Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Medical Surgical Nursing

Effectiveness of Structured Teaching Programme on Knowledge Regarding Advance Cardiac Life Support (ACLS) Among Final Year GNM Students Studying in Sions College of Nursing, Bagalkot

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DOI: https://doi.org/10.36347/sjams.2025.v13i01.005 | **Received:** 29.11.2024 | **Accepted:** 03.01.2025 | **Published:** 06.01.2025

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Abstract **Original Research Article**

Background of the study*:** Nurses frequently encounter emergencies, including cardiac emergencies, both in and out of hospital. In these situations, nurses are considered important leaders among healthcare professionals who can perform BLS. Research suggests that effective first aid and BLS techniques by physicians in emergency situations can impact morbidity and mortality from cardiac arrest. However, both knowledge and skills have been shown to decline over time, with ALS skills deteriorating faster than BLS skills. This highlights the need for continuing education and the use of resources to support these skills. ***Aims*:** The aim of the study was to assess effectiveness of structured teaching programme on knowledge regarding advance cardiac life support (ACLS) among final year GNM Students Studying in SIONS College of nursing, Bagalkot. ***Methodology*:** This was qualitative pre-experimental one group pre-test post-test research design. The sample size comprises of 80 final years General Nursing and Midwifery students studying at Sajjalashree Institute of Nursing Science Navanagar Bagalkot. The sampling technique adopted for this study will be simple random technique by using lottery method. In the present study the data will be collected by self-made structured knowledge questionnaires. The data will be analysed by using descriptive and inferential statistics. Numerical data obtained from the sample was organized and summarized with the help of descriptive statistics like percentages, mean, standard deviation and Chi-square test. ***Result*:** The finding revealed that level of knowledge regarding advance cardiac life support among final year GNM students. The level of knowledge was 6 (7.5%) of students were having poor knowledge scores in pre-test, 74 (92.5%) students were having the moderate knowledge scores and no one students were have adequate knowledge scores. In post-test 61 (76.25%) students were having moderate knowledge scores, 19 (23.75%) students were having adequate knowledge and no one students were having poor knowledge scores. The difference between mean pre-test [15.43] and mean post-test [20.8] scores, found to be statistically difference at 0.05 level of significant [t=11.37 (p valve is <0.00001) at the level of significance p<0.05]. ***Conclusion: The study proved that effectiveness of STP on knowledge regarding advance cardiac life support among final year GNM students mean score was 5.43 with the standard deviation 0.73. Hence the STP was effective in enhancing the knowledge of the final year GNM students regarding ACLS.

Keywords: Assess, effectiveness, Structured teaching programme, Knowledge, Basic life support, Advance cardiac life support, General Nursing and Midwifery.

INTRODUCTION

Heart disease is the leading cause of death worldwide, and heart attacks are a serious event that affects people every day. Sometimes lifesaving measures are vital to prevent deaths from heart disease. Globally, approximately 92% of patients discharged from cardiac hospitals do not survive, largely due to limited access to cardiopulmonary resuscitation (CPR). Out-of-hospital heart attacks have a significant impact on mortality and disability, accounting for 10% of all deaths in developing countries [1].

Advance cardiac life support is a clinical guideline for urgent treatment of life-threatening cardiovascular conditions, including cardiac arrest. It is based on BLS and uses advanced methods, medications, and technology. ACLS includes additional medications and advanced procedures performed by physicians, nurses, and caregivers [2].

It includes respiratory control, ventilation, CPR compressions, defibrillation, and medication administration. Accurate ECG rhythm diagnosis is crucial. ACLS covers common cardiac arrest rhythms (ventricular tachycardia, ventricular fibrillation, Pulseless Electrical Activity, a systole) and dangerous non-arrest rhythms (narrow- and wide-complex tachycardia, atrial fibrillation/flutter with rapid ventricular response, bradycardia) [3].

Advanced cardiac life support (ACLS), also known as advanced life support (ALS), is a lifesaving procedure and skill that goes beyond basic life support (BLS). It is used to provide emergency treatment for heart attack, stroke, myocardial infarction, and other conditions. Several studies highlighting the need for improved resuscitation techniques have led to recent changes in ACLS. Out-of-hospital cardiac arrest (OHCA) is a major public health problem, with the global average incidence of OHCA in adults ranging from 55 to 100,000 person-years. There are more than 230 million heart patients in China, and 550,000 people have heart attacks each year. Worldwide, survival rates after OHCA remain low. In China, the survival rate of OHCA is less than 1% [4].

