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Case Report

Reasons for Not Following Cardiac Rehabilitation Programs by Patients: A Case Study

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ABSTRACT

Background: Cardiovascular diseases show high incidence and prevalence in Iran. However, participation in Cardiac Rehabilitation is limited and has been poorly investigated in the country. The aim of study was reasons for not following the cardiac rehabilitation programs by the patients in a Tehran city hospital.

Methods: It is a quantitative and qualitative research in which information was collected through interviews with three groups of patients-physicians. In order to collect information from the patients, the questionnaire presented by Gabria et al. (2012) (33) on the reasons for not referring to the rehabilitation ward was used. Data were collected through a Cardiac Rehabilitation Barriers Scale. The collected data were analyzed by SPSS (version 18) software.

Results: The mean age of patients in this study was 41-60 years old. Over all, 25patiens (84%) were male and (16%) were female. The most common reasons for not following the cardiac rehabilitation programs were, "Cardiac rehabilitation center is so far from my home "and "high cost the rehabilitation services".

Conclusions: This study showed that the reasons for not following the rehabilitation programs were different and two of the most important reasons were the far distance and the high cost sessions.; Therefore, it is necessary to emphasize and encourage cardiac rehabilitation by education to patient. ***(Iranian Heart Journal 2022; 23(2): 150-157)***

KEYWORDS: Cardiovascular diseases, Rehabilitation, Hospital, Patients

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Cardiovascular disease is one of the leading causes of death and is estimated to be the leading cause of death by 2020 worldwide. [1-2] These diseases are regarded as the most important cause of mortality and disability in the world and above 80% of these deaths occur in the low- and middle-income countries. [3-4] Studies in

Iran suggest an increase in the incidence of these diseases. [5-7] Approximately 35 to 50 thousand cases of heart surgery are performed annually in Iran. [8] Despite the positive impacts of this operation on improving performance of patients, [9] this surgical treatment is accompanied by physical and psychological complications, including pulmonary edema, atelectasis, [10] neurological and cognitive pathology. [11]

One of the most important measures for evaluating effectiveness of heart surgery is cardiac rehabilitation. Cardiac rehabilitation is recognized as a beneficial approach [9] for improving quality of life, reducing disability and mortality, [12] and maximizing physical, mental, and social abilities of people [13]

Studies have indicated that the quality of life of patients with cardiovascular disease is considerably reduced in all aspects, especially physical health. [14-16] They experience high levels of stress and are more likely to develop sexual dysfunction and depression. [17-19] Therefore, cardiac rehabilitation, which promotes the overall health of patients after coronary artery surgery, can be considered as an important care for this group of patients. [20]

Rehabilitation services for these patients are performed for their return to normal life, increasing their self-confidence, and adapting to new conditions. These services help patients return to work faster, experience higher quality with lifestyle changes, and improve their physical, psychological, and social well-being. [21-28]

Research has indicated higher rate of recurrence of acute cardiac disorder in these patients than others. However, the reference of patients for rehabilitation is not high despite the efforts of officials. [(31-32)(17)(6)]

The present study aims at identifying the reasons for not referring to the rehabilitation ward from the patients' point of view in order to accurately determine this program and apply it as a guide for managers and specialists for optimal planning by strengthening positive points and eliminating or reducing negative paints for increasing effectiveness of this program.

METHODS

It is a quantitative and qualitative research in which information was collected through interviews with three groups of patients-physicians. In order to collect information from the patients, the questionnaire presented by Gabria et al. (2012) [33] on the reasons for not referring to the rehabilitation ward was used. Regarding the group of patients, which included 5 domains and 22 items, the first domain is related to perceptual needs (5 items), the second domain includes individual/family issues (3 items), the third domain is physical and situational conditions (7 items), the fourth domain is related to work place/transportation (2 items), and the fifth domain is related to access (4 items). Regarding the scoring, the Likert scale (5 = strongly agree to 1 = strongly disagree) was used. Besides, an open-ended question was used at the end of the questionnaire. Additionally, a form was attached to the relevant questionnaire for receiving demographic information (age, sex, occupation, marital status). In order to calculate the sample size, the number of patients who referred to this ward at least 2 times in 2017 (from April 5 to March 19, 2017) and then refused to receive services and withdrew was taken into account. The approximate number of these cases was 50 people.

