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Effect of interprofessional collaboration on quality of life in elderly patients with cardiovascular disease



Genevieve M. Hale^a, Tina Joseph^{b,*}, Stacey Maravent^c, Debra Stern^d, Sarah Alameddine^e, Kimmi Stultz^f, Alejandro Nieves Santiago^g, Jane Clare Miller^g, Kelly Scott^h, Martha M. Rodriguezⁱ, Alexandra Perez^j

^a Department of Pharmacy Practice, Clinical Pharmacy Specialist – Cardiology, Nova Southeastern University College of Pharmacy, Palm Beach Gardens, FL, United States

^b Department of Pharmacy Practice, Clinical Pharmacy Specialist – Ambulatory Care, Nova Southeastern University College of Pharmacy, 3200 South University Drive, Fort Lauderdale, FL, 33328, United States

^c Department of Pharmacy Practice, Director, Experiential Education, Nova Southeastern University College of Pharmacy, Palm Beach Gardens, FL, United States

^d Department of Physical Therapy, Director of Clinical Education, Department of Physical Therapy, Nova Southeastern University College of Healthcare Science, Fort Lauderdale, FL, United States

^e Department of Pharmacy Practice, Nova Southeastern University College of Pharmacy, Palm Beach Gardens, FL, United States

^f Juicery Rx, Director of Preceptor Development of Pharmacy Practice, Nova Southeastern University College of Pharmacy, Fort Lauderdale, FL, United States

^g Nova Southeastern University College of Pharmacy, Palm Beach Gardens, FL, United States

^h Nova Southeastern University College of Healthcare Science, Fort Lauderdale, FL, United States

ⁱ Director of Medical Services, MMR Healthcare, Boynton Beach, FL, United States

^j Department of Sociobehavioral and Administrative Pharmacy, Nova Southeastern University College of Pharmacy, Fort Lauderdale, FL, United States

A B S T R A C T

Background: Elderly patients with cardiovascular disease (CVD) have significant limitations in relation to self-management and quality of life (QOL). Interprofessional collaboration has the potential to produce better outcomes for elderly patients living with CVD.

Methods: The primary objective of this pilot pre-/post intervention study was to improve the QOL for elderly patients with CVD through the development of an interprofessional collaborative intervention in the primary care setting. The intervention consisted of one health fair and two subsequent chronic care management (CCM) meetings focused on self-management of CVD at two participating accountable care organization (ACO) primary care clinics. A pre- and post-survey was administered to patients that consisted of the Short Form (SF)-36 Health Survey and the Activities-Specific Balance Confidence (ABC) Scale. Medication adherence at baseline and after intervention was also assessed. Patients eligible for study inclusion included individuals 65 years or older, referred to CCM services by his/her ACO primary care provider.

Results: 28 participants were recruited. Of these, 15 patients (53%) were included in the final analysis. Compared to baseline, the limitations due to physical health ($p = 0.043$) and social functioning ($p = 0.035$) domains of the SF-36 health survey improved after the intervention while all other domains remained stable. No statistically significant difference was found between pre- and post-intervention on the ABC scale ($p = 0.205$) and medication adherence.

Conclusions: Through interprofessional intervention, this pilot study demonstrated that elderly patients were able to improve in social functioning and limitations to physical activity, benefiting their overall QOL.

1. Introduction

Cardiovascular disease (CVD) is the leading cause of death worldwide.¹ Interprofessional collaboration has the potential to produce better outcomes for elderly patients living with CVD. Elderly patients have significant limitations in relation to self-management and quality

of life (QOL) making them a high-risk population for the debilitating effects of poorly controlled CVD. Preventable and modifiable risk factors of CVD include detrimental lifestyle habits such as smoking, obesity, immobility, and excessive alcohol intake. Additionally, patients who are more adherent to cardiovascular therapies have a significantly lower risk of experiencing an adverse cardiovascular event compared

* Corresponding author.

E-mail address: Tjoseph1@nova.edu (T. Joseph).

with those with low adherence rates.² Unfortunately, 50% of patients with chronic illnesses, including CVD, are non-adherent to their medications.³ Therefore, medication management, along with proper lifestyle changes (i.e., proper nutrition and physical activity) are recommended for patients with CVD.¹

Previous studies have shown that education of elderly patients leads to enjoyment of life, self-satisfaction, and ability to cope, as well as an increase in socioeconomic and psychological resources. Furthermore, engaging elderly patients in active learning creates promotion of positive living through higher self-confidence, maintained cognitive functioning, and better health management.^{4,5} Additionally, it has been demonstrated that interdisciplinary care models can improve cardiovascular risk factors by achieving healthier lifestyles and optimal medical management.^{6,7} However, there is a lack of literature addressing the QOL of elderly patients with CVD using an interprofessional team, especially groups incorporating allied healthcare professionals. These interventions require the use of supporting resources and education to enable the empowerment of elderly for self-management under this approach.

The primary aim of this pre-/post pilot study was to examine the impact of a CVD interprofessional team consisting of eight healthcare professionals by measuring elderly patients' ability to self-manage their CV health and QOL through education on medication adherence, exercise and nutrition in a primary care clinic.

