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**Study to Assess and Evaluate the Effectiveness of a Planned Teaching Programme Regarding Basic Life Support In Terms of Knowledge and Skill of Nursing Students in Selected College of Nursing in Delhi**

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**ABSTRACT**

A study was conducted among BSc Nursing students to assess and evaluate the effectiveness of a planned Teaching Programme regarding Basic Life support in college of Nursing in Delhi. The research design used for the study was Pre experimental one group Pre test Post test design. Simple random sampling technique by lottery method was used for selecting the sample. The sample consisted of thirty in number. The tool used for the study was structured knowledge questionnaire and observation checklist. The findings of the study revealed that the planned teaching programme and demonstration on basic life support was effective in enhancing the knowledge as well as skill of the nursing students .

**Key Words: Planned Teaching Programme, Knowledge and Skill of nursing students, Basic Life support**

**INTRODUCTION:**

Coronary heart disease is the leading cause of death in most developing countries with over half of this due to sudden cardiac arrest. It is widely acknowledged that unless effective CPR is initiated death is inevitable. Furthermore, it has recently been reported that the speed and competence of the first responder are important factors that contribute to the initial survival of a person following a cardiac arrest.(CPR statistics AHA 2010)

The Basic Life Support is an essential skill taught to the nursing students. 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. All nurses with a responsibility for patients must be offered regular training and updates in resuscitation. As registered nurses, we all have a responsibility to ensure we remain competent to perform resuscitation.

**REVIEW OF LITERATURE:**

**Abhilash SP, Namboodiri N. (2014)** Kerala, India reported that sudden cardiac death (SCD) is an unexpected death due to cardiac causes that occurs in a short time period (generally within 1 h of symptom onset) in a person with known or unknown cardiac disease. It is believed to be involved in nearly a quarter of human deaths, with ventricular fibrillation being the most common mechanism. It is estimated that more than 7 million lives per year are lost to SCD worldwide.

**Dal U, Sarpkaya D(2013)** conducted a study in East University North Cyprus to determine the cardiopulmonary resuscitation (CPR) knowledge and skill levels of nursing students. The study design was quasi-experimental and longitudinal. A questionnaire was applied to the students before the CPR lecture. Practice of CPR was learned on a Resusci-Anne manikin. One and six months after this training the same questionnaire and skills checklist of CPR were applied. The study results showed that the average CPR knowledge and skill score of these students increased one month after the CPR lecture and CPR skills training and the score got decreased after six months ( $p < 0.05$ ). : From the above findings it was concluded 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.

**Chung SP, Cho J,etal (2011)** conducted a study at Yonsei University College of Medicine, Seoul, Korea to compare the cardiopulmonary resuscitation (CPR) team dynamics and performance between a conventional simulation training group and a script-based training group This was a prospective randomised controlled trial of educational intervention for CPR team training. Fourteen teams, each consisting of five members, were recruited. The conventional group (C) received training using a didactic lecture and simulation with debriefing, while the script group (S) received training using a resuscitation script.

#### **OBJECTIVES:**

1. To develop a planned teaching programme (PTP) on Basic Life support for the Nursing students.
2. To assess and evaluate the knowledge of Nursing students regarding basic life support before and after the administration of PTP.
3. To assess and evaluate the skill of Nursing students regarding Basic life support before and after the administration of PTP.
4. To determine the relationship between post test knowledge and skill of nursing students regarding Basic Life support.

#### **METHODOLOGY:**

The research approach chosen for the present study was evaluative research approach. The research design chosen for this study was pre experimental one group pre test post test design.

**Population:** The study population for this study was BSc Nursing Students.

**Sample and sampling size;** 2nd year BSc Nursing students were the sample. Sample size was 30.

**Sampling Technique:** Simple random sampling technique was used for this study

#### **HYPOTHESIS:**

- $H_1$ . The mean post test knowledge score of nursing students regarding basic life support will be significantly higher than the mean pre-test knowledge score as evident from the structured knowledge questionnaire at 0.05 level of significance.
- $H_2$ . The mean post test skill score of nursing students regarding basic life support will be significantly higher than the mean pre test skill score as evident from the observation checklist at 0.05 level of significance.
- $H_3$ . There will be a significant relationship between the post test knowledge scores and post test skill scores of nursing students regarding basic life support as evident by structured knowledge questionnaire and observation checklist at 0.05 level of significance

#### **Variables under study**

- **Independent variables:** In the present study planned teaching programme with demonstration of basic life support on a mannequin was the independent variable.
- **Dependent variables:** In the present study the dependent variables were the knowledge and skill of nursing students regarding basic life support.

