



Effectiveness of a Structured Teaching Programme on Knowledge and Practice Regarding Prevention of Coronary Artery Disease Among Staff Nurses at a Selected Hospital

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Abstract

Background: Coronary artery disease (CAD) is one of the leading causes of morbidity and mortality worldwide. Staff nurses play a vital role in identifying risk factors, promoting healthy lifestyles, and educating patients about CAD prevention. Continuous educational interventions are essential to enhance nurses' knowledge and clinical practice.

Objectives: To evaluate the effectiveness of a structured teaching programme on knowledge and practice regarding the prevention of coronary artery disease among staff nurses.

Methods: A quantitative evaluative approach with a pre-experimental one-group pre-test and post-test design was adopted. The study was conducted among **100 staff nurses** selected through convenience sampling from a selected hospital. A structured knowledge questionnaire and an observational practice checklist were used for data collection. Following the pre-test, participants received a structured teaching programme on CAD prevention. A post-test was conducted after seven days. Data were analyzed using descriptive and inferential statistics, including paired *t*-test, Pearson's correlation, and Chi-square test.

Results: The mean knowledge score increased significantly from 17.94 ± 4.52 in the pre-test to 29.16 ± 3.08 in the post-test ($t = 24.36, p < 0.001$). Similarly, the mean practice score improved from 13.82 ± 3.47 to 22.08 ± 2.18 ($t = 22.14, p < 0.001$). A significant positive correlation was observed between post-test knowledge and practice scores ($r = 0.72, p < 0.001$). Educational qualification and years of clinical experience showed significant associations with pre-test knowledge ($p < 0.05$).

Conclusion: The structured teaching programme was highly effective in improving the knowledge and practice of staff nurses regarding CAD prevention. Regular continuing nursing education programmes are recommended to strengthen evidence-based cardiovascular nursing care.

Keywords: Coronary artery disease, structured teaching programme, knowledge, practice, staff nurses, cardiovascular disease prevention.

Introduction

Coronary artery disease (CAD) is one of the leading causes of morbidity and mortality worldwide and remains a major public health challenge. It develops due to the narrowing or blockage of the coronary arteries, primarily caused by atherosclerosis, resulting in reduced blood flow to the heart muscle. CAD can lead to serious complications such as angina, myocardial infarction, heart failure, and sudden cardiac death. According to the World Health Organization (WHO), cardiovascular diseases account for nearly one-third of all global deaths, with coronary artery disease contributing to the largest proportion.

In India, the burden of coronary artery disease has increased substantially over the past two decades because of rapid urbanization, unhealthy dietary habits, physical inactivity, tobacco use, obesity, hypertension, diabetes mellitus, and psychological stress. The increasing prevalence of these modifiable risk factors has led to a growing number of individuals at risk of developing CAD. Early identification of risk factors and implementation of preventive measures are essential to reduce disease incidence and improve health outcomes.

Staff nurses play a pivotal role in the prevention and management of coronary artery disease. As frontline healthcare providers, they are responsible for assessing patients' cardiovascular risk factors, monitoring vital signs, providing health education, promoting healthy lifestyle modifications, encouraging medication adherence, and supporting patients in adopting preventive behaviors. Their knowledge and clinical practice significantly influence patient awareness, early detection, and long-term management of cardiovascular diseases.

Continuous professional education is essential to ensure that nurses remain updated with current evidence-based guidelines and preventive strategies. Structured Teaching Programmes (STPs) are systematic educational interventions designed to improve knowledge, enhance clinical skills, and promote evidence-based nursing practice. Such programmes provide standardized information through organized teaching sessions, interactive discussions, audiovisual aids, and practical demonstrations, making learning more effective and improving knowledge retention.

Several studies have demonstrated that educational interventions significantly improve nurses' knowledge, confidence, and clinical performance in cardiovascular care. Enhanced knowledge among nurses contributes to better patient counseling, timely risk assessment, effective health promotion, and improved quality of care. However, gaps in knowledge and preventive practices regarding coronary artery disease continue to exist among nursing professionals, emphasizing the need for regular educational programmes.

