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A Study To Assess The Effectiveness Of Repeated Structured Teaching Programme On Progressive Improvement In Knowledge And Skill Of Administrating Basic Life Support Among Student Nurses In Adesh College Of Nursing, Bathinda, Punjab.

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Abstract:
Background: *Quite a number of studies revealed the fact that knowledge and skill regarding basic life support is very poor among Student nurses. It is also documented that the knowledge and skill deteriorates after months from the training period. Hence, the researcher decided to implement the training repeatedly until the student nurses achieve optimum knowledge and skill.*
Objectives: *To compare the Post-test knowledge scores between experimental and control groups. To compare the Post-test skill scores between experimental and control groups. To find an association between knowledge scores of student nurses on Basic Life Support with selected demographic variables. To find an association between skills scores of student nurses on Basic Life Support with selected demographic variables.*
Methods : *A quasi-experimental time series design was used for this study. Non-probability convenience samples of 60 B.Sc. (N) 1st year student nurses were randomly assigned to both control and experimental group. Pre-test followed by structured teaching programme (STP) and demonstration 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.*
Results : *The Repeated Teaching Programme was highly effective in improving the knowledge of student nurses regarding basic life support in experimental group as compared to control group.*
Conclusion: *The repeated administration of STP and demonstration was an effective method of improvement of knowledge and skill on BLS among student nurses.*
Key words: *Effectiveness, knowledge of student nurses, repeated structured teaching programme.*

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I. Introduction

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.[1] 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 death occurs when the heart's electrical system malfunctions and the hearts stop pumping. Sudden cardiac arrest is a medical emergency, which can be fatal if not treated immediately. A healthy heart pumps 55% or more of its blood with each beat. People at highest risk for sudden cardiac death (SCD) have ejection fractions of less than 40%, combined with ventricular tachycardia, an abnormally fast heart rate in the lower chambers of heart.[2] 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.[3] Survival of sudden cardiac death has been made possible by the development of basic cardiac life support (BCLS) knowledge and skills that include preventive and restorative aspects of emergency cardiac care. Sudden cardiac arrest occurring outside the hospital is one of the leading causes of death in the developed world and claims 350,000 to 450,000 lives per year in the United States. Despite recent advancements in resuscitative care and continuing efforts to improve public awareness of sudden cardiac arrest in the community, overall survival still remains low.[4] Good quality basic life support (BLS) results in better survival. 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.[5] The provision of prompt effective resuscitation is fundamental in ensuring successful outcomes following cardiac arrest. Basic Life Support competency is considered a fundamental skill for health care workers.[6]

Aim of study:

Aim of the study is to assess knowledge and skill of administering Basic Life support by repeated teaching and demonstration. Repeated reinforcement improves retention of knowledge and skill.

Objectives:

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.

To evaluate the progressive improvement in knowledge scores on Basic Life Support among control group nursing students by administering knowledge questionnaire at four different time points after a gap of one-week interval.

To evaluate the effectiveness of structured teaching programme as measured by progressive improvement in skill of administering of Basic Life Support among experimental group by using an observational checklist at four different time points after a gap of one week interval.

To compare the Post-test knowledge scores between experimental and control groups.

To compare the Post-test skill scores between experimental and control groups.

To find an association between knowledge scores of student nurses on Basic Life Support with selected demographic variables.

To find an association between skills scores of student nurses on Basic Life Support with selected demographic variables.

II. Material And Methods

Research approach: An evaluative research approach was used.
Research design: Quasi-experimental time series design.
Research setting: Adesh College of Nursing and Baba Moni ji Maharaj College of Nursing, Bathinda (Punjab).
Target population: The target population was the Nursing students.
Sample: the sample for the present study comprises of 60 students nurses.30 students were enrolled from Adesh College Nursing and 30 students were enrolled from Baba Moni ji Maharaj College of Nursing Bathinda, (Punjab).
Sampling technique: Non–probability convenience sampling technique was used to select the sample for this study.

Selection and development of tool:

Part I: It consists of demographic variables having 10 questions comprising of age, sex, family income, area of residence, religion, family type, occupation of father and mother, education of father and mother.
Part II: Structured Questionnaire for assessing knowledge of Basic Life Support and an observational check list for assessing each student's skill of performing BLS at multiple point of time.
Part III: It consist structured teaching programme and demonstration with the help of manikin related to Basic life support.

