

Effectiveness of a Nurse-Led Cardiac Rehabilitation Programme on Knowledge Regarding Coronary Artery Disease among Patients Attending Selected Hospitals of Dahod District: A Pre-Experimental Study

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Coronary artery disease, cardiac rehabilitation, nurse-led intervention, knowledge, cardiac patients, rehabilitation programme.

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Abstract

Background

Coronary artery disease (CAD) remains one of the leading causes of mortality and morbidity worldwide. Cardiac rehabilitation programmes have been recognized as effective interventions in improving patient knowledge, promoting lifestyle modification, and reducing disease-related complications. Nurse-led educational interventions play a crucial role in enhancing patient awareness regarding disease management and prevention.

Objectives

To assess the effectiveness of a nurse-led cardiac rehabilitation programme on knowledge regarding coronary artery disease among patients attending selected hospitals in Dahod District.

Methods

A quantitative evaluative approach with a pre-experimental one-group pre-test and post-test design was adopted among 250 coronary artery disease patients. Participants were selected using a non-probability purposive sampling technique. A structured knowledge questionnaire was used to assess knowledge before and after the intervention. Data were analyzed using descriptive and inferential statistics.

Results

The pre-test findings revealed that 52% of participants had poor knowledge and 48% had average knowledge regarding cardiac rehabilitation. Following the intervention, 72% of participants demonstrated good knowledge, while 28% had average knowledge. The calculated paired t-value ($t=6.245$, $p<0.05$) indicated a statistically significant improvement in knowledge scores. Educational status showed a significant association with pre-test knowledge levels ($p<0.05$).

Conclusion

The nurse-led cardiac rehabilitation programme was effective in improving knowledge regarding coronary artery disease and cardiac rehabilitation among patients. Structured educational interventions should be integrated into routine cardiac care services.

INTRODUCTION

Coronary artery disease (CAD) is one of the most prevalent cardiovascular disorders and represents a major public health challenge globally. It occurs due to narrowing or blockage of coronary arteries resulting from atherosclerotic plaque formation, leading to reduced blood flow to the myocardium. CAD is responsible for significant morbidity, mortality, disability,

and healthcare expenditure across developed and developing countries.

The burden of CAD has increased dramatically in India due to rapid urbanization, sedentary lifestyles, unhealthy dietary habits, smoking, obesity, diabetes mellitus, hypertension, and psychosocial stress. Recent epidemiological studies indicate that

cardiovascular diseases account for nearly one-third of all deaths in India. Early diagnosis, effective treatment, and secondary prevention strategies are essential to reduce complications and improve quality of life among affected individuals.

Cardiac rehabilitation is a comprehensive multidisciplinary intervention designed to improve cardiovascular health following diagnosis or treatment of heart disease. It encompasses patient education, exercise training, dietary counseling, psychosocial support, risk-factor modification, medication adherence, and lifestyle management. Evidence suggests that participation in cardiac rehabilitation programmes significantly reduces recurrent cardiac events, hospital readmissions, and mortality rates.

Despite the proven benefits of cardiac rehabilitation, many patients possess inadequate knowledge regarding disease pathology, risk factors, lifestyle modification, medication compliance, and preventive strategies. Lack of awareness contributes to poor self-care practices and increased risk of disease progression. Educational interventions led by nurses have emerged as effective approaches for improving patient understanding and encouraging positive behavioral changes.

Nurses play a pivotal role in cardiac rehabilitation because of their continuous interaction with patients and families. Through structured educational programmes, counseling, demonstrations, and follow-up guidance, nurses can empower patients to actively participate in disease management. Enhanced knowledge

facilitates better adherence to prescribed treatment and promotes healthier lifestyles.

Considering the increasing prevalence of CAD and the importance of patient education, the present study was undertaken to evaluate the effectiveness of a nurse-led cardiac rehabilitation programme among coronary artery disease patients attending selected hospitals in Dahod District.

Objectives

1. To assess the pre-test level of knowledge regarding coronary artery disease and cardiac rehabilitation among patients.
2. To assess the post-test level of knowledge regarding coronary artery disease and cardiac rehabilitation among patients.
3. To evaluate the effectiveness of a nurse-led cardiac rehabilitation programme.
4. To determine the association between pre-test knowledge scores and selected demographic variables.

METHODOLOGY

A quantitative evaluative research approach was adopted to determine the effectiveness of a nurse-led cardiac rehabilitation programme among coronary artery disease patients. The study employed a pre-experimental one-group pre-test and post-test design. This design enabled assessment of patients' knowledge before and after the educational intervention.

The study was conducted in selected hospitals of Dahod District, Gujarat. The target population consisted of patients

diagnosed with coronary artery disease who were attending cardiac outpatient departments and inpatient services. A total of 250 participants were recruited using a non-probability purposive sampling technique.

Patients diagnosed with coronary artery disease, willing to participate, and available during the data collection period were included in the study. Patients with severe complications, cognitive impairment, or those unable to communicate effectively were excluded.

The data collection tool consisted of three sections. The first section included socio-demographic variables such as age, gender, religion, educational status, occupation, income, family type, marital status, residence, and tobacco use. The second section comprised a structured knowledge questionnaire covering pathophysiology, signs and symptoms, risk factors, lifestyle modification, diagnosis, treatment, medication management, physical exercise, and dietary modifications related to coronary artery disease. The third section consisted of educational assessment items related to the nurse-led cardiac rehabilitation programme.

