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Feature Article

A Mixed Methods Evaluation of the Feasibility and Acceptability of an Adapted Cardiac Rehabilitation Program for Home Care Patients

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ABSTRACT

Home care clinicians have an opportunity to improve care for post-hospitalization patients with cardiovascular disease. This mixed methods study examined the feasibility and acceptability of an adapted cardiac rehabilitation (CR) program for the home care setting. Surveys measuring patient self-care and knowledge were administered to patients (n = 46) at baseline and at 30-day follow-up. Semi-structured interviews were conducted with patients (n = 28) and home care clinicians (n = 11) at completion of the program. All survey indicators demonstrated a trend towards improvement, with a statistically significant increase in the self-care management subscale (p = 0.002). Qualitative analyses identified three patient themes (self-awareness, nutrition, motivation) and three clinician themes (systematic approach, motivation, patient selection process). Incorporating CR into the home care setting proved to be a feasible and acceptable approach to increasing access to CR services among elderly patients.

Introduction

Current healthcare reform encourages innovative approaches to care, particularly for patients with cardiovascular disease (CVD), the leading cause of death in the United States.[1–2] Cardiac rehabilitation (CR) utilizes exercise, education, counseling on behavioral change, risk factor modification, and psychosocial well-being to reduce morality and risk of hospital readmission.[3] However, only 13.9% of acute myocardial infarction patients and 31.0% of coronary artery bypass graft surgery patients attend CR post-hospitalization, with very low attendance rates among heart failure patients as well.[4,5] CVD is especially prevalent among home care patients, a population that tends to be elderly, functionally impaired, and clinically complex.[6,7] Home care is often the first line of rehabilitation and support for elderly patients post-hospitalization, providing an opportune setting for interventions similar to those received by patients who attend outpatient cardiac rehabilitation (CR).[8,9] Home-based and center-based cardiac rehabilitation are equally effective in improving both clinical outcomes, with no difference between findings in the two settings in short term exercise capacity, systolic blood pressure, total cholesterol, smoking behaviors, and cardiac events.[10] Despite these proven clinical outcomes, most home care agencies have yet to offer structured CR programs within their practice due to a lack of reimbursement mechanism and the logistical challenges of incorporating CR within the limitations of a home care episode.[9] Furthermore, there is limited research focusing on frail, elderly patients in CR programs.[11] The Middle-Range Theory of Self-care describes health-promoting practices required for chronic illness management, with the key concepts being self-care maintenance, self-care monitoring, and self-care management.[12] This theory depicts the importance of promoting maintenance behaviors (such as preparing healthy food or coping with stress) as well as understanding the management of the chronic illness (such as understanding that shortness of breath due to heart failure may require taking an extra diuretic), which we incorporated into our intervention.[12] Based on the Middle Range Theory of

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Self-Care of Chronic Illness, we explored the possibility that incorporating adapted CR into a certified home health agency may have a positive impact on patients' self-care management by increasing their awareness of CVD and how to manage it.[12] The Home Heart Health (HHH) program is an innovative approach to delivering adapted CR services to patients with CVD within the context of a home health agency. The purpose of this study was to examine the feasibility and acceptability of the HHH program among patients and clinicians through qualitative interviews, and explore the impact of the intervention on patient self-care and knowledge of heart disease. We hypothesized that the HHH program will be accepted amongst patients and clinicians, and that the program will have a positive impact on patient self-care and knowledge of heart disease.

Methods

Design

A mixed methods design was used to evaluate the feasibility and acceptability of the HHH program, as well as explore preliminary patient outcomes. Patients and clinicians were recruited from a large not-for profit certified home health agency. Exploratory patient outcomes were assessed at 30-days post-baseline. Data on feasibility and acceptability were captured during qualitative interviews with patient and clinician participants. Qualitative data were collected during in-home patient interviews. Study protocols were approved by the Institutional Review Board.

