.20	0.001
Knowledge	Post-test 2 vs. Post-test 3	46.23	1.00	46.23	17.54	0.001
Error (knowledge)	Pre-test vs. Post-test 1	263.78	39.00	6.76		
Error (knowledge)	Post-test 1 vs. Post-test 2	187.10	39.00	4.80		
Error (knowledge)	Post-test 23 vs. Post-test 3	102.78	39.00	2.64		

A pair wise comparison from Pre-test to Post-test 1, Post-test 1 to Post-test 2, Post-test 2 to Post-test 3 of staff nurses of the control group clearly indicates that there is statistically highly significant improvement in their knowledge (P=0.001).

Table 8: A repeated measure of Analysis of Variance (r ANOVA) applied to measure the improvement in the skill from pre-test through post-test within control group

Comparison of skill within control group	Mean	SD	Mauchly's Chi-square value	P-value	Greenhouse-Geisser F-value	P-value
Pre-test	7.70	4.96	76.361	0.001	108.721	0.001
Post-test-1	9.63	5.06				
Post-test-2	11.12	4.97				
Post-test-3	12.10	5.67				

The testing for equality of means from pre-test through different readings to post-test suggests that the skill was statistically highly significant (F = 108.721, P = 0.001). This indicates that there is a progressive improvement of skill among staff nurses within the control group even though they were not administered with the structured teaching programme on Basic Life Support.
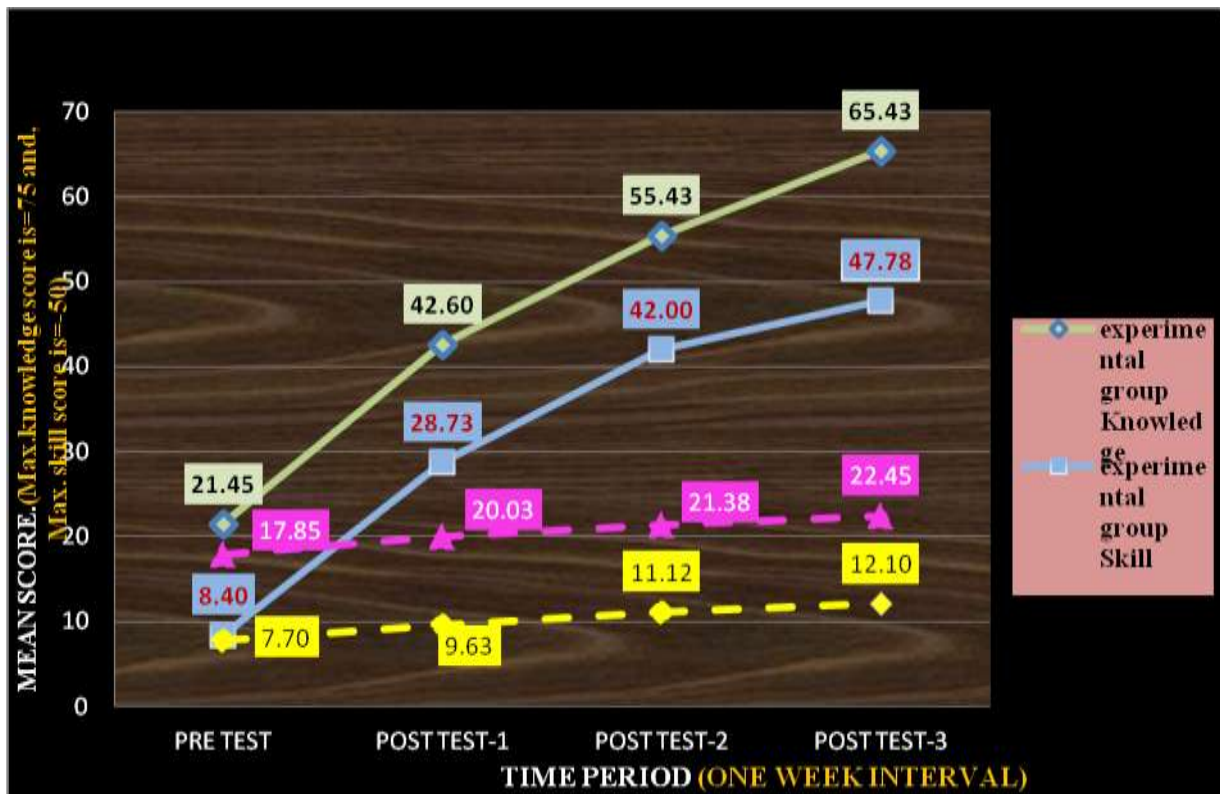
Figure 15: Graph showing comparison of mean knowledge and skill scores of experimental & control groups at four multiple ponit of time