Procedure for data collection:

Formal written permission was obtained from Research committee as well as ethical committee and Principal College of Nursing, Adesh University and Baba Moni ji Maharaj College of Nursing, Bathinda (Punjab) for conducting the study. The main study was conducted in the month of March and April 2016. The investigator planned arbitrarily to take each of 30 students in control group and experimental group who was available at the time of data collection. The investigator explained the purpose of the study and reassured that the data collected would be kept confidential. The investigator obtained the consent from the subjects prior to the study.

Analysis of data :

Both descriptive and inferential statistics were used in the study. Description of the respondents with respect to socio-demographic variables presented in terms of frequency and percentage.Mean and standard deviation were used to determine the knowledge and skill of student nurses regarding BLS. A repeated measure of ANOVA was used to test the significant improvement in knowledge and skill scores, which is measured at

multiple point of time in control group and experimental group.Paired t-test was used to assess the significant improvement of knowledge and skill in experimental group compared to control group.Chi-square (X^2) test was used for finding out the association between the knowledge and skill with selected socio-demographic variables.

III. Results

Organization and presentation of the data:

The data collected were edited, tabulated, analyzed, interpreted and findings obtained were presented in the form of tables and diagrams represent under following sections:

Section I: Frequency and percentage distribution of Socio-demographic data of the student nurses.

Section II:

Findings related to knowledge and skill of student nurses regarding BLS in pre-test and its comparison among both groups.

Mean, standard deviation and mean percentage of knowledge of student nursesof both experimental and control group regarding Basic life support.

Frequency of knowledge scores of respondents for experimental and control group.

Section III:

Findings related to the effectiveness of structured teaching programme on improving knowledge and skill within in experimental group.

Mean, standard deviation, mean percentage and percentage of enrichment within experimental group in terms of knowledge and skill.

A repeated measures of analysis of variance (r ANOVA) tests of within-subjects effects, applied to measure the improvement in the knowledge and skill regarding Basic life support between pre-test and three points post-test.

Section IV:

Findings related to improvement in knowledge and skill in control group.

Mean, standard deviation, mean percentage and percentage of enrichment within control group in terms of knowledge and skill.

A repeated measures of analysis of variance (r ANOVA) tests of within-subjects effects, applied to measure the improvement in the knowledge and skill regarding Basic life support between pre-test and three points post-test.

Section V:

Findings related to association of knowledge and skill of student nurses regarding BLS with selected socio-demographic variables.

Table 1: frequency and percentage distribution of socio-demographic variables in experimental group and control group

Socio-demographic variables		Experimental (n=30)		Control (n=30)	
		f	Percentage	f	Percentage
Age (in year)	17	3	10.0	2	6.7
	18	18	60.0	12	40.0
	19	7	23.3	13	43.3
	20	2	6.7	3	10.0
sex	Male	1	3.3	3	10.0
	Female	29	96.7	27	90.0
Family income	Below 1.5 lakhs	21	70.0	24	80.0
	Above 1.5 lakhs	9	30.0	6	20.0
Area of residence	Urban	6	20.0	9	30.0
	Rural	24	80.0	21	70.0
Religion	Sikh	29	96.7	24	80.0
	Muslim			1	3.3
	Hindu			5	16.7
	Christian	1	3.3		
Type of family	Nuclear	20	66.7	21	70.0
	Joint	10	33.33	9	30.0
Occupation of father	Employee	4	13.30	7	23.30
	businessman	26	86.70	23	76.70
Occupation of mother	Housewife	27	90.0	28	93.30
	Working	3	10.0	2	6.70
Education of father	Up to matric	16	53.30	23	76.70
	Above matric	14	46.70	7	23.30

Education of mother	Up to matric	20	66.70	24	80.0
	Above matric	10	33.30	6	20.0

Table-2: Mean, standard deviation, mean percentage and percentage of enrichment within Experimental group in terms of Knowledge.

Comparison of knowledge within experimental group (n=30)	**Max. score**	**Mean**	**S.D**	**Mean%**	**Percentage of Enrichment**
Pre-test	41	18.30	2.466	44.63	
Post-test-1	41	26.73	2.993	65.19	46.06
Post-test-2	41	33.33	3.111	81.29	24.69
Post-test-3	41	39.93	.828	97.39	19.80

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

Table-3: Mean, standard deviation, mean percentage and percentage of enrichment of Skill within Experimental group.

Comparison of skill within experimental group (n=30)	**Max. score**	**Mean**	**S.D**	**Mean%**	**Percentage of Enrichment**
Pre-test	9	1.47	0.776	16.33	
Post-test-1	9	4.67	1.561	51.88	217.69
Post-test-2	9	8.00	0.263	88.88	71.31
Post-test-3	9	8.93	0.254	99.22	11.63

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

Table-4: Mean standard deviation, mean percentage and percentage of enrichment within control group in terms of knowledge.

