

# Cardiac Rehabilitation in Older u.s. Women: Challenges and Opportunities

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## Abstract

Despite its documented benefit and Class Ia recommendations in most cardiovascular clinical practice guidelines of the American Heart Association/American College of Cardiology, cardiac rehabilitation is woefully underutilized in older U.S. women. Numerous studies document the decreased application of cardiac rehabilitation in women compared to men and in older compared to younger patients, with this intersection creating a perfect storm for older women with cardiovascular disease. This manuscript summarizes the challenges presented by this situation and offers opportunities for improvement of cardiovascular care for older women.

**Keywords:** cardiac rehabilitation; cardiovascular disease

## Background Information

Women tend to develop cardiovascular disease at older ages than their male counterparts, with their cardiovascular disease often complicated by geriatric syndromes, in particular frailty and disability.

Although older women account for a larger percentage than men of patients with cardiovascular disease and symptoms eligible for cardiac rehabilitation, they are less likely to be referred for such services and, even among those referred, are less likely to attend and complete. This problem is accentuated in U.S. women of racial and ethnic minorities and in those with challenged socioeconomic circumstances. Because women live to older age than men, their relative prevalence of disease increases age advances; in particular after age 80, women have higher rates of angina, but comparable prevalence of heart failure. Thus older women often have a higher prevalence of symptomatic cardiovascular disease and are more likely to demonstrate reduced morbidity and greater benefit from cardiac rehabilitation services than their male counterparts [1]

## Medical Barriers to Cardiac Rehabilitation for Older Women

For both older women and men, coronary disease, heart failure, osteoarthritis, peripheral arterial disease, and diabetes all may lead to fatigue, pain, dyspnea, and limitation of activity which impair functional status. This multimorbidity often not only deters patient participation in cardiac rehabilitation, but also physician referral.

The patient with deconditioning, frailty, and disability often derives greater benefit from a physical activity program. Older women have the highest risk of osteoporosis, and physicians are often reluctant to refer older patients for exercise training despite the documentation that exercise therapy reduces falls in vulnerable seniors. Despite this comorbidity, older adults do not have an excess of complications or adverse events from cardiac rehabilitation [2].

## Patient Barriers

Older women are at higher risk for physical, cognitive, and visual impairments, as well as poor health literacy, that often interfere with their understanding and ability to access coordination of care. Sadly, because women often assume the role of caretakers of spouses or grandchildren, this limits their capability to participate in scheduled community-based cardiac rehabilitation, as well as problems of arranging for and coordinating transportation to these sessions. Although women often resume their household tasks after a coronary event, most fail to understand that the increased activity level of household tasks does not provide comparable benefit to a structured cardiac rehabilitation program. Often due to the lack of prior physical activity experience, women may have insecurities regarding a group exercise program and concern with the predominantly male attendees. This may be further compounded by the lack of encouragement by family members and healthcare professionals. Depression is more prevalent in woman than in men, and older women are particularly vulnerable to mood swings which may limit their interest in and ability to participate in cardiac rehabilitation. A metaanalysis showed less depression

in older patients who underwent exercise therapy plus psychosocial interventions than with usual depression care [3]

## Healthcare System Barriers

Healthcare system barriers, and in particular Medicare reimbursement, tend to be major deterrents in the application of cardiac rehabilitation for U.S. senior women. Currently, CMS-based reimbursement for cardiac rehabilitation involves status post myocardial infarction, percutaneous intervention, and/or coronary artery bypass surgery; stable angina; as well as heart valve repair or replacement. More recently, cardiac rehabilitation has been approved for U.S. patients with systolic heart failure; however, heart failure with preserved ejection (HFpEF) is more likely in older women and is not currently reimbursed by CMS. The lack of reimbursement for cardiac rehabilitation for patients with HFpEF disproportionately affects older women. The CMS reimbursement for patients with symptomatic peripheral artery disease often excludes older women, who do not have the classic symptoms of claudication, but rather experience fatigue and activity limitation.

Older women after a coronary event are more often than older men referred not to home but to a skilled nursing facility or to a post acute care facility; in these facilities there is far less referral at discharge to cardiac rehabilitation often due to lack of communication mechanisms.

## Cardiac Rehabilitation: Program Characteristics

Most hospital-based or community-based cardiac rehabilitation programs are in urban centers, and many lack proximity to public transportation or have problems with parking availability, limiting the participation of older women. Many older women do not drive, and rely on family and/or friends for transportation; costs or parking limitations pose a problem.

Opportunities for increasing participation in cardiac rehabilitation for u.s. Senior women

Because many healthcare professionals appear unaware of the benefits of cardiac rehabilitation, particularly for older patients who have physical disability, frailty, and varying degrees of cognitive impairment, many hospital settings have instituted automated referral systems, but there is evidence that the strength of physician recommendation remains a major determinant of patient participation; thus the perception of the benefit of cardiac rehabilitation for senior women among healthcare providers becomes an important determinant of patient referral.

The advent of home-based cardiac rehabilitation may have particular benefit for older women as it may overcome many of the barriers to participation in a community-based program.

Substantial data document that home-based programs have comparable efficacy to facility-based programs, without significant differences in reduction of mortality, increase in exercise capacity, or improved health-related quality of life. Indeed, many patients prefer home-based cardiac rehabilitation [4-6].

## Smartphone-Based Cardiac Rehabilitation

The smartphone technology has revolutionized the ability to communicate and track health, with older patients embracing this technology; this may offer particular value for older women as candidates for cardiac rehabilitation. A number of smartphone applications facilitate home-based cardiac rehabilitation, including messaging, 2-way video capability, tracking

numbers of steps, etc. Patients can log activities, monitor vital signs, and receive educational videos.

More women use social media than men and may find these cardiac rehabilitation smartphone apps particularly appealing. The use of social media by Medicare-age U.S. individuals has increased substantially in the past decade and may offer the option of a women-only environment for cardiac rehabilitation [7,8].

The recent COVID pandemic has acutely altered patterns of cardiovascular care, with major reliance on telehealth, across the age spectrum. During the COVID epidemic, older adults have totally embraced telehealth, mastered the needed technology, and enjoyed the advantage of contact with the medical care system without requiring transportation from home to a healthcare facility. Because CMS reimburses for telehealth for Medicare patients, there is the potential that smartphone-based cardiac rehabilitation may subsequently be reimbursed by Medicare.

## Summary

Although cardiac rehabilitation reduces morbidity and mortality, improves functional capacity, mood, and quality of life in patients with cardiovascular disease, this modality is strikingly underutilized by older women. Alternative models of cardiac rehabilitation, including home-based cardiac rehabilitation and technology-based cardiac rehabilitation may be particularly valuable for the older women who have complexities of frailty, multimorbidity, and numerous psychosocial barriers to participation [9].

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