

Knowledge and Practices Regarding Cardiac Rehabilitation among Patients in Selected Hospitals in a View to Develop Video Assisted Educational Module

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Abstract: *The objectives were to assess the knowledge and practices of patients regarding cardiac rehabilitation. To correlate the knowledge and practices regarding cardiac rehabilitation and to develop Video Assisted Educational Module for cardiac rehabilitation. A non-experimental descriptive study enrolling 100 patients was conducted during August and September 2015. Non probability purposive sampling technique was adopted. Analysis was done using frequency and percentage distribution and Fisher's exact test. findings- It was found that majority of the patients (38%) had average knowledge score, Total mean knowledge score was 12.39%. It was found that majority of patient's i.e.83.5% had knowledge about diet, 57.5% had knowledge about disease and risk factors and 50.6% patients had knowledge about concept of cardiac rehabilitation. It was found that majority of patients (97%) quitted smoking after cardiac event, 93% of patients were following dietary precautions, 86% were taking regular medications, 80% were monitoring their blood pressure regularly, 76% were monitoring their blood sugar levels regularly, 54% were monitoring their weight, 45% were monitoring blood cholesterol levels, 14% patients were following regular exercise prescription and only 12% patients were practicing mind relaxation methods **Conclusion:** The study found that inspite of good knowledge score, the practices were lacking. Some areas of practices needs further improvement. Patient should be encouraged to do exercises, to improve cardiac reserve.*

Keywords: Knowledge, Practices, Cardiac Rehabilitation, Patients, Educational Module

1. Introduction

Cardiovascular disease (CVD) is the leading cause of mortality worldwide, with the majority of these deaths occurring in low to middle income countries [1]. In South Asia (India), CVD has fourth leading contribution to years of life lost (YLL), a measure of loss of lives during the productive years. The World Health Organization (WHO) reports the annual age-adjusted CVD mortality rate in men and women to be 386 and 283/100,000 respectively. These rates are similar to other South Asian countries but much greater than that observed in the United States (US) and most European countries [2].

Learning is the addition of new knowledge and experience Interpreted in the light of past knowledge and experience. Teaching and learning is an integral part of nursing. Nurses have the responsibility to educate patients related to various aspects and keep themselves updated. Various teaching strategies are used to increase knowledge, such as lecturing, demonstration, discussion and self-education. These methods of self-education has an advantage over the others as the learner can educate himself at his own pace and it also stresses on rereading [3].

Due to demographic shifts, epidemiological transition and increasing urbanization and associated unhealthy lifestyles, there has been an increase in CVD risk factors (i.e. smoking, sedentary lifestyle, obesity, hypertension and hypercholesterolemia) in India. These factors have also contributed to CVD becoming more prevalent in rural areas

of the country [4]. Overall, increasing risk factor prevalence and a lack of systematic preventive approaches have been primary factors in the currently accelerating CVD related mortality in India [5].

However recent reports suggests that increasing number of patients are being discharged alive from hospitals after acute cardiac events and interventions. These patients constitute the major pool of those eligible to attend cardiac rehabilitations and secondary prevention programs [1].

Cardiac rehabilitation is a professionally supervised program to help people recover from heart attacks, heart surgery and percutaneous coronary intervention procedures such as stenting, angioplasty and CABG. Cardiac rehabilitation programs usually provide education and counseling services to help heart patients increase physical fitness, reduce cardiac symptoms, improve health and reduce the risk of future heart problems, including heart attack. Cardiac rehabilitation and secondary prevention programs should include advice regarding return to activities of daily living and return to work; any advice should take account of the physical and psychological status of the patient the nature of the activity or work proposed and the work environment. Moreover it is important that advice and support is personalized and responsive to patient or caregiver needs [2].

Rehabilitation plan is designed to meet patient's needs. He may need six weeks, six months or longer to learn how to manage his condition and develop healthier habits. Many programs last only three months, but some continue for years.

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Benefits of rehabilitation include, regular physical activity helps the client's heart and the rest of your body get stronger and work better. Physical activity improves his energy level and lifts your spirits. It also reduces his chances of future heart problems, including heart attack. Counseling and education can help him quit smoking, eat right, lose weight, and lower your blood pressure and cholesterol levels. Counseling may also help him learn to manage stress and to feel better about his health. The advice and close supervision of healthcare professionals to improve health and lower your risk of future problems. These professionals can also communicate with his primary care doctor or cardiologist[6].