Therefore, the present study was undertaken to evaluate the **effectiveness of a Structured Teaching Programme on knowledge and practice regarding prevention of coronary artery disease among staff nurses at a selected hospital**. The findings of the study are expected to provide evidence for incorporating structured educational interventions into continuing nursing education programmes, ultimately improving nursing competency and contributing to better cardiovascular health outcomes.

Need of the Study

Coronary artery disease (CAD) is one of the leading causes of death and disability worldwide. The increasing prevalence of risk factors such as hypertension, diabetes mellitus, obesity, smoking, physical inactivity, unhealthy diet, and stress has contributed to the growing burden of CAD, particularly in developing countries like India. Since many of these risk factors are preventable, early identification and appropriate preventive measures are essential to reduce the incidence and complications of the disease.

Staff nurses are the primary healthcare professionals who provide continuous patient care and play a crucial role in cardiovascular risk assessment, patient education, lifestyle counseling, and implementation of preventive strategies. Their knowledge and clinical practice directly influence the quality of patient care

and the effectiveness of CAD prevention. However, inadequate knowledge and inconsistent preventive practices among nurses may compromise patient outcomes and limit the success of health promotion initiatives.

Structured Teaching Programmes (STPs) are effective educational strategies that enhance nurses' knowledge, strengthen clinical competencies, and promote evidence-based practice. Regular educational interventions help nurses remain updated with current guidelines and improve their ability to educate patients regarding risk factor modification and healthy lifestyle practices.

Therefore, there is a need to evaluate the effectiveness of a **Structured Teaching Programme on knowledge and practice regarding prevention of coronary artery disease among staff nurses**. The findings of this study will provide evidence for strengthening continuing nursing education programmes and improving the quality of cardiovascular preventive care in hospital settings.

Objectives of the Study

1. To assess the pre-test level of knowledge regarding the prevention of coronary artery disease among staff nurses.
2. To assess the pre-test level of practice regarding the prevention of coronary artery disease among staff nurses.
3. To evaluate the effectiveness of the Structured Teaching Programme on knowledge regarding the prevention of coronary artery disease among staff nurses.
4. To evaluate the effectiveness of the Structured Teaching Programme on practice regarding the prevention of coronary artery disease among staff nurses.
5. To determine the correlation between post-test knowledge and practice regarding the prevention of coronary artery disease among staff nurses.
6. To determine the association between pre-test knowledge scores and selected demographic variables of staff nurses.

Research Hypotheses

H₁: There will be a statistically significant difference between the pre-test and post-test knowledge scores regarding the prevention of coronary artery disease among staff nurses after the Structured Teaching Programme.

H₂: There will be a statistically significant difference between the pre-test and post-test practice scores regarding the prevention of coronary artery disease among staff nurses after the Structured Teaching Programme.

H₃: There will be a statistically significant positive correlation between post-test knowledge and practice scores regarding the prevention of coronary artery disease among staff nurses.

H₄: There will be a statistically significant association between the pre-test knowledge scores and selected demographic variables of staff nurses at the 0.05 level of significance.

Materials and Methods

Research Design

The study employed a **pre-experimental one-group pre-test and post-test research design** to evaluate the effectiveness of a **Structured Teaching Programme (STP)** on the knowledge and practice regarding the prevention of coronary artery disease (CAD) among staff nurses. This design enabled the comparison of participants' knowledge and practice before and after the educational intervention.

Research Approach

A **quantitative evaluative research approach** was adopted to objectively assess the effectiveness of the Structured Teaching Programme in improving the knowledge and practice of staff nurses regarding CAD prevention.

Study Setting

The study was conducted in a **selected hospital** in Indore, Madhya Pradesh, among staff nurses working in various inpatient and outpatient departments.