5. Discussion

After the first teaching and demonstration of BLS, the mean skill score of the staff nurses in the experimental group increased from 8.40 to 28.73 that are much higher from the improvement in control group where the mean skill score increased from 7.70 to 9.63. This marginal improvement in the mean skill score of experimental group compared to control group is statistically significant at 0.1% level of significance (P-0.001). Hence, we can authentically say that the difference found among experimental group and control group is a true difference not a chance finding. The percentage of enrichment from pre test to post test is 241.96 in experimental group where as in the control group it is 25.06%. These results show the effectiveness of structured teaching programme on improving the skill of administering BLS among staff nurses.

To find out the improvement in knowledge at multiple point of time, a repeated measure of analysis of variance (r ANOVA) was computed, the testing for equality of means from pre test through different readings to post test 3 suggest that the knowledge was statistically highly significant (F=160.699, P=0.001). This indicates that there is a progressive improvement of knowledge among staff nurses in experimental group due to the administration of structured teaching programme on basic life support at multiple point of time.

6. Implications of the Study

The findings of the study have implications in the field of nursing practice, nursing education, nursing administration and nursing research.

Implication for nursing practice
The present study reflects that to be competent in knowledge and skill one should get proper training in theory as well as practice. Clinical nurse can use the study findings and get trained to achieve optimum skill and knowledge in all complex nursing procedures especially in BLS.

Implication in nursing education
The nurse educator can very well implement the findings while training the budding nurses This fact can be applied while training the student nurses so that they will be equipped with the needed knowledge, skill and attitude to face all the challenges in their future endovers.

Implication in nursing administration
Nurse administrators can plan and implement continuing nursing education plan to train the working nurses to attain adequate knowledge and skill in BLS. The training and certification on BLS should make compulsory for all nurses before registration and practice.

Implication in nursing research
Hence the study proves the necessity of repeated reinforcement to attain optimum skill and knowledge on BLS, further research can be carried out in a different setting by avoiding all limitations of the present study will definitely come out with the findings, that can be generalized.

7. Delimitations

1) Study is delimited to staff nurses of goba referral hospital

2) In present study, the retention of the knowledge and skill was not well estimated because of time limitation as the prescribed data collection period is only 8 weeks.

3) Non-probability purposive sampling technique has selected to recruit samples.

8. Recommendation

1) This same study can implement using a probability sampling technique and increasing sample size.

2) Similar study can implement by increasing the duration between successive administrations of structured teaching programme.

3) The retention of knowledge and skill can be measured after one year by comparing two groups as one receives single and the other with multiple training.

4) A new study can be conducted to compare the effectiveness of different methods of training the BLS.

5) An exploratory study can be conducted to assess the attitude of staff nurses and nursing students in performing BLS in hospital and in other public places.

9. Conclusion

The overall findings of the study clearly showed that the repeated administration of structured teaching programme was significantly effective in improving the knowledge and skill on BLS among staff nurses.

References

[1] American heart association statistical report tracks global figures for first time, cited at https://news.heart.org/American-heart- association-statistical-report-tracks-global-figures-first-time/

[2] Richard M. Hodes, Pattern of heart disease in Ethiopia as seen in a cardiology referral clinic, Cardiology 75: 458-464 (1988).

[3] Tsegalem Hailemarium, Prevalence of cardiovascular emergencies in specialized hospital, Addis Ababa, Ethiopia.Emergency Med 4: 198.doi:10.4172/2165-7548.

