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Effectiveness of American Heart Association (AHA) Certified Basic Life Support (BLS) Workshop on Enhancing Knowledge and Skills among Undergraduate Nursing Students

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ABSTRACT

This study evaluates the impact of AHA-certified BLS workshops on the theoretical knowledge and practical skills of nursing undergraduates. Given the critical role of nurses in emergency situations, proficiency in BLS is essential. The research aims to determine whether structured BLS training can significantly improve nursing students' preparedness to handle cardiac emergencies.

Keywords: Basic Life Support, Nursing Undergraduates, AHA Certification, Emergency Preparedness, CPR Training, BLS Workshop.

INTRODUCTION

Cardiac arrest is a substantial health problem estimated to account for approximately 15-20 percent of all deaths in both developing and developed countries.[1] Cardiopulmonary resuscitation (CPR) is considered a core emergency skill in which all health care professionals must be proficient. Early initiation of cardiopulmonary resuscitation (CPR) and activation of the chain of survival are key factors in the saving life of patients with cardiac arrest. Basic Life Support (BLS) competency is considered a fundamental skill not only for health care workers but also for other non-medical personnel and other professionals.[1]

Provision of both theoretical and applied training on basic life support and periodical repetition and update of this training is important for improving students' knowledge and skills in this area. The purpose of the study was to examine the effectiveness of basic life support training on the knowledge and practices of nursing students.[2]

Objectives

a) To assess the baseline knowledge and skills in Basic Life Support (BLS) among undergraduate nursing students.
b) To evaluate the effectiveness of an AHA-certified workshop in improving BLS knowledge and skills.
c) To examine the relationship between students demographics and both their initial proficiency and improvement after the workshop.

HYPOTHESES

H0 - There will be no significant difference in proficiency of nursing scholars at selected clinical skills before and after administration of AHA Certified workshop at a 0.05 level of significance

H1 - There will be increase in significant difference in proficiency of nursing scholars at selected clinical skills before and after administration of AHA Certified workshop at a 0.05 level of significance

H2- Demographic and educational factors will significantly influence the proficiency improvement observed after AHA Certified skill-based workshop at a 0.05 level of significance.

MATERIALS & METHODS

Design: A quasi-experimental pre-test and post-test design i.e. quasi experimental research design

Target population: Undergraduate Nursing students

Accessible Population: 100 nursing undergraduates enrolled in a BLS workshop accredited by the American Heart Association

Sampling technique: Non -Probability purposive sampling method

Statistical Analysis: The data collected of the study was classified, organized and analyzed under following sections:-

SECTION I

Deals with analysis of demographic data of the undergraduate nursing students in terms of frequency and percentage.

SECTION II

Deals with analysis of data related to assessment of the knowledge and skills in Basic Life Support (BLS) among undergraduate nursing students in terms of frequency and percentage.

SECTION III

Deals with analysis of data related to the Effectiveness of American Heart Association (AHA) Certified Basic Life Support (BLS) Workshop on Enhancing Knowledge and Skills among undergraduate nursing students.

SECTION IV

Deals with analysis of data related to the association between pretest knowledge and skills regarding Basic Life Support (BLS) among undergraduate nursing students with selected demographic variables.

SECTION I

Deals with analysis of demographic data of the undergraduate nursing students in terms of frequency and percentage.

Table 1: Frequency & percentage distribution of the undergraduate nursing students

Sr. No.	Variable	Groups	Frequency	Percentage
1	Age (in years)	Below 18	48	48.00
		18-20	37	37.00
		21-23	15	15.00
		24 & above	0	0.00
2	Gender	Male	54	54.00
		Female	46	46.00
		Other	0	0.00
		Prefer not to say	0	0.00
3	Year of study	1st year	35	35.00
		2nd year	43	43.00
		3rd year	22	22.00
		4th year	0	0.00
4	Previous BLS training	Yes	55	55.00
		No	45	45.00
5	Source of Previous BLS Training	AHA-certified course	54	54.00
		Non-AHA-certified course	45	45.00
		College/institutional training	1	1.00
		Online course	0	0.00
		Other	0	0.00
6	Exposure to Real-Life Cardiac Arrest Situations	Yes	55	55.00
		No	45	45.00
7	Awareness of AHA Guidelines Before Workshop	Yes	52	52.00
		No	48	48.00

