Research Article

Knowledge and Attitude Regarding Cardiac Rehabilitation among Post-Myocardial Infarction Patients Following Coronary Angioplasty: A Descriptive Study

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Abstract

Background: This study aimed to assess the knowledge and attitude regarding cardiac rehabilitation (CR) following coronary angioplasty among post-myocardial infarction patients attending cardiac outpatient department in Ahmedabad city, and to identify their association with demographic variables.

Materials and Methods: A quantitative, non-experimental descriptive research design was adopted for the study. The study was conducted in selected cardiac hospitals of Ahmedabad city. A total of 100 post-myocardial infarction patients attending the cardiac outpatient department were selected using non-probability purposive sampling technique. The conceptual framework was based on Roy's Adaptation Model. Data were collected using a structured knowledge questionnaire and a five-point Likert attitude scale. Content validity was established through expert opinion, and reliability was assessed using split-half method. Data analysis was done using descriptive statistics (frequencies, percentages, and mean ± standard deviation) and inferential statistics (Chi-square test).

Results: Knowledge was mostly average (68%), with 21% poor and 11% good. Attitude was predominantly unfavorable (70%), with only 30% demonstrating a favorable outlook toward CR. Chi-square analysis revealed that educational status and previous information regarding CR were significantly associated with both knowledge and attitude scores ($P < 0.05$). In addition, gender was significantly associated with attitude scores ($P < 0.05$). No significant associations were observed between any of the remaining demographic variables and either knowledge or attitude.

Conclusion: Patients demonstrated limited knowledge and a largely unfavorable attitude, translating into poor cardiovascular risk management. Individualized nurse-led CR program is recommended as a secondary prevention strategy.

Keywords: Attitude, cardiac rehabilitation, coronary angioplasty, knowledge, myocardial infarction

Introduction

Cardiovascular disease (CVDs) is the number one cause of death globally and is projected to remain the leading cause of death. An estimated 17.9 million people died from CVDs in 2019, representing 32% of all global deaths. Of these deaths, 7.6 million were due to heart attacks and 5.7 million were due to ischemic stroke. Out of 17 million premature deaths due to non- communicable diseases in 2019, 38% were caused by CVDs.[1]

About one-fifth of all myocardial infarction are silent, that is, the patient is unaware that the myocardial infarction has occurred. Although the patient feels no pain, silent myocardial infarctions still damage the heart. One quarter to one third of those who survive the event will die within 12 months, and a large proportion will experience re-infarction or sudden death within 6 years of the event.

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According to the World Health Organization (2021), up to 80% of premature heart disease, stroke, and diabetes, and 75% of recurrent cardiovascular events could be prevented, reinforcing the need for optimized and holistic prevention strategies. Secondary prevention strategies like addressing behavioral risk factor such as tobacco and alcohol use, unhealthy diet and obesity, physical inactivity, and non-compliance to prescribed therapeutic regimen are vital to the care of the patient with CVD.[1]

The term cardiac rehabilitation (CR) involves structured, coordinated interventions planned to improve a cardiac patient's physical, social, and psychological functioning, including of patient education, risk factor mitigation, lifestyle counseling, and promoting adherence to prescribed regimen, thus maintaining the much-needed continuity in the post-discharge care essential to prevent recurrence of the disease.[2]

Despite the proven benefits of CR, studies assessing patients' knowledge, attitudes, and practices remain relatively scarce, and available findings reveal significant gaps in awareness, underscoring the need for further research in this area.[3]

Keeping in view the increasing prevalence of CVDs, the impact of risk reduction strategies, and the vital role of nurse in secondary prevention measures, the present study was undertaken to assess the knowledge and attitude toward CR of patients who underwent percutaneous coronary angioplasty post-myocardial infarction. Based on an accurate assessment of patient needs, nurses must develop realistic, acceptable plans of care. Thus, good knowledge and awareness about CR and its components can help patients navigate an optimum quality of life post-cardiac events.

Materials and Methods

Study design

A quantitative, non-experimental, descriptive survey design was adopted for this study, which was undertaken over a period of 2 months from February 2023 to March 2023. The target population included post-myocardial infarction patients following coronary angioplasty attending cardiac outpatient departments of selected hospitals of Ahmedabad city.

Sample size

A sample size of 100 patients was determined based on the expected volume of eligible post-myocardial patients attending cardiac outpatient departments during the designated study period, alongside considerations of institutional feasibility and time constraints. The participants were selected using a non-probability purposive sampling technique based on specific eligibility criteria.

Study population

Patients aged ≥18 years, hemodynamically stable, and who have undergone successful PCI were included in the study. Patients with severe complications post-PCI, cognitive and neurological impairment, and terminally ill were excluded from the study.