**Data collection tools and technique**

S.NO	TOOL	PURPOSE	DATA COLLECTION TECHNIQUE
1	Structured knowledge questionnaire	To assess the knowledge of BSc Nursing 2 <sup>nd</sup> year students regarding BLS	paper and pencil
2	Observation checklist	To assess the skill of nursing students in basic life support.	Observation

**Content validity of the tool:** The content validity of the structured knowledge questionnaire was established by submitting to nine experts in the fields of Medical Surgical Nursing, Community Health Nursing and psychiatric nursing and one cardiologist.

**Reliability of the tool:** The structured questionnaire was administered to ten nursing students. The reliability of the Structured questionnaire was established by using Kuder Richardson formula (KR-20) The reliability coefficient was 0.8 which was found to be highly reliable.

**Pilot study:** After obtaining formal administrative approval from the principal of the Nightingale Institute of Nursing the pilot study was conducted from 28-11-2013 to 11-12-2013 among 2<sup>nd</sup> year BSc nursing students.

**Final study:** Holy Family College of Nursing

**Table1: Frequency and Percentage Distribution of the Demographic Characteristics of the Nursing Students**

S No	Sample characteristics	Frequency	Percentage (%)
1	Age in years		
	1.1 17-19	24	80
	1.2 20-22	6	20
2	Source of information on BLS		
	2.1 teachers	30	100
	2.2 other sources		
	• Internet	25	83
	• Friends	5	17
3	Had attended any formal education/teaching on BLS		
	3.1 Yes	30	100
		0	0

	3.2No		
4	Had practiced BLS on a manikin		
	4.1 Yes	4	13
	4.2No	26	87

The data presented in Table 1 indicates that Majority of the sample belonged to the age group 17-19 years (80%) and 6(20%) belonged to the age group 20-22years. Regarding source of information (100%) was having some information from teachers. (83%) 25 were having information from teachers as well as from internet. 5 (17%) were having information from teachers as well as from friends. (100 %) of the sample had attended the formal teaching on BLS before the study. Only 4 (13%) had practiced BLS on a mannequin before the study.

**Table2: Mean, Median, Standard Deviation of Pre-test and Post Test Knowledge Scores of Nursing students on a Structured Knowledge Questionnaire on Basic Life Support.**

N=30

Knowledge test	Mean	Median	Standard Deviation
Pre-test	22.36	23.5	4.92
Post-test	31.13	32.5	2.91

Maximum score=40

The data presented in Table 2 indicates that the mean post test knowledge score (31.13) of nursing students was higher than the mean pre-test knowledge score (22.36). As the mean post test knowledge was higher than mean pre-test knowledge score, the PTP was effective in improving the knowledge of the nursing students studying in the college of Nursing The mean and median were closer to each other. The findings also revealed that post test knowledge scores were more homogenous (SD 2.91) than the pre-test knowledge scores (SD 4.92). This indicates a marginal reduction in the variability of the scores

**Table 3: Area wise Mean, Mean Percentage & Mean percentage Gain of Pre-test and Posttest Knowledge Scores of the Nursing Students on Basic life Support**

N=30

S. No.	Areas	Max scores	Pre Test		Post Test		Mean % niag
			Mean Score	Mean % score	Mean score	Mean % score	
1	Anatomy and physiology of heart and lung	2	1.2	18.5	1.7	26	7.5
2	Concept of cardiorespiratory arrest	8	4.6	17.5	5.9	22.1	4.6
3	Causes of cardiorespiratory Arrest.	2	1.4	21	1.86	28	7