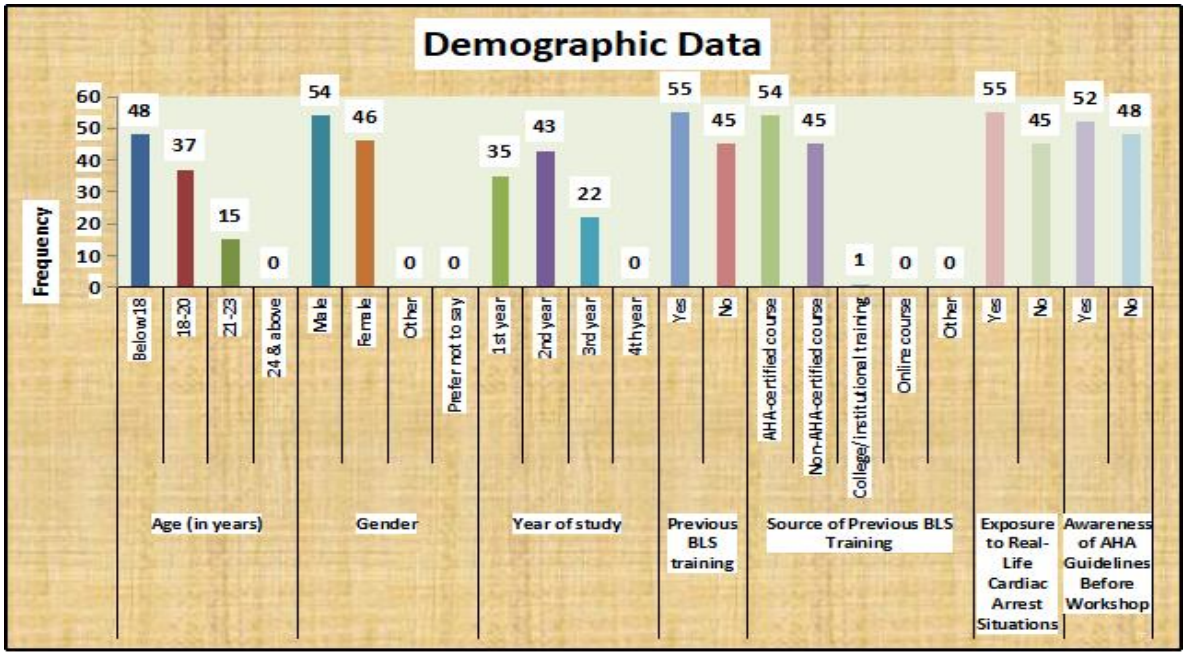

Figure No-1: Distribution of the undergraduate nursing students

SECTION II

Deals with analysis of data related to assessment of knowledge and skills in Basic Life Support (BLS) among undergraduate nursing students in terms of frequency and percentage.

Table 2: General assessments of Knowledge- PRE & POST test

Variable	Groups	Score	Pre Test		Post Test	
			Frequency	Percentage	Frequency	Percentage
Knowledge	Poor	0-7	9	9.00	0	0.00
	Average	8-14	80	80.00	44	44.00
	Good	15-20	11	11.00	56	56.00
Knowledge	Minimum		5		10	
	Maximum		20		19	
	Average (SD)		10.66 (2.67)		15.03 (1.70)	

