



"FACTORS AFFECTING THE FOLLOW UP OF PHASE II CARDIAC REHABILITATION POST CABG AT TERTIARY CARE HOSPITAL, DHARWAD" - A CROSS-SECTIONAL STUDY.

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ABSTRACT

Background: Cardiac rehabilitation is a complex intervention offered to patients diagnosed with heart disease, which includes components of health education, advice on cardiovascular risk reduction, physical activity and stress management. Despite of available evidence and need the participation rates in the CR mainly phase II are low. The physiotherapist plays an important role on cardiac rehabilitation team. The current study aimed at determining the factors affecting phase II cardiac rehabilitation. **Objective:** To determine the factors affecting the follow up phase second of cardiac rehabilitation post CABG in SDM NH multispecialty hospital and to explore the associated other factors. **Materials and methods:** a cross sectional was performed to find out factors affecting phase II cardiac rehabilitation in subjects who underwent CABG. 110 subjects who underwent CABG were included in the study. A Self-made questionnaire was administered each patients. Information about Demographic data and the subject's perception for the barriers of phase II Cardiac rehabilitation were gathered. **Results and conclusion:** The statistical analysis was done using chi square test to find out the association between the age, gender, education and occupation of the subjects with their lack of attendance at phase II CR. The p value was significant (≤ 0.05) in age, education and occupation of the subjects. The results concluded that, there is association between the subject's age, education and occupation with the lack of attendance at phase II cardiac rehabilitation. Also, other factors like distance to the facility, cost, lack of awareness and lack of referral were contributing to the low attendance.

KEYWORDS : Phase II cardiac rehabilitation, CABG, awareness, barriers.

Introduction:

Coronary artery disease (CAD) is also known as coronary heart disease which is one of the leading causes of disability and death. Clinical manifestations of coronary artery disease consist of acute and chronic conditions such as stable angina, acute coronary syndrome and heart failure. Coronary artery disease is a condition in which there is an inadequate supply of blood and oxygen to a portion of the myocardium. Coronary artery disease is most commonly due to atherosclerotic occlusion of the coronary arteries (1,2).

Cardiac rehabilitation:

Once the benefits of ambulation during prolonged hospitalization for coronary events was recognized the cardiac rehabilitation (CR) program were then framed in 1960s.

Cardiac rehabilitation refers to synchronized, comprehensive interventions designed to optimize a cardiac patient's physical, psychological, and social functioning, in addition to stabilizing, slowing, or even reversing the progression of the primary atherosclerotic processes, thereby reducing morbidity and mortality."3

The objectives of cardiovascular rehabilitation are the following:

- 1) Assist patients with known CADs or at high risk of developing them;
- 2) Rehabilitate patients in a comprehensive manner by offering physical, mental, social, Vocational and spiritual support;
- 3) Educate patients to adopt and maintain hale and hearty habits through lifestyle changes with Or without pharmacological and/or surgical treatment;

- 4) Decrease disability and promote lifestyle modifications through the proactive engagement of Patient's in health promotion;
- 5) Improve quality of life;
- 6) Prevent new cardiovascular events;
- 7) Strictly control of risk factors.⁴

Phase 2: Cardiac rehabilitation:

Outpatient cardiac rehabilitation guides in empowering the patient to adopt self-management strategies. It may be provided in various settings, such as hospitals, community healthcenters and general medical practices, or a combination of these or on an individual basis in the patient's home. In this phase, the patient needs supervision and individualized care, because this is the period of recovery phase and the patient frequently has not had any preceding contact with formal physical activities.

In our country, most of the programs are performed during phase I. however, phase II have not gained widespread acceptance due to various reasons like the referral, financial, social and family problems. 5As most of the patients have low literacy rate and falls into low socioeconomic status category, they cannot afford to come to outpatient department due to financial and travelling problems. Only 13% of the rural population has access to a primary healthcare facility and less than 10% to a hospital. Apart from that, in India CR is not included in medical insurance facility unlike other countries. Preventive, diagnostic or any sort of outpatient facility does not fall under health care insurance and also most of the people cannot meet up with the demands placed by the hospital in terms of expenses of outpatient care department.

Hence, there is a strong need arises to carry out a study which can identify the factors that stop the individual from taking part or

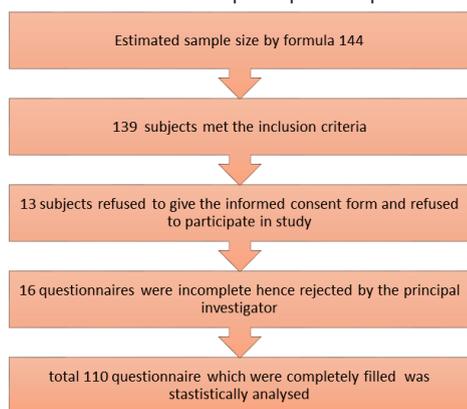
attending the follow up sessions of phase II cardiac rehabilitation.

