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Cardiac Rehabilitation in Elderly Patients: Barriers and Strategies for Improvement

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ABSTRACT

Introduction: Existing evidence shows cardiac rehabilitation (CR) significantly affects cardiovascular outcomes in elderly patients. Nevertheless, the involvement of people is still limited by numerous factors. This research reviews the hurdles that restrict older adults' participation in Community Rehabilitation (CR) and examines ways of improving it. **Objective:** This paper aims to determine the factors that interfere with elderly patients' engagement in CR and possible measures to enhance participation, compliance, and success. **Materials and Method:** This descriptive cross-sectional study was conducted from April, 2024 to September, 2024 at the Department of Cardiology, Hayatabad Medical Complex Peshawar, Pakistan. The data were obtained by administering a structured questionnaire to 120 elderly cardiac patients. Quantitative data were analyzed using a statistical package analysis system, while the qualitative responses were analyzed thematically. **Results:** The main challenges reported were inadequate knowledge (68%), transport problems (55%), and funding (48%). Patients mentioned in their ideas that home-based CR is 62% and better education is 58%. **Conclusion:** This study analyses potential solutions for overcoming logistical, financial, and educational challenges that might help increase CR uptake among elderly patients.

INTRODUCTION

Cardiac rehabilitation (CR) is a patient-centered, coordinated, and individualized intervention with strong empirical support that positively affects morbidity, mortality, and health-related quality of life in patients diagnosed with CVD. However, probably due to its effectiveness, enrolment in CR programs remains comparatively low and even poorer among older people. The analysis of global trends shows that the proportion of elderly patients with cardiovascular diseases is increasing; however, cardiac rehabilitation remains underutilized in the elderly (1). Many issues in elderly patients affect their rehabilitation participation, such as physical disability, several illnesses, transportation issues, and sometimes depression and social isolation. These barriers exacerbate diminished referral and involvement, meaning there is a disparity in treatment for this particular group.

The importance of CR is high in older adults because many age-related physical changes, reduced functional reserve, and a higher risk of cardiovascular events can be managed through standardized rehabilitation. However, the conventional forms of CR, which are structured, place-based, and time-limited, do not adequately address the needs of elderly patients, who need more individualized, adaptable, and easy-to-access programs (3). Increased attention has been paid to new approaches to CR delivery, including home or hybrid-based CR, that can improve access for older people and enhance adherence (4). However, there are still massive gaps in practical implementation, and most healthcare organizations continue to use conventional organizational models that do not address distinct elderly needs (5).

The reasons people over 60 do not engage in CR are diverse. These factors include physical disability, arthritis, pulmonary diseases, or conditions that may affect the patient's cognition and impede their ability to attend rehabilitation sessions as intended (6). Additionally, psychological factors such as anxiety, perceived risk, fear of exerting themselves, and self-

doubtful performance in groups push older people away from the program or even from enrolling for it. Social determinants of health are also important, as patients with low income or health literacy or lacking adequate caregivers to support them are less likely to engage in CR (7). These challenges are worse among women, especially elderly women, due to caregiving roles, cultural expectations, and physician inertia to refer females (8).

Indeed, geography is equally a significant concern due to the expansion of the CR concession in rural and other hard-to-reach regions. Some older patients in such contexts do not have ready access to transport, and others may be socially isolated, making it difficult for them to attend the sessions (9). These problems are not exclusive to a single country and show that changes at the structural level are required to enable elderly patients to have equal chances of accessing CR (10). However, several barriers to efficient CR delivery have been observed. Supplementing CR delivery models with alternative methods, such as virtual platforms and telehealth, has effectively mitigated these challenges. Virtual CR can be done from the comfort of patients' homes and is flexible to patients' capabilities. It can be a substitute for elderly patients who either cannot or do not want to attend traditional face-to-face sessions (11).