4	Assessment of cardiorespiratory arrest.	3	1.6	16.3	2.23	22.33	6.03
5	Method of performing BLS	22	12.1	16.5	17.6	24	7.5
6	Complications of BLS.	3	1.53	15.33	1.86	18.66	3.33

Maximum score=40

The data presented in Table 3 indicates that the lowest pre-test mean percentage score was (15.33%) in the area of complications of BLS. It represents that maximum knowledge deficit existed in this area followed by assessment of cardiorespiratory arrest(16.3%),method of performing BLS (16.5%) ,concept of cardiorespiratory arrest (17.7%), Anatomy and physiology of heart and lung(18.5%) and causes of cardiorespiratory arrest (21 %), which is the minimum knowledge deficit area. Thus there is gain in knowledge in all the learning areas, thereby indicating the effectiveness of PTP on basic life support.

**Table 4: Area wise Mean, Actual Gain and Modified Gain Scores Obtained by Nursing Students on Structured Knowledge Questionnaire N=30**

S. No.	Area	Max possible score	Mean scores		Actual gain scores	Possible gain scores	Modified gain scores
			Pre test	Post test			
1	Anatomy and physiology of heart and lung	2	1.2	1.7	0.5	0.8	0.62
2	Concept of cardiorespiratory arrest	8	4.6	5.9	1.3	3.4	0.38
3	Causes of cardiorespiratory Arrest.	2	1.4	1.86	0.46	0.6	0.76
4	Assessment of cardiorespiratory arrest.	3	1.6	2.23	0.63	1.4	0.45
5	Method of performing BLS	22	12.1	17.6	5.5	9.9	0.55
6	Complications of BLS.	3	1.53	1.86	0.33	1.47	0.22

Maximum score=40

The data presented in Table-4 reveals that the maximum gain has been in the area of causes of cardiorespiratory arrest (0.76).The second highest gain was in the area of anatomy and physiology of heart and lung(0.62), followed by method of performing BLS (0.55) ,assessment of cardiorespiratory arrest(0.45) concept of cardiorespiratory arrest(0.38) and complications of BLS (0.22).

**Table 5: Mean, Mean Difference, Standard Deviation of the Difference, Standard Error Of Mean Difference of Pre-test and Post- test Knowledge Scores of Nursing Students and t Value N=30**

Knowledge Test	Mean	Mean <sub>D</sub>	SD <sub>D</sub>	SE <sub>MD</sub>	t value
Pre Test	22.36	8.5	3.98	0.53	11.67*
Post Test	31.13				

\*significant at 0.05 level of significance

$p \leq 0.05$

$t(29) = 2.04$  at 0.05 level of significance

The data presented in Table 5 shows that the mean post test knowledge score (31.13) of nursing students was higher than the pre-test knowledge score (22.36) with a mean difference of 8.5. The obtained mean difference was found to be statistically significant as evident from the t value of 11.67 for  $df(29)$  which is greater than the table value at 0.05 level of significance. This shows that the obtained mean difference was a true difference and not by chance. Hence null hypothesis  $H_0$  was rejected and research hypothesis  $H_1$  was accepted, so it can be inferred that the PTP on basic life support was an effective method for increasing the knowledge of the nursing students.

**Table 6: Mean Median, Standard Deviation of Pre-test and Post – test skill Scores obtained By the Nursing Students on Basic Life Support. N=30**

Skill Test	Mean	Median	Standard Deviation
Pre Test	3.2	3.5	1.05
Post Test	8.46	8.5	0.88

Maximum score=12

The data presented in Table 6 indicates that the mean post test skill score (8.46) was higher than the mean pretest skill score (3.2). These findings suggest the enhancement of skill score of nursing students after administration of the demonstration on basic life support. The findings also point out that the standard deviation of post test (0.88) is less than the SD of pre test score (1.05). The findings also revealed that post test skill scores are more homogenous (SD 0.88) than the pre-test skill scores (SD 1.05). This indicates a marginal reduction in the variability of scores.