Heart disease is the leading cause of death worldwide, killing approximately 17 million people each year and accounting for 30% of all deaths worldwide. In developing countries, it kills twice as many people as HIV, malaria, and tuberculosis combined. It is estimated that approximately 40–50% of all cardiovascular deaths are due to sudden cardiac death (SCD), and approximately 80% of these are due to ventricular tachyarrhythmias. As a result, approximately 6 million people die suddenly from ventricular tachyarrhythmias each year. The global heart attack survival rate is less than 1%, but in the United States it is closer to 5% US [5].

India has a significant burden of cardiovascular disease (CVD), accounting for one-fifth of global deaths, particularly among the younger population. The CVD death rate in India is higher than the global average, with CVDs affecting Indians a decade earlier than the western population. Conventional risk factors do not fully explain the increased risk of coronary artery disease (CAD) in Indians. Limited data collection methods and a majority of deaths occurring at home without clear causes contribute to the challenge of understanding the overall CVD burden. In India, CVDs accounted for a substantial percentage of total deaths and disability-adjusted life years (DALYs), with variations in rates across different states. Acute coronary syndrome, ST-elevation myocardial infarction (MI), and hypertensive heart disease are significant concerns. Despite advancements in heart attack management, the number of deaths from sudden cardiac arrest remains high, with a low survival rate in India [6].

MATERIAL AND METHODS

Study Design and Participants

Present study was a pre-experimental one group pre-test post-test design. Conducted between 02-05-2024 to 09-05-2024, Written consent was obtained from 80 samples. Final year GNM Students were selected on the basis of probability simple random technique by using lottery method.

Data Collection Procedure

Permission was gained from the Principal of B V V S Sajjalashree Institute of Nursing Sciences Navanagar Bagalkot, before data collection. Written consent was obtained from 80 samples. Final year GNM Students were selected on the basis of probability simple random technique by using lottery method. Then the investigator conducted pretest on assessment of level of knowledge among final year students by using self-made knowledge questionnaires. Then the structured teaching programme was administered to the students for 45 minutes. After the 7 days post test was conducted to final year students. Then the investigator assesses effectiveness of structured teaching programme with compering the pretest and post test scores.

Statistical Analysis

The data will be analysed by using descriptive and inferential statistics. Numerical data obtained from the sample was organized and summarized with the help of descriptive statistics like percentages, mean and standard deviation. Chi-square test used to find out association between the level of knowledge on advance cardiac life support with their selected socio-demographic variables among final year GNM students.

RESULTS

PART I: Description of socio-demographic characteristics of students

Percentage wise distribution of students according to age in years reveals that the Majority 58 (72%) of the final year GNM students were in the age group of 20-21 years, 66 (82.5%) majority students were females, 51 (63.75%) majority of final year GNM students were belongs to Hindu religion, that the majority 32 (40%) of final year GNM students family monthly income were below and equal to 10,000, majority 70 (88%) of final year GNM student's mothers

were not belong to health care professional, the majority 77(88.75%) of final year GNM student's fathers were not belong to health care profession, majority 30 (37%) of final year GNM students were staying in urban area, majority 54 (67.5%) of final year GNM students were have knowledge about the ACLS procedure and the 38 (47.5%) students got information through books, 14 (17.5%) students got information through media and 2 (2.5%) students got information by their friends but no one have got information through their relatives.

Part II: Assessment of pre-test and post-test level of knowledge regarding advance cardiac life support among final year GNM students studying in SIONS College Bagalkot.

Table 1: Percentage and frequency wise distribution of students according to their knowledge regarding advance cardiac life support

Sl. No	Level of Knowledge	Score	Pre-test		Post-test	
			Frequency	Percentage	Frequency	Percentage
1	Poor Knowledge	0 - 11	6	7.5%	0	0%
2	Moderate Knowledge	12--23	74	92.5%	61	76.25%
3	Adequate Knowledge	24 - 34.	0	0%	19	23.75%

Assessment of students' knowledge related to the ACLS procedure shows the level of knowledge was 74 (92.5%) students were having moderate knowledge scores, 6 (7.5%) of students were having poor knowledge scores in pre-test and no one students were having adequate knowledge scores. In post-test 61 (76.25%) students were having moderate knowledge scores, 19 (23.75%) students having adequate knowledge and no one students were having poor knowledge scores. This shows the significant difference between mean pre-test scores (15.43) and mean post-test score (20.8) of knowledge regarding advance cardiac life support among final year GNM students. Hence it's clear that statistically difference is seen in the test.

PART III: Evaluation of the Effectiveness of structured teaching programme on improving the knowledge regarding advance cardiac life support among final year GNM students in SIONS College Bagalkot.