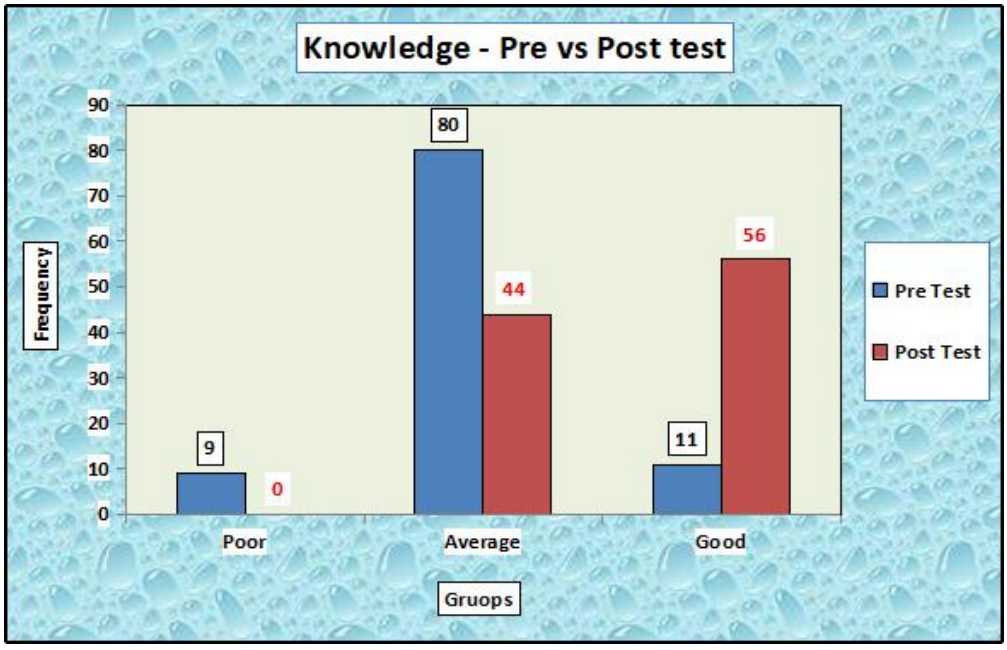

Figure No-2: General assessments of Knowledge - PRE & POST test

General assessments of Knowledge

For the assessment purpose total score of knowledge regarding Basic Life Support (BLS) among undergraduate nursing students was divided in to three groups like poor (0-7 score), average (8-14 score) and good (15-20 score)

Pre Test: At the time of pretest, assessment of the knowledge regarding Basic Life Support (BLS) among undergraduate nursing students shows that, 9% of students had poor knowledge, 80% had average knowledge and 11% of them had good knowledge.

Average knowledge score at the time of pretest was 10.66 with standard deviation of 2.67. The minimum score of knowledge was 5 with maximum score of 20.

Post Test: At the time of posttest, assessment of the knowledge regarding Basic Life Support (BLS) among undergraduate nursing students shows that, no one of students had poor knowledge, 44% had average knowledge and 56% of them had good knowledge. Average knowledge score at the time of posttest was 15.03 with standard deviation of 1.70. The minimum score of knowledge was 10 with maximum score of 19.

Deals with analysis of data related to assessment of skills in Basic Life Support (BLS) among undergraduate nursing students in terms of frequency and percentage.

Table 4: General assessments of Skills - PRE & POST test

Variable	Groups	Score	Pre Test		Post Test	
			Frequency	Percentage	Frequency	Percentage
Skills	Poor	0-8	14	14.00	0	0.00
	Average	9-16	81	81.00	13	13.00
	Good	17-25	5	5.00	87	87.00
Skills	Minimum		6		12	
	Maximum		22		22	
	Average (SD)		12.02 (2.86)		18.41 (1.86)	