Materials and Methods:

Sample of 144 collected as per the below flow chart from SDM College of medical science and hospital, SDM Narayan Hridayalaya, Sattur, Dharwad. Study design; Cross sectional Study. Ethical clearance for the study was obtained from ethical committee of S.D.M College of medical science and hospital, Dharwad. Subjects underwent CABG in SDM medical Narayan Hridayalaya, were recruited based on inclusion and exclusion criteria of the study. Inclusion criteria: Subjects who underwent CABG in SDMNH within 3 months of their surgery, of either gender who were willing to participate in the study were included. Exclusion criteria: cardiac surgeries other than CABG, major complications followed by CABG, previous history of CABG, subjects with psychological disorders, neurological conditions, severe musculoskeletal conditions, subjects unwilling to participate. Subjects ready to participate were briefly explained about the study and written consent was taken.

A valid and reliable self-made questionnaire was used and any query regarding understanding the questions were cleared at the same time by the principal investigator.

The completely filled questionnaires were collected by the principal investigator. The coding was done by the principal investigator. This coding of the questionnaire was subjected to the statistical analysis to find out whether the age, gender, education, occupation of the subjects are associated with their participation in phase II CR.



Statistical analysis:

Data analysis was performed using SPSS version 20.0. Chi square test was used for the analysis of association of different variables which included the association of subject's age, gender, education and occupation with their participation rates in phase II cardiac rehabilitation. Level of significance was kept at 0.05. Data is represented graphically by using bar graphs and pie charts.

Results:

Table 1: Number and percentage for each answer in 14 questions

No	Questions	Disagree		Agree	
		No.	%	No.	%
1	Distance	3	2.72	53	48.18
2	Cost	10	9.09	51	46.36
3	Lack of knowledge	19	17.27	53	48.18
4	Time constrains	18	16.36	39	35.45
5	Work responsibilities	31	28.18	38	34.54
6	Lack of support/referral from doctor	21	19.09	55	50
7	Lack of motivation	54	49.09	19	17.27
8	Language difficulties	54	49.09	16	14.54
9	CR is not necessary	45	40.90	4	3.63
10	Family commitments	38	34.54	34	30.90
11	Cultural barriers	55	50	4	3.63

12	Religious beliefs	48	43.63	5	4.54
13	Physical activity has negative effect on health	61	55.45	1	0.90
14	Other health problems	31	28.18	26	22.63

Table 2: Association of education with the factors affecting phase II cardiac Rehabilitation

Occupation	Group A	Group B	Total
Illiterate	25	1	26
Primary	38	3	41
High school	17	5	22
PUC	8	6	14
Graduate & Above	4	3	7

$\chi^2 = 16.85, P = 0.002, df = 4$, significant.
 Group A = Subjects perception of disagree.
 Group B = Subjects perception for agree.

Discussion:

Considering the increasing burden of CAD in India, the primary and secondary prevention both play an important role to reduce mortality and morbidity. Cardiac rehabilitation plays an important role in patients physical, psychological and social functioning. It also improves quality of life by reducing the complication and number of hospitalizations after CABG. Despite of this strong need, the participation in CR is very low due to many reasons. Hence, it is important to find out those reasons to improve the patient's participation in CR in India.

This study was performed to find out the factors affecting the phase II cardiac rehabilitation in population among Hubli, Dharwad. Considering the inclusion and exclusion criteria subjects who underwent CABG in SDM medical Narayana Hridayalaya were included in the study. The subjects who came to cardiology department of SDM Narayana Hridayalaya on OPD basis after getting discharged from hospital and within 3 weeks of surgery were asked to answer the questions. Self-made questionnaire was used, which was filled by the investigator.

