




## Assess the effectiveness of structured of teaching programme on knowledge and practice regarding life style modifications among coronary artery disease patients at PES hospital in Kuppam

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### Abstract

**Background:** Cardiovascular diseases (CVDs) remain the leading cause of mortality worldwide, accounting for approximately 17.1 million deaths annually. Coronary artery disease (CAD), including myocardial infarction, angina pectoris, and atherosclerotic cardiovascular disease, is a significant contributor to this burden.

**Methods:** Structured Teaching Programmes (STPs) are educational strategies aimed at enhancing patient knowledge and promoting healthy behavior adoption. This pre-experimental study assessed the effectiveness of an STP on lifestyle modifications among CAD patients admitted to the Coronary Care Unit of PES General Hospital, Kuppam. Andhra Pradesh.

**Results:** A total of 30 patients were selected using a convenient sampling technique. Findings showed that in the pre-test, 90% of participants had inadequate knowledge, which improved significantly in the post-test, where 50% attained moderate knowledge. The mean knowledge score increased from 6.63 (SD = 3.90) to 15.10 (SD = 3.04). In terms of practice, 43.3% showed adequate practice in the pre-test, which also improved post-intervention. A significant association was observed between pre-test knowledge scores and religion ( $p < 0.001$ ), while other demographic variables were not statistically significant.

**Conclusion:** The study concludes that the STP effectively improved knowledge and practice regarding lifestyle modifications among CAD patients, highlighting the value of structured educational interventions in cardiac care.

**Keywords:** cardiovascular diseases, coronary artery disease, life style modifications, patients

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### Introduction

Coronary artery disease (CAD) remains one of the leading causes of morbidity and mortality worldwide. It is a condition characterized by the narrowing or blockage of coronary arteries due to the build-up of atherosclerotic plaques, leading to reduced blood flow to the heart muscle. This can result in chest pain (angina), shortness of breath, myocardial infarction (heart attack), and even sudden death. According to the World Health Organization (WHO), cardiovascular diseases, including CAD, account for approximately 31% of all global deaths (WHO, 2021). [1] cardiovascular diseases are the world's largest killers, claiming 17.1 million lives a year. Tobacco use, an unhealthy diet, physical inactivity, and harmful use of alcohol increase the risk of cardiovascular diseases. CAD which encompasses Acute Myocardial infarction, Angina pectoris, and Atherosclerotic cardiovascular disease is the leading cause of death in the industrialized world. [2] Approximately two out of every three incidents of myocardial infarction (MI) occur without warning and of note, one third of first MIs are fatal; 20% of patients die out of hospital and 13% die within the first 24 to 48 hours of hospitalization. [3] Lifestyle modifications are critical in the management and prevention of CAD. Evidence suggests that adopting healthy behaviors such as a balanced diet, regular physical activity, smoking cessation, stress management, and adherence to prescribed medications can significantly reduce the risk of disease progression and improve overall cardiovascular health (American Heart Association, 2020). [4] Despite the known benefits, many patients with CAD struggle to implement and maintain these lifestyle changes. A study by Chow et al. found that only a small

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recommended lifestyle modifications, underscoring the need for effective educational interventions.[4] Educational interventions, particularly structured teaching Programmes (STP), play a vital role in enhancing patients' knowledge and encouraging the adoption of healthy practices. These Programmes are designed to provide comprehensive and systematic information tailored to the needs of CAD patients. By improving patients' understanding of their condition and the importance of lifestyle modifications, STPs aim to empower individuals to take an active role in managing their health. A meta-analysis by Clark et al. (2012) demonstrated that patient education significantly improves adherence to lifestyle modifications and clinical outcomes in CAD patients. The main objectives to assess the pre-test and post-test level of knowledge and practice, to assess the effectiveness of STP by comparing pre-test and post-test level of knowledge and practice and to associate the pre-test level of knowledge and practice with their selected demographic variables.

## Materials and Methods

A Quantitate pre-experimental study was conducted in December 2024 among 30 CAD patient who got admitted in Critical care Unit with the diagnosis of Coronary Artery Disease at PES Hospital were selected by using convenient sampling technique, informed consent were taken before the study, patients' knowledge and practice were assessed by using structured self-administered questionnaire. This includes demographic variables and questionnaire on knowledge and practice regarding life style modifications among coronary artery disease patient.