Creating awareness among the patients regarding cardiac rehabilitation minimizes the burden of disease and maximizes the survival rate. The nursing profession has an obligation to teach health practices that will help individuals to maintain good health. Hence it is the need of the hour to address this issue with an attitude of giving awareness to the patients who are in need of cardiac rehabilitation.

2. Review of Literature

Literature review is a critical summary of research on a topic of interest generally prepared to put a research problem in context or to identify gaps and weakness in prior studies so as to justify a new investigation. [7]

Efficacy of planned teaching

Kadam,A.(2014) found that Structured education programme was highly effective to improve the knowledge score and to improve the attitude score of subjects/ caregiver towards colostomy care of patient [8]. Anjum,S.(2014)conducted study to assess knowledge of contraceptives methods and appraisal of health education among married women and concluded After the health education married women knowledge was improved to 100% about female sterilization followed by condom 99%, skin implants 86%, oral pills 85% and emergency contraceptives 85%.Sociodemographic variable were significantly associated with existing knowledge and level of married women specially age at marriage, age at first child, occupation,, income ,education [9][10]. Babu, R. L. (2014) The findings of the study concluded that care takers had inadequate knowledge regarding non-curative care of terminally ill cancer patients. The planned education programme on non-curative care of terminally ill cancer patients was highly effective in improving the knowledge of care takers regarding non-curative care of terminally ill cancer patients.[11] Shinde,M.(2014) concluded that demonstration regarding feeding of hemiplegic patient among caregivers was effective in increasing the skill of the caregivers regarding feeding of hemiplegic patient [12].

Deshmukh, M., & Shinde, M. (2014). concluded that the structured education was effective on knowledge and practice of staff nurses regarding venous access device care[13]. Bhudhagaonkar, J.,& Shinde, M. (2014). Concluded that Structured Education Regarding Menstrual Hygiene Practices was effective among Adolescent Girls.[14]

The benefits achieved with cardiac rehabilitation are the result of the combination of all its components. Approximately half of the mortality reduction achieved by exercise-based cardiac rehabilitation (28%) can be attributed to reductions in major risk factors, particularly smoking⁵⁴. Other factors may also contribute to the benefits of cardiac rehabilitation. These include a reduction in inflammation (a decrease in serum C-reactive protein concentration that is independent of weight loss and other medical therapies), ischemic preconditioning, improved endothelial function and a more favorable fibrinolytic balance. Other important benefits of cardiac rehabilitation include an increase of tolerated metabolic equivalents by 33% and of maximal oxygen consumption by 16%. This improvement in exercise performance is associated with beneficial effects on the quality of life and cardiovascular events[15].

Patients life quality benefits are also achieved through the improvement of symptoms (lessening of chest pain, dyspnea and fatigue), stress reduction and the enhancement of the overall sense of psychosocial well-being [16].The benefits of cardiac rehabilitation in patients with coronary disease are summarized in two recent meta-analyses. One meta-analysis of 63 randomized trials with a total of 21,295 patients showed a 17% reduction of recurrent myocardial infarction at 12 months and a 47% reduction of mortality at 2 years with cardiac rehabilitation [17].

Another meta-analysis of 48 randomized trials with a total of 8,940 patients with coronary disease showed that cardiac rehabilitation was associated with a significant reduction in all-cause mortality (odds ratio [OR] =0.80; 95% [CI] 0.68 to 0.93) and cardiac mortality (OR =0.74; 95% CI 0.61 to 0.96). There were no significant differences in the rates of nonfatal myocardial infarction and revascularization [18].

In a recent study of more than 600,000 Medicare patients hospitalized for acute coronary syndrome, percutaneous coronary intervention, or coronary artery bypass graft surgery, 73,049 patients (12.2%) participated in cardiac rehabilitation. After 1 year, there was a 2.2% mortality rate for cardiac rehabilitation participants vs. 5.3% for nonparticipants. This benefit was sustained at 5 years with a mortality rate of 16.3% for participants vs. 24.6% for nonparticipants. There was a dose-response relationship with cardiac rehabilitation. Patients who attended 25 or more sessions had a 20% lower 5-yr mortality rate than those who attended less than 25 sessions [19].