A systematic review and Meta-analysis on participation in cardiac rehabilitation was done to evaluate the possible factors that could affect the involvement in the same. Studies identifying patient barriers to attendance at CR were identified by searching multiple electronic databases, reference lists, relevant conference lists and grey literature. Studies included patients with CAD and reviewed their experience or understanding about CR. Meta-analysis was used to review the papers and to create the data. From 1165 papers, 34 studies were included after screening. These included 1213 patients from eight countries. One of the main reasons found out in this study was physical barriers, such as lack of transport, or financial cost for not attending cardiac rehabilitation. The coinciding results of the above mentioned studies with the present study lead to a solid statement that Distance is one of the most influencing factor for the participation in Phase 2 CR may be due to lack of transport facility to the distinctly located department or inability to reach there due to time or constraints. Results of the study found out that unemployed, uninsured and less educated people lack the attendance of Caretaking into account the people who require emergency services but could not afford for the same due to financial issues, in Karnataka schemes like Yeshaswini have been introduced and BPL card holders scheme (Below Poverty Line) provides several benefits to the patients. During the course of the duration of the study, it was observed that majority of study subjects availed these services like surgery & surgery related investigations, OPD consultations, drug & medicine charges, old housing schemes & health care services are included under these two schemes. Both of these are devoid of cardiac rehabilitation services which may lead to lack of attendance to CR in these subjects. Another study was conducted, 872 patients with acute myocardial infarction and/or after PTCA or CABG were asked by conventional mail to fill in a self-completion questionnaire on their

choice of post-hospital CR and their reasons for drop-out or for non-attendance of CR. The results of the study found out that lack of time was the prevailing reason for non-attendance and withdrawal from CR program among employed patients and in people aged 65 years or younger. Employment had a statistically significant influence on the overall course of CR. Complying with the observations found in the studies and those identified in the current study work responsibility and time constraints are too one of the striking factors which should be taken into consideration for improving participation. Another systematic review interprets that participation of women is only half in comparison to the men even though comprehensive cardiac rehabilitation reduces morbidity and mortality. A quantitative review of 32 studies meeting the inclusion criteria were assessed where in 16 804 patients, 5882 of whom were female were included in the study. The study concluded that active participation was noted only when the physician referred the patients to participate in the cardiac rehabilitation program. The factors which led to participation in cardiac rehabilitation were when the subjects were actively referred, when they were adequately educated by the physician. From the present study it is evident cardiac rehabilitation particularly phase 2 is not undertaken in significant numbers by the study subjects. Amongst all the factors mentioned as per the responses of the subjects regarding failure to participate in the program, the major factors hampering the participation were Distance, education, cost, physician's endorsements and lack of knowledge regarding the same. Distance was the major factor as stated by the subjects due to lack of accessibility to get to the department and construction of the same in outskirts to the patient's residence or workplace. The other mentioned factors too played an important role in prohibiting or discouraging the participation. According to the statistical figures average literacy rate in the selected study setting may have had the accommodation of patients with low level of educational status failed to understand the importance of the program. Financial issues and lack of motivation by the physician too proved to be the major constraints. The subjects selected were equipped with either Yeshaswini schemes or BPL card holder's scheme which included expenditures related to surgery, related investigations and medications along with other health related services but were deprived of the facilities of phase II cardiac rehabilitation.

The study thus gives a brief outline about the factors affecting the program participation and a strong urge arises in future to meticulously look into these factors in details along with increasing awareness in physician, other members of multidisciplinary team as well as physiotherapy field to motivate the subjects for phase 2 CR by explaining them the importance of the same.

Conclusion:

The participation in the phase II CR was associated with the age, education and occupation of the subjects. It was also found out that there is no association between the gender of the subject and the participation in phase II cardiac rehabilitation. This study also found out that the other factors like distance, cost, lack of awareness and lack of referral are the contributing factors which affect the participation of subjects in phase II cardiac rehabilitation.

Limitation:

1. Smaller sample size.
2. Subjects from only one tertiary cardiac center were included in the study.

Recommendation:

Cardiac rehabilitation is one of the most crucial component post cardiac surgeries. Not only it is necessary to prevent the immediate postoperative complications which is achieved by phase 1 CR, but also make the patient functionally active which is provided by phase 2 CR. Phase 2 CR is neglected in maximum patients as per shown in the results of our study due to various barriers shown to have affected the participation in the same. Amongst number of factors in the study Distance, lack of knowledge, cost and physician's

referral are few of them which hampered their attendance in the program. Physiotherapists have an integral role in carrying out the phase 2 CR by making use of their protocols to lead a patient with improved Quality of living and return to his/her work to the maximum extent.

List of abbreviation used:

AHA	American heart association
CABG	Coronary Artery Bypass Grafting
CAD	Coronary Artery Disease
CR	Cardiac Rehabilitation
MI	Myocardial Infarction
OPD	Out Patient Department
PTCA	Percutaneous transluminal coronary angioplasty

Conflicts Of Interest: None.

Financial support: Self

Acknowledgment:

We thank all the subjects who willingly participated in the study. We thank team of SDMNH for their constant support during the study.

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