**Statistical Analysis:** Collected data were compiled using Microsoft Excel 2013 and data were analyzed by SPSS 14.0 version. Categorical data were presented as frequency and proportions and Continuous variables were as mean and standard deviation. Association between pre-test level of knowledge with their selected demographic variables was analyzed by Chi-Square test.

**Table – 1 Distribution of Neurobiological mechanisms of post-MI depression [21]**

S. No	Demographic Variables	Classifications	No. of Patients	Percentage
1	Age Groups	a) 45 – 50	6	20.0
		b) 51 – 55	7	23.3
		c) 56 – 60	6	20.0
		d) 61 – 65	11	36.7
2	Gender	a) Male	20	66.7
		b) Female	10	33.3
3	Educational Status	a) Illiterate	12	40.0
		b) Primary education	17	56.7
		c) Secondary Education	0	0
		d) Higher Secondary Education	0	0
		e) Under graduation	0	0
		f) Post-Graduation	1	3.3
4	Occupation	a) Sedentary worker	8	26.7
		b) Moderate Worker	14	46.7
		c) Heavy Worker	8	26.7
5	Religion	a) Hindu	17	56.7
		b) Muslim	10	33.3
		c) Christian	3	10.0
6	Area of Residence	a) Rural	15	50.0
		b) Urban	10	33.3
		c) semi urban	5	16.7
7	Dietary pattern	a) Vegetarian	5	16.7
		b) Non vegetarian	25	83.3
8	Habits	a) smoking	10	33.3
		b) alcohol	4	13.3
		c) others specify	16	53.3
9	Type of CAD	a) MI	18	60.0
		b) Angina	5	16.7
		c) Coronary atherosclerosis	5	16.7
		d) Others specify	2	6.7

## Results

The demographic characteristics of coronary artery disease (CAD) patients. The majority (36.7%) were aged 61–65 years. Most were male (66.6%), and 40% were illiterate, while 56.7% had primary education. Regarding occupation, 46.7% were moderate workers. A majority (56.7%) identified as Hindu, followed by Muslims (33.3%) and Christians (10%). Half of the participants (50%) resided in rural areas, and 83.3% were non-vegetarians. About 33.3% reported smoking, 13.3% consumed alcohol, and 53.3% had other habits. Clinically, 60% had myocardial infarction, 16.7% had angina, 16.7% had coronary atherosclerosis, and 6.7% had other forms of CAD as shown in Table-1.

**Table-2 Frequency and percentage distribution of the pre-test level of knowledge among coronary artery patients. (N=30)**

Level of Knowledge	Frequency	Percentage
Adequate Knowledge	1	3.3
Moderate Knowledge	2	6.7
In adequate Knowledge	27	90.0

1 (3.3%) coronary artery patients were had adequate knowledge, 2 (6.7%) were had Moderate Knowledge and 27 (90.0%) were had inadequate Knowledge. [Table – 2]

**Table-3 Frequency and percentage distribution of the post-test level of knowledge among coronary artery patients (N=30)**

Level of Knowledge	Frequency	Percentage
Adequate Knowledge	14	46.7
Moderate Knowledge	15	50
In adequate Knowledge	1	3.3

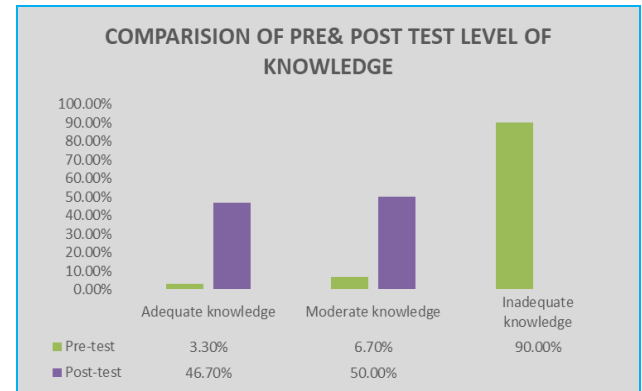
Majority 14(46.7%) coronary artery patient were had adequate knowledge, 15(50.0%) were had in Moderate Knowledge and 1 (3.3%) were had in adequate Knowledge [Table – 3]

**Table: 4 - Comparison of pre-test and post-test knowledge mean and SD among cataract patient**

Post-Test knowledge	Frequency	Percentage
Adequate practice	13	43.3
In adequate practice	17	56.7

