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Barriers to Cardiac Rehabilitation in Private and Public Sector Hospitals of Lahore

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ABSTRACT

Background: Cardiac rehabilitation plays a pivotal role in improving outcomes for patients with a variety of cardiovascular diseases. Despite its widely proven benefits, including reduced mortality and morbidity rates, enhanced functional capacity, it remains underutilized in public as well as private sector hospitals of Lahore. Barriers to cardiac rehabilitation, a significant concern, limit the proper delivery of this crucial healthcare service. **Objective:** To identify barriers to establishing cardiac rehabilitation in public and private hospitals in Lahore. **Methodology:** Data were collected in this cross-sectional study from the social security hospital, Multan Road, Sir Ganga Ram Hospital, Lahore, and Mansoorah Teaching Hospital, Lahore. The cardiac rehabilitation barrier scale questionnaire was also sent electronically using Google Forms. A sample size of 194 cases was calculated with a 95% confidence level. The inclusion criteria were patients aged 30 to 70 years, both male and female were selected using convenience sampling, having a history of coronary artery bypass grafting, percutaneous coronary interventions, and post-myocardial infarction patients. Patients with a history of acute cardiovascular disease, cardiogenic shock, acute heart failure, severe arrhythmia, hypotension, chest pain, or angina were excluded. Descriptive statistics, including mean and standard deviation, were used to summarize demographic characteristics and individual barrier items on the CRBS scale. Frequencies and percentages were calculated to identify the most prevalent barriers to cardiac rehabilitation among the 194 participants. An independent samples t-test was applied to compare barrier scores between public and private sector hospitals. The analysis revealed statistically significant mean differences for several key barriers, including cost, lack of awareness, negative attitude toward cardiac rehabilitation, and insufficient doctor referral, with higher scores consistently observed in public hospitals. **Results:** Barriers are present in both sectors of hospitals, but at a higher ratio in public sector hospitals. In total, 194 participants of study, the main barriers assessed were doctor referral 46%, cost 46% lack of awareness 46% negative attitude towards cardiac rehab 53% and fatigue 47%. **Conclusion:** Many factors are affecting the lack of cardiac rehabilitation practices in Pakistan, those factors include cost, lack of awareness, and general negative attitude towards cardiac rehabilitation and doctor referral rates.

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INTRODUCTION

Cardiovascular diseases consist of many diseases, such as ischemic heart disease (IHD), stroke, peripheral arterial disease, and congestive heart failure.[1] Cardiac rehabilitation is a highly supervised program for patients recovering from any cardiovascular event. The key points of the program are to lower psychological and physiological stress, decrease mortality risk, prevent recurrent hospitalizations, and overall improve cardiovascular function to enhance the quality of life.[2] The Global Burden of Disease (GBD) study estimates that in 2021, CVD caused 19 million deaths globally and an estimated 438 million disability adjusted life years lost.[3] The prevalence by 2025 will increase further with the estimation for heart diseases at 31%, heart failure by 33%, and myocardial infarction by an increase of 30.1.[4]

Cardiac rehabilitation is mainly indicated in patients with chronic stable angina, valvular surgeries, cardiac transplantations, coronary bypass surgery, and recent myocardial infarction.[5] Cardiac rehabilitation is divided into phases. Phase 1, the clinical phase, includes the inpatient phase, which requires checking the patient's ability to tolerate interventions, bed mobility, and range of motion exercises, along with patient and family education.[6] Phase 2 includes outpatient rehabilitation that lasts from three to six weeks to twelve weeks of the rehabilitation.[7] Cardiac Rehab phase 3 is an extension to phase 2 with highly structured exercises, nutritional programs, and other educational sessions with an ongoing beneficial health outcome among the patients with cardiovascular diseases.[8]

There are some barriers in the way of proper cardiac rehabilitation in the public and private sectors of Pakistan, and also around the world, related to low socioeconomic countries and middle to low socioeconomic countries. The cardiac rehabilitation barrier scale (CRBS) questionnaire was used to assess the barriers in the way of proper cardiac rehabilitation.[9] The main concern of the cardiac rehabilitation barrier scale is to assess the enrolment and adherence to cardiac rehabilitation programs.[10] Unfortunately, it is not widely accessible in various countries around the globe. What barriers affect the attendance rates of patients to attend a cardiac rehabilitation program? What are the barriers that affect the accessibility of proper cardiac rehabilitation? The main objective of my research was to study the barriers in the way of proper phase 2 and 3 cardiac rehabilitation in the Public and private sector hospitals in Lahore.

