

THE EFFECTIVENESS OF COMMUNITY-BASED CARDIAC REHABILITATION PROGRAMS IN REDUCING THE RELAPSE RATE OF POST-MYOCARDIAL INFARCTION PATIENTS

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ABSTRACT

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cardiovascular health

Cardiovascular diseases, particularly myocardial infarction (MI), are a leading cause of morbidity and mortality worldwide. Post-MI patients are at high risk for recurrent ischemic events. While traditional hospital-based cardiac rehabilitation (CR) has long been the standard, Community-Based Cardiac Rehabilitation (CBCR) programs have emerged as an accessible alternative. This literature review evaluates the effectiveness of CBCR in reducing relapse rates among post-MI patients. A systematic literature review was conducted in August 2024 using databases such as Scopus, PubMed, Google Scholar, and Crossref. Relevant articles published between 2014 and 2024 in English were selected based on predefined inclusion criteria. The PICO framework guided the study, focusing on the effectiveness of CBCR compared to traditional CR. Nineteen articles were included in the review after a rigorous selection process. The review found that CBCR programs significantly improved patient adherence, reduced relapse rates, and enhanced cardiovascular health. Compared to hospital-based programs, CBCRs were more accessible, particularly in underserved areas, and fostered greater patient engagement. Moreover, CBCR participants showed improvements in medication adherence, physical activity, and psychological well-being, with many studies reporting lower rates of rehospitalization. CBCR programs are an effective alternative to hospital-based CR, offering comparable or superior outcomes in reducing relapse rates and improving overall health. Their accessibility and patient-centered approach make them a viable option for post-MI care, particularly in regions with limited healthcare access. Further research is recommended to explore the long-term benefits of CBCR on patient outcomes.

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INTRODUCTION

Cardiovascular diseases (CVD) continue to be a leading cause of mortality globally, accounting for approximately 30% of all deaths as of 2017, with an estimated 17.8 million fatalities attributed to these conditions (Wu et al., 2020). The burden of CVD is particularly pronounced in middle-income countries, where premature cardiovascular mortality rates are significantly higher compared to high-income countries (Hasani et al., 2023). In Indonesia, recent studies indicated that CVD is responsible for approximately 38% of total deaths, which is notably higher than the regional averages in Southeast Asia (Arsyad et al., 2022).

Among the many conditions contributing to this global burden, myocardial infarction (MI) stands out as one of the most critical. Myocardial infarction, commonly referred to as a heart attack, is defined as a clinical condition characterized by the death of heart muscle tissue due to a prolonged lack of oxygen supply, typically resulting from the obstruction of blood flow through a coronary artery (Thygesen et al., 2018). In Indonesia, it was estimated that over one million individuals in Indonesia were diagnosed with coronary heart disease, which is a primary contributor to MI (Herliani et al., 2016). The rising trend of cardiovascular diseases, including MI, has been alarming, with cardiovascular mortality rates increasing from 5% in 1975 to 30% in 2004 (Purwowiyoto & Phillip, 2020).

Despite advances in medical interventions, post-myocardial infarction patients are at high risk of recurrence, which poses significant challenges to both healthcare systems and patient well-being. Data suggest that patients surviving their MI have a long-term risk of recurrent ischemic events that is substantially higher

than those with stable coronary artery disease (Zeymer et al., 2017). One key strategy to mitigate this risk is cardiac rehabilitation, a comprehensive intervention designed to improve cardiovascular health and reduce the likelihood of relapse.

Traditionally, cardiac rehabilitation programs are delivered in hospital-based settings, but in recent years, there has been growing interest in community-based cardiac rehabilitation (CBCR) programs. These programs offer a more accessible and patient-centered approach, allowing individuals to receive care in their local communities, thereby increasing adherence and long-term participation (Jegier et al., 2021). Community-based models are particularly important in regions with limited access to healthcare facilities or where hospital-based programs are not sustainable (Karimullah et al., 2020).

Although there is a growing body of research supporting the benefits of hospital-based cardiac rehabilitation, studies focusing specifically on community-based programs remain limited, particularly in assessing long-term relapse rates. Existing research tends to focus on short-term outcomes such as early recovery and cardiovascular fitness improvements, leaving a gap in understanding how CBCR programs influence long-term patient adherence, relapse prevention, and overall cardiovascular health. Furthermore, there is a lack of comprehensive comparative studies that analyze the effectiveness of CBCR versus traditional hospital-based rehabilitation. This literature review aims to address these gaps by synthesizing available evidence to determine whether CBCR programs offer comparable or superior outcomes in preventing relapses in post-myocardial infarction patients.