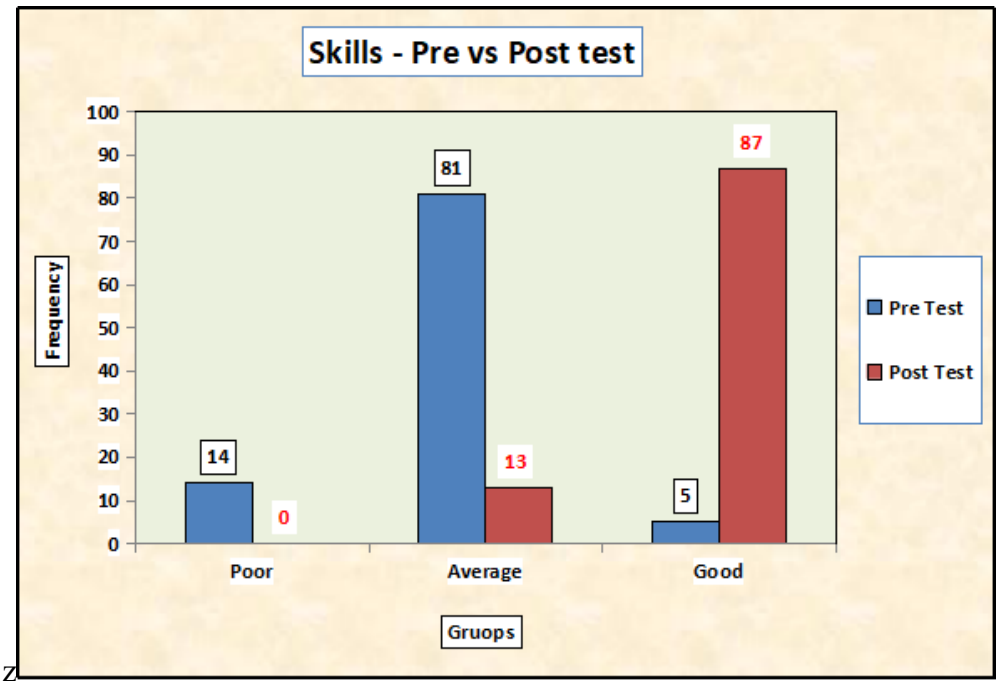

Figure No-4: General assessments of Skills - PRE & POST test

General assessments of Skills

For the assessment purpose total score of skills regarding Basic Life Support (BLS) among undergraduate nursing students was divided in to three groups like poor skills (0-

8 score), average (9-16 score) and good (17-25 score).

Pre Test: At the time of pretest, assessment of the skills regarding Basic Life Support (BLS) among undergraduate nursing students shows that, 14% of students had poor skills, 81% had average skills and 5% of them had good skills. Average skills score at the time of pretest was 12.02 with standard deviation of 2.86. The minimum score of skills was 6 with maximum score of 22.

Post Test: At the time of posttest, assessment of the skills regarding Basic Life Support (BLS) among undergraduate nursing students shows that, no one of students had poor skills, 13% had average skills and 87% of them had good skills.

Average skills score at the time of posttest was 18.41 with standard deviation of 1.86. The minimum score of skills was 12 with maximum score of 22.

SECTION III

Deals with analysis of data related to the Effectiveness of American Heart Association (AHA) Certified Basic Life Support (BLS) Workshop on Enhancing Knowledge among undergraduate nursing students.

Table 5: Comparison of the pre and posttest Knowledge (paired t test)

Group	Frequency	Mean	S.D.	t value	P value
Pre Test	100	10.66	2.67	13.13	0.000
Post Test	100	15.03	1.70		

The comparisons of pretest and posttest means of knowledge regarding Basic Life Support (BLS) among undergraduate nursing students were done by paired t test.

The pretest average score was 10.66 with standard deviation of 2.67. The posttest average score was 15.03 with standard deviation of 1.70. The test statistics value of the paired t test was 13.13 with p value 0.00.

The p value less than 0.05, hence reject the null hypothesis. That means there is significant difference in pre and posttest knowledge.

Shows that, American Heart Association (AHA) Certified Basic Life Support (BLS) workshop on enhancing knowledge among undergraduate nursing students was effective.

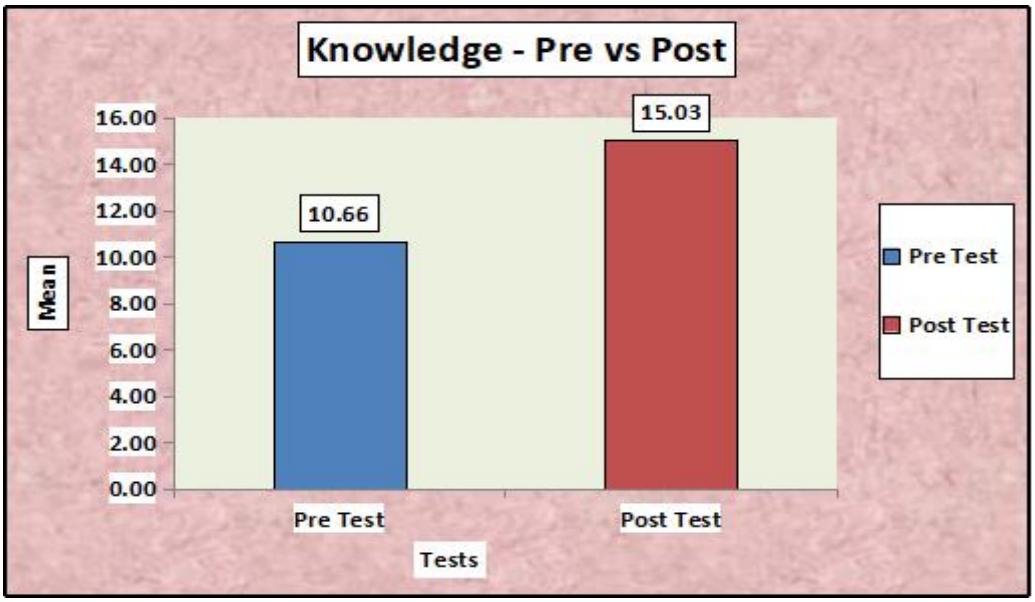

Figure 5: Comparison of the average pre and posttest Knowledge score Deals with analysis of data related to the Effectiveness of American Heart Association (AHA) Certified Basic Life Support (BLS) Workshop on Enhancing Skills among undergraduate nursing students.