The barriers to the delivery of cardiac rehabilitation are many, including a lack of awareness, a lack of healthcare professionals, a lack of referral rates, a lack of monetary resources, and so on. Susan Marzolini studied in January 2020 in Toronto, Canada. This prospective study studied the eligibility, adherence, and factors affecting the use of cardiac rehabilitation in the patient department. The author concluded that 1 out of 3 declined participation. The study concluded that increasing patient education regarding the effects of aerobic training and resistance training to enhance the patient's quality of life.[11]

Joanne McAllister, in July 2025, concluded that the main barriers to cardiac rehab were mainly low health literacy, increased patient anxiety, higher admission rates, higher population rates, and reduced quality of life. Different ethnicities have different compliance rates and significantly lower attendance from lower socioeconomic countries around the globe.[12] Yoshihiro Fukumoto studied in April 2025. This study stated multiple barriers in the delivery of cardiac rehab, such as lower patient motivation, many environmental limitations, inadequate healthcare infrastructure in some regions, distance from rehab centers, and lower income ratios.[13] The objective of this study was to identify barriers to cardiac rehabilitation in public and private hospitals in Lahore.

METHODOLOGY

The cross-sectional study was used to conduct the study. Data was collected from the social security hospital, Multan Road, Sir Ganga Ram Hospital, Lahore, and Mansoorah Teaching Hospital, Lahore. The CRBS questionnaire was also sent electronically using Google Forms. A convenience sampling method was used. A sample size of 194 cases was calculated with a 95% confidence level. The questionnaire consisted of a demographic section and then 21 questions from the CRBS, addressing barriers to cardiac rehabilitation, including barriers such as distance, cost, transportation, family responsibilities, lack of awareness, negative attitude towards cardiac rehab, existing exercise program, severe weather, fatigue, travel hindrances, time constraints, work responsibilities, lack of energy, other health problems, old age, lack of referral, general mindset

of not attending rehab, self-sufficient behaviour, lack of cardiac rehab centers, delays in referral and patients preferring solo health management. It is a Likert-type scale consisting of 1 strongly disagree to 5 strongly agree.

The inclusion criteria were patients aged 30 to 70 years, both male and female were selected, post-coronary artery bypass graft surgery (CABG) patients, percutaneous coronary interventions (PCI) patients, and post-myocardial infarction (MI) patients. Patients are stable for phase 2 (initial outpatient) and phase 3 (outpatient) cardiac rehabilitation. Patients with a history of acute cardiovascular disease, cardiogenic shock, acute heart failure, severe arrhythmia, hypotension, chest pain, or angina were excluded.

Data were analyzed using IBM SPSS Statistics 26. Descriptive statistics, including mean and standard deviation, were used to summarize demographic characteristics and individual barrier items on the CRBS scale. Frequencies and percentages were calculated to identify the most prevalent barriers to cardiac rehabilitation among the 194 participants. An independent samples t-test was applied to compare barrier scores between public and private sector hospitals. The analysis revealed statistically significant mean differences for several key barriers, including cost, lack of awareness, negative attitude toward cardiac rehabilitation, and insufficient doctor referral, with higher scores consistently observed in public hospitals.

RESULTS

As evident by the SD values, the data is statistically significant and the difference of means between public and private sector hospitals shows that there is are higher ratio of cardiac rehab barriers in public sector hospitals as compared to Private hospitals. Barriers are present in both the sectors of hospitals, but at a higher ratio in public sector hospitals. In total, 194 participants of this study, the main barriers assessed were negative attitude towards cardiac rehab 53%, fatigue 47%, doctor referral 46%, cost 46% lack of awareness, 46%, people think they can deal with their heart problems on their own, 45.9%, weather problems, 39.6%. Barriers to a proper cardiac rehabilitation program remain the same and consistent as found in other countries, such as India, Bangladesh, and Saudi Arabia. Independent sample T-test using IBM SPSS Statistics 26 to compare the differences between public and private hospitals, and the results are shown in Table 2.