However, the conversion to virtual CR is not without some bumps along the way. Possible limitations include technology-related issues such as non-affordability of devices or relief, inability to go online, or illiteracy with technology. Furthermore, the social disconnectivism involved with virtual programs may not be sufficient for many older adults who require extrinsic motivation (12). Therefore, digital solutions help advance the practice of CR but should be used carefully and integrated with professional instruction, supervision, and evaluation. Another of the same major problems concerns referrals and enrollment to the program, as highlighted in this study. Several physicians fail to refer qualified elderly patients to CR because they underestimate its usefulness in elderly patients or don't have time during consultations (13). This underlines a need to provide adequate provider education and adopt automatic referral systems to enhance CR delivery to patients.

However, the methods aimed at increasing patient participation and the level of their concern about the necessity of CR can also positively impact the outcomes. More specifically, needs to be met at this step include assessment and access to educational programs designed to address specific age concerns using culturally appropriate material to help increase the patient's knowledge about the sickness and engage them in recovery (14). Lastly, courses of action and funding strategies need to be altered to allow elderly people to gain access to CR. Payment systems must support flexible service implementation processes and recognize the need to spend time and money to ensure success with this vulnerable population. It is important to discuss those factors about CR and reduce disparities so that everyone, regardless of demographic background or living in a rural area, can benefit from CR to enhance the long-term outcomes of CVD and reduce the burden on the aging population (15)

Objective

The specific aim of this role will be to review the literature on the challenges that limit the involvement of elderly patients in cardiac rehabilitation and find out the best way to increase their attendance compliance and experiences with rehabilitation programs.

MATERIALS AND METHODS

Design: Descriptive Cross-sectional Study.

Study Setting: This cross-sectional study was carried out at Department of Cardiology, Hayatabad Medical Complex Peshawar.

Duration: The study was conducted for a period of 6 months, from April, 2024 to September, 2024.

Inclusion Criteria

This involved patients with subsequent cardiac events, myocardial infarction, coronary artery bypass grafting, or percutaneous coronary intervention, and patients of more than 60 years of age who were referred for cardiac rehabilitation. Patients selected for the study must have had a clinically stable condition, been assessed as mentally capable of answering research questions, and have agreed to participate.

Exclusion Criteria

Patients with severe dementia, terminal illness, psychiatric disorders affecting their communication ability, or those who refused to participate in the study were not included in the study.

Methods

Data were obtained from self-administered structured questionnaires developed from previous studies and expert input. The questionnaire was divided into sub-sections, such as demographics, cardiac history, cardiac rehab knowledge, barriers to rehab, and changes recommendation. Semi-structured interviews were conducted with the eligible patients during their follow-up visits at the Department of Cardiology, Hayatabad Medical Complex Peshawar. Each interview lasted approximately 20–25 minutes. Furthermore, verbal and written informed consent was sought and obtained in this study for pre-participation. The collected data was presented correctly and anonymously to maintain patients' anonymity. Data was analyzed using the statistical software SPSS, version 25. The descriptive analysis of patients' characteristics and the frequency of barriers reported have been carried out using descriptive

statistics. Chi-square tests were used to examine relationships between the demographic characteristics and specific barriers to CR. A descriptive survey captured open-ended responses regarding what clients wished to change or enhance regarding CR services. Ethical approval was sought from the institutional review board of the Pakistan Institute of Medical Sciences for this study.

RESULTS

The exact number of elderly patients (n=120) were included in this study, with a mean age of 67.8 ± 5.6 years, and of them, 60% were male and 40% female. About half of the participants (45%) were 35–49 years old. The majority were married (88%), and 65% had only the primary level of education or less. Slightly half were retired, and up to three quarters declared their household monthly income at PKR 50000 or below.

They found that only 40% of the patients acknowledged knowing of CR before admission, and only 25% had gone for at least one CR session. In responding to the list of sources of information, 45% said they asked their cardiologist, as opposed to 35% who said they asked friends or relatives. Non-response by non-participants was as follows: people were not aware of the interview (68%), they could not get transport (55%), they could not afford to participate (48%), and they were afraid of exerting themselves (40%).