Comparison of knowledge within control group (n=30)	**Max. score**	**Mean**	**S.D**	**Mean%**	**Percentage of Enrichment**
Pre-test	41	15.00	4.871	36.58	
Post-test-1	41	15.03	2.526	36.65	0.19
Post-test-2	41	15.17	2.245	37	0.95
Post-test-3	41	15.20	3.357	37.07	0.18

Figure 3: A line graph showing the improvement in the Knowledge from pre-test through post-test in Control group**.**

Table-5:Mean, standard deviation, mean percentage and percentage of enrichment of Skill within Control group.

Comparison of Skill within Control group (n=30)	**Max. score**	**Mean**	**S.D**	**Mean%**	**Percentage of Enrichment**
Pre-test	9	1.60	1.003	17.77	
Post-test-1	9	2.40	.814	26.66	50.02
Post-test-2	9	2.80	.714	31.11	16.69
Post-test-3	9	2.93	.365	32.55	4.62

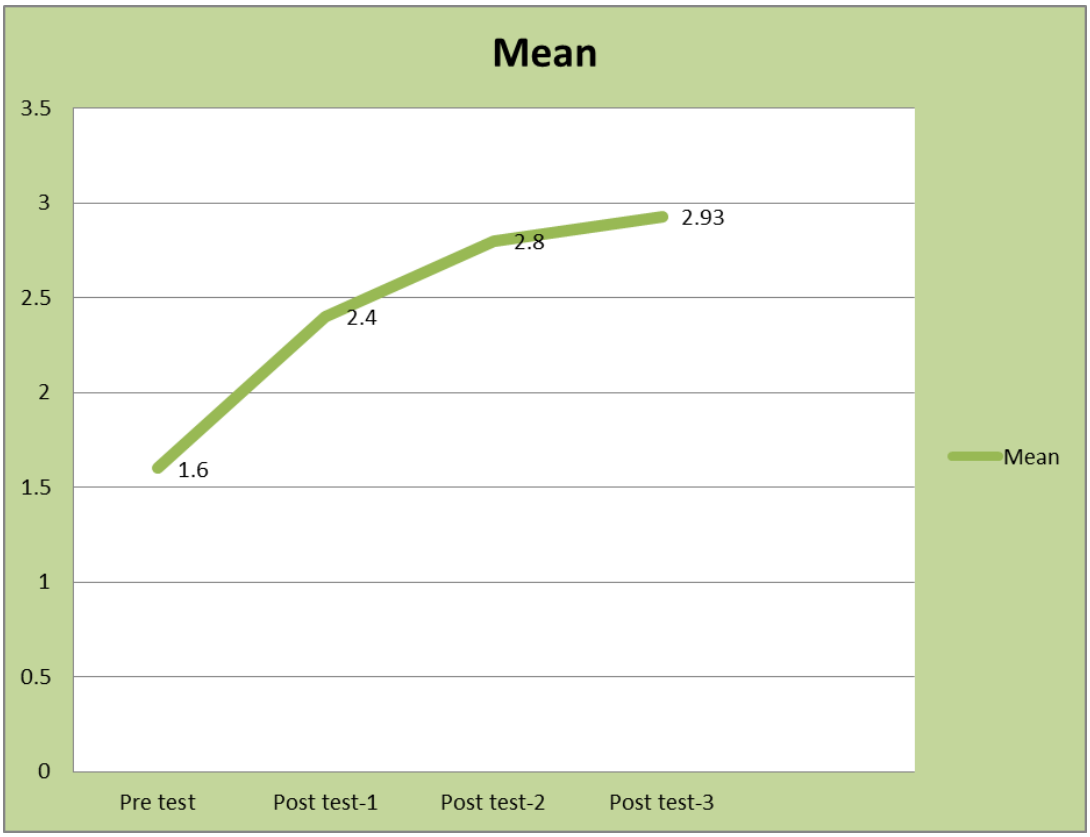

Figure 4: A line graph showing the improvement in skill from pre-test through post-test in control group.

Table 6: Association between Knowledge scores with selected Socio-Demographic variables: Experimental group.