Table 1: Characteristics of participants and cardiac rehabilitation barriers

Variables		Mean	S.D
Age		50.5	7.91
Gender		1.76	0.43
Marital Status		1.63	0.48
Barriers		**Frequency**	**Percentage (%)**
Doctor referral	Strongly disagree	10	5.2
	Disagree	28	14.4
	Neither	41	21.1
	Agree	91	46.9
	Strongly agree	24	12.4
Cost	Strongly disagree	9	4.6
	Disagree	41	21.1
	Neither	22	11.3
	Agree	92	47.4
	Strongly agree	30	15.5
Energy	Strongly disagree	21	10.8
	Disagree	35	18
	Neither	27	13.9
	Agree	90	46.4
	Strongly agree	21	10.8
Severe weather	Strongly disagree	14	7.2
	Disagree	37	19.1
	Neither	52	26.8
	Agree	77	39.7
	Strongly agree	14	7.2
Health problems	Strongly disagree	18	9.3
	Disagree	47	24.2
	Neither	33	17
	Agree	73	37.6
	Strongly agree	23	11.9

Table 2: Group statistics

Question	Hospital	Frequency (n)	Mean	Std. Deviation	Std. error Mean
Cost	Public Private	94 100	3.72 3.25	1.07 1.13	0.11 0.11
I do not know about cardiac rehab	Public Private	94 100	4.62 3.26	0.48 0.91	0.05 0.09
Severe weather	Public Private	94 100	3.14 3.26	1.13 0.99	0.117 0.099
I do not have energy	Public Private	94 100	3.57 3.01	1.14 1.18	0.118 0.118
I do not need cardiac rehab	Public Private	94 100	4.27 3.65	0.79 0.833	0.08 0.08
The doctor did not feel it was necessary	Public Private	94 100	3.88 3.08	0.93 1.00	0.09 0.10
I find exercising tiring or painful	Public Private	94 100	3.54 3.40	1.03 .964	0.106 0.096
Other health problems	Public Private	94 100	3.47 2.91	1.15 1.18	0.118 0.118
Many people with heart problems do not go	Public Private	94 100	3.56 3.27	1.18 1.02	0.122 0.102
I can manage my heart problem on my own own	Public Private	94 100	3.38 3.33	1.13 1.03	0.11 0.10

DISCUSSION

In this cross-sectional study, we wish to study the barriers in the way of cardiac rehabilitation in public as well as private hospitals of Lahore. A similar study demonstrated that there should be a perceived need for cardiac rehabilitation, an increased need for self-efficacy to overcome barriers, and the use of patients' willpower to actively participate in cardiac rehabilitation programs. The study suggested that these factors should be targeted in clinical interventions to improve the quality of life of patients.[14] Another study demonstrated that major barriers in the way of cardiac rehab were mainly cost, comorbidities, distance, and transportation. This study also concluded that there were more barriers among the women population as compared to men.[15] The results of this study corroborate previous studies in both higher and lower income settings, strongly indicating that a global awareness of cardiac rehab programs, lack of motivation among patients, and an increased number of financial and time constraints are the most prominent barriers in the proper delivery of cardiac rehab in Bangladesh.[16] These findings indicate that patients in Pakistan face similar barriers as those in other lower-income settings. This study concludes that the number of barriers in public sector hospitals was higher as compared to number of barriers in private sector hospitals.

Major barriers found were doctor referral 46%, cost 46% lack of awareness 46% negative attitude towards cardiac rehab 53%, fatigue 47%, weather problems 39.6%, other health problems 37%, people think they can deal with their heart problems on their own 45.9%, and they find exercise painful or tiring 53.1%. The barriers were consistent in public as well as private sector hospitals of Lahore. Limitations of this study were conducted in a relatively shorter duration, so there may be variations in results compared to other studies with longer durations. This study is only Lahore-based; results can vary if other cities are included as well. Due to the nature of a cross-

sectional study, causality cannot be established. More spread of awareness and proper training to healthcare professionals can cause a great difference in the attendance rates. Seminars and workshops should be held in order to increase awareness among the people. There is a need for more positive perception about the term cardiac rehab and to reassure patients that it will not cause any harmful effects to their recovery.

CONCLUSION

As concluded from my research findings, there are many barriers to the way of proper delivery of cardiac rehabilitation. It's an untouched topic as of now since many practitioners do not recommend, and lack of proper awareness, people still avoid taking such rehabilitations. Many factors are affecting the lack of cardiac rehabilitation practices in Pakistan, those factors include cost, lack of awareness, and general negative attitude towards cardiac rehabilitation and doctor referral rates. Cardiac rehabilitation remains underutilized and more unavailable in Public hospitals than in Private Hospitals of Lahore.

DECLARATIONS

Consent to participate: Written consent had been obtained from patients. All methods were performed following the relevant guidelines and regulations.

Availability of Data and Materials: Data will be made available upon request. The corresponding author will submit all dataset files.

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