

Barriers to Completing Cardiac Rehabilitation Among Patients in an Urban, Safety-Net Hospital



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INTRODUCTION

- Cardiovascular Disease (CVD) is the leading cause of death in the United States. Approximately 84 million Americans suffer from CVD-related causes, with about 2,200 deaths occurring each day.
- Cardiac Rehabilitation (CR) is associated with decreased risk of subsequent cardiac events and a reduction in risk for cardiac-related mortality.
- Among eligible CR patients, approximately 20% to 50% of those referred actually participate, with even lower participation rates reported among women, elderly, minorities, and economically disadvantaged populations.
- Previous research has examined psychosocial, demographic, and clinical predictors of participation in CR predominantly with patients of middle to high-income status, most of whom had health insurance. Less is known about how perceived barriers affect completion of CR.

Study Aim

- To examine demographic, clinical variables, and perceived barriers as predictors of completion of CR among an underserved cohort of patients with CVD at an urban, safety-net hospital.

METHOD

Participants and Procedures

- Patients with CVD and who were eligible for CR ($N = 132$) were recruited from the Cardiology Department at Truman Medical Center-Hospital Hill in Kansas City, Missouri. All patients who gave consent to participate were administered a 48-item self-report questionnaire that included items inquiring about demographic characteristics, perceived importance and necessity of participation in CR, perceived barriers to CR, and perceived health. Table 1 contains patient demographic information for those who enrolled in CR, the sample on which our analyses are based ($n = 68$).

Table 1. Patient Demographics

Variable	M (SD)
Age	54.7 (6.8) years
	%
Male	59%
European American	51%
Single Marital Status	38%
Education	
Graduated High School	34%
Some High School	22%
No Insurance	19%
Diagnosis	
PCI	85%
MI	66%

Note: M = mean; SD = standard deviation of the mean; PCI = Percutaneous Coronary Intervention; MI = Myocardial Infarction

MEASURES

Perceived Barriers

- I don't have time to attend rehabilitation
- I have too many responsibilities
- I have too many medical problems to go to rehabilitation
- It will cause another heart attack
- It will be painful or too strenuous
- I'm afraid they will push me too hard and make me do things I'm not ready to do
- Seeing people sicker than me with make me nervous
- I'm embarrassed or shy about being in a big group
- It will cost too much, insurance won't pay for it
- I would rather not have to leave home, I prefer staying at home with my family
- I'm afraid it won't be convenient; I wish I could schedule it when I want to go
- I don't know how I will get there

- All items were scored on a dichotomous scale (1 = *yes* and 0 = *no*).

Statistical Analysis

- CR enrollment and CR completion data were accessed via patient medical records.
- CR enrollment was defined as participating in an orientation session with CR staff.
- CR completion was defined as attending 28 of 36 exercise sessions over six months.
- Hierarchical logistic regression was conducted with demographics in Block 1 and all perceived barriers to participation included in Block 2, to predict completion of CR.

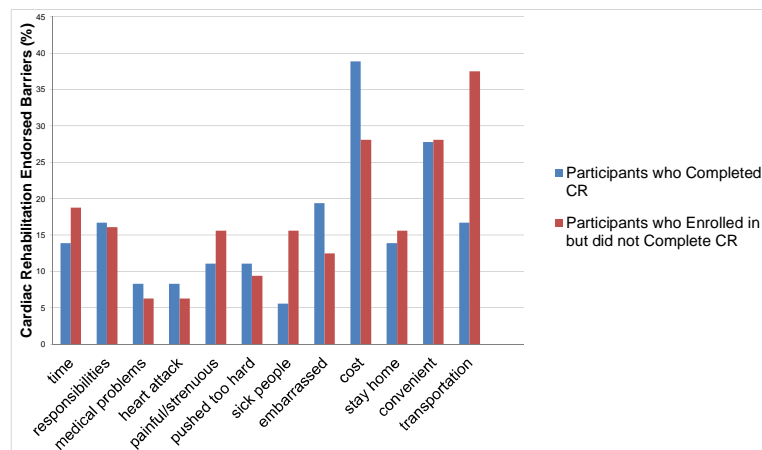
RESULTS

- Among the participants who were referred to CR, results indicated that 68 participants enrolled, with 53% ($n = 36$) of our sample completing CR.
- Figure 1 displays percentages of participants who endorsed each barrier, separated by those who completed CR versus those who enrolled but did not complete CR.

Logistic Regression

- A logistic regression model including all 12 barriers to participation correctly classified 62.7% of those who did and not complete CR.
- Results indicated that one barrier trended toward significance: being nervous about seeing people sicker than them.
 - Patients who reported being nervous about seeing people much sicker than them were 10.8 times less likely to complete CR ($p = .056$).
- One barrier was significantly related to completion of CR: being worried about transportation to CR.
 - Patients who expressed a worry about transportation to CR were 5.1 times less likely to complete CR ($p = .02$).

Figure 1. Percentages of Endorsed Barriers to CR for Participants who Enrolled versus Participants who Completed CR



Note: Time = Barrier 1; Responsibilities = Barrier 2; Medical Problems = Barrier 3; Heart Attack = Barrier 4; Painful/strenuous = Barrier 5; Pushed too hard = Barrier 6; Sick people = Barrier 7; Embarrassed = Barrier 8; Cost = Barrier 9; Stay home = Barrier 10; Convenient = Barrier 11; Transportation = Barrier 12;

Table 2. Logistic Regression

Predictor	B (SE)	Wald χ^2	Exp(B)
Transportation	1.63 (.74)	4.89**	5.12
Sick People	2.38 (1.24)	3.66*	10.81

* $p < .10$; ** $p < .05$

CONCLUSIONS

Implications

- These findings indicate that despite known benefits from CR participation, patients who express worries about transportation, and patients who are nervous about seeing people sicker than them, are less likely to complete CR.

Limitations of the Study

- Measurement of perceived barriers was self-reported, so response biases may have occurred.

Future Directions

- Future research should continue to examine factors associated with enrollment in CR within diverse, underserved populations.
- There is a need to further examine the impact of lack of knowledge regarding CR, and managing CVD in relation to enrolling in and completing CR, specifically in low-income populations.
- Future studies examining and developing interventions promoting completion of CR should target the variables we found to be significant predictors of completion: transportation barriers, and patients' nerves about seeing people sicker than them.