

Research Article

Effectiveness of Structured Teaching Programme on Knowledge Regarding Cardiac Arrest and Its Prevention Among Young Adults

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DOI: <https://doi.org/10.24321/2455.9318.202610>

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How to cite this article:

Bassen S, Showkat S, Laskit J, Attri G, Firdous N, Raiz H, Simran, Farooq U, Qayoom A. Effectiveness of Structured Teaching Programme on Knowledge Regarding Cardiac Arrest and Its Prevention Among Young Adults. *Int J Nurs Midwif Res.*2026;13(3):17-22.

Date of Submission: 2026-08-27

Date of Acceptance: 2026-09-01

A B S T R A C T

Background: Cardiac arrest is a sudden loss of heart function and one of the leading causes of death worldwide. Inadequate awareness of its risk factors, warning signs, and preventive measures often delays timely intervention and increases mortality. Educational interventions can enhance awareness, facilitate early recognition of symptoms, and promote healthy lifestyle practices.

Objectives: To assess the pre-test and post-test knowledge regarding cardiac arrest and its prevention among adult students; to compare pre-test and post-test knowledge scores; and to determine the association between pre-test knowledge and selected demographic variables.

Methods: A pre-experimental one-group pre-test–post-test research design was adopted. Forty adult students from Cluster University, Jammu, were selected using a convenient sampling technique. Data were collected using a validated structured questionnaire comprising 40 items. Data were analysed using descriptive and inferential statistics, including the chi-square test and paired t-test.

Results: Before the intervention, 80% of participants had average knowledge and 20% had poor knowledge, while none demonstrated good knowledge. Following the structured teaching programme, 95% of participants achieved good knowledge and 5% had average knowledge, with none having poor knowledge. The paired t-test demonstrated a highly statistically significant improvement in knowledge ($t = 23.527$, $p < 0.001$). Among the selected demographic variables, only the educational status of parents showed a significant association with pre-test knowledge.

Conclusion: The structured teaching programme was effective in improving knowledge regarding cardiac arrest and its prevention among adult students. Therefore, the implementation of structured teaching programmes in educational institutions is recommended to enhance awareness and help prevent cardiac emergencies among young adults.

Keywords: Cardiac Arrest, Prevention, Structured Teaching Programme, Knowledge, Adult Students

Introduction

Cardiac arrest is a life-threatening medical emergency associated with high morbidity and mortality. Although traditionally considered a disease of older adults, its incidence is increasing among younger individuals.¹ Globally, the incidence of out-of-hospital cardiac arrest (OHCA) is approximately 55 per 100,000 person-years, while among young adults it ranges from 4–14 per 100,000 person-years. Early recognition, prompt cardiopulmonary resuscitation (CPR), and defibrillation significantly improve survival outcomes.² In India, sudden cardiac death (SCD) contributes to nearly 10% of cardiovascular deaths, with increasing occurrence among individuals aged 30–50 years, largely attributed to unhealthy lifestyles, hypertension, diabetes, and poor public awareness of bystander CPR.³

In Jammu and Kashmir, cardiac arrest among young adults has emerged as an important public health concern. Lifestyle factors such as smoking, unhealthy diet, physical inactivity, drug abuse, and psychosocial stress have contributed to the rising incidence of cardiovascular disease. Coronary heart disease accounts for a substantial proportion of deaths in the region, emphasising the need for preventive measures and increased awareness.⁴

Cardiac arrest occurs when the heart suddenly ceases to pump blood effectively, resulting in loss of consciousness, absence of pulse, and cessation of breathing. Approximately 70% of cases are caused by ischaemic coronary artery disease. Other cardiac causes include arrhythmias, cardiomyopathy, heart failure, congenital heart disease, and electrical disorders, while non-cardiac causes include hypoxia, electrolyte imbalance, pulmonary embolism, trauma, drug overdose, and respiratory failure.⁵

Patients may experience warning symptoms such as chest pain, shortness of breath, palpitations, dizziness, fatigue, or syncope before cardiac arrest, although many cases occur without prior symptoms. Major risk factors include increasing age, hypertension, diabetes mellitus, dyslipidaemia, obesity, smoking, physical inactivity, and pre-existing cardiovascular disease.⁶

Effective management of cardiac arrest depends on immediate recognition, early CPR, rapid defibrillation,

advanced life support, and comprehensive post-resuscitation care. Public education, healthy lifestyle practices, smoking cessation, regular physical activity, and timely management of cardiovascular risk factors are essential strategies for prevention. Implantable cardioverter-defibrillators (ICDs) are recommended for selected high-risk patients to reduce sudden cardiac death.⁷

Nurses play a vital role in the prevention and management of cardiac arrest. They are often the first healthcare professionals to recognise clinical deterioration, activate emergency response systems, initiate CPR, assist in defibrillation and advanced life support, and provide continuous patient monitoring.⁸ Evidence suggests that simulation-based training, competency assessment, and regular resuscitation education significantly improve nurses' knowledge, skills, and patient survival outcomes. Therefore, assessing nurses' knowledge and practices regarding cardiac arrest management is essential to strengthen emergency care and improve patient outcomes.