Ethical consideration

Ethical approval was obtained from the Institutional Ethics Committee (Approval No: M.Sc./IEC/433/A/2023, Date: January 02, 2023), and written consent was taken from all participants before data collection.

Study instruments

Data were collected using two instruments: A structured knowledge questionnaire and a five-point Likert attitude rating scale.

Table 1: Distribution of participants according to their demographic variables (n=100)

S. N.	Demographic variables	Frequency (f)	Percentage
1	Age in years		
	21–30 year	4	4
	31–40 year	10	10
	41–50 year	36	36
	51 years and above	50	50
2	Gender		
	Male	61	61
	Female	39	39
	Transgender	00	00
3	Marital status		
	Single	2	2
	Married	80	80
	Widow	16	16
	Separated	2	2
4	Religion		
	Hindu	71	71
	Muslim	16	16
	Christian	10	10
	Others	3	3
5	Educational status		
	Uneducated	4	4
	Up to 10^{th}/12^{th}	40	40
	Undergraduate	36	36
	Postgraduate	20	20
6	Dietary pattern		
	Vegetarian	55	55
	Non-vegetarian	45	45
7	Addiction		
	Alcoholic	30	30
	Smoker/tobacco	40	40
	Drug abuse	00	00
	None	30	30
8	Family history of heart disease		
	Yes	21	21
	No	79	79
9	Comorbidity		
	Blood pressure	34	34
	Diabetes mellitus	34	34
	Thyroid disorder	12	12
	Others	20	20
10	Previous information regarding cardiac rehabilitation		
	Yes	30	30
	No	70	70
11	Source of information (if yes)		
	Media	5	5
	Magazines	2	2
	Newspaper	2	2
	Hospital	18	18
	Books	3	3
	Others	0	0

Knowledge scoring and categorization

The knowledge questionnaire consisted of a total of 20 items, with each correct answer scored as 1 and an incorrect answer as 0. Total scores were categorized into three levels: Poor (<50%), average (50–75%), and good (>75%).

Attitude scoring and categorization

The attitude scale comprised of 10 statements scored from 1 to 5 (strongly disagree to strongly agree) for positive items, and reversed for negative items. Total attitude scores were categorized as unfavorable (<50%) or favorable (>50%).

Statistical analysis

Descriptive statistics, including frequencies, percentages, and mean ± standard deviation, were used to summarize demographic data, knowledge, and attitude scores. Inferential statistics, specifically the Chi-square test, were utilized to examine the associations between selected demographic variables and the participants' knowledge and attitude levels.

Results

The findings are presented under the following sections: Demographic characteristics of the participants, assessment of knowledge and attitude regarding CR following coronary angioplasty, and association between knowledge and attitude scores with selected sociodemographic variables among post-myocardial infarction patients attending cardiac outpatient department of selected cardiac hospitals in Ahmedabad city.

Demographic characteristics of the participants

The baseline socio-demographic profile of the study participants is summarized in Table 1. The demographic findings showed that the majority of participants were aged above 51 years [50 (50%)], males were 61 (61%), in regard to marital status 80 (80%) were married, religion 71 (71%) were Hindu, in educational status 40 (40%) had up to 10th}/12theducation, dietary pattern 55 (55%) were vegetarians, 40 (40%) had a smoking/tobacco addiction, in family history of heart disease 79 (79%) responded no, in relation with comorbidities 34 (34%) had hypertension and 34 (34%) had diabetes mellitus, and in terms of previous information regarding CR 70 (70%) responded no.

Distribution of knowledge level of post-myocardial infarction patients regarding CR

Table 2 shows that the majority of 21 (21%) samples had poor knowledge, 68 (68%) samples had average knowledge, and 11 (11%) samples had good knowledge.

Knowledge scores on CR following coronary angioplasty among post-myocardial infarction patients

Table 3 shows that the mean knowledge score was 9.94 (49.7%), Median 10, mode 10, and SD 2.55.

Distribution of attitude levels regarding CR among post-myocardial infarction patients

Table 4 reveals that the majority, 70 (70%), were having unfavorable attitude and only 30 (30%) samples had a favorable attitude.

Attitude scores regarding CR following coronary angioplasty among post-MI patients

Table 5 shows that the mean attitude score was 33.36 (66.72%), Median 33, mode 33, and SD 4.715.

Association between knowledge score and demographic variables of samples

Table 6 reveals that the demographic variables like "educational status" and "previous information regarding cardiac rehabilitation" have the calculated Chi-square value more than the table value at the 0.05 level of significance and show the presence of a significant association between knowledge score, whereas for the rest of the demographic variables, there was no significant association.