Regarding the group of physicians, a semi-structured questionnaire was used. Open-ended questions with 4 items were interviewed (Question 1: do you agree with introducing patients to the rehabilitation ward to receive services? Question 2: mention the reason for your agreement/disagreement, Question 3: in case you disagree, if the documents related to effectiveness of the services of this ward for

heart patients are provided, do you agree with receiving services for patients? Question 4: what solutions do you suggest to introduce patients to the rehabilitation ward in order to increase the willingness of physicians who are against receiving services?). Information was obtained from the group of physicians through face-to-face interviews. The number of pros and cons from each group (i.e., agreement or disagreement with referral of patients to the rehabilitation ward) was 3-4 people, and if the information was not saturated, the number of samples increased. The interview duration was at least 20 minutes. The interviewer of the group of physicians was an expert along with a nurse. In the next step, the author and colleagues evaluated the interview after completing the checklist, and based on the answers received, the cases were grouped. The method of calculating the sample size and its number from the group of physicians to receive Information was done as face-to-face interview. The number of pros and cons from each group (i.e., agreement or disagreement with referral of patients to the rehabilitation ward) was 3-4 people, and if the information was not saturated, the number of samples increased.

Regarding the determination of validity and reliability, the study of Gabria et al. was used who assessed Internal consistency using Cronbach's alpha. They employed re-test using the intergroup correlation coefficient (ICC), and construct validity was evaluated using factor analysis. In order to assess validity, the criterion between participants and non-participants in CR was used, while Cronbach's alpha test was used to determine the reliability, which was obtained as 90%. The questionnaire was given to five experts to determine its validity.

The researcher, referring to the admission unit of rehabilitation ward, obtained the list of patients who referred to this unit at least 2 times in 2017 (from April 4 to March 19, 2017) and then refused to receive services. Then, all the people on the list were contacted by phone call. The duration of the interview was at least 20 minutes. The interview with the group of patients was performed by an expert out of the ward. In the next step, the author and colleagues evaluated the interview after completing the checklist, and based on the answers received, the cases were grouped. And based on the answers received, the cases were grouped.

RESULTS

The researcher referred to the rehabilitation ward and identified 50 patients who were eligible for evaluation. Of the 50 patients who were eligible for the interview (referring to the rehabilitation ward at least three times), half of them could not be interviewed for various reasons, including death of the patient, change of contact number, off phone, etc.

Table 1. The frequency distribution of demographic features in the study group

Demographic features		Number (Percent)	Demographic features		Number (Percent)
Level of Education	High school	36(36%)	Sex	Female	16 (16%)
	Diploma	36(36%)		Male	84 (84%)
	Bachelor	12(12%)	Marital state	single	35 (34.3%)
	Master	16(16%)		Married	63 (61.8%)
Age category	30-40	8(8%)		Divorced	4 (3.9%)
	41-50	32(32%)	Insurance coverage	Yes	100
	51-60	32(32%)		No	0
	61-70	28(28%)			

Of the 25 patients interviewed (16% female -84% male), the highest mean age was related to the group of 41-50- and 51-60-years old participants, and the lowest was related to the age group of 30-40 years. The highest average of education status was related to high school and below with an average of 36% for each, and the lowest was related to graduate education with an average of 16%. All patients were covered by insurance.

Table 2. The average score in each area

		The number of Questions	Mean
1	Perceptual needs	5	43%
2	Personal and familial issues	3	41%
3	Physical and situational state	7	31%
4	Workplace/Commute	2	42%
5	Availability	4	52%

The highest average was related to "access" and the lowest was related to "physical and situational conditions".

Table 3. The score percentage of the questions

	I don't participate in the rehabilitation program or I prefer to participate irregularly with being absent in several sessions because:	Percent
1	Cardiac rehabilitation center is so far from my home and I have to travel a long Distance.	85
2	I have to pay a lot for participating in the program.	76
3	I have a transfer problem (I don't drive, and there is no one to help me to come and public transfer is not available or not comfortable for me).	70
4	I have a lot of responsibility for my family. For example, I have to care my wife/husband, children, grandchildren and I have to do my tasks at home.	54
5	I didn't have enough information about cardiac rehabilitation (for example, my physician didn't tell me anything about it).	26
6	I don't need cardiac rehabilitation (I feel well, my heart problem was resolved or I don't have any serious problem).	33
7	I do some exercise myself.	39
8	The weather is not good enough to go to cardiac rehabilitation center and do exercise.	28
9	The exercise was boring and painful for me.	28
10	I was on a trip and I couldn't follow the program regularly.	35
11	I am so busy or the time of the rehabilitation is not suitable for me.	54
12	I have a lot of occupational responsibility.	50
13	I don't have enough energy.	39
14	I have other diseases and I cannot follow the rehabilitation program.	31
15	I am too old.	31
16	My doctor did not recommend it.	35
17	Many patients with cardiovascular disease don't follow the rehabilitation program and they feel well.	23
18	I can manage my heart problem myself.	31
19	I think I was referred but the rehabilitation center did not call me.	24
20	The time between my referral and starting the rehabilitation program is too long.	24
21	I prefer to care myself alone, not in a group.	35

The highest average was related to "long distance to reach the rehabilitation center" and the lowest was for "many people with heart problems do not go to this ward and feel well".
Regarding physicians from both the pros and cons groups, all individuals at the time of the interview acknowledged that they agreed with patients receiving rehabilitation services.