Methodology

A quantitative research approach with a pre-experimental one-group pre-test-post-test design was adopted for the study. The study was conducted at Govt School of Social Science, Cluster University College, Canal Road, Jammu. Ethical permission was obtained from the principal of the institution prior to the study. The researcher selected 40 students. The subjects were selected through a non-probability convenience sampling technique.

Data were collected using a self-structured knowledge questionnaire. Section A consisted of 6 demographic items, while Section B consisted of 40 items assessing knowledge regarding the concept of cardiac arrest, causes of cardiac arrest, prevention of cardiac arrest, and emergency management of cardiac arrest. Each correct response was given a score of 1, while each incorrect response was given a score of 0. Knowledge was categorised as poor (0–19, <47%), average (20–30, 50–75%), and good (31–40, >75%). The data collected was analysed and interpreted by descriptive and inferential statistics.

Results & Statistical Tables

The collected data were analysed using descriptive and inferential statistics. The findings are categorised and presented in the following tables:

Table I. Description of Demographic Variables (n = 40)

Demographic Variables	Frequency	Percentage
Age (years)		
18-20 years	24	60.0%
21 and above	16	40.0%

Gender		
Male	20	50.0%
Female	20	50.0%
Area of Residence		
Urban	24	60.0%
Rural	16	40.0%
Socioeconomic Status		
Lower class	18	45.0%
Upper lower class	22	55.0%
Previous Knowledge Regarding Cardiac Arrest		
yes	40	100.0%
no	0	0.0%
Educational Status of Parents		
Below School education	25	62.5%
High school and above	15	37.5%

Table 2. Frequency and Percentage Distribution of Pre-test Level of Knowledge

Category Score	Frequency	Percentage
Good knowledge (31-40)	0	0%
Average knowledge (20-30)	32	80%
Poor knowledge (0-19)	8	20%
Total	40	100%

Table 3. Frequency and Percentage Distribution of Post-test Level of Knowledge

Category Score	Frequency	Percentage
Good knowledge (31-40)	38	95%
Average knowledge (20-30)	2	5%
Poor knowledge (0-19)	0	0%
Total	40	100%

Table 4. Comparison of Mean Pre-test and Post-test Knowledge Scores Using Paired t-test

Test Group	Mean $\pm$ S.D.	Mean %	Range	Mean Diff.	Paired t-test	P-value
Pre-test knowledge	23.23 $\pm$ 5.399	58.10	8-30	12.17	23.527*	<0.001
Post-test knowledge	35.40 $\pm$ 2.216	88.50	30-39	-	-	-

* Significant at 0.05 level (Table Value at 0.05 = 2.02).

Table 5. Association of Pre-test Knowledge Scores with Selected Socio-demographic Variables (fisher exact Test)

Variable	Categories	$\geq$ Med (f)	$\geq$ Med (%)	< Med (f)	< Med (%)	Total	Fisher's p-value	Result Summary
Age Group	18 - 20 years	18	75.0%	6	25.0%	24	0.439	Not Significant
	21 years & above	14	87.5%	2	12.5%	16		

Gender	Male	14	70.0%	6	30.0%	20	0.235	Not Significant
	Female	18	90.0%	2	10.0%	20		
Socioeconomic Status	Lower Classes	13	72.2%	5	27.8%	18	0.215	Not Significant
	Upper Classes	19	86.4%	2	13.6%	22		
Previous Know	Has Source (Yes)	32	80.0%	8	20.0%	40	1.000	Not Significant
	No Source	0	0.0%	0	0.0%	0		
Parental Ed.	Below HS	17	68.0%	8	32.0%	25	0.016	SIGNIFICANT (p < 0.05)
	High School+ (≥HS)	15	100.0%	0	0.0%	15		
Area of Residence	Urban	19	79.2%	5	20.8%	24	1.000	Not Significant
	Rural	13	81.3%	3	18.8%	16		

Table 6. Domain-wise Comparison of Pre-test and Post-test Knowledge Scores Using Paired t-test

Domain	Test	Mean Score	S.D.	Mean %	Mean Diff.	Paired t-test
Concept of Cardiac Arrest	Pre	4.73	1.78	94.50	2.900	10.941*
	Post	7.63	1.254	152.50		
Causes of Cardiac Arrest	Pre	3.98	1.53	198.80	2.220	10.431*
	Post	6.20	0.791	310.00		
Prevention of Cardiac Arrest	Pre	10.28	2.97	171.30	3.720	8.277*
	Post	14.00	0.784	233.30		
Emergency Management of Cardiac Arrest	Pre	4.25	1.55	212.50	3.330	13.350*
	Post	7.58	1.357	378.80		
Overall Result	Pre	23.23	5.40	193.50	12.170	23.527*
	Post	35.40	2.216	295.00		

* Significant at 0.05 level.