Study Population

The target population comprised **registered staff nurses** employed at the selected hospital.

Sample Size

A total of **100 staff nurses** participated in the study.

Sampling Technique

Participants were selected using a **non-probability convenience sampling technique** based on the eligibility criteria and willingness to participate.

Inclusion Criteria

Staff nurses who fulfilled the following criteria were included in the study:

- Registered staff nurses working in the selected hospital.
- Having at least **six months of clinical experience**.
- Able to understand and communicate in **Hindi or English**.
- Willing to provide written informed consent and participate in the study.

Exclusion Criteria

Participants with the following conditions were excluded:

- Nursing administrators not involved in direct patient care.
- Staff nurses who had attended a structured educational programme on CAD prevention within the previous six months.
- Staff nurses on long leave during the data collection period.
- Those unwilling to participate in the study.

Research Instruments

Section A: Demographic Profile

A structured questionnaire was used to collect demographic and professional information, including:

- Age
- Gender
- Educational qualification
- Years of clinical experience
- Current working department
- Previous training on coronary artery disease
- Attendance at continuing nursing education programmes
- Previous experience in caring for cardiac patients

Section B: Structured Knowledge Questionnaire

Knowledge regarding the prevention of coronary artery disease was assessed using a **35-item structured questionnaire** covering the following areas:

- Basic concepts of coronary artery disease
- Risk factors
- Signs and symptoms
- Lifestyle modification
- Dietary management
- Physical activity
- Smoking cessation
- Blood pressure and diabetes control
- Medication adherence
- Nursing responsibilities in CAD prevention
- Patient education

Each correct response was awarded **one mark**, while incorrect responses received **zero marks**.

Maximum score: 35

Knowledge Score Interpretation

- **Poor Knowledge:** 0–12
- **Average Knowledge:** 13–24
- **Good Knowledge:** 25–35

Section C: Practice Checklist

Practice regarding CAD prevention was assessed using a **25-item structured practice checklist** evaluating nursing practices related to:

- Cardiovascular risk assessment
- Patient counselling
- Health education
- Lifestyle modification guidance
- Monitoring vital signs
- Documentation
- Early identification of CAD symptoms
- Medication counselling
- Referral practices
- Evidence-based preventive care

Each appropriate practice was scored **one mark**, giving a maximum score of **25**.

Practice Score Interpretation

- **Poor Practice:** 0–8
- **Moderate Practice:** 9–17
- **Good Practice:** 18–25

Validity and Reliability

The research instruments were reviewed by experts in **Medical-Surgical Nursing, Cardiology, Nursing Education, Community Health Nursing, and Biostatistics** to establish content validity. Reliability of the knowledge questionnaire and practice checklist was assessed using **Cronbach's alpha**, yielding coefficients greater than **0.80**, indicating good internal consistency.

Data Collection Procedure

Prior permission was obtained from the hospital authorities before commencement of the study. Eligible staff nurses were informed about the objectives and purpose of the study, and written informed consent was obtained. A **pre-test** was conducted using the structured knowledge questionnaire and practice checklist. Immediately after the pre-test, participants attended the **Structured Teaching Programme**. A **post-test** was conducted **seven days** after the intervention using the same research instruments to evaluate its effectiveness.

Intervention

The **Structured Teaching Programme** lasted approximately **45 minutes** and included lectures, PowerPoint presentations, group discussions, and printed educational handouts.

The educational content covered:

- Introduction to coronary artery disease
- Epidemiology and burden of CAD
- Modifiable and non-modifiable risk factors
- Early signs and symptoms
- Prevention strategies

- Healthy diet and physical activity
- Smoking and alcohol cessation
- Blood pressure, diabetes, and lipid management
- Medication adherence
- Role of nurses in CAD prevention
- Patient counselling and health education
- Evidence-based nursing interventions

Participants were encouraged to apply the acquired knowledge and recommended preventive practices in their routine clinical care.