Table 7: Comparison of the pre and posttest skills (paired t test)

Group	Frequency	Mean	S.D.	t value	P value
Pre Test	100	12.02	2.86	18.87	0.000
Post Test	100	18.41	1.86		

The comparisons of pretest and posttest means of skills regarding Basic Life Support (BLS) among undergraduate nursing students were done by paired t test.

The pretest average score was 12.02 with standard deviation of 2.86. The posttest average score was 18.41 with standard deviation of 1.86. The test statistics value of the paired t test was 18.87 with p value 0.00.

The p value less than 0.05, hence reject the null hypothesis. That means there is significant difference in pre and posttest skills.

Shows that, American Heart Association (AHA) Certified Basic Life Support (BLS) workshop on enhancing skills among undergraduate nursing students was effective.

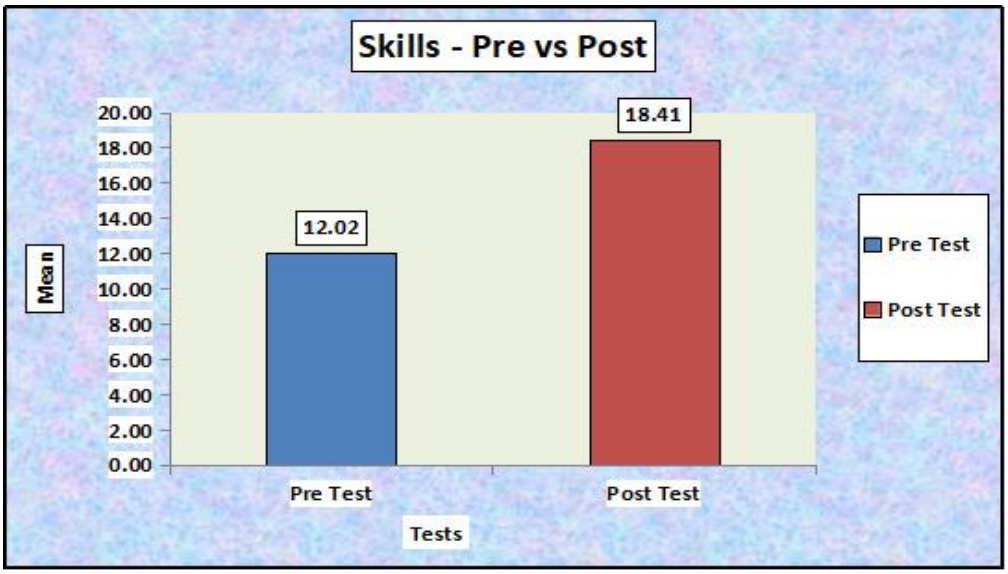

Figure 7: Comparison of the average pre and posttest skill score

RESULT

ASSOCIATION OF KNOWLEDGE IN RELATION TO DEMOGRAPHIC VARIABLES - PRE TEST

Table 8: Association of Knowledge with demographic variables – Pre Test

Variable	Groups	Knowledge - PRE Test		Chi Square	d.f.	p value	Significance
		below Md	above Md				
Age (in years)	Below 18	26	22	1.07	2	0.58	Not Significant
	18-20	16	21				
	21-23	8	7				
	24 & above	0	0				
Gender	Male	29	25	0.64	1	0.42	Not Significant
	Female	21	25				
	Other	0	0				
	Prefer not to say	0	0				
Year of study	1st year	11	24	8.75	2	0.013	Significant
	2nd year	28	15				
	3rd year	11	11				
	4th year	0	0				
Previous BLS training	Yes	34	21	6.82	1	0.009	Significant
	No	16	29				
Source of	AHA-certified course	29	25	1.85	2	0.40	Not