Socio-Demographic data (n=30)		**Poor**	**Average**	**Chi square**	**df**	**p value**
Age	17	2 66.7%	1 33.3%	6.057	3	0.109^{NS}
	18	17 94.4%	1 5.6%			
	19	4 57.1%	3 42.9%			
	20	2 100.0%	0 0.0%			
Sex	Male	1 100.0%	0 0.0%	.207a	1	0.649^{NS}
	Female	24 82.8%	5 17.2%			
Family income	Below 1.5 lakhs	17 81.0%	4 19.0%	.286a	1	0.593^{NS}
	Above 1.5 lakhs	8 88.9%	1 11.1%			
Area of residence	Urban	5 83.3%	1 16.7%	.000a	1	1^{NS}
	Rural	20 83.3%	4 16.7%			

Socio-Demographic data		**Poor**	**Average**	**Chi square**	**df**	**p value**
Religion	Sikh	25 86.2%	4 13.8%	5.172a	1	0.023^{NS}
	Muslim					
	Hindu					
	Christian	0 0.0%	1 100.0%			
Type of family	Nuclear	16 80.0%	4 20.0%	.480a	1	0.488^{NS}
	Joint	9	1			

		90.0%	10.0%			
Occupation of father	Employee	3 75.0%	1 25.0%	.231a	1	0.631^{NS}
	Businessman	22 84.6%	4 15.4%			
Occupation of mother	Housewife	22 81.5%	5 18.5%	.667a	1	0.414^{NS}
	Working	3 100.0%	0 0.0%			
Education of father	Up to matric	15 93.8%	1 6.3%	2.679a	1	0.102^{NS}
	Above matric	10 71.4%	4 28.6%			
Education of mother	Up to matric	17 85.0%	3 15.0%	.120a	1	0.729^{NS}
	Above matric	8 80.0%	2 20.0%			

NS= Non Significant

The table 6 shows association between knowledge scores with selected Socio-demographic variables. In the present study there was no significant association between knowledge scores of Basic life support with their socio-demographic variables such as Age, Sex, Family income, Area of residence, Religion, Type of family, Occupation of father , Occupation of mother , Education of father and Education of mother.

Table 7: Association Between knowledge Scores With Selected Socio-Demographic Variables—Control Group.

Socio-Demographic data (n=30)		**Poor**	**Average**	**Chi square**	**df**	**p value**
Age	17	2 100.0%	0 0.0%	1.385a	3	0.709^{NS}
	18	10 83.3%	2 16.7%			
	19	10 76.9%	3 23.1%			
	20	3 100.0%	0 0.0%			
Sex	Male	1 33.3%	2 66.7%	6.000a	1	0.014^{NS}
	Female	24 88.9%	3 11.1%			
Family income	Below 1.5 lakhs	19 79.2%	5 20.8%	1.500a	1	0.221^{NS}
	Above 1.5 lakhs	6 100.0%	0 0.0%			
Area of residence	Urban	6 66.7%	3 33.3%	2.571a	1	0.109^{NS}
	Rural	19 90.5%	2 9.5%			
Religion	Sikh	21 87.5%	3 12.5%	2.460a	2	0.292^{NS}
	Muslim	1 100.0%	0 0.0%			
	Hindu	3 60.0%	2 40.0%			
	Christian					
Type of family	Nuclear	16 76.2%	5 23.8%	2.571a	1	0.109^{NS}
	Joint	9 100.0%	0 0.0%			
Occupation of father	Employee	6 85.7%	1 14.3%	.037a	1	0.847^{NS}
	Businessman	19 82.6%	4 17.4%			
Occupation of mother	Housewife	23 82.1%	5 17.9%	.429a	1	0.513^{NS}
	Working	2 100.0%	0 0.0%			
Education of father	Up to matric	20 87.0%	3 13.0%	.932a	1	0.334^{NS}
	Above matric	5 71.4%	2 28.6%			
Education of	Up to matric	21	3	1.500a	1	0.221^{NS}

mother	Above matric	87.5% 4 66.7%	12.5% 2 33.3%			

The table 7 shows association between knowledge scores with selected Socio-demographic variables. In the present study there was no significant association between knowledge scores of Basic life support with their socio-demographic variables such as Age, Sex, Family income, Area of residence, Religion, Type of family, Occupation of father , Occupation of mother, Education of father and Education of mother.

Table 8: Association between Skill scores with selected Socio-Demographic variables: Control group.