The first studies showing the benefits of cardiac rehabilitation in heart failure patients were small, monocentric with results that were disputed . ExTraMATCH, a meta-analysis of 9 randomized studies, confirmed a 35% decrease in mortality for heart failure patients. A large randomized controlled trial of exercise training in heart failure (HF-ACTION) involving 2331 patients with an ejection fraction of 35% or less showed that exercise training can achieve significant reductions (15%) in all-cause and cardiovascular mortality and heart failure hospitalization. It should be noted that the initial analysis in intention to treat did not show a difference between the exercise training and the standard treatment groups. The positive result was

obtained after adjustment of pre-specified prognostic criteria[20].

In the past decades cardiac rehabilitation has evolved as a result of evidence-based research, as the understanding of atherosclerosis and the role of risk factors has advanced. In a contemporary study of over 25,000 patients participating in 65 cardiac rehabilitation centers in 2003, there was one cardiac event for every 8484 exercise tests performed, one cardiac event for every 50,000 patient hours of exercise training, and 1.3 cardiac arrests for every million patient hours of exercise [21].

The 2007 American Heart Association scientific statement on exercise and acute cardiovascular events estimated that the risk of any major cardiovascular complication (cardiac arrest, death or myocardial infarction) is one event in 60,000 to 80,000 patient-hours of supervised exercise. Patients most at risk are those with residual ischemia, complex ventricular arrhythmia and severe left ventricular dysfunction (ejection fraction of less than 35%), especially NYHA III or IV. The respect of indications and contraindications and proper risk stratification are key to the safety of cardiac rehabilitation [22].

Overall, modern cardiac rehabilitation is safe and well tolerated with a very low rate of major complications such as death, cardiac arrest, myocardial infarction or serious injuries.

3. Statement of the Problem

“A study to assess the knowledge and practices regarding cardiac rehabilitation among patients in selected hospitals of Sangli, Miraj, Kupwad corporation area in a view to develop video assisted educational module.”

Aim and Objectives

Aim: To introduce cardiac rehabilitation programme for patients with coronary heart disease.

Objectives

- To assess the knowledge of patients regarding cardiac rehabilitation.
- To assess the practices of patients regarding cardiac rehabilitation.
- To correlate the knowledge and practices regarding cardiac rehabilitation.
- To develop Vide Assisted Educational Module for cardiac rehabilitation.

Operational Definitions

Assess – In this study, assess means gathering information through structured questionnaire and self-expressed practices with the help of self-expressed practices checklist regarding cardiac rehabilitation.

Knowledge–In this study, “knowledge refers to expressed opinions to knowledge questionnaires regarding cardiac rehabilitation.”

Practice - In this study practice refers to use of cardiac rehabilitation methods.

Cardiac rehabilitation – In this study cardiac rehabilitation refers to “the sum of activity required to restore the optimal physiological, psychological, vocational status and reduction of risk of morbidity and mortality related to cardiac diseases”.

Video assisted educational module –In this study video assisted educational module refers to “formal and specific educational video program regarding cardiac rehabilitation”.

Patient

In this study patient refers to a person suffering from coronary artery disease including spectrum of diseases e.g. Angina pectoris, myocardial infarction, acute coronary syndrome, ischemic heart disease.

Assumptions

- 1) Patients may lack knowledge regarding cardiac rehabilitation.
- 2) Video assisted educational module might improve the knowledge of patients regarding cardiac rehabilitation.

Inclusion Criteria

- 1) Patients having coronary artery disease with or without other co morbidities.
- 2) Patients able to understand Marathi, English language.
- 3) Patients willing to participate in the study.

Exclusion Criteria

Critically ill and unresponsive patients.

Variables Under Study

Research Variable– Knowledge of patients about cardiac rehabilitation.

Research Methodology

Research methodology is the activity of research, how to measure progress, and what constitutes success. The methodological decision paves crucial implications for validity and creditability of the study with findings. Methodology of research indicates the general pattern for organizing the procedure for empirical study together with the method of obtaining valid and reliable data for an investigation.

Research Approach

The research approach adopted for the study was quantitative descriptive research approach.

Research Design

The research design adopted was non experimental descriptive design.

Setting of the Study

The study was proposed to be conducted in selected hospitals of Sangli Miraj Kupwad corporation area named Bharati hospital, Wanless hospital.