The primary objective of this literature review is to evaluate the effectiveness of community-based cardiac rehabilitation programs in reducing the relapse rate among post-myocardial infarction patients. Specifically, this study aims to compare CBCR programs with traditional hospital-based approaches, analyzing their impact on patient outcomes, long-term adherence to rehabilitation, overall cardiovascular health, and analyze the challenges and barriers in the implementation of CBCR programs. The findings from this review are expected to contribute to the body of knowledge regarding optimal post-MI care and to inform healthcare providers and policymakers on the viability of community-based models in cardiac rehabilitation.

METHOD

The Review Protocol

The protocol was formulated considering the suggestions of the Cochrane Collaboration for systematic reviews and conforming with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis Protocols (PRISMA-P) Statement recommendations (Page et al., 2021).

Focus Question

The PICO framework was used to form the following focus question: “how the effectiveness of community-based cardiac rehabilitation programs in reducing the relapse rate of post-myocardial infarction patients?”

1. Population: patients who join community-based cardiac rehabilitation programs
2. Intervention: Multiple interventions related to cardiac rehabilitation programs
3. Comparison: This study compares the community-based cardiac rehabilitation programs
4. Outcome: Factors that affect the effectiveness of community-based cardiac rehabilitation programs
5. Search Strategy

This study is a systematic literature review to determine the effectiveness of community-based cardiac rehabilitation programs in reducing the relapse rate of post-myocardial infarction patients. A literature search was conducted in August 2024. The literature was obtained from reputable international journal articles from Scopus, PubMed, Google Scholar, and Crossref databases. Keywords related to “community based”, “cardiac”, “rehabilitation” and obtained 365 documents. Articles included in the search were those published in English from 2014-2024. During the search process, researcher used Boolean operators and wildcard characters precisely to focus our search and detect the singular or plural form of the same term in all databases used.

Study Selection and Eligibility Criteria

The data collection approach for this systematic literature review commenced with an article search. In order to mitigate errors and potential bias in the article selection process, a minimum of two researchers independently assessed each paper. The researchers applied a filtering process based on the title and abstract of article, followed by a thorough evaluation of the entire text of possibly relevant articles. As a result, 19 articles were deemed suitable for inclusion in the study. Researchers collected and combined pertinent data from an additional 19 articles, including title, author and year, aims, samples, research methods, and research findings. Ultimately, a narrative synthesis was conducted to succinctly describe the results and discern recurring patterns and themes across the study.

A systematic review is a rigorous research approach that can be employed to address these inquiries. Systematic reviews can amalgamate findings from multiple-research to offer more robust evidence regarding the effectiveness of different types of interventions on improving the utilization of health facilities for childbirth. The inclusion and exclusion criteria in this study can be seen in table 1.

Table 1. Inclusion and Exclusion Criteria

Inclusion	Exclusion
Article that discusses the effectiveness of community-based cardiac rehabilitation programs in reducing the relapse rate of post-myocardial infarction patients	Articles that are not related to the effectiveness of community-based cardiac rehabilitation programs in reducing the relapse rate of post-myocardial infarction patients
Research article	Non research article
English documents	Non-English documents
Published year 2014-2024	Published outside 2014-2024
Available in full text	Not available full text
Open access	Non-open access
Research conducted in different countries	
Quantitative, qualitative, experimental research methods	Systematic review method, literature review, non-research

RESULTS AND DISCUSSION

Based on search results using preset keywords and inclusion criteria, 365 potential papers were first obtained from three literature databases: Scopus (N = 41), PubMed (N = 31), Google Scholar (N = 93), and Crossref (N = 157). Following the title screening process, 291 articles with relevant titles were identified. After removing duplicate papers (N = 39), those not published between 2014 and 2024 (N = 172) and non-open access articles (N = 14). A subsequent screening of abstracts resulted in the review of 66 papers, with 47 abstracts failing to meet the set criteria. A subsequent full-text inspection was performed to determine eligibility, resulting in the inclusion of 19 papers in the study.