2. Methods

2.1. Community-academic partnerships and participant safety

Accountable Care Options, LLC consisting of MMR Healthcare and Cambridge Medical Group primary care clinics, Juicery Rx and Nova Southeastern University (NSU)'s Colleges of Pharmacy (COP) and Healthcare Sciences (CHCS) formed a community-academic partnership to improve the QOL for elderly patients with CVD. Accountable Care Options, LLC is a group of physician-directed Medicare Shared Savings Accountable Care Organization (ACO) whose aim is to improve patient access, medical quality and care coordination in South Florida. This ACO focuses on aggressively addressing the chronic conditions that affect health, longevity and QOL.⁸ NSU is a private non-for-profit university, including eight colleges within the health profession division. The CVD interprofessional team included four NSU COP pharmacists, one NSU CHCS physical therapist, one nutritionist, two primary care physicians, two pharmacy students and one physical therapy student. The study took place at the two aforementioned ACO primary care clinics and was approved by the NSU Institutional Review Board.

2.2. Study participants

Among those referred to get chronic care management services, subjects were recruited by their primary care provider (PCP) and investigators to participate in the study upon completing informed consent. Subjects eligible for inclusion were aged 65 years or older, deemed stable and healthy enough by their PCP to participate in increased activity or exercise. Chronic care management is non-face-to-face services provided to Medicare beneficiaries who have multiple (two or more), chronic conditions (i.e., CVD) that place the patient at significant risk of death, acute exacerbation/decompensation, or functional decline.⁹ In addition, the subjects had to meet the following criteria: 1) able to read and verbally communicate in English, 2) able to verbally confirm that they are able to complete independent activities of daily living, 3) able to read all study consent material, 4) able to provide informed consent by summarizing the study using their own words. Referred subjects had to attend all interventions (health fair and three CCM meetings) in order to be included in final analysis. Subjects were ineligible for study participation if they were unable to give informed consent, cognitively impaired (dementia, Alzheimer's disease, or memory loss), live within a

skilled nursing facility. Participants that attended all meetings and completed pre- and post-surveys received a \$50 gift card to compensate for time and travel. Participation was completely voluntarily and subjects had the right to refuse participation at any time.

2.3. Study intervention

The intervention consisted of one health fair and two subsequent CCM meetings focused on CVD at each of the two participating ACO primary care clinics located in Palm Beach County, Florida over a 4-month period. The health fair was an introductory meeting composed of 30 min presentations from the pharmacists, physical therapist and nutritionist to understand the role of each allied healthcare professional in CVD management. The CCM meetings were interactive learning sessions where interprofessional team members, based on their specialty, enforced the importance of medication adherence, healthy diet/lifestyle and exercise. Educators guided patients by defining personalized health goals and setting appropriate action plans that enabled them to maintain healthy behaviors. The first CCM meeting consisted of a 30 min presentation from the physical therapist with 30 min of active learning related to exercise/balance training, and a 1 h hands-on cooking demonstration from the nutritionist. The second CCM meeting was composed of a 30 min presentation from the pharmacists about the importance of medication adherence followed by a personalized medication review session by the pharmacists and pharmacy students with each subject. The overall goal of these intervention programs was to empower elderly patients to self-manage their CVD, ultimately leading to better disease management and improved QOL.

2.4. Data collection

Participants that attended the introductory health fair were administered a pre-survey before presentations were performed. Participants completed paper surveys and responses were entered into REDCap (Research Electronic Data Capture) using a password-protected NSU iPad. Study data were collected and managed using REDCap electronic data capture tools hosted at NSU.¹⁰ Each survey gathered baseline demographics, the validated Short Form (SF)-36 Health Survey and the Activities-specific Balance Confidence (ABC) Scale questions. The SF-36 is a 36-item, patient-reported generic survey that measures QOL. Scores for each of its 8 domains range between 0 and 100, 100 being the highest score.¹¹ The ABC Scale consists of 16 items with a total score that ranges between 0 and 100, where higher score equate to higher balance confidence.¹² Participants were also asked if there were any days over the past two weeks that he/she forgot to take any of his/her medications to assess adherence. The post-survey, included the same surveys, was administered to each subject one month following the final CCM meeting. The final session included an additional exit survey regarding how the participants were incorporating educational information about balance, activity and diet and how they perceived the CCM classes, interventions, instructional physical therapy materials and nutrition (See [Appendix 1](#)).

2.5. Statistical analysis

Participant demographics were described via descriptive statistics. If normally distributed, differences in each participant's pre and post-continuous variables were measured via a paired student's *t*-test. Additionally to measure medication adherence rates between pre and post intervention will be tested via a paired *t*-test. Discrete variables were compared by using chi-square (or Fisher's exact test, when appropriate). All statistical tests were two-tailed, set at an alpha of 0.05 to indicate statistical significance. Data collected via REDCap was automated exported into Microsoft Excel and transferred into SPSS version 24 for analysis.

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