[4] World Health Organization Statistical Information System (WHOSIS).Cardiovascular Disease Statistics. Available in-http://www3.who.int/whosis/menu.cfm.

[5] Russell D. Metcalfe-Smith. Performing Basic Life Support. Nursing Practice, Clinical Research. 2003 Oct-7, 99(40); 20

[6] Wikipedia Free Encyclopaedia. Available in-http://Wikipedia.org.

[7] Lewis, Heitkemper, Dirksen O'Brien, Bucher. Medical Surgical Nursing. Seventh edition. Nodia: Elsevier publication; 2007.

[8] American Heart Association. Adult Basic Life Support and Paediatric Basic Life Support Guidelines. 2010 Pp: 15- 28.

[9] Russell D. Metcalfe-Smith. Performing Basic Life Support. Nursing Practice, Clinical Research. 2003 Oct-7, 99(40); 20

[10] Brendan Docherty. Basic Life Support and AED. Clinical Manager Cardiology and Critical Care. 2003, August: 56-59.

[11] Stapleton ER. Basic life support cardiopulmonary resuscitation. Cardiology Clinic . 2002 Feb;20(1):1-12.

[12] Lynn Curry, David Gass, Effects of training in cardiopulmonary resuscitation on competence and patient outcome CMAJ, VOL. 137, SEPTEMBER 15, 1987

[13] Jasmeet Soar, Koenraad G. Monsieurs, John H.W. Ballance, Alessandro BarelliEuropean et al. Resuscitation Council Guidelines for Resuscitation 2010 Section 9. Principles of education in resuscitation. Journal of Resuscitation. 2010, October, pages 1434 – 1444.

[14] Resuscitation Training: A Time for Reassessment. Journal of Cardiovascular Nursing. 1996. July. Volume 10. Issue 4

[15] Hussain Marzooq, Joy Lyneham. Cardiopulmonary resuscitation knowledge among nurses working in Bahrain. International Journal of Nursing Practice. 2009. August. Volume 15, Issue 4, pages 294–302.

[16] Castle N, Garton H, Kenward G.Confidence vs competence: basic life support skills of health professionals. Br J Nurs. 2007 Jun 14-27;16(11):664-6.

[17] Drotske JS, De Villiers PJT. Resuscitation debriefing for nurses at the Accident and Emergency Unit of St Dominique's Hospital in East London (South Africa). SA Fam Pract 2007, 49(10); 17

[18] Chen Xiu-zhen, Zhang Rui-lian, Fu Yan-mei, Wang Tao. Survey of knowledge of cardiopulmonary resuscitation in nurses of community-based health services in Hainan province. Al Ame en Journal Medical Science. 2008, 1(2); 93-98.

[19] Nagashima K, Takahata O, Fujimoto K, Suzuki A. Investigation on nurses' knowledge of and experience in cardiopulmonary resuscitation and on nurses' knowledge of the guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Masui. 2003 Apr;52(4):427-30.

[20] Thomas C Hughes Zoeb Jiwaji , Kamaldeep Lally , Antonia Lloyd-Lavery et al. Advanced Cardiac Resuscitation Evaluation (ACRE): A randomised single-blind controlled trial of peer-led vs. expert-led advanced resuscitation training Scandinavian Journal of Trauma. 2010, 18:3doi:10.1186/1757-7241-18-3

[21] Chamberlain D, Smith A, Woollard M, Colquhoun M et al. Trials of teaching methods in basic life support: comparison of simulated CPR performance after first training and at 6 months, with a note on the value of re-training. Resuscitation. 2008 May; 53(2):179-87.

[22] Makinen, Marja, Axelsson, Asa, Castrén, Maaret. Assessment of CPR-D skills of nursing students in two institutions: reality versus recommendations in the guidelines. European Journal of Emergency Medicine.2009 Sep-18; 665-669.

[23] Steen PA, Kramer-Johansen J. Improving cardiopulmonary resuscitation quality to ensure survival. Curr Opin Crit Care. 2008 Jun;14(3):299-304.