**Table 7: Area Wise Mean, Mean Percentage of Pre -test and Post- test Skill Scores and Mean Percentage Gain of Nursing Students on Basic Life Support. N=30**

S. No.	Areas	Max. Score	Pre test		Post test		Mean % gain
			Mean scores	Mean % scores	Mean scores	Mean % Scores	
1	Assessment of the victim	4	1.3	9.79	3.43	25.75	15.96
2	Chest Compression	6	1.3	6.5	3.6	18	11.5
3	Breathing	2	0.566	8.5	1.5	22.5	14

Maximum score=12

It is evident from Table 7 that the lowest mean percentage of pre test score in the area of compression (6.5) indicating highest knowledge deficit and followed by breathing(8.5). The lowest deficit was in the area related to assessment of the victim (6.5). It further depicts that the highest mean percentage gain was in the area of assessment of the victim (15.96).

The maximum mean percentage gain was in the area of assessment of the victim (15.96) followed by breathing (14) and compression (11.5). The post test mean percentage skill scores indicates that skill did improve after PTP.

**Table 8: Area wise Pre-test and Post- test Mean Scores, Actualgain and Modified Gain on Skill Scores Obtained by Nursing Students. N=30**

S. No.	Area	Maximum possible scores	Mean scores		Actual gain score	Possible gain score	Modified gain score
			Pre test	Post test			
1	Assessment of the victim	4	1.3	3.43	2.13	2.7	0.78
2	Chest compression	6	1.3	3.6	2.3	4.7	0.48
3	Breathing	2	0.566	1.5	0.934	1.434	0.65

Maximum score=12

The data presented in Table 8 reveals that the maximum gain was in the area of assessment of the victim (0.78) ,followed by breathing (0.65) and Chest compression(0.48).There is gain in skill in all areas thereby indicating the effectiveness of demonstration in enhancing the skill of Nursing students.

**Table 9: Mean, Mean Difference, Standard Deviation of Difference, Standard Error of Mean Difference and t value of Pre test to Post test Skill Scores. N=30**

Skill test	Mean	Mean difference	Standard deviation of the difference	Standard error of mean difference	t-value
Pre Test	3.2	5.3	0.84	0.17	31.71*
Post test	8.46				

\*Significant at 0.05 level of significance

$p \leq 0.05$

$t(29) = 2.04$  at 0.05 level of significance

The data presented in Table 9 shows that the mean post test skill score (8.46) of nursing students was higher than then their mean pre test skill score (3.2) with mean difference of 5.3. The obtained mean difference was found to be statistically significant as evident from their t value of 31.71 ford(29) which is greater than the table value at 0.05 level of significance . This shows that the obtained mean difference is a true difference and not by chance Hence null hypothesis  $H_{02}$  was rejected and research hypothesis  $H_2$  was accepted, so it can be inferred that the demonstration on basic life support was an effective way for enhancing the skills of nursing students.

**Table10: Correlation between the Post- test knowledge Score and Post- test Skill Score Obtained by Nursing Students on Basic Life Support N=30**

Test	Knowledge score		Skill score		r- value
Post test	Mean	SD	Mean	SD	0.63*
	31.13	2.91	8.46	0.88	

\*Significant positive correlation.

### CONCLUSION:

1. Planned teaching programme enhanced the knowledge of nursing students regarding basic life support.
2. PTP was effective in enhancing the skill of nursing students to perform BLS.
3. There was a positive relationship between enhancement of knowledge and skill to perform BLS of Nursing students.

**DISCUSSION:** Findings of the study were consistent with the study conducted by Rekha Ruth (1995) to evaluate the effectiveness of PTP in terms of knowledge and skill of staff nurses regarding BLS. She found that the subjects exposed to planned teaching programme gained significant knowledge and demonstrated better skill to perform basic life support measure. It was concluded that PTP was effective for enhancing knowledge and skill of staff nurses.

### LIMITATIONS:

The limitations of the present study were:

The study was confined to a small sample i.e. only 30 Nursing students of a selected college of nursing which limits generalization of the findings

### RECOMMENDATIONS:

The study can be replicated on a larger sample of nursing students for the generalization of its findings

1. A similar study can be done with an experimental research approach considering pre test, post test control group design.
2. A similar study can be conducted among staff nurses.
3. A study can be done at community level among school students.
4. A follow up study can be conducted to assess the retention of knowledge and skill of nursing students regarding basic life support.

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