Table 4. The reasons for not following the cardiac rehabilitation unit that were mentioned by the patients

	Issue	Frequency
1	In available suitable parking	16
2	The high cost for each session	7
3	In available insurance	2
4	Lack of access to a physician	2
5	An unpleasant memory of the bad behavior of the staffs from other wards of the hospital	1
6	No suitable response from the residents	1
7	Too long appointments for visiting by the doctor	1
8	The presence of male and female in the same hall for cardiac rehabilitation	1
9	Transportation cost	1

B) Group of physicians

In the physicians' group, all of them mentioned that they were agree with cardiac rehabilitation program.

Table 5. Agreement reasons stated by physicians

	Issue	Frequency
1	Existence of documents - guidelines - articles and	8
2	Personal experiences	2
3	Cost effectiveness of this ward's services to heart patients	1

Table 6. Proposed solutions for increasing the willingness of physicians to introduce the rehabilitation ward to patients

	Case	Frequency
Existence of incentive system	For patients, for every few sessions, one free session can be considered, or the first session can be presented free	3
	For physicians, a promotion point can be allocated or financial benefit can be considered for introducing patients to rehabilitation ward	1
Training Physicians	Available services and effects of the rehabilitation ward	7
	New guidelines and articles in this field	3
Informing patients	The benefits of this ward's services over the improvement process	2
	The way to access this ward	2
Insurance	Consulting with insurance companies to cover these services	2

DISCUSSION

Cardiac rehabilitation as an important component of a comprehensive secondary prevention program for *cardiovascular* disease can reduce deaths from cardiac events by up to 50%. [34] The present study indicated that there are various reasons for not referring to cardiac rehabilitation.

Arthur and Cortes reviewed 10 studies in the United States, Canada, and Australia and reported the rate of reference of patients to the cardiac rehabilitation ward as 46 percent, and found that 50 percent of patients continued their rehabilitation programs. They reported the existence of insurance support and coverage, the way of communication of service providers with patients, and awareness and education as the factors affecting reference to such wards. [35] Moreover, Mochari and Conraads reported the following cases as the barriers to patients' participation in cardiac rehabilitation programs: lack of interest and family support, financial constraints, distance from residential place, medical barriers, and lack of necessary advice to refer to rehabilitation wards. [36][30] This finding is consistent with the results of the present study.

A study by Fernandez et al. in Australia found no significant association between income levels and participation in the cardiac rehabilitation program. Reports on the importance of transportation and distance in cardiac rehabilitation are limited. Angels et al. cited transportation as a barrier to participating in the cardiac rehabilitation program. [38] In the present study, patients acknowledged that one of the most important reasons for not referring to the rehabilitation ward is the long distance to receive services and its high cost, which is consistent with these studies.

Afrasiabifar et al. classified individual, social, cultural, economic factors and treatment system-related factors as the main obstacles to participating in rehabilitation program and considered the role of awareness and education to patients about rehabilitation programs as the most important factors for referral of patients. [31]

Suaya et al. indicated that 13.9 percent of infectious disease patients and 31 percent of vascular transplant patients registered for rehabilitation. [39] They mentioned education as the most important factor in increasing the number of referrals. Mazzini et al. studied 945 people and stated that pre-discharge education, presentation of the referral form to the patient, determining the route of mutual contact between the patient and service providers, and the use of rehabilitation facilities near the residential place are factors that affect increasing patient visits. [40] Also, Conraads et al. showed that 33-56 percent of patients followed rehabilitation programs. [30]

CONCLUSIONS

In recent decades, the development of cardiac rehabilitation programs has not been significant compared to advances in the treatment of cardiovascular disease and cardiac intensive care in Iran. Presence of cardiac rehabilitation centers in a way that patients can access will certainly bring positive consequences. Regarding the structure of cardiac rehabilitation centers, Giannouzi et al. (2003) noted that inappropriate geographical distribution of cardiac rehabilitation programs, long distances between rehabilitation centers and patients' residential place and work place are among the barriers to patients' participation in cardiac rehabilitation programs.

Recommendations

1. Targeted marketing for this ward
2. Training the staff of inpatient wards and rehabilitation ward
3. Training of physicians
4. Making contract with organizations, hospitals, and centers in different geographical locations of Tehran
5. Geographical distribution of services of this ward

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Conflict of Interest

Authors declare that they have no competing interests.

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