Table 1

Demographic Characteristics of Participants (n=120)

Variable	Frequency (%)
Age (mean ± SD)	67.8 ± 5.6
Gender (Male/Female)	72 (60%) / 48 (40%)
Marital Status	
- Married	106 (88%)
- Widowed/Single	14 (12%)
Education Level	
- No formal education	38 (32%)
- Primary	40 (33%)
- Secondary or above	42 (35%)
Monthly Income <50,000	90 (75%)

Women could report family and men's work obligations when assessing the relationship between demographic characteristics and the reported barriers ($p<0.05$). Those patients with lesser education levels were less informed about the advantages of CR, and they largely did not believe in the effectiveness of the process. The study established that older participants (>70 years) complained of transportation and physical challenges while using public transport.

Table 2

Reported Barriers to Cardiac Rehabilitation Participation

Barrier	Frequency (%)
Lack of awareness	82 (68%)
Transportation issues	66 (55%)
Financial constraints	58 (48%)
Fear of physical exertion	48 (40%)
Comorbidities	45 (38%)
Lack of family support	36 (30%)
Scheduling conflicts	20 (17%)

When it came to the preferred strategies that can be incorporated to improve participation, the majority of patients opted for home-based rehabilitation (62%), education of patients (58%), and transportation (50%). Some of the recommendations given included flexible timing and free or cheap services. Female participants mainly supported family therapy as well as home-based exercise regimes.

Table 3

Suggested Strategies to Improve CR Participation

Suggested Strategy	Frequency (%)
Home-based rehabilitation	74 (62%)
Better patient education	70 (58%)
Transportation assistance	60 (50%)
Family/caregiver involvement	55 (46%)
Flexible scheduling	42 (35%)
Free or subsidized services	40 (33%)

These results indicate that there are many factors to consider and that focused educational interventions are required for the elderly.

DISCUSSION

As an already established secondary prevention tool, it is rather startling that despite published literature outlining the effectiveness of CR, elderly patients seem to have minimal access to these services. This research aimed to examine the factors that limit the elderly patient's usage of CR and any recommended ways of increasing the number of elderly personnel in CR. The findings are consistent with the previous studies that have also pointed out that lack of awareness, logistic issues, funding issues, and psychosocial factors are the main barriers to working with older adults. The current study highlighted that slightly over half of the participating elderly patients claimed not to know what CR was or its benefits. The most significant percentage, reaching 68%, said they did not participate due to a lack of information regarding the existence of such programs. This finding is in line with the work of Epelde (1), who pointed out that knowledge deficiency is a significant barrier, especially in elderly patients for whom patient education is rarely considered.

Additionally, Alfaraidhy et al. (2) established that misconceptions surrounding the physical requirements for CR and the perceived worsening of symptoms due to the same is a significant factor causing avoidance behaviors among elderly patients. Our findings do, as 40% of respondents identified fear of physical exertion, a concern also mentioned in the literature. From the survey, 55% of the respondents mentioned transportation as a barrier, consistent with earlier findings of geographic and mobility problems among the elderly

population (3). According to Beatty et al. (3), there is a growing concept of performing home and hybrid models of the CR to deal with this problem and improve the availability of facilities in rural or underprivileged zones. This adaptation is perhaps essential in developing countries such as Pakistan as most of the transport infrastructure is almost outdated for elderly patients. Furthermore, Platz et al. (4) claim that other CR models can intensify CR without affecting outcomes. Overall, 62% of participants preferred home-based rehabilitation, and there is an increasing need for home-based delivery.

This was followed by financial constraints, of which 48% of the participants indicated that cost was a limitation. Lutz and Forman (5) note that in situations where CR entails a cost that has to be catered by the consumer, this population is likely to compromise on the consummation of CR. This challenge is well exacerbated by a very low prevalence of social health insurance in Pakistan. This is cleared by Fraser et al. (6), who argue that economic insecurity, combined with poor healthcare funding, explains low CR participation rates, especially among the elderly. As for the gender differences, we also found some differences in our results. Women highlighted more psychosocial problems like poor caregiving roles and family support, a finding which concurs with Khadanga et al.'s (7) views on women in CR.