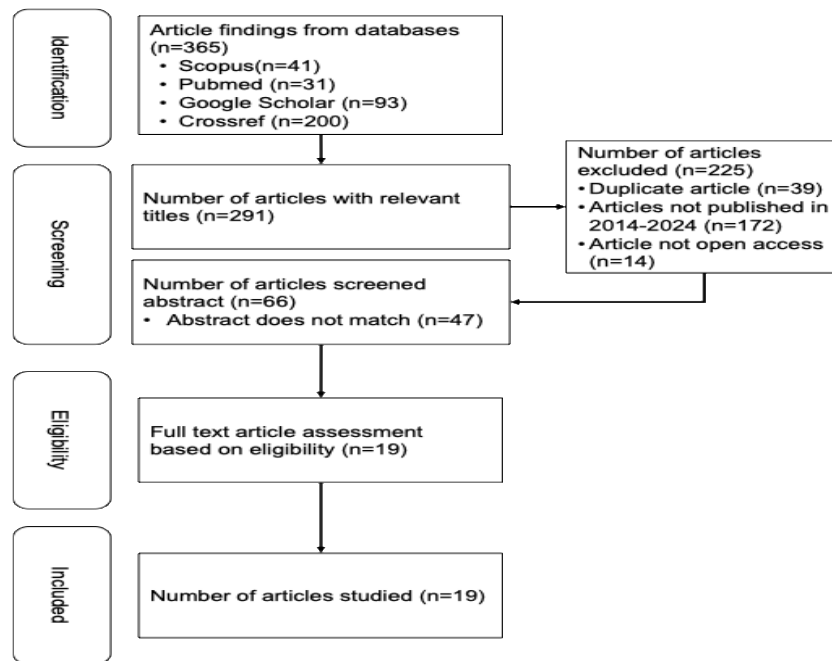


Figure 1. Article extraction process flowchart

Table 2. Data Extraction Results

Title, Author, Year	Sample	Method	Result
Community-Based Cardiac Rehabilitation To Improve Medication Adherence in Stable Coronary Artery Disease (Adriyanto et al., 2020)	The study involved a total of 4,740 patients with cardiovascular disease.	The methods involve community-based cardiac rehabilitation interventions, including patient education on risk factors, medication adherence, lifestyle changes, and supervised physical activity.	The results indicate that community-based cardiac rehabilitation significantly improves medication adherence and overall health outcomes in patients with stable coronary artery disease.
Implementing a community-based model of exercise training following cardiac, pulmonary, and heart failure rehabilitation (Adsett et al., 2013)	The study involved 241 patients referred to the Heartmoves program, with 141 (59%) attending at least once and 76 (32% of referrals) attending	The study established Heartmoves programs near major hospitals, surveyed patients and staff about barriers to attendance, and recorded referral and attendance rates over 12 weeks	The results showed that 241 patients were referred, with 141 (59%) attending at least once and 76 (32%) attending more than six times in the first 12 weeks; barriers to attendance included concerns about safety and social aspects

