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ORIGINAL ARTICLE

Examining Motivations and Barriers for Attending Maintenance Community-Based Cardiac Rehabilitation Using the Health-Belief Model

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Background Reasons for low attendance at maintenance cardiac rehabilitation (CR) programs remain largely unknown. Using the Health Belief Model as a theoretical framework, this study compared the motivations and barriers for attending a community-based CR maintenance program in high attenders (HA), low attenders (LA) and non-attenders (NA) with coronary artery disease (CAD).

Methods Forty-four older adults with CAD (70.5% males; age: 72.7±6.9 years; 11 HA, 16 LA and 17 NA) completed questionnaires examining reasons for attending CR: perceived threat (symptoms of CAD; the Revised Illness Perception Questionnaire), perceived benefits (Multi-dimensional Outcomes Expectations for Exercise Scale), perceived barriers (Cardiac Rehabilitation Barriers Scale) and cues to action questionnaire.

Results Sociodemographic characteristics and perceived threat were not different between the groups. Compared to LA and NA, HA perceived greater social and physical (vs NA only) benefits of participation in maintenance CR and had fewer barriers to attending (all $p<0.05$). The CR program newsletter, personal health concerns and others having heart problems were stronger cues to action for HA versus NA (all $p<0.05$).

Conclusions Participants perceived greater benefits from attending CR, had fewer barriers and perceived stronger cues to action compared to non-attenders. Promoting CR maintenance programs should emphasise physical and social benefits and provide encouragement.

Keywords Cardiac rehabilitation • Attendance • Coronary artery disease • Health-Belief Model • Elderly

Introduction

Cardiac rehabilitation (CR) programs are designed to aid in the secondary prevention of cardiovascular disease through education for cardiac care, supervised exercise sessions and social support [1]. CR is structured in three phases including in-hospital CR, outpatient CR (usually 8-12 weeks in duration) and long-term maintenance CR [2]. Despite the proven physical and psychological benefits of CR post cardiac event [3], attendance rates at CR programs remain low worldwide [3]. It has been estimated that only 2.5% of eligible coronary artery disease (CAD) patients participate in maintenance CR programs [4]. Determining the reasons for low attendance to CR maintenance programs could aid in designing interventions

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to improve referral and adherence to such programs[3] and improve long-term care for cardiac patients.

Based on previous studies, common barriers to attending CR include sociodemographics factors (such as older age, female gender, minority ethnicities, low socioeconomic status and low education levels) [5–7], low referral rates to CR programs [5,8–10], lack of perceived need for CR [5,8,11], the structure of CR [5,7,8,10,11] and presence of other comorbidities [8,10]. Motivators for attending CR include support from health-professionals, family and other patients [10,12], enjoyment of exercise routines [13] and the perceived benefits from attending the program (such as a reduction in CAD risk factors, improved cardiovascular functioning, improved quality of life and psychological well-being, social support network, sharing of experiences with like-minded people and access to medical expertise) [9,10,14]. Previous studies that examined factors that affect attendance to CR programs focused mainly on outpatient CR programs [5–8,10–12] with limited evidence available for maintenance CR programs [3,13].

The Health-Belief Model is a theoretical framework designed to examine the reasons behind the initiation and maintenance of health-behaviours [15], such as attending CR. This model takes into consideration patients' beliefs around their health, the barriers and benefits for a certain health-behaviour and subsequent actions triggered by the presentation of a cue. The Health Belief Model consist of five key areas including sociodemographic characteristics, perceived threat of the illness, perceived benefits and barriers to undertaking the action, and the cues the patient receives on taking action [15]. These areas are involved in the patients' decision to initiate or maintain a health-behaviour [15].

The Health-Belief Model has been used in previous studies to determine reasons why cardiac patients participate in CR programs [16,17]. High perceived benefits, cues to action (referral from a physician) and sociodemographics factors have been associated with increased adherence to CR exercise regimes [16]. However, findings have shown inconsistencies regarding the role of perceived threat of illness on enrolment adherence to CR [17]. Using the Health Belief Model as a theoretical framework, the purpose of this study was to compare the motivations and barriers for attending community-based CR maintenance programs in high attenders (HA), low attenders (LA) and non-attenders (NA) with CAD.

Methods

Participants

HA and LA participants were recruited from two local maintenance community-based CR programs (the Otago Phoenix Club and Taieri Fit and Fun Group). NA were recruited from outpatients CR records from the local hospital. Inclusion criteria were age ≥60 years, a documented history of CAD and a completion of out-patient CR at least six months prior to the study. Individuals with a cardiac event within the six months prior to the study were excluded. For HA and LA groups, attendance rates were obtained from the club records and were calculated as a percentage of available sessions attended in the last 12 months. Based on the CR registration status and attendance rates in the previous year participants were categorised as high-attenders (HA, ≥60% attendance, n=11), low-attenders (LA, <60% attendance; n=16), and non-attenders (NA, completed out-patient CR program but did not register for (or did not attend) maintenance community-based CR, n=17). Ethics approval for the study was obtained from the University of Otago Ethics Committee.

Study Design

In this cross-sectional study, participants completed a paper-based questionnaire, anthropometry assessment and a seven-day physical activity assessment using accelerometers.

Outcome Measures and Measurement Procedures

Demographic Characteristics and Medical History

Participants self-reported sociodemographic data (age, gender, ethnicity, marital status and education level) and medical history. Distance from home to CR was calculated using Google Maps.

Anthropometry and Physical Activity

Height was measured using a stadiometer and weight was measured using standard scales. Body mass index was calculated from participants' measured weight (in kilograms) divided by height squared (in metres). Physical activity was measured objectively using accelerometers (Actilife GT3X+) as total energy expenditure over a seven-day period.

Reasons for Attending CR

Reasons for attending the community-based CR maintenance program were examined using several previously validated questionnaires that addressed different components of the Health Belief Model. Perceived threat was assessed using Symptoms of CAD and the Revised Illness Perception Questionnaire (IPQ-R) [18]. Perceived benefits were assessed using a Multi-dimensional Outcomes Expectations for Exercise Scale (MOEES) [19]. Perceived barriers were measured using Cardiac Rehabilitation Barriers Scale (CRBS) [20]. Possible triggers for attending the maintenance CR program were examined using the cues to action questionnaire developed specifically for this study.

Data Analysis

Differences between the study groups were compared using Chi-square test for categorical variables and ANOVA with Tukey post-hoc multiple comparisons for continuous variables. Data are reported as mean±SD for continuous variables and frequency (percentage) for categorical variables. $P<0.05$ was considered statistically significant. Data were analysed using SPSS Version 19.