Majority 13 (43.3%) coronary artery patient were had adequate practice, 17 (56.7%) were had in adequate. [Table – 4]

**Figure-1 Comparison of frequency and percentage distribution of pre-test and post-test level of Knowledge among of the coronary artery patients.**

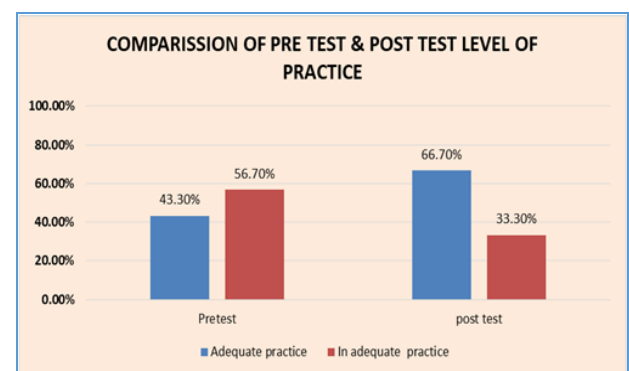


**Table-5 Frequency and percentage distribution of the post-test level of practice among coronary artery Disease patients**

Level of Practice	Frequency	Percentage
Adequate Practice	20	66.7
In Adequate Practice	10	33.3

Majority 20 (66.7%) coronary artery patient were had adequate practice, 10 (33.3%) were had in adequate Practice [Table-5]

**Figure-2 Comparison of frequency and percentage distribution of pre-test and post-test level of practice among of the coronary artery Disease patients**



Association of pre-test scores of knowledges on life style modification among coronary artery patients with their selected demographic variables Religion was significant at the level of  $p < 0.001$  respectively. Other variables like Age, Sex, Educational Status, Occupation, Area of Residence Dietary Pattern, Habit and Type of CAD weren't significant [Figure-2]

**Table – 6 Association of pre-test level of knowledge among CAD patients with their selected demographic variables**

S. No	Demographic Variables	Classifications	Level of Knowledge			Chi-square Value	p-Value
			In adequate Knowledge	Moderate Knowledge	Adequate knowledge		
1	Age	a) 45-50 years	4	2	0	12.59	0.050 NS
		b) 51-55 years	7	0	0		
		c) 55-60 years	5	0	1		
		d) 60-65 years	11	0	0		
2	Sex	a) Male	18	1	1	0.750	0.687 NS
		B) Female	9	1	0		
3	Educational status	a) Illiterate	11	1	0	0.918	0.922 NS
		b) Primary education	15	1	1		
		c) Secondary education	0	0	0		
		d) Higher secondary education	0	0	0		
		e) Under graduate	0	0	0		
		f) Post graduate	1	0	0		
4	Occupation	a) Sedandry Worker	5	2	1	9.167	0.057 NS
		b) Moderate Worker	14	0	0		
		c) Heavy Worker	8	0	0		
5	Religion	a) Hindu	16	1	0	9.596	0.48 S*
		b) Muslim	9	1	0		
		c) Christian	2	0	1		
6	Area of Residence	a) Rural	14	1	0	4.074	0.396 NS
		b) Urban	9	0	1		
		c) Semi Urban	4	1	0		
7	Dietary Pattern	a) Vegetarian	4	1	0	1.867	0.393 NS
		b) Non vegetarian	23	1	1		
8	Habit	a) smoking	8	1	1	2.618	0.624 NS
		b) alcohol	4	0	0		
		c) others specify	15	1	0		
9	Type of CAD	a) MI	15	2	1	2.222	0.898 NS
		b) Angina	5	0	0		
		c) Coronary atherosclerosis	5	0	0		
		d) Others specify	2	0	0		

The association of pre-test scores of knowledges on life style modification among coronary artery patients with their selected demographic variables Religion was significant at the level of  $p < 0.001$  respectively. Other variables such as Age, Sex, Educational Status, Occupation, Area of Residence Dietary Pattern, Habit and Type of CAD were not significant. [Table – 6]