Population

In this study, population consisted of patients with coronary heart disease in above said selected hospitals.

Sampling Technique

Non probability purposive sampling technique was chosen.

Sample Size

Sample size was calculated according to the prevalence rate of previous study with the help of statistician. Sample size for this study was calculated as 100.

Data Collection Instruments

Description of the Tool

Section I: It consisted the socio-demographic data like age, gender, educational status, previous illness and medications.

Section II: A knowledge questionnaire regarding cardiac rehabilitation.

Section III: Self expressed practices.

Validity

To ensure the validity of the tool it was submitted to 22 experts along with the questionnaire and SEP. Few corrections were suggested and needed corrections were done and final tool was prepared.

Reliability

After obtaining the administrative permission the tool was administered to 10 samples in CCU. The split half method was carried out for the reliability assessment of questionnaire and the reliability coefficient was calculated as the correlation coefficient. Similarly 10 samples were observed using self-expressed practices sheet by interrater method. The Cronbach's alpha calculated was 0.85 which was significant.

Pilot Study

A pilot study was conducted from 10/07/15 to 18/07/15 to assess the feasibility of the study and to decide on a plan for statistical analysis. Few refining was done in the questionnaire after the pilot study.

Collection of Data

Formal administrative permission was obtained from Bharati hospital. Dean and CCU in charge of the hospital were contacted and explained about the study. The study was conducted from 20/07/15 to 16/08/15. The investigator personally contacted each patient and the informed consent was obtained after explaining the purpose of the study. Questionnaire was administered to the patients; they were asked to fill and were collected within 15 minutes and the investigator waited in the setting for observation.

The investigator collected samples for 4-5 days from each hospital during the three shifts.

Plan for Data Analysis

The data analysis was planned to include descriptive and inferential statistics. The following plan of analysis was developed with the opinion of statistician. The analysis will be based on the objectives.

Demographic variables were analyzed by using Fisher's exact test, Chi square test. Frequency distribution and percentage was used to analyze the knowledge and practices of the patients.

4. Findings of the Study

Section I

Age: It was found that majority of the sample i.e. 51% of patients were in age group of 45-64 years, 32% were >65 years, 14% were in age group of 35-44 years and only 3% were in age group of 25-34 years.

Weight: It was found that majority of the sample i.e. 60% patients had weight of 60-80 Kg, 30% patients had weight of 40-60 Kg, 9% had 80-100 Kg and only 1% was above 100 Kg weight.

Smoking: It was found that majority of the sample i.e. 53% patients were smokers while 47% patients were non-smokers.

Co morbidity: It was found that majority of the sample i.e. 98% of the patients had ischemic heart disease, 45% patients had diabetes mellitus and 40% had hypertension as a risk factor.

Section II

Knowledge of patients regarding cardiac rehabilitation.

Structured questionnaire was used to collect data. The total score was 22 and was divided as 0-5 (poor knowledge score), 6-10 (average knowledge score), 11-15 (good knowledge score) and 16-22 (excellent knowledge score). It was found that majority of the patients (38%) had average knowledge score, 34% had good knowledge score and remaining 28% had excellent knowledge score. Total mean knowledge score was 12.39%.

It was found that majority of patients i.e.83.5% had knowledge about diet, 76% had knowledge about precautions, 65.5% had knowledge about exercise, 57.5% had knowledge about disease and risk factors and 50.6% patients had knowledge about concept of cardiac rehabilitation.

Section III

Self-Expressed Practice Score regarding cardiac rehabilitation methods

Self-expressed practices sheet was used to calculate practice score. The total score was 11 and was divided as 0-3 (poor practice score), 4-6 (average practice score), 7-9 (good practice score), 10-11 (excellent practice score). It was found that majority of the patients (71%) had good practice score, 24% had excellent practice score and remaining 5% had average practice score. Total mean practice score was 7.43%.

It was found that majority of patients (97%) quit smoking after cardiac event, 93% of patients were following dietary precautions, 86% were taking regular medications, 80% were monitoring their blood pressure regularly, 76% were monitoring their blood sugar levels regularly, 54% were monitoring their weight, 45% were monitoring blood

cholesterol levels, 14% patients were following regular exercise prescription and only 12% patients were practicing mind relaxation methods.