Socio-Demographic data (n=30)		**Poor**	**Average**	**Chi square**	**df**	**p value**
Age	17	2 100.0%	0 0.0%	2.276[a]	3	.517[NS]
	18	10 83.3%	2 16.7%			
	19	9 69.2%	4 30.8%			
	20	3 100.0%	0 0.0%			
Sex	Male	2 66.7%	1 33.3%	.370[a]	1	.543[NS]
	Female	22 81.5%	5 18.5%			
Family income	Below 1.5 lakhs	19 79.2%	5 20.8%	.052[a]	1	0.819[NS]
	Above 1.5 lakhs	5 83.3%	1 16.7%			
Area of residence	Urban	6 66.7%	3 33.3%	1.429[a]	1	0.232[NS]
	Rural	18 85.7%	3 14.3%			
Religion	Sikh	18 75.0%	6 25.0%	1.875[a]	2	0.392[NS]
	Muslim	1 100.0%	0 0.0%			
	Hindu	5 100.0%	0 0.0%			
	Christian					
Type of family	Nuclear	16 76.2%	5 23.8%	.635[a]	1	0.426[NS]
	Joint	8 88.9%	1 11.1%			
Occupation of father	Employee	6 85.7%	1 14.3%	.186[a]	1	0.666[NS]
	Businessman	18 78.3%	5 21.7%			
Occupation of mother	Housewife	22 78.6%	6 21.4%	.536[a]	1	0.464[NS]
	Working	2 100.0%	0 0.0%			
Education of father	Up to matric	19 82.6%	4 17.4%	.419[a]	1	0.517[NS]
	Above matric	5 71.4%	2 28.6%			
Education of mother	Up to matric	19 79.2%	5 20.8%	.052[a]	1	0.819[NS]
	Above matric	5 83.3%	1 16.7%			

The table 8 shows association between skill scores with selected Socio-demographic variables. In the present study there was no significant association between skill scores of Basic life support with their socio-demographic variables such as Age, Sex, Family income , Area of residence, Religion, Type of family, Occupation of father, Occupation of mother, Education of father and Education of mother.

Table 9: Association between Skill scores with selected Socio-Demographic variables: Experimental group.

Socio-Demographic data (n=30)		Poor	Average	Chi square	df	p value
Age	17	2 67.7%	1 33.3%	6.057[a]	3	0.109[NS]
	18	17 94.4%	1 5.6%			
	19	4 57.1 %	3 42.9%			
	20	2 100.0%	0 0.0%			
Sex	Male	1 100.0%	0 0.0%	.074[a]	1	0.786[NS]
	Female	27 93.1%	2 6.9%			
Family income	Below 1.5 lakhs	20 95.2%	1 4.8%	.408[a]	1	0.523[NS]
	Above 1.5 lakhs	8 88.9%	1 11.1%			
Area of residence	Urban	6 100.0%	0 0.0%	.536[a]	1	0.464[NS]
	Rural	22 91.7%	2 8.3%			
Religion	Sikh	27 93.1%	2 6.9%	.074[a]	1	0.786[NS]
	Muslim					
	Hindu					
	Christian	1 100.0%	0 0.0%			
Type of family	Nuclear	19 95.0%	1 5.0%	.268[a]	1	0.605[NS]
	Joint	9 90.0%	1 10.0%			
Occupation of father	Employee	4 100.0%	0 0.0%	.330[a]	1	0.566[NS]
	Businessman	24 92.3%	2 7.7%			
	Housewife	26 96.3%	1 3.7%			
Occupation of mother	Working	2 66.7%	1 33.3%	3.810[a]	1	0.051[NS]
Education of father	Up to matric	15 93.8%	1 6.3%	.010[a]	1	0.922[NS]
	Above matric	13 92.9%	1 7.1%			
Education of mother	Up to matric	19 95.0%	1 5.0%	.268[a]	1	0.605[NS]
	Above matric	9 90.0%	1 10.0%			

The table 9 shows association between skill scores with selected Socio-demographic variables. In the present study there was no significant association between skill scores of Basic life support with their socio-demographic variables such as Age, Sex, Family income, Area of residence, Religion, Type of family, Occupation of father, Occupation of mother, Education of father and Education of mother.

IV. Conclusion

The results of the study showed that repeated administration of structured teaching programme helps the student nurses to improve their knowledge and skill to the optimum level. Hence, the researcher would like to suggest the need of repeated reinforcement with teaching and demonstration while teaching complex procedures like Basic life support.

Recommendations

- This same study can implement using a probability sampling technique and increasing sample size.
- 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.
- An exploratory study can be conducted to assess the attitude of student nurses in performing BLS in hospital and in other public places.

LIMITATIONS

- Study is delimited to B.Sc. (N) 1st students of Adesh College of Nursing and Baba Moni ji Maharaj College of Nursing Bathinda.
- 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 4 weeks.
- Non-probability convenient sampling technique has selected to recruit samples.

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