Table 2.1: Comparison of pre-test and post-test levels of knowledge regarding advance cardiac life support among final year GNM students, N=80

SL. No	Knowledge area	Max. score	Pre-test(O1		Post-test(O2)		Effectiveness	
			Mean±SD	Mean%	Mean±SD	Mean%	Mean±SD	Mean%
1	**Knowledge Questions on CPR**	11	7.04±1.50	45.77%	8.59±1.65	41.28%	1.55±0.15	4.49%
2	**Knowledge Questions On Medication**	5	1.6±0.88	10.41%	3.35±0.97	16.11%	1.75±0.09	5.70%
3	**Knowledge Questions On Defibrilator**	5	1.7±1.01	11.06%	2.38±1.24	11.42%	0.68±0.22	0.36%
4	**Knowledge Questions On ACLS Procedure**	13	5.04±1.66	32.76%	6.49±1.92	31.19%	1.45±0.26	1.57%
TOTAL		34	15.45±5.05		20.81±5.78		5.43±0.73	12.12%

The overall findings reveals that the post-test mean knowledge score was 20.81 with SD 5.78 which was more when compared to the pre-test mean knowledge course 15.45 with the standard deviation 5.05. The overall effectiveness of STP on knowledge regarding advance cardiac life support among final year GNM students mean score was 5.43 with the standard deviation 0.73. Hence it indicates the STP was effective in enhancing the knowledge of the final year GNM students regarding ACLS.

Table 2.2: Assessment of Mean, SD and paired 't' test of Pre and post test scores towards Improving the knowledge regarding advance cardiac life support among final year GNM students, N=80

Level of knowledge	Mean	SD	Mean Diff.	SD Diff.	t-value	Table "t" Value	p-value
Pre-test	15.43	2.71	5.37	0.68	**11.37**	3.84	**P is < 0.00001***
Post-test	20.8	3.38					

***P<0.05 Significant**

Findings related to the significance of the difference between pre-test and post test scores of the knowledge about advance cardiac life support among final year GNM students shows that, difference between

mean pre-test [15.43] and mean post-test [20.8] scores, found to be statistically difference at 0.05 level of significant **[t=11.37 (p valve is <0.00001) at the level of significance p<0.05]**. As Hypothesis **H_1** states, **H_1:** Mean post-test knowledge scores of final year GNM Students regarding Advance cardiac life support will be significantly higher than the mean pre-test knowledge score among final year GNM students.

Hence it is clear that there is a statistically difference between mean pre-test and mean post-test level of knowledge regarding advance cardiac life among final year GNM students in SIONS College Bagalkot.

As early mentioned research hypothesis was accepted Hence H_1 is accepted.

PART IV:

Table 3: Association between levels of pre-test knowledge regarding advance cardiac life support with their selected socio-demographic variables, N=80

SL	Socio-demographic variable	DF	chi-square value	P Value	Interpretation
1	Age in year	1	0.02	0.89	Not Significant
2	Gender	1	0.25	0.62	Not Significant
3	Religion	1	0.08	0.78	Not Significant
4	Family Monthly income	1	0.91	0.34	Not Significant
5	Is your mother is an health professional	1	0.1	0.75	Not Significant
6	Is your father is an health professional	1	0.06	0.81	Not Significant
7	Place of residence	1	0.65	0.42	Not Significant
8	Previous knowledge about ACLS procedure	1	0.17	0.68	Not Significant
	If Yes source of information	1	0.3	0.58	Not Significant

DF = Degree of freedom
α= 0.05
***= Significant**
NS = Not significant
"P" is <0.05

Findings related to the association between pre-test scores of final year GNM students with their selected socio demographic variables reveals that, there was no significant association found between the pre-test level of knowledge regarding advance cardiac life support scores of final year GNM students, Age (P=0.89), Gender (P=0.62), Religion (P= 0.78), family monthly income (P= 0.34), Is your mother is an health professional (P=0.75), Is your father is an health professional (P=0.81), place of residence (P=0.42), previous knowledge about ACLS procedure (P=0.68), If Yes source of information (P=0.58).

The calculated Yates Chi square value for the all socio-demographic variables with 2×3, 2×2 Contingency table and with degree of freedom 1 were mentioned above. Hence the Yates Chi square calculated values for all socio-demographic variables were find the association by using fisher's exact p value (Frequency <3) with the significances of P<0.05 but calculated p value is >0.05. Hence this indicates that there was no significant association found between the above selected socio-demographic variables with level of knowledge on ACLS among students.

DISCUSSION

Finally, previous study reported that ((t=32.75, p<0.05) the STP is highly effective and the study generalised that structured teaching programme was highly effective in improving the knowledge regarding basic nursing skills for hospitalized person among the BSc nursing students [7].