Association between attitude regarding CR with demographic variables

Table 7 reveals that the demographic variables like "gender," "educational status" and "previous information regarding cardiac rehabilitation" have the calculated Chi-square value more than the table value at the 0.05 level of significance and show the presence of a significant association between attitude score, whereas for the rest of the demographic variables there was no significant association.

Table 2: Distribution of knowledge level of post-myocardial infarction patients regarding cardiac rehabilitation (*n*=100)

Level of knowledge	Score (%)	Frequency (f)	Percentage
Poor knowledge	<50	21	21
Average knowledge	50–75	68	68
Good knowledge	>75	11	11
Total		100	100

Table 3: Knowledge scores on cardiac rehabilitation following coronary angioplasty among post-myocardial infarction patients (*n*=100)

Knowledge score	Mean	Mean%	Median	Mode	SD
	9.94	49.7%	10	10	2.55

SD: Standard deviation

Table 4: Distribution of attitude levels regarding cardiac rehabilitation among post-myocardial infarction patients (*n*=100)

Level of attitude	Score (%)	Frequency (f)	Percentage
Favorable	>50	30	30
Unfavorable	<50	70	70
Total		100	100

Table 5: Attitude scores regarding cardiac rehabilitation following coronary angioplasty among post-MI patients (*n*=100)

Attitude score	Mean	Mean%	Median	Mode	SD
	33.36	66.72	33	33	4.715

SD: Standard deviation

Table 6: Association between knowledge score and demographic variables of samples ($n=100$)

S. No.	Demographic variable	Category	Poor (f)	Average (f)	Good (f)	χ^2 value	Table value	df	Remarks
1	Age in years	21–30 years	4	0	2	9.565	12.59	6	NS
		31–40 years	10	1	9				
		41–50 years	36	9	24				
		≥51 years	50	11	33				
2	Gender	Male	61	9	45	3.704	5.99	2	NS
		Female	39	12	23				
3	Marital status	Single	2	0	1	10.234	12.59	6	NS
		Married	80	16	54				
		Widow	16	5	7				
		Separated	6	0	6				
4	Religion	Hindu	71	16	47	1.622	12.59	6	NS
		Muslim	16	3	11				
		Christian	10	2	7				
		Others	3	0	3				
5	Educational status	Uneducated	4	3	1	51.819	12.59	6	**S**
		Up to $10^{th}/12^{th}$	40	16	24				
		Undergraduate	36	2	32				
		Postgraduate	20	0	11				
6	Dietary pattern	Vegetarian	55	14	33	3.702	5.99	2	NS
		Non-vegetarian	45	7	35				
7	Addiction	Alcohol/tobacco	30	4	22	6.585	9.48	4	NS
		Smoker/tobacco	40	6	29				
		None	30	11	17				
8	Family history of heart disease	Yes	21	7	13	3.001	5.99	2	NS
		No	79	14	55				
9	Co-morbidity	Blood pressure	34	9	25	11.89	12.59	6	NS
		Diabetes mellitus	34	5	21				
		Thyroid disorder	12	3	9				
		Others	20	4	13				
10	Previous information regarding cardiac rehabilitation	Yes	30	0	21	23.09	5.99	2	**S**
		No	70	21	47				
11	Source of information	Media	5	0	2	5.397	9.48	4	NS
		Magazines	0	0	0				
		Newspaper	5	2	12				
		Hospital	0	1	6				
		Books	18	0	1				

Chi-square test was applied to find the association between knowledge score of samples and demographic variables. S: Significant, NS: Non-significant

Discussion

The primary objective of the study was to assess the baseline knowledge regarding CR following coronary angioplasty. The findings revealed that the majority of post-myocardial infarction patients possessed an average knowledge level. This outcome aligns with global trends noted by,[4] who highlighted that basic awareness of heart disease does exists but understanding of structured recovery programs is limited. Likewise, Gao *et al*. (2025)[3] found that chronic heart failure patients and their families often lack basic knowledge regarding the multifaceted components of cardiac recovery.

This gap in knowledge can be attributed to several systemic and patient-centric factors: A "crisis-only" communication model, reliance on informal information pathways, and systemic health literacy gaps. Patients and families experiencing cognitive overload during the acute phase of MI resulting in limited understanding regarding post-discharge recovery program.[5,6] Absence of structural and continuous counseling makes patients rely on informal networks such as peers, relatives, or unauthentic digital media, causing widespread of dissemination of misinformation and skewed perception essential to CR. Vollman *et al*., 2022[7] Standardized institutional discharge materials are frequently written in complex medical jargon. Without a targeted, nurse-led explanation, patients with lower formal education struggle to understand the therapeutic benefits of supervised risk reduction programs.[5,8]

Attitude toward CR following coronary angioplasty.