**Table: 7 Association of pre-test level of practice among CAD patients with their selected demographic variables**

S. No	Demographic Variables	Classifications	Level of Practice		Chi-square Value	p-Value
			In Adequate Practice	Adequate Practice		
1	Age	a) 45-50 years	2	4	2.595	0.458 NS
		b) 51-55 years	4	3		
		c) 55-60 years	3	3		
		d) 60-65 years	8	3		
2	Sex	a) Male	10	10	1.806	0.259 NS
		b) Female	7	3		
3	Educational status	a) Illiterate	7	5	0.874	0.646 NS
		b) Primary education	9	8		
		c) Secondary education	1	0		
		d) Higher secondary education	0	0		
		e) Under graduate	0	0		
		f) Post graduate	0	0		
4	Occupation	a) Sedandry Worker	4	4	0.621	0.733 NS
		b) Moderate Worker	9	5		
		c) Heavy Worker	4	4		
5	Religion	a) Hindu	11	6	1.701	0.427 NS
		b) Muslim	4	6		
		c) Christian	2	1		
6	Area of Residence	a) Rural	7	8	1.357	0.507 NS
		b) Urban	7	3		
		c) Semi Urban	3	2		
7	Dietary Pattern	a) Vegetarian	4	1	1.330	0.261 NS
		b) Non vegetarian	13	12		
8	Habit	a) Smoking	4	6	2.155	0.340 NS
		b) Alcohol	2	2		
		c) Others specify	11	5		
9	Type of CAD	a) MI	12	6	3.937	0.268 NS
		b) Angina	2	3		
		c) Coronary atherosclerosis	3	2		
		d) Others specify	0	2		

The association of pre-test scores of Practice on life style modification among coronary artery patients with their selected demographic variables such as age, sex, educational status, occupation, religion, area of residence dietary pattern, habit and type of CAD were not significant. [Table – 7]

## Discussion

In the present study aimed to assess the knowledge and practice regarding lifestyle modification among coronary artery disease patients in a selected tertiary care hospital at Kuppam, Chittoor District. Andhra Pradesh. Demographic data revealed that most patients were aged 61–65 years, most of them 66.6% were male, and 40% were illiterate. Most were moderate workers, ½ of them practiced Hinduism, 50% resided in rural areas, and 3/4<sup>th</sup> of them were non-vegetarians. A significant portion half of the patients reported other lifestyle habits. In the pre-test, most of them 90% of patient's demonstrated inadequate knowledge regarding lifestyle modification, while very less number patients had moderate knowledge, and only very little had adequate knowledge. Post-test results showed improvement, with nearly half of the study participants achieving adequate knowledge, half of the population demonstrating moderate knowledge, and only very few were remaining in the inadequate category. Pre-test practice scores indicated that nearly half of patients had adequate practice, while half of the patients had inadequate practice. Post-test results showed improvement, with demonstrating adequate practice and 33.3% reporting inadequate practice. Statistical analysis revealed a significant association between religion and pre-test knowledge scores. No significant association was observed between pre-test knowledge or practice scores and other demographic variables such as age, sex, educational status, and occupation, area of residence, dietary pattern, habits, and type of CAD. These findings are supported by a similar study conducted by Reena Isaac et al. conducted a descriptive survey to assess knowledge and lifestyle practices regarding coronary artery disease among one hundred and two women aged 35–55 in Kerala. Most participants were aged 35–39, more than 1/2<sup>th</sup> of the patients had 10<sup>th</sup> standard education, and above 50% were household workers. Overall, few had excellent, 3/4<sup>th</sup> was average, and nearly 1/4<sup>th</sup> was had poor knowledge. Knowledge was lower in areas like risk factors and diagnosis/treatment, but higher for symptoms and lifestyle changes. Regarding lifestyle practices, more than half of the patients had good practice, 3/4<sup>th</sup> was had very good practice, and few of them had average practices. Poorer scores were seen in diet in more than half and physical activity. Education level was significantly associated with knowledge. [5]

## Conclusion

The study found that the majority of patients with coronary artery disease originally lacked the necessary skills and knowledge to make lifestyle changes. On the other hand, the organized training program markedly raised sufficient scores after the intervention, demonstrating a considerable improvement in both knowledge and practice levels. Other factors did not significantly affect pre-test knowledge levels, although demographic factors such as

religion did. This emphasizes the necessity of focused educational interventions to successfully close knowledge and practice gaps. The findings highlight how crucial organized educational initiatives are in encouraging patients to lead healthier lives, which will ultimately enhance illness treatment and results.

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**Conflict of Interest:** Nothing declared by the authors

**Authors' Contributions:** All authors conceived and designed the article. Wrote the full paper and checked by all the authors.

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