Discussion

The present study evaluated the effectiveness of a Structured Teaching Programme (STP) on knowledge regarding cardiac arrest and its prevention among students of the Government School of Social Science, Cluster University, Canal Road, Jammu.

The demographic findings showed that 60% of participants were aged 18–20 years, with equal representation of males and females (50% each). Most participants belonged to urban areas (60%), while 40% were from rural areas. Socio-economic distribution included lower class (45%) and upper lower class (55%). 100% of participants had previous knowledge regarding cardiac arrest. Most parents (62.5%) had an educational qualification below 10+2, whereas 37.5% were above high school education.

The pre-test findings revealed a moderate level of knowledge regarding cardiac arrest and its prevention,

with a mean score of 23.23 ± 5.399 , a median of 25, a range of 22 (8–30), and a mean percentage score of 58.10%, indicating the need for educational intervention. These findings are consistent with Katayoun Lotfi and Lindsay White, who emphasised improving knowledge of cardiac arrest, CPR, and AED use.

Following the STP, knowledge improved substantially. The mean post-test score increased to 35.40 ± 2.216 , with a median of 36, a range of 9 (30–39), and a mean percentage score of 88.50%, demonstrating the effectiveness of the intervention. Similar improvements have been reported by Meenakshisundaram R., Ramavel A.R., and Banu N. (2023) and H.N. Ravin (2006).

Comparison of pre-test and post-test scores showed a significant improvement. Before the intervention, 8 students (20%) had poor knowledge, 32 students (80%) had average knowledge, and none had good knowledge. After

the intervention, the mean score increased from 23.23 ± 5.399 to 35.40 ± 2.216 , with the mean percentage score increasing from 58.10% to 88.50%. The mean difference was 12.17, which was statistically significant ($p < 0.001$), confirming the effectiveness of the STP. These findings are comparable with those reported by Gyung Park (2015) and Anshar, Djusmadi Rasjid, and Hardianto Salimun (2020).

No significant association was found between pre-test knowledge and age ($p = 0.439$), gender ($p = 0.235$), area of residence ($p = 1.000$), socio-economic status ($p = 0.215$), or previous knowledge ($p = 1.000$). However, parental educational status showed a significant association with pre-test knowledge ($p = 0.016$, $p < 0.05$). This finding is supported by studies by Madison A. Wagenaar et al. (2017) and Kyndaron Reinier et al., which reported that higher educational status contributes to better awareness and cardiovascular health outcomes.

Conclusion

The present study evaluated the effectiveness of a Structured Teaching Programme (STP) on knowledge regarding cardiac arrest and its prevention among adult students of the Government School of Social Science, Cluster University, Jammu. Pre-test results showed that 80% of participants had average knowledge and 20% had poor knowledge, while none had good knowledge. Following the STP, 95% of participants demonstrated good knowledge and 5% had average knowledge, with no participant showing poor knowledge, indicating a statistically significant improvement in knowledge.

No significant association was observed between pre-test knowledge and age, gender, area of residence, socioeconomic status, or previous knowledge. However, parental educational status was significantly associated with pre-test knowledge.

Overall, the findings demonstrate that the Structured Teaching Programme was effective in improving knowledge regarding cardiac arrest and its prevention. Incorporating such educational interventions into college settings may enhance awareness, facilitate early recognition, and support the prevention of cardiac arrest.

Limitations of the Study

The study was conducted among a small sample of 40 students from a single institution using a pre-experimental one-group pre-test-post-test design, which limits the generalisability of the findings. The study assessed only participants' knowledge regarding cardiac arrest and its prevention, and the long-term retention of knowledge following the Structured Teaching Programme was not evaluated.

Recommendations

Further interventional studies with larger sample sizes, multi-centre settings, and control groups are recommended to improve the generalisability of the findings. Future research should also assess the long-term retention of knowledge and evaluate the effect of structured teaching programmes on attitudes and practices related to cardiac arrest prevention and Basic Life Support (BLS).

Source of funding: Self

Conflict of Interest: None

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