Title, Author, Year	Sample	Method	Result
	more than six times in the first 12 weeks		
Community-Based Cardiac Rehabilitation Conducted in a Public Health Center in South Korea: A Preliminary Study (Baek et al., 2020)	The study included 31 participants aged over 40 years with cardiovascular disease or risk factors, of which 21 completed the program.	The study employed a 20-week community-based cardiac rehabilitation program, including exercise training, dietary education, and risk factor management, with assessments of health outcomes using various tests and questionnaires.	The results showed significant reductions in body weight and blood glucose levels, along with increased 6-minute walk distance, with no adverse events reported.
Barriers to participation in center-based cardiac rehabilitation programs and patients' attitude toward home-based cardiac rehabilitation programs (Bakhshayeh et al., 2019)	The study included 204 eligible patients who either abandoned center-based cardiac rehabilitation programs or had not attended one.	The study used a descriptive-analytical cross-sectional design, employing a questionnaire to collect data on barriers to participation and attitudes toward home-based cardiac rehabilitation.	The results indicated that major barriers to center-based cardiac rehabilitation included transportation issues (70%), travel costs (70%), and lack of insurance coverage (64%). Participants showed positive attitudes toward home-based rehabilitation programs.
Efficacy and Adherence Rates of a Novel Community-Informed Virtual World-Based Cardiac Rehabilitation Program: Protocol for the Destination Cardiac Rehab Randomized Controlled Trial (Brewer et al., 2023)	A total of 150 participants will be enrolled and randomized, accounting for an anticipated 25% dropout rate	The study employs a hybrid type 1 effectiveness-implementation randomized controlled trial design, utilizing stratified permuted block randomization and collecting both quantitative and qualitative data through surveys and focus groups	Results will assess cardiovascular health outcomes, adherence rates, and participant feedback, with analyses including intention-to-treat principles and various statistical models
Physical activity, physical function and quality of life in community-based maintenance cardiac rehabilitation (Hately & Mandic, 2019)	The study included 39 individuals (71.8% women; average age 70.5 years), comprising 13 participants with coronary artery disease (CAD) and 26 without CAD (non-CAD)	The study employed a cross-sectional design, where participants wore accelerometers for 7 days and completed various assessments, including anthropometry, physical performance tests, and questionnaires on physical activity and quality of life	Participants with CAD were more physically active based on accelerometer data, but both CAD and non-CAD groups had similar physical function and quality of life scores. Approximately 26% of all participants met the minimum physical activity guidelines
Examining Motivations and Barriers for Attending Maintenance Community-Based Cardiac Rehabilitation Using the Health-Belief Model (Horwood et al., 2015)	The study sample consisted of 44 older adults with coronary artery disease, including 11 high attenders, 16 low attenders, and 17 non-attenders	The study employed a cross-sectional design where participants completed questionnaires assessing perceived threats, benefits, barriers, and cues to action related to cardiac rehabilitation	High attenders perceived greater benefits and fewer barriers to attending cardiac rehabilitation compared to non-attenders, with no significant differences in perceived threat among the groups
Community-based Cardiac Rehabilitation Improved Adherence to Medication, Quality of Life and Rehospitalization Among Stable Coronary Artery Patients: A Cohort Study (Karimullah et al., 2020)	The study included 73 patients in the intervention group (Malang community cardiovascular care members) and 73 control patients from Aisyah Islamic Hospital.	The study used an observational prospective cohort design, assessing medication adherence, quality of life, and major adverse cardiovascular events (MACE) through validated questionnaires (MMS-8, SF-36, SAQ) over one year.	The results showed that the intervention group had significantly higher medication adherence (MMS-8 score: 7.5 vs. 5.2), improved quality of life, and lower rates of MACE compared to the control group.
Cardiac rehabilitation after myocardial infarction: a comparison between the standard and home-based cardiac rehabilitation programs (Khorshid et al., 2019)	The study included two groups of patients: Group A (standard cardiac rehabilitation) and Group B (home-based cardiac rehabilitation), with a total of 35 participants in each group	The study utilized a comparative design, assessing exercise test parameters, functional capacity, and clinical follow-up for both standard and home-based cardiac rehabilitation programs over three months	Both groups showed significant improvements in exercise parameters, left ventricular systolic function (EF%), and lipid profiles after rehabilitation, with no significant differences between the two groups
Heart Wellness Programme: a pilot community-based cardiac rehabilitation programme in a multiethnic society (Kwan et al., 2016)	The study analyzed data from 136 patients who completed the one-year Heart Wellness Programme at the Singapore Heart Foundation.	The study employed a retrospective database analysis, recording baseline and one-year follow-up data on patients' sociodemographic, clinical, and laboratory parameters.	The results showed significant improvements in body fat percentage, walking distance, total cholesterol, low-density lipoprotein, and triglyceride levels among participants after one year.
Developing a Culturally Based Cardiac Rehabilitation Program: The HELA Study (Look et al., 2012)	The study involved participants from Native Hawaiian and Pacific Islander communities, specifically those with coronary artery disease (CAD) who had experienced hospitalization	The methods included focus groups with CAD patients and individual interviews with kumu hula (hula experts) to gather community and cultural insights for developing the intervention	The results indicated that hula-based cardiac rehabilitation was culturally attractive and effective, providing physical, emotional, social, and spiritual benefits
Needs and Constraints for Cardiac Rehabilitation Among Patients with Coronary Heart Disease Within a Community-Based Setting: A Study Based on Focus Group Interviews (Ma et al., 2024)	The study included 11 patients with coronary heart disease, selected from a community hospital in Baoding City, Hebei Province, using objective	The study used focus group interviews to gather qualitative data, analyzed through Colaizzi's method of descriptive data analysis.	The results indicated insufficient resources for cardiac rehabilitation, inadequate knowledge of coronary heart disease, and poor adherence to medication among patients.