Previous BLS Training	Non-AHA-certified course	20	25				Significant
	College/institutional training	1	0				
	Online course	0	0				
	Other	0	0				
Exposure to Real-Life Cardiac Arrest Situations	Yes	25	30	1.01	1	0.32	Not Significant
	No	25	20				
Awareness of AHA Guidelines Before Workshop	Yes	24	28	0.64	1	0.42	Not Significant
	No	26	22				

ASSOCIATION OF KNOWLEDGE SCORE IN RELATION TO DEMOGRAPHIC VARIABLES – PRE TEST

The chi square test was used to see the association between pretest knowledge regarding Basic Life Support (BLS) among undergraduate nursing students with selected demographic variables.

The test was conducted at 5% level of significance.

Significant Association:

For the demographic variables year of study and previous BLS training, p value of the association test with pretest knowledge was less than 0.05. That means, knowledge of undergraduate nursing students regarding Basic Life Support (BLS) was associated with these demographic variables.

Concludes that, there was significant association of these demographic variables with the pretest knowledge.

No Significant Association:

For the demographic variables age, gender and source of previous BLS training etc., p value of the association test with pretest knowledge was more than 0.05. That means, knowledge of undergraduate nursing students regarding Basic Life Support (BLS) was not associated with these demographic variables.

Concludes that, there was no significant association of these demographic variables with the pretest knowledge Deals with analysis of data related to the association between pretest skills regarding Basic Life Support (BLS) among undergraduate nursing students with selected demographic variables.

ASSOCIATION OF SKILL IN RELATION TO DEMOGRAPHIC VARIABLES - PRE TEST

Table 8: Association of skill with demographic variables – Pre Test

Variable	Groups	Skills - PRE Test		Chi Square	d. f.	p value	Significance
		below Md	above Md				
Age (in years)	Below 18	30	18	2.43	2	0.30	Not Significant
	18-20	17	20				
	21-23	9	6				
	24 & above	0	0				
Gender	Male	34	20	2.31	1	0.13	Not Significant
	Female	22	24				
	Other	0	0				
	Prefer not to say	0	0				
Year of study	1st year	14	21	6.48	2	0.039	Significant
	2nd year	26	17				
	3rd year	16	6				
	4th year	0	0				
Previous BLS training	Yes	25	30	5.51	1	0.019	Significant
	No	31	14				

Source of Previous BLS Training	AHA-certified course	28	26	1.45	2	0.48	Not Significant
	Non-AHA-certified course	27	18				
	College/institutional training	1	0				
	Online course	0	0				
	Other	0	0				
Exposure to Real-Life Cardiac Arrest Situations	Yes	32	23	0.24	1	0.63	Not Significant
	No	24	21				
Awareness of AHA Guidelines Before Workshop	Yes	33	19	2.44	1	0.12	Not Significant
	No	23	25.00				

ASSOCIATION OF SKILLS IN RELATION TO DEMOGRAPHIC VARIABLES - PRE TEST

The chi square test was used to see the association between pretest skills regarding Basic Life Support (BLS) among undergraduate nursing students with selected demographic variables.

Significant Association:

For the demographic variables year of study and previous BLS training, p value of the association test with pretest skills was less than 0.05. That means, skills of undergraduate nursing students regarding Basic Life Support (BLS) was associated with these demographic variables.

Concludes that, there was significant association of these demographic variables with the pretest skills.

No Significant Association:

For the demographic variables age, gender and source of previous BLS training etc., p value of the association test with pretest skills was more than 0.05. That means, skills of undergraduate nursing students regarding Basic Life Support (BLS) were not associated with these demographic variables.

Concludes that, there was no significant association of these demographic variables with the pretest skills.

DISCUSSION

The present study was undertaken to assess the effectiveness of AHA certified BLS workshop on enhancing knowledge and skill among undergraduate nursing students. Provision of both theoretical and applied training on basic life support and periodical repetition and update of this training is important for improving students' knowledge and skills in this area. The purpose of the study was to examine the effectiveness of basic life support training on the knowledge and practices of nursing students.

CONCLUSION

Concludes that, there was significant association of these demographic variables with the pretest skills.as well as there was no significant association of these demographic variables with the pretest knowledge.

Declaration by Authors

Ethical Approval: Approved

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Conflict of Interest: The authors declare no conflict of interest.

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