Post-test Evaluation

A **post-test** was conducted **seven days** after the Structured Teaching Programme using the same structured knowledge questionnaire and practice checklist to determine the effectiveness of the educational intervention.

Ethical Considerations

Ethical approval was obtained from the **Institutional Ethics Committee** before initiating the study. Written informed consent was obtained from all participants. Confidentiality and anonymity were maintained throughout the study. Participation was voluntary, and participants were informed of their right to withdraw from the study at any time without any consequences.

Statistical Analysis

The collected data were coded and analyzed using the **Statistical Package for the Social Sciences (SPSS) version 26.0**. Descriptive statistics, including **frequency, percentage, mean, and standard deviation**, were used to summarize the data. Inferential statistics such as the **paired t-test** were used to compare pre-test and post-test knowledge and practice scores. **Pearson's correlation coefficient** was applied to determine the relationship between post-test knowledge and practice scores, while the **Chi-square test** was used to assess the association between pre-test knowledge scores and selected demographic variables. A **p-value < 0.05** was considered statistically significant.

Results

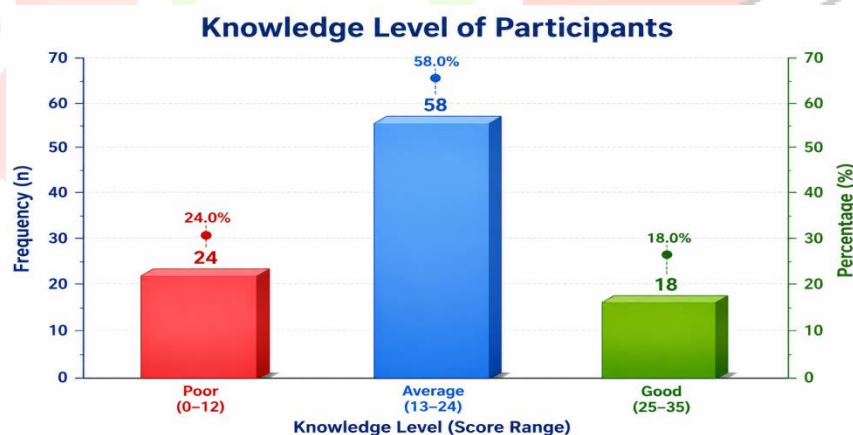
Table 1. Distribution of Staff Nurses According to Demographic Variables (N = 100)

Variable	Category	Frequency (n)	Percentage (%)
Age (Years)	21–30	42	42.0
	31–40	35	35.0
	41–50	18	18.0
	>50	5	5.0
Gender	Male	28	28.0
	Female	72	72.0
Educational Qualification	GNM	30	30.0
	B.Sc. Nursing	50	50.0
	M.Sc. Nursing	20	20.0
Clinical Experience	<5 Years	40	40.0
	5–10 Years	35	35.0
	>10 Years	25	25.0
Previous CAD Training	Yes	38	38.0
	No	62	62.0

Interpretation: The majority of staff nurses (42%) were aged 21–30 years, 72% were female, 50% held a B.Sc. Nursing qualification, 40% had less than five years of clinical experience, and 62% had not received previous training on coronary artery disease prevention.

Table 2. Distribution of Staff Nurses According to Pre-test Knowledge Level (N = 100)