Title, Author, Year	Sample	Method	Result
	sampling to maximize diversity.		
Community-Based Cardiac Rehabilitation Maintenance Programs: Use and Effects (Mandic et al., 2015)	The study included 101 participants, with 54.5% having a history of cardiovascular disease, primarily consisting of New Zealand-European, retired, and elderly individuals.	Participants were recruited from two community-based cardiac rehabilitation clubs, classified into primary and secondary prevention groups, and assessed for sociodemographic characteristics, attendance, and physical function through various tests and self-reports.	Results showed that secondary prevention participants had higher attendance rates, greater risk factor burdens, and better physical function compared to primary prevention participants, with significant correlations between attendance and physical outcomes.
Implementing a community-based structured exercise programme for patients with peripheral arterial disease in conjunction with an existing cardiac rehabilitation service results in better outcomes (Matthews et al., 2016)	The sample consisted of patients with peripheral arterial disease (PAD) who participated in a community-based structured exercise programme integrated with an existing cardiac rehabilitation service	The methods included a structured exercise programme for patients with intermittent claudication, facilitated by a collaboration between vascular triage and cardiac rehabilitation teams, with individual assessments and lifestyle support	Results showed a 72% improvement in claudication symptoms, high patient satisfaction, and only 17% of patients requiring surgical referrals after completing the programme
Effects of community based cardiac rehabilitation: Comparison with a hospital-based programme (Mosleh et al., 2014)	The study included 212 participants, with 136 attending community-based cardiac rehabilitation and 169 attending hospital-based rehabilitation.	The study used a prospective comparative cohort design, collecting data from participants in both community and hospital-based cardiac rehabilitation programs over multiple follow-up points.	The results indicated that community-based cardiac rehabilitation provided similar health benefits, exercise levels, and mental health outcomes as hospital-based programs, although community participants reported higher energy levels but engaged in less exercise.
Participant Exercise-Session Attendance in Community-Based, Bridging, and Hospital-Based Cardiac Rehabilitation: A Retrospective Case-Control Study (Nathanail et al., 2022)	The study included 230 participants: 74 from community-based (COMM), 41 from bridging (BRIDGE), and 74 age- and sex-matched participants from hospital-based (C-HOSP) programs, along with 41 matched hospital-based participants (B-HOSP)	The study employed a retrospective case-matched chart review, collecting data on exercise-session attendance and participant characteristics from electronic medical records of patients attending phase II cardiac rehabilitation	BRIDGE participants attended significantly more exercise sessions (median 10.0) compared to HOSP participants (median 6.0), with no significant differences in attendance between sexes overall
Impact of Community-Based Cardiac Rehabilitation on Clinical Parameters of Patients with Cardiovascular Diseases (Ong et al., 2016)	The study included 94 patients in the intervention group who participated in the community-based cardiac rehabilitation program and 157 patients in the control group receiving regular care	The study utilized a community-based cardiac rehabilitation program, comparing clinical parameters such as LDL, TG, TC, and blood pressure between the intervention and control groups over one year, with statistical adjustments for baseline differences	The intervention group showed significant improvements in LDL (-0.3 mmol/L), triglycerides, total cholesterol, fasting blood glucose, systolic BP, and diastolic BP, while the control group experienced worsening in LDL levels
Community health service center-based cardiac rehabilitation in patients with coronary heart disease: a prospective study (L. Zhang et al., 2017)	The study included a total of 126 patients, with 57 in the cardiac rehabilitation group and 69 in the usual care group.	The study used a prospective design, comparing a cardiac rehabilitation group receiving community-based care with a usual care group, assessing health-related quality of life, psychological state, and exercise capacity at baseline and 6 months post-intervention.	The results showed significant improvements in the cardiac rehabilitation group in anxiety and depression scores, health-related quality of life, and exercise capacity compared to the usual care group.
Cardiac rehabilitation in acute myocardial infarction patients after percutaneous coronary intervention: A community-based study (Y. Zhang et al., 2018)	The study included 130 patients (17 women and 113 men) aged 45 to 81 years who had ST-segment elevated myocardial infarction and underwent percutaneous coronary intervention	The study used a randomized design, dividing 130 patients into a rehabilitation group and a control group, monitoring cardiac function, exercise capacity, and cardiovascular risk factors before and after a community-based rehabilitation program	The rehabilitation group showed significant improvements in left ventricular ejection fraction, exercise tolerance, and cardiovascular risk factors compared to the control group, with reduced recurrence of angina and lower readmission rates

Discussion

Comparison of Community-Based Cardiac Rehabilitation (CBCR) Programs with Traditional Hospital-Based Approaches

The comparison between Community-Based Cardiac Rehabilitation (CBCR) programs and traditional hospital-based approaches reveals significant differences in accessibility, cost-effectiveness, patient adherence, and overall health outcomes. While traditional hospital-based cardiac rehabilitation (CR) has long been regarded as the standard, emerging evidence suggests that community-based models can offer comparable benefits, often with enhanced patient engagement and lower costs.

Community-based cardiac rehabilitation programs have been shown to provide effective alternatives to hospital-based programs, particularly in terms of accessibility and patient adherence. For instance, study highlighted that community-based approaches can achieve similar health outcomes as traditional methods while being more cost-effective and promoting higher compliance rates among participants (Baek et al., 2020). This is further supported by another research which emphasizes the role of community-based maintenance programs in sustaining long-term exercise habits and improving health metrics in patients with coronary artery disease (Mandic et al., 2015). The ability of CBCR to reach a broader demographic, including those who may face barriers to accessing hospital facilities, is a crucial advantage (L. Zhang et al., 2017).

Based on study, community-based cardiac rehabilitation (CBCR) programs showed similar attendance rates and health outcomes compared to traditional hospital-based programs. Both types of programs effectively improved health-related quality of life, anxiety, depression, and exercise behavior. However, CBCR participants reported higher energy levels but engaged in less frequent exercise six months post-rehabilitation (Mosleh et al., 2014).