Section IV

Correlation between knowledge and self-expressed practice score

The study revealed that there is high degree positive correlation between knowledge and practices regarding cardiac rehabilitation. The practice score improves as knowledge score increases. This finding gives a support to establish a cardiac rehabilitation program which will help to improve the knowledge of patients ultimately improving practices for healthy lifestyle.

5. Discussion

Coronary heart disease (CHD) has a high mortality and morbidity among affected patients and reduces quality of life. Early diagnosis and management of CHD in addition to reduction of primary risk factors reduces the CHD mortality. Apart from adequate treatment and care these patients also require psychological, physiotherapeutic and educational support. Comprehensive cardiac rehabilitation program is designed to support patients with CHD in their physical, psychological and emotional recovery and to help them change lifestyle and to avoid risk factors, as well as to make them live a longer, better quality life.

The current study showed that CHD tends to occur more frequently among men than among women and among the older people, this may be contributed to the effects of estrogen as protective mechanism against the development of atherosclerosis. The present study revealed that the majority of the patients were between ages 45-64 years old which may be due to less physical activity and more sedentary lifestyle in this age group.

The results of the present study demonstrated that the majority of patients were married and their educational level was primary level. This is because married person are more exposed to psychological stress which affects the quality of life. Also educational level has an effect on behavior and belief of patients to accept the illness and modify their lifestyle according to prescribed therapeutic regimen.

Determining the risk factor for CHD is important for planning and implementing cardiac rehabilitation program especially for educational support which can be useful in modifying existing risk factors and then promoting quality of life for those patients. The present study indicate that majority of patients were diabetic, hypertensive, smokers. This finding was supported by Wexler and Aukerman who described six different risk factors for CHD.

The study revealed that 83.5% patients exhibit knowledge about dietary habits and 93% patients practice these healthy diet habits as a daily routine. These results suggest that these patients may follow such dietary regulations on regular basis if proper cardiac rehabilitation program with dietary advice is

implemented at the stated institute. Solaiman in 2007 observed that nearly two thirds of the studied patients decreased salt in diet after implementation of educational program⁹².

Our study revealed that 34% of patients exhibit knowledge about exercises and only 14% practice regular physical exercises. Exercise helps improve heart muscle function after cardiac event and to maintain a healthy weight, control risk factors like diabetes, high cholesterol, and high blood pressure. Regular exercise is a major way to reduce risk of having a further myocardial infarction. Carlsson in 1997 found that all levels of exercise reduce the risk of death or heart attack, stroke or diabetes. Studies have shown that implementation of cardiac rehabilitation program with exercise guidance significantly reduces the mortality and morbidity related to CHD.

Current study showed that 76% of patients monitor their blood sugar while 80% monitor their blood pressure regularly. On the other hand only 54% monitor their weight and 45% monitor their cholesterol levels. Similar study by Ghattas in 2007 showed that no one of the studied patients measured body weight regularly as a self-care practice during assessment of a patient's needs. Studies have shown that patient's quality of life improves after implementation of cardiac rehabilitation program⁹⁸. Such health education helps patient to modify their bad habits and encourage positive and good habit, also confirms usefulness of these practices.

In our study about 97% of patients committed to stop the smoking, this finding is similar with Seto et al who suggested that stopping the smoking is the single most effective way to reduce the risk of future cardiac event.

In the present study, the results revealed that 86% of the patients follow regular intake of medications. Implementing a cardiac rehabilitation program would further improve the patient's drug compliance and help to control the hypertension, blood sugar, cholesterol which ultimately reduces the risk of further progression and recurrence of CHD.

Management of stress is another important aspect of cardiac rehabilitation. Various forms of psychological interventions are necessary to maintain a lifestyle change in a long term¹⁰². In our study only 12% patients implement mind relaxation methods which strongly suggest the need for introduction of cardiac rehabilitation program with psychological health support.

The results of our study suggested the need for introduction of cardiac rehabilitation program which help to improve the lifestyle pattern of patients in long term. Appel et al stated that intervention from healthcare providers makes good sense, to help patients reduce the controllable CHD risk factors through proper lifestyle choices.