Sample

Patients were recruited by phone at the time of admission to home care. Table 1 lists the patient eligibility and ineligibility criteria. A sub-sample of patients was recruited by phone for semi-structured interviews at program completion. An initial electronic screen of administrative records identified 265 potentially eligible patients (Fig. 1); 156 were eligible for a telephone screen. Fifty-three patients were administered a baseline survey. Forty-six (87%) patients completed a follow-up survey 30-days post-baseline. Of the seven patients lost between baseline and follow-up, one could not be reached, two refused, two moved out of the area and two were hospitalized or enrolled in hospice. Twenty-eight patients participated in the semi-structured interviews. Clinicians were recruited via email or phone, and were eligible to participate in semi-structured interviews if they had provided care to at least three HHH program patients.

Table 1
Inclusion and exclusion criteria for patients enrolled in the study

Inclusion criteria
1. Medicare as the primary payer
2. At least 65 years old
3. An ICD 10 code for a cardiac diagnosis (i.e. heart failure, coronary artery disease, surgical aftercare following circulatory system surgery, atrial fibrillation)
4. Assigned a trained registered nurse and physical therapist
5. English-speaking
6. Admitted to home care within 10 days of recruitment.
Exclusion criteria
1. Receiving active cancer treatment
2. Referred to home care for aftercare of a stroke
3. Under evaluation for hospice
4. Cognitive impairment

Intervention

HHH is an interdisciplinary CR program that emphasizes CVD risk factor modification and management for home care patients. Home care registered nurses (RN), physical therapists (PT), and occupational therapists (OT) were educated to provide adapted CR services to patients as a complement to traditional home care. Clinician education included modules on exercise physiology, nutrition, management of CVD risk factors, and application to practice.[9] This training was adapted from the American Association of Cardiovascular and Pulmonary Rehabilitation professional core competencies for outpatient CR.[13] It was developed based on literature and guideline reviews, as well as themes identified among patients and clinicians. Previous testing of the training resulted in a statistically significant increase in clinician knowledge of CVD.[9] Patients received visits from these home care clinicians, who provided an exercise plan, nutrition counseling, and self-management education, with accompanying patient teaching tools. Clinicians practiced in accordance with standardized interventions checklists (Table 2).

Measures

Participant characteristics

Data on demographic, clinical, and functional characteristics were gathered from patient administrative records and the Outcomes and Assessment Information Set, a valid and reliable assessment tool used during the Medicare Home Health Prospective Payment System sixty-day episodes of care.[14]

Patient outcomes

Trained field interviewers administered in-home surveys to patients at baseline (average of 10 days post-home care admission) and follow-up (30 days post-baseline). The main evaluation tool used, Self-Care of Chronic Illness Index, allowed us to evaluate the impact on patients' self-care disease management before and after participating in the HHH program. The Self-Care of Chronic Illness Inventory is an instrument derived from the Middle Range Theory of Self-Care of Chronic Illness, with a content validity index of 0.91. This 30-item questionnaire asks a series of questions regarding the patient's actions and knowledge of maintenance, monitoring, and management of chronic illness.[12,15] A subscale of the Self-Care of Heart Failure Index, a well-validated questionnaire, addressing confidence was added to the survey.[16] The Heart Disease Fact Questionnaire is a 25-item questionnaire that has been used in similar populations to assess knowledge of CVD, with true or false questions about risk factors of heart disease, such as smoking, high blood pressure, and behaviors such as diet and exercise. This measure was reviewed by experts in the field to establish content validity and has adequate internal consistency, with a Kuder-Richardson 20 formula of 0.77.[17,18]

Patient and clinician interviews

Semi-structured interviews with patients and clinicians were completed in person or by phone by a trained research interviewer. A standardized interview guide was developed and used for all qualitative interviews. Interviewers were trained to use the semi-structured interview guides through role-playing scenarios. The open-ended questions were developed as a result of previous discussions with patients and clinicians, and themes from prior research from this population.[9,19,20] Patient interview guides included open-ended questions about patients' transition into home care, their experience with visits in the program, and their current lifestyle. Clinician interview guides included open-ended questions about clinicians' perception of the program, experience