Moreover, the feasibility of community-based interventions demonstrated the successful integration of exercise interventions within existing community frameworks, thus enhancing participation rates among patients who might otherwise be excluded from hospital-based programs (Jesus et al., 2017). This is particularly relevant in populations with limited access to transportation or those who experience scheduling conflicts. Study identified several barriers to participation in traditional CR programs, including cost and logistical challenges (Khorshid et al., 2019). The flexibility of CBCR programs allows for tailored interventions that can better meet the needs of diverse patient populations.

In terms of health outcomes, community-based cardiac rehabilitation has been associated with significant improvements in various clinical parameters. For example, study found that patients participating in community health service center-based CR exhibited notable enhancements in their overall health status and adherence to medication regimens (L. Zhang et al., 2017). Similarly, reported that community-based programs could effectively reduce anxiety and depression levels among participants, thereby improving their quality of life (Mosleh et al., 2014). These findings suggest that CBCR not only addresses physical rehabilitation but also contributes to the psychological well-being of patients, which is often overlooked in traditional hospital settings.

Furthermore, the social support inherent in community-based programs plays a vital role in patient recovery. Study emphasized that group interventions foster strong social networks, which are crucial for improving recovery outcomes and reducing the likelihood of rehospitalization (Look et al., 2012). This aspect is particularly important for older adults and those with comorbidities, as social isolation can negatively impact health and recovery trajectories (Mosleh et al., 2014). The collaborative nature of community-based programs encourages peer support and shared experiences, which can enhance motivation and adherence to rehabilitation protocols.

In Indonesia, study found that CBCR significantly improved medication adherence among patients with stable coronary artery disease, which is crucial for preventing adverse cardiovascular events (Adriyanto et al., 2020). Other study found many rural areas in Indonesia lacked the necessary infrastructure and trained staff to effectively deliver CBCR programs, which can lead to disparities in access to care (Karimullah et al., 2020). So, the integration of CBCR into the national health policy framework is crucial for securing the necessary resources and ensuring that these programs are prioritized within the broader healthcare system (Karimullah et al., 2020).

In conclusion, while traditional hospital-based cardiac rehabilitation remains a cornerstone of post-cardiac event care, community-based programs offer a compelling alternative that can enhance accessibility, reduce costs, and improve patient outcomes. The evidence suggests that CBCR can effectively address the diverse needs of patients, particularly those facing barriers to traditional rehabilitation, while also fostering a supportive community environment that promotes long-term health and well-being.

The Impact of Community-Based Cardiac Rehabilitation (CBCR) Programs on Patient Outcomes

The impact of Community-Based Cardiac Rehabilitation (CBCR) programs on patient outcomes has garnered significant attention in recent years, particularly as healthcare systems seek to improve the quality of care for individuals with cardiovascular diseases. CBCR programs are designed to provide rehabilitation services in community settings, making them more accessible and tailored to the needs of patients. This response synthesizes findings from various studies to illustrate the multifaceted benefits of CBCR, including improvements in clinical outcomes, psychological well-being, and overall quality of life.

One of the primary benefits of CBCR is its effectiveness in enhancing clinical outcomes for patients recovering from cardiac events. Study reported that participation in CBCR programs led to notable improvements in clinical parameters such as blood pressure and overall cardiovascular health (Ong et al., 2016). The structured exercise and education components of CBCR are critical in promoting lifestyle changes that contribute to these positive health outcomes.

Moreover, the psychological benefits of CBCR are equally significant. Research indicated that patients participating in community-based rehabilitation programs experienced reductions in anxiety and depression, which are common among individuals with coronary heart disease (Mandic et al., 2013). The social support inherent in community settings fosters a sense of belonging and motivation, which can enhance adherence to rehabilitation protocols. Further study emphasized that understanding the motivations and barriers to attendance in CBCR can improve patient compliance and, consequently, health outcomes (Horwood et al., 2015). This highlights the importance of addressing psychological factors in the design and implementation of CBCR programs.

Additionally, CBCR programs have been shown to improve patients' quality of life. A study demonstrated that regular attendance in community-based cardiac rehabilitation sessions was associated with enhanced physical function and overall well-being (Nathanail et al., 2022). The structured nature of these programs, which often includes exercise training, nutritional counseling, and psychosocial support, contributes to comprehensive care that addresses both physical and emotional health.

The accessibility of CBCR programs also plays a crucial role in their effectiveness. By providing rehabilitation services within community settings, these programs can reach a broader population, including those who may face barriers to accessing traditional hospital-based rehabilitation. For instance, study noted that community-based programs conducted in public health centers have successfully engaged patients who might otherwise be excluded from hospital-based services (Baek et al., 2020). This increased accessibility is vital in addressing health disparities and ensuring that all patients have the opportunity to benefit from cardiac rehabilitation.