Bourke et al. (8) noted social roles and expectations pronounced women's health behavior through cultures in which elderly women played the roles of caregivers. Female clients were observed to express a stronger preference for family entreaties and home-based CR solutions, as well as recommendations that should guide culturally sensitive intervention strategies. Excluded from participation in CR were patients who lived in rural areas or had limited access to forms of transportation that would allow them to travel to the intervention setting, which highlighted systemic issues. Foster et al. (9) also came to similar conclusions in their study on distant areas, where they recommended telehealth and traveling rehabilitation centers. Such approaches are being embraced across the world, and Zaree et al. (10) consider them feasible and cost-effective to increase access to CR services. However, in low-resource settings, implementation of the systems needs investment in supporting digital technologies and human capital through training of both patients and healthcare providers.

Another considered factor was virtual CR, or computerized radiography, which took a minimalist position in many accident cases. Some respondents never came across the option, but many patients demonstrated a likelihood of utilizing it once the concept was explained. Taylor et al. (11) have defined virtual rehabilitation as one of the fascinating fields that can significantly enhance the availability of CR. However, its effectiveness mainly hinges on the progress made in combating technology diffusion and embracing digital competency, topics addressed by Vanzella et al. (12), who highlighted that lack of knowledge of new technology was a demotivating factor. In our study, participants ask for help with technology and care about ongoing help. It will also recorded that there are some provider-level barriers yet to be removed. Lack of referral consistency and the subsequent underestimation of the benefits of CR in the elderly means there are gaps in rehabilitation opportunities.

It was discussed earlier in this work by de Melo Ghisi et al. (13), noting that physicians often do not offer or recommend CR to older adults because of ageism or lack of time. Meeting this calls for systematic solutions for automated workflows or referral processes for patients and the enhancement of provider knowledge about the usefulness of CR in elderly patients. The finding also supports motivation and communication-tailored literature. In a study by Passantino et al. (14), the authors propose that CR communication should be cognitive and emotional to suit older patients. In the study, targeted education appeared to be the most crucial factor. Patients with higher education levels reported an understanding of the value of CR and a relative lack of concern regarding its effectiveness. Similarly, Ades et al. (15) have underlined the importance of culturally targeting materials and individual counseling to increase CR compliance among selected populations.

Lastly, the factors that prevent the elderly from engaging in cardiac rehabilitation are complex and rooted in societal, fiscal, and organizational inequality. The findings in this study highlight a call for a combination of awareness, structural, cost, and psychosocial models. Expanding understanding of home and virtual CR, providing transports and necessary finances, and involving family caregivers would be an effective way to increase the participation of patients. However, allowing healthcare providers to promote CR and adjusting programs according to the needs of the elderly will be important in the future. These findings further the ongoing conversation on fairness in cardiac care and may help local and national initiatives addressing cardiovascular disease among older adults.

CONCLUSION

This paper aims to identify the barriers to elderly care patients' participation in CR programs, and these include low awareness, transportation problems, financial constraints, and psychosocial factors such as the elderly 's fear and lack of family support. Nonetheless, research literature demonstrates that CR confers significant benefits to cardiovascular health and is yet under-prescribed in the elderly population. Participants also expressed a vast agreement with patient-centered solutions like home-based rehabilitation, more

education, transportation facilities, and including the patient's family caregivers. Furthermore, it is crucial to understand the gender needs and needs for rural accessibility when developing CR programs. This column articulates that by working together, healthcare providers can actively prioritize CR by frequently referring patients to monthly meetings and communicating with them in considerate ways. To increase participation rates and enhance the quality of life of elderly cardiac patients, it is necessary to remove these barriers through a series of complex approaches. These results should be taken forward to the policy and healthcare management models to achieve equal access to CR in Pakistan.

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