In our study result reveals that the effectiveness of STP on knowledge regarding advance cardiac life support among final year GNM students mean score was 5.43 with the standard deviation 0.73. Hence research indicates that the STP was effective in enhancing the knowledge of the final year GNM students regarding ACLS.

Finally previous study reported that the total mean post-test score (26.80) was significantly higher than the mean pre-test score and it was also proved that there was no association of knowledge score and practice score with their selected socio demographic variables [8].

Our study reveals that the Chi square calculated values for all socio-demographic variables were find the association by using "p" value with the significances of P<0.05 but calculated p value is >0.05. Hence this indicates that there was no significant association found between the selected socio-demographic variables with the level of knowledge on ACLS among students.

RECOMMENDATION

- Research studies may be conducted continuously on knowledge regarding advance cardiac life support to early detection and prevention of cardiac arrest condition which adds to the nursing body of knowledge.
- Nurses as an administrator can plan and organize to the effectiveness of structured teaching programme on knowledge regarding ACLS among final year GNM student. Early detection and prevention of cardiac arrest patients were help to improve the quality of life to the patients.
- From the present study was found that very effective structured teaching programme related to ACLS knowledge among final year GNM students. The investigator as a nurse felt the need that nurse's act as a major part of health team, so should have the knowledge regarding early detection and prevention of Cardiac arrest patients.

CONCLUSION

Effectiveness of STP on knowledge regarding advance cardiac life support among final year GNM students mean score was 5.43 with the standard deviation 0.73. Hence the research indicates that the STP was effective in enhancing the knowledge of the final year GNM students regarding ACLS.

Ethical Clearance: Institutional Ethical Clearance Certificate

The study was approved by the Institutional Ethical Clearance Committee, BVVS Sajjalashree Institute of Nursing Sciences, Bagalkot. SUBMITTED (Ref No. BVVS/SIONS/IEC/2023-24/310 Date: - 12-06-2023).

Source Funding: None

Conflicts of Interest: There are no conflicts of interest.

REFERENCES

1. Izquierdo-Condoy, J. S., Arias Rodríguez, F. D., Duque-Sánchez, E., Alegría N, N., Rojas Cadena, M., Naranjo-Lara, P., ... & Giraldo, N. C. (2024). Assessment of preparedness and proficiency in basic and advanced life support among nursing professionals: a cross-sectional study. *Frontiers in Medicine*, *11*, 1328573. doi: 10.3389/fmed.2024.1328573.
2. Ryynänen, O. P., Iirola, T., Reitala, J., Pälve, H., & Malmivaara, A. (2010). Is advanced life support better than basic life support in prehospital care? A systematic review. *Scandinavian journal of trauma, resuscitation and emergency medicine*, *18*, 1-14. doi: 10.1186/1757-7241-18-62. PMC3001418.
3. "Part 3: Adult Basic and Advanced Life Support". cpr.heart.org. Retrieved 2022-01-25.
4. Yan, S., Gan, Y., Jiang, N., Wang, R., Chen, Y., Luo, Z., ... & Lv, C. (2020). The global survival rate among adult out-of-hospital cardiac arrest patients who received cardiopulmonary resuscitation: a systematic review and meta-analysis. *Critical care*, *24*, 1-13.
5. Mehra, R. (2007). Global public health problem of sudden cardiac death. *Journal of electrocardiology*, *40*(6), S118-S122. doi:10.1016/j.jelectrocard.2007.06.023.
6. Kumar, A. S., & Sinha, N. (2020). Cardiovascular disease in India: A 360 degree overview. *Medical Journal Armed Forces India*, *76*(1), 1-3. doi:10.1016/j.mjafi.2019.12.005.
7. Dr. Tukaram B. Zagade Professor, Krishna Institute of Nursing Sciences, Krishna Institute of Medical Sciences "Deemed To Be University", Malkapur, Karad, Dist- Satara (Maharashtra) India-415539. Email-tukaramzagade49@gmail.com Cell: 9881678505 Submitted on 20.12.2022
8. Mr. Rajul Neeraj Masih M.Sc. (N) Medical Surgical Nursing (Critical Care Nursing) 2020 Department of Medical Surgical Nursing College of nursing, C.M.C & Hospital, Ludhiana, Punjab, India. ISSN: 2277-7881; IMPACT FACTOR: 8.017(2023); IC VALUE:5.16; ISI VALUE:2.286 Peer Reviewed and Refereed Journal: VOLUME:12, ISSUE:7(1), July: 2023.