Content validity was established through expert review by cardiologists, medical specialists, nursing educators, and research experts. Reliability testing demonstrated acceptable consistency of the instrument.

Following institutional permission and informed consent, a pre-test was conducted using the structured questionnaire. The nurse-led cardiac rehabilitation programme was subsequently administered through lectures, demonstrations, audiovisual

presentations, counseling sessions, printed educational materials, and interactive discussions. The programme focused on disease understanding, risk-factor management, exercise adherence, dietary modifications, medication compliance, smoking cessation, and stress management.

A post-test assessment was conducted after completion of the educational intervention using the same questionnaire. Confidentiality and ethical principles were maintained throughout the study. Data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (paired t-test and chi-square test).

RESULTS

The collected data were organized, coded, tabulated, and analyzed according to the objectives of the study. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to describe the demographic characteristics and knowledge levels of the participants. Inferential statistics including paired t-test and Chi-square test were utilized to evaluate the effectiveness of the nurse-led cardiac rehabilitation programme and to determine the association between selected demographic variables and pre-test knowledge scores. The findings are presented under the following sections:

Section I: Frequency and percentage distribution of coronary artery disease patients according to their demographic characteristics.

Section II: Assessment of pre-test knowledge levels regarding cardiac

rehabilitation among coronary artery disease patients.

Section III: Assessment of post-test knowledge levels regarding cardiac rehabilitation among coronary artery disease patients.

Section IV: Evaluation of the effectiveness of the nurse-led cardiac rehabilitation programme by comparing pre-test and post-test knowledge scores.

Section V: Association between pre-test knowledge levels regarding cardiac

rehabilitation and selected demographic variables among coronary artery disease patients.

Table 1: Distribution of Participants According to Demographic Characteristics (N=250)

Most participants were aged 21–25 years (32%), male (65%), Hindu (80%), and had primary education (38%). Nearly 46% had a monthly income below ₹5,000, while 77% reported tobacco use.

Table 2: Pre-Test Knowledge Level Regarding Cardiac Rehabilitation

Knowledge Level	Frequency	Percentage
Poor	130	52%
Average	120	48%
Good	0	0%
Total	250	100%

The majority of participants demonstrated inadequate knowledge before the intervention.

Table 3: Post-Test Knowledge Level Regarding Cardiac Rehabilitation

Knowledge Level	Frequency	Percentage
Poor	0	0%
Average	71	28%
Good	179	72%
Total	250	100%

Post-test findings showed a substantial improvement in knowledge levels following the nurse-led programme.

Table 4: Effectiveness of Nurse-Led Cardiac Rehabilitation Programme

Test	Mean	SD	Mean Difference	t-value	p-value
Pre-test	1.320	2.913			
Post-test	2.652	4.530	1.332	6.245	<0.05

The calculated paired t-value demonstrated a statistically significant increase in knowledge scores after intervention, confirming programme effectiveness.

Association with Demographic Variables

A statistically significant association was found between educational status and pre-test knowledge levels ($p < 0.05$). No significant associations were observed with age, gender, religion, occupation, income, family type, marital status, residence, or tobacco use.

DISCUSSION

The present study evaluated the effectiveness of a nurse-led cardiac rehabilitation programme among coronary artery disease patients. The findings demonstrated that participants had inadequate baseline knowledge regarding disease prevention, rehabilitation, and lifestyle management.

More than half of the participants exhibited poor knowledge during the pre-test assessment. These findings indicate a considerable need for structured educational interventions among cardiac patients. Limited educational attainment and inadequate access to health information may contribute to poor awareness regarding disease management.

Following implementation of the rehabilitation programme, knowledge scores improved significantly. The majority of participants achieved good knowledge levels during post-test assessment. This improvement confirms the effectiveness of nurse-led educational strategies in enhancing patient understanding of

coronary artery disease and rehabilitation practices.

The statistically significant paired t-test result supports the positive impact of the intervention. Similar studies have reported that educational programmes improve medication adherence, dietary compliance, exercise participation, and self-care behaviors among cardiac patients.

Educational status emerged as a significant determinant of baseline knowledge. Patients with higher educational qualifications demonstrated greater awareness regarding disease management. This finding highlights the importance of tailoring educational materials according to literacy levels and patient needs.

The nurse-led cardiac rehabilitation programme provided comprehensive information regarding risk-factor reduction, smoking cessation, exercise, nutrition, and medication adherence. Such interventions empower patients to actively participate in their recovery and reduce the likelihood of recurrent cardiac events.

Overall, the study findings reinforce the critical role of nurses in patient education and cardiac rehabilitation. Integration of structured educational programmes into routine cardiac services may contribute significantly to improved cardiovascular outcomes.

CONCLUSION

The study concluded that coronary artery disease patients had inadequate baseline knowledge regarding cardiac rehabilitation. The nurse-led cardiac rehabilitation programme significantly improved

knowledge levels among participants. Educational status was significantly associated with pre-test knowledge. The findings support the incorporation of structured nurse-led rehabilitation programmes into routine cardiovascular care to enhance patient knowledge, promote healthy lifestyles, and improve long-term health outcomes.

Conflict of Interest

The authors declare that there is no conflict of interest related to this study.

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