The present study demonstrated a predominantly unfavorable attitude toward CR following coronary angioplasty. This resistance is highly consistent with international studies showing a retrospective registry analysis in Abu Dhabi by (Thrush, 2023)[9] demonstrating that despite hospitals facilitating comprehensive CR programs, only 29.7% patients actually utilized them thoroughly, due to neutral or negative perceptions regarding the necessity of the program. Similarly, Yilmaz *et al*.,[10] observed that over 90% of eligible coronary artery disease patients in Turkey initially resisted to CR services, even after being explicitly informed of their availability.

The similarity in attitude across these studies point to a common cultural perception of coronary angioplasty (or stenting) as a

Table 7: Association between attitude score and selected demographic variables of samples (n=100)

S. No.	Demographic variable	Category	f	Favorable (f)	Unfavorable (f)	χ^2 value	Table value	df	Remarks
1	Age in years	21–30 years	4	1	3	4.116	7.815	3	NS
		31–40 years	10	5	5				
		41–50 years	36	13	23				
		≥51 years	50	11	39				
2	Gender	Male	61	13	48	5.623	3.841	1	S
		Female	39	17	22				
3	Marital status	Single	2	0	2	5.714	7.815	3	NS
		Married	80	24	56				
		Widow	16	6	10				
		Separated	6	0	6				
4	Religion	Hindu	71	21	50	1.720	7.815	3	NS
		Muslim	16	6	10				
		Christian	10	3	7				
		Others	3	0	3				
5	Educational status	Uneducated	4	3	1	13.862	7.815	3	S
		Up to 10th/12th	40	18	22				
		Undergraduate	36	7	29				
		Postgraduate	20	2	18				
6	Dietary pattern	Vegetarian	55	15	39	0.048	3.841	1	NS
		Non-vegetarian	45	14	31				
7	Addiction	Alcohol	30	7	23	1.270	5.991	2	NS
		Smoker/tobacco	40	12	28				
		None	30	11	19				
8	Family history of heart disease	Yes	21	8	13	0.830	3.841	1	NS
		No	79	22	57				
9	Co-morbidity	Blood pressure	34	12	22	2.148	7.815	3	NS
		Diabetes mellitus	34	8	26				
		Thyroid disorder	12	5	7				
		Others	20	5	15				
10	Previous information regarding cardiac rehabilitation	Yes	30	1	29	14.512	3.841	1	S
		No	70	29	41				
11	Source of information	Media	5	0	5	0.690	9.488	4	NS
		Magazines	2	0	2				
		Newspaper	2	0	2				
		Hospital	18	1	17				
		Books	3	0	3				

Chi-square test was applied to find the association between attitude score of samples and demographic variables. S: Significant, NS: Non-significant

"definitive cure" for heart disease. Patients often view the procedure as having fully resolved their health concern, which diminishes their motivation to adhere to long-term behavioral changes or attend structured exercise programs (Peterson *et al*., 2010).[11] Furthermore, as identified in the systematic review by (Bennett *et al*., 2009),[12] specific psychosocial concerns, such as fear that exercise might trigger a cardiac recurrence, have been cited by up to 40% of patients as a reason for their hesitant attitude.

Association with demographic variables

When evaluating the association between study variables and demographic data, education emerged as a strong determinant. Patients with lower levels of formal education were significantly more likely to possess both inadequate knowledge and unfavorable attitude toward CR. This highlights that formal education enables individuals to understand complex medical systems, realize long-term health risks, and overcome fears regarding recovery protocol. These findings suggest that a "one-size-fits-all" approach to discharge teaching is inadequate; instead, educational interventions must be aggressively tailored to the patient's socioeducational background to positively influencing their perceptions of CR.

Implications

The findings of the study suggest that patients undergoing coronary revascularization procedures should be well informed and motivated to participate in the CR program to prevent the recurrence of cardiac events and improve long-term health outcomes. Nurses can also become the key facilitators in delivering effective, patient-centered CR, significantly improving clinical outcomes and quality of life.

Conclusion

This descriptive study successfully assessed the levels of knowledge and attitude regarding CR following coronary angioplasty among post-myocardial infarction patients, while identifying key demographic associations. The findings reveal that the patients possess an average baseline knowledge and a predominantly unfavorable attitude toward CR. Among the demographic variables analyzed, educational status emerged as a significant factor influencing both the patients' knowledge levels and their subsequent attitudes.

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Conflicts of Interest

We declare that there is no conflict of interest and no vested interests.

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