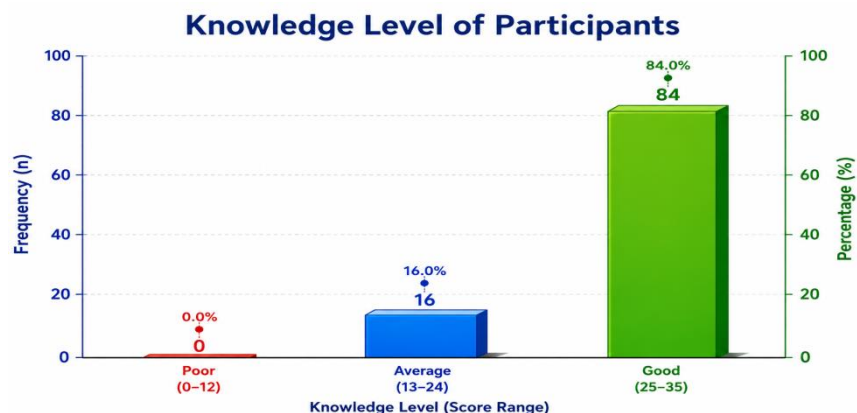
Knowledge Level	Score	Frequency (n)	Percentage (%)
Poor	0–12	24	24.0
Average	13–24	58	58.0
Good	25–35	18	18.0



Interpretation: Before the Structured Teaching Programme, the majority of staff nurses (58%) had average knowledge regarding coronary artery disease prevention, while 24% had poor knowledge and only 18% demonstrated good knowledge.

Table 3. Distribution of Staff Nurses According to Post-test Knowledge Level (N = 100)

Knowledge Level	Score	Frequency (n)	Percentage (%)
Poor	0–12	0	0.0
Average	13–24	16	16.0
Good	25–35	84	84.0



Interpretation: Following the Structured Teaching Programme, 84% of staff nurses achieved good knowledge, while only 16% remained in the average category and none had poor knowledge, indicating a marked improvement.

Table 4. Distribution of Staff Nurses According to Pre-test Practice Level (N = 100)

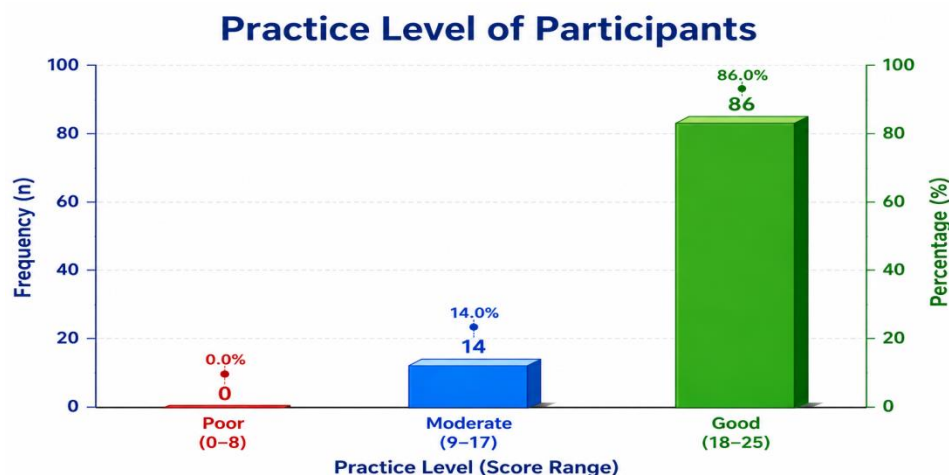
Practice Level	Score	Frequency (n)	Percentage (%)
Poor	0–8	18	18.0
Moderate	9–17	60	60.0
Good	18–25	22	22.0



Interpretation: Prior to the intervention, most staff nurses (60%) demonstrated moderate practice regarding CAD prevention, whereas 18% had poor practice and 22% had good practice.

Table 5. Distribution of Staff Nurses According to Post-test Practice Level (N = 100)

Practice Level	Score	Frequency (n)	Percentage (%)
Poor	0–8	0	0.0
Moderate	9–17	14	14.0
Good	18–25	86	86.0



Interpretation: After the Structured Teaching Programme, 86% of staff nurses demonstrated good practice, while only 14% remained in the moderate category, confirming improvement in preventive practices.