In Indonesia, a study conducted by demonstrated that participation in CBCR significantly improved medication adherence, reduced rehospitalization rates, and enhanced the overall quality of life among patients with stable coronary artery disease (Karimullah et al., 2020).

In conclusion, Community-Based Cardiac Rehabilitation programs have a profound impact on patient outcomes, demonstrating significant improvements in clinical parameters, psychological well-being, and quality of life. The integration of exercise, education, and social support within community settings enhances accessibility and engagement, making these programs a valuable component of cardiovascular disease management.

The Impact Community-Based Cardiac Rehabilitation (CBCR) Programs on Long-Term Adherence to Rehabilitation

Community-Based Cardiac Rehabilitation (CBCR) programs are designed to provide ongoing support and rehabilitation services in community settings, which can enhance patient engagement and adherence compared to traditional hospital-based rehabilitation. This response synthesizes findings from various studies to illustrate how CBCR programs influence long-term adherence, the factors that contribute to this adherence, and the implications for patient outcomes.

Research indicates that CBCR programs significantly improve patient adherence to rehabilitation protocols compared to traditional hospital-based programs. For instance, study highlighted that offering alternative rehabilitation options in community settings can enhance accessibility and adherence, as patients are more likely to participate in programs that are convenient and tailored to their needs (Nathanail et al., 2022).

The psychological and social dimensions of CBCR are also critical in fostering adherence. Programs that incorporate psychological support and community engagement have been shown to improve patients' quality of life and mental well-being, which are essential for sustained participation in rehabilitation activities (Hately & Mandic, 2019; L. Zhang et al., 2017). For example, the Heart Wellness Programme in Singapore demonstrated that community-based rehabilitation not only improved physical health outcomes but also enhanced participants' psychological resilience (Kwan et al., 2016). Similarly, found that community-based programs could effectively address barriers such as transportation and cost, which often hinder participation in traditional rehabilitation settings (Mosleh et al., 2014).

Moreover, the integration of education and lifestyle modification strategies within CBCR programs has proven effective in promoting adherence. Study noted that higher attendance in community-based maintenance programs correlates with better long-term health outcomes (Mandic et al., 2015). Other studies have found by utilizing local health workers and community resources, CBCR can bridge the gap in healthcare access and provide continuous support to patients' post-discharge from acute care settings (Baek et al., 2020).

In Indonesia, study reported that community-based interventions significantly improved medication adherence among patients with stable coronary artery disease, emphasizing the importance of education in managing chronic conditions (Adriyanto et al., 2020). Another study has shown that community-based interventions can lead to better attendance rates and long-term engagement in physical activity, which is crucial for cardiovascular health (Karimullah et al., 2020).

In conclusion, CBCR programs represent a promising approach to improving long-term adherence to cardiac rehabilitation also in Indonesia. By focusing on accessibility, psychological support, education, and

community engagement, these programs can effectively address the barriers faced by patients and enhance their overall health outcomes.

The Impact of Community-Based Cardiac Rehabilitation (CBCR) Programs to Overall Cardiovascular Health

Community-Based Cardiac Rehabilitation (CBCR) programs have shown significant potential in improving overall cardiovascular health. These programs are designed to provide accessible, culturally sensitive, and community-oriented rehabilitation services, which are crucial in a country where cardiovascular diseases are a leading cause of morbidity and mortality.

The effectiveness of CBCR programs can be attributed to several key factors. Firstly, they facilitate increased physical activity among participants, which is essential for cardiovascular health. Studies have demonstrated that structured exercise programs, such as those offered in CBCR, can reduce the risk of cardiovascular events by approximately 25% following acute myocardial infarction (Matthews et al., 2016). Furthermore, exercise-based cardiac rehabilitation has been associated with significant reductions in cardiac mortality and all-cause mortality, underscoring its importance in secondary prevention strategies (Y. Zhang et al., 2018).

The psychological benefits of CBCR programs also play a crucial role in enhancing cardiovascular health. Participation in these programs has been linked to improvements in mental health, including reductions in anxiety and depression, which are common among individuals with cardiovascular diseases (Mosleh et al., 2014; L. Zhang et al., 2017). The social support provided by community-based settings fosters a sense of belonging and motivation, which can further encourage adherence to rehabilitation protocols and lifestyle changes (Horwood et al., 2015).