6. Conclusion

Finding of the present study revealed that significant amount of patients were lacking the knowledge about various domains of cardiac rehabilitation and proper implementation of healthy lifestyle practices which could impose them with high risk of coronary heart disease recurrence and progression. Planning for cardiac rehabilitation should be based on existing knowledge level, implementation of various lifestyle improvement practices and assessment of risk factors which explores various areas needed to be modified and help to tailor the education program for each patient.

Cardiac rehabilitation program for patients with CHD should be implemented on a wider field and evaluated for further improvement. Moreover, lifestyle pattern changes are recommended for all persons with CHD to reduce the risk factors and improve quality of life.

7. Implications

1. Nursing Practice: The present study implies video assisted educational module to be an effective strategy to educate the patient regarding cardiac rehabilitation. Learning materials of such kind can be used in hospitals and in communities for client's education.

Copies can be distributed to the patients in hospital, wards and OPD's. Nurses can conduct teaching session for clients during their visits to the hospital and hospitalization with the help of the module which will help in improving the knowledge of clients in restoring and promoting their health. Nurses can counsel patients at risk for CAD on the benefits of exercise. Nurses can include an exercise component in health and wellness programme for patients with CAD. Specialization courses in Cardiac rehabilitation to be given. Continuing and In service education programs can be conducted for the nurses in improving their knowledge and updating with the recent ones and they in turn can create awareness to the clients by teaching/educating. In collaboration with the regulation bodies, educational institutions can arrange and conduct workshops and seminars on cardiac rehabilitation as cardiovascular diseases are major cause for morbidity and mortality. Nurses should be stressed or emphasized on their exposure to cardiac nursing and to learn regarding the various aspects of cardiac rehabilitation which makes them well equipped with the knowledge to meet the needs of the clients.

2. Nursing Education: Rehabilitation is one of the major components of nursing care. Thus every nurse should be educated on cardiac rehabilitation. The student nurses from School of Nursing and College of Nursing should be encouraged to attend specialized courses and seminars regarding Cardiac rehabilitation. Indian Nursing Council and Universities should include Cardiac rehabilitation as one of the main educational aspect in the nursing curriculum. Student Nurses should be well exposed to areas of cardiac rehabilitation during their clinical postings which enhances their knowledge. Topics on Cardiac rehabilitation can be

included as continuing education programme for the student nurses.

3. Nursing Administration: An administrator plays a key role in an organization for the staff development program. Nursing is a rapidly growing profession. In this period of growth of advanced technology, recent advances in care there is always a need and demand for quality and competent care to be provided. So, it is the main responsibility of the nursing administrative authorities to initiate, conduct and carry out education programme in various areas of cardiac rehabilitation for the benefit of the clients. Nursing leaders should utilize available resources which are technologically sound in teaching the clients with coronary artery disease through mass health education programme. Nursing leaders should enhance nursing services through reinforcement of teaching through the readymade video package. Nurse administrators should take up leadership roles in training and providing health education programme to nursing personnel in health care settings so that the personnel take up active role in educating the clients by making the most use of media and audio visual aids. Specialized teaching package in specific topics create interest among public and serves as reference material. Professional interaction between the nurses and the public will help to improve professional standards and creates better image in the community.

4. Nursing Research: There is a need for extensive and intensive research in this area so that strategies for educating nurses and public regarding various aspects and phases of cardiac rehabilitation can be promoted. Nurse researchers should take efforts to conduct interactive sessions with coronary artery disease clients for promoting their health and also to disseminate the findings of research on benefits of cardiac rehabilitation that promotes their cardiac fitness. This study will serve as a valuable reference material for future investigators.

8. Limitations

The study was done in selected hospitals on a limited population to generalize the findings.

9. Recommendations

On the basis of the findings of the study, it is recommended that the following studies can be conducted.

- 1) A similar study may be conducted on a larger population for generalization of findings.
- 2) Studies may be conducted to evaluate the effectiveness of video assisted educational module versus other methods of teaching on knowledge regarding cardiac rehabilitation.
- 3) A similar study can be conducted and evaluated using alternative teaching strategies like interactive learning sessions, structured teaching programme.
- 4) A comparative study can be done among clients with first and second heart attack regarding knowledge on cardiac rehabilitation.
- 5) A descriptive study can be done among clients with coronary artery disease regarding knowledge on cardiac rehabilitation.

6) A structured teaching programme may be used in the hospitals, so that the entire clients with CAD can participate to improve knowledge regarding cardiac rehabilitation.

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