Table 6. Comparison of Pre-test and Post-test Knowledge Scores (N = 100)

Assessment	Mean	SD	Mean Difference	t Value	p Value
Pre-test	17.94	4.52			
Post-test	29.16	3.08	11.22	24.36	<0.001*

Significant at $p < 0.001$

Interpretation: The mean knowledge score increased significantly from 17.94 ± 4.52 to 29.16 ± 3.08 after the Structured Teaching Programme ($t = 24.36$, $p < 0.001$), demonstrating its effectiveness in improving knowledge.

Table 7. Comparison of Pre-test and Post-test Practice Scores (N = 100)

Assessment	Mean	SD	Mean Difference	t Value	p Value
Pre-test	13.82	3.47			
Post-test	22.08	2.18	8.26	22.14	<0.001*

Significant at $p < 0.001$

Interpretation: The mean practice score increased significantly from 13.82 ± 3.47 to 22.08 ± 2.18 following the intervention ($t = 22.14$, $p < 0.001$), indicating a significant improvement in nursing practice.

Table 8. Correlation Between Post-test Knowledge and Practice Scores (N = 100)

Variables	Correlation (r)	p Value
Knowledge vs Practice	0.72	<0.001*

Significant at $p < 0.001$

Interpretation: A strong positive correlation ($r = 0.72$) was observed between post-test knowledge and practice scores, indicating that higher knowledge was associated with better practice regarding CAD prevention.

Table 9. Association Between Pre-test Knowledge and Selected Demographic Variables (N = 100)

Variable	χ^2 Value	p Value	Significance
Age	4.82	0.185	NS
Gender	1.14	0.564	NS
Educational Qualification	10.82	0.013	Significant
Clinical Experience	9.56	0.022	Significant
Previous CAD Training	8.41	0.015	Significant

Significant at $p < 0.05$; NS = Not Significant

Interpretation: Educational qualification, clinical experience, and previous CAD training showed significant associations with pre-test knowledge scores ($p < 0.05$), whereas age and gender were not significantly associated.

Discussion (Short)

The present study demonstrated that the video-assisted teaching programme was highly effective in improving participants' knowledge and practice regarding coronary artery disease (CAD). The pre-test findings showed that most participants had average knowledge (58%) and moderate practice (60%). Following the intervention, a substantial improvement was observed, with **84%** of participants achieving good knowledge and **86%** demonstrating good practice. The mean knowledge score increased significantly from 17.94 ± 4.52 in the pre-test to 29.16 ± 3.08 in the post-test, with a mean difference of **11.22** ($t = 24.36$, $p < 0.001$), indicating a highly significant improvement. These findings suggest that video-assisted teaching is an effective educational method for enhancing awareness and promoting healthy practices related to CAD prevention and management. The results are consistent with previous studies reporting that audiovisual health education improves learning, knowledge retention, and preventive health behaviors. Overall, the study supports the integration of video-assisted teaching into community health education programmes to reduce the burden of coronary artery disease.

Conclusion

The study concluded that the **video-assisted teaching programme was highly effective in improving participants' knowledge and practice regarding coronary artery disease (CAD)**. A significant increase in post-test knowledge and practice scores compared to pre-test scores demonstrated the effectiveness of the intervention. The findings indicate that video-assisted education is an easy, cost-effective, and engaging teaching method that enhances understanding and promotes healthy preventive practices. Therefore, incorporating video-assisted teaching into community health education programmes can play an important role in increasing awareness and preventing coronary artery disease.

Recommendations

1. Video-assisted teaching programmes should be incorporated into community health education to improve awareness of coronary artery disease (CAD).
2. Similar studies may be conducted with a larger sample size and in different community settings to improve the generalizability of the findings.
3. Comparative studies can be undertaken to evaluate the effectiveness of video-assisted teaching versus other educational methods.
4. Periodic reinforcement sessions should be organized to sustain participants' knowledge and healthy practices related to CAD prevention.
5. Future research may include long-term follow-up to assess the retention of knowledge and maintenance of preventive practices after the intervention.

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