Additionally, CBCR programs are designed to address barriers to participation, such as transportation and financial constraints. By offering services within the community, these programs increase accessibility and reduce the logistical challenges faced by patients (Baek et al., 2020). This model not only improves attendance rates but also ensures that a broader segment of the population can benefit from cardiac rehabilitation services.

In Indonesia, CBCR programs enhance medication adherence, which is critical for managing chronic cardiovascular conditions. Research indicates that community-based interventions can lead to improved adherence to prescribed medications among patients with stable coronary artery disease (Adriyanto et al., 2020; Karimullah et al., 2020). This is vital in Indonesia, where access to healthcare and medication can be inconsistent, particularly in rural areas. By integrating education and support within the community, these programs empower patients to take an active role in their health management, thereby improving overall health outcomes.

In conclusion, the implementation of Community-Based Cardiac Rehabilitation programs has a profound impact on overall cardiovascular health, also in Indonesia. By promoting physical activity, enhancing medication adherence, providing psychological support, and addressing barriers to access, these programs represent a comprehensive approach to improving health outcomes for individuals with cardiovascular diseases. The evidence suggests that such initiatives are essential for reducing the burden of cardiovascular diseases and improving the quality of life for affected individuals.

The Challenges and Barriers in The Implementation of CBCR Programs

The implementation of Community-Based Cardiac Rehabilitation (CBCR) programs faces several challenges and barriers that hinder their effectiveness and reach. Understanding these obstacles is crucial for improving the design and delivery of such programs, ultimately enhancing cardiovascular health outcomes for patients.

One of the primary challenges is the limited availability of resources and trained personnel in community settings. CBCR programs lack adequate funding and support from local health authorities, which can lead to insufficient staffing and training opportunities for health professionals involved in rehabilitation (Ma et al., 2024). This shortage of trained personnel can result in a lack of standardized care and inadequate patient education, which are essential for the success of rehabilitation efforts (Mandic et al., 2015). Furthermore, the integration of CBCR programs with existing healthcare services is often weak, leading to fragmented care and poor communication between healthcare providers (Y. Zhang et al., 2018).

Transportation issues also pose significant barriers to participation in CBCR programs. Patients, particularly those in rural areas, face difficulties in accessing rehabilitation facilities due to long distances and inadequate public transport options (Khorshid et al., 2019). This is compounded by the financial burden associated with travel costs, which can deter patients from attending sessions regularly (Baek et al., 2020).

Cultural factors and patient perceptions also play a critical role in the success of CBCR programs. Individuals may not perceive a need for rehabilitation or may have misconceptions about the benefits of such programs (Mandic et al., 2013). This lack of awareness can result in low referral rates from healthcare providers, as well as reluctance among patients to engage in rehabilitation activities (L. Zhang et al., 2017).

Moreover, social stigma surrounding cardiovascular diseases may discourage patients from seeking help or participating in group-based rehabilitation settings (Brewer et al., 2023).

Psychological barriers, such as anxiety and depression, can also impede participation in CBCR programs. Patients with cardiovascular diseases often experience mental health challenges that can affect their motivation and adherence to rehabilitation protocols (Magdon-Ismail et al., 2023). Addressing these psychological aspects through integrated mental health support within CBCR programs is essential for improving patient outcomes (Bakhshayeh et al., 2019).

Finally, the variability in program design and implementation across different regions can lead to inconsistencies in the quality of care provided. Some programs may not adhere to established guidelines or best practices, resulting in suboptimal rehabilitation experiences for patients (Adsett et al., 2013). Ensuring that CBCR programs are evidence-based and tailored to the specific needs of the local population is crucial for their success (Kwan et al., 2016).

In conclusion, the challenges and barriers to the implementation of Community-Based Cardiac Rehabilitation programs in Indonesia are multifaceted, involving resource limitations, transportation issues, cultural perceptions, psychological factors, and variability in program quality. Addressing these challenges through targeted interventions, community engagement, and enhanced training for healthcare providers can significantly improve the effectiveness and reach of CBCR programs, ultimately benefiting patients with cardiovascular diseases.

CONCLUSION

Community-Based Cardiac Rehabilitation (CBCR) programs offer an effective and accessible alternative to traditional hospital-based rehabilitation, particularly for post-myocardial infarction patients. CBCR enhances patient adherence, reduces costs, and delivers comparable or better health outcomes. It addresses logistical barriers, improves clinical parameters, and supports mental well-being through a community-driven approach.

Despite these advantages, challenges such as resource limitations, transportation issues, and cultural perceptions must be addressed, especially in underserved areas like Indonesia. Integrating CBCR into national healthcare systems and overcoming these barriers is crucial to expanding its reach and impact. Overall, CBCR provides a holistic and sustainable approach to cardiovascular rehabilitation, improving both physical recovery and long-term patient outcomes.

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