Review

Mapping Telehealth Interventions Supporting Self-Management in Coronary Artery Disease: Characteristics, Outcomes, and Evidence Gaps—A Scoping Review

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ABSTRACT

Background: Coronary artery disease (CAD) remains a major cause of morbidity and mortality worldwide, requiring long-term self-management to prevent recurrent cardiovascular events. Telehealth has emerged as a promising approach to support self-management through remote monitoring, education, lifestyle modification, and patient–provider communication. This scoping review aimed to map and synthesise the available evidence on telehealth-supported self-management interventions and their outcomes among adults with CAD.

Methods: This scoping review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines and the Arksey and O'Malley framework refined by the Joanna Briggs Institute (JBI). Guided by the Population–Concept–Context (PCC) framework, literature searches were conducted in PubMed, ScienceDirect, Scopus, and EBSCOhost for studies published between 2016 and 2026. Four reviewers independently screened titles, abstracts, and full texts against predefined eligibility criteria. Data were charted using a structured extraction form, and methodological quality was appraised using JBI critical appraisal tools. Findings were synthesised using descriptive evidence mapping and narrative descriptive analysis.

Results: Following the screening and eligibility assessment, 17 studies met the inclusion criteria and were included in the final synthesis. The included studies described a wide range of telehealth-supported self-management interventions, including mobile health applications, web-based platforms, telemonitoring systems, wearable devices, text messaging programs, cardiac telerehabilitation, and artificial intelligence-assisted technologies. Narrative descriptive synthesis showed that interventions commonly incorporated self-management components, including physical activity promotion, medication adherence support, dietary modification, smoking cessation, symptom monitoring, and psychosocial support. Across studies, reported outcomes included improvements in self-efficacy, health literacy, physical activity, medication adherence, quality of life, cardiovascular risk-factor management, and selected clinical indicators. Common intervention characteristics included personalized feedback, remote monitoring, nurse-led support, and multidisciplinary collaboration. The evidence also highlighted gaps related to long-term sustainability, implementation in resource-limited settings, digital equity, and adaptation across diverse healthcare contexts.

Conclusion: This scoping review mapped the current evidence on telehealth-supported self-management for adults with CAD and demonstrated substantial diversity in intervention modalities, self-management strategies, and reported outcomes. The findings highlight important knowledge gaps related to implementation, sustainability, and equity, particularly in low-

resource settings. Future research should prioritize implementation-focused studies, culturally adaptable telehealth models, and long-term evaluations to support the integration of telehealth into secondary prevention and CAD management.

Keywords: Coronary Artery Disease; Telehealth; Self-Management; Cardiac Telerehabilitation; Mobile Health; Secondary Prevention

Implications for Practice:

- Healthcare organisations should develop standardised telehealth protocols that stratify patients by clinical risk, digital readiness, and self-management needs to support safe, efficient, and patient-centred secondary prevention for CAD.
- Nurses and multidisciplinary healthcare teams should receive structured training in telehealth delivery, remote monitoring, behavioral coaching, motivational interviewing, and digital health competencies to strengthen continuity of care and long-term self-management support.
- Telehealth programs should be adapted to local cultural contexts and resource availability by incorporating digital literacy support, family engagement strategies, low-cost technologies (e.g., telephone and SMS-based services), and infrastructure strengthening to promote equitable access in rural and resource-limited settings.

Introduction

Cardiovascular disease (CVD) remains the leading cause of death worldwide and continues to pose a major public health challenge. According to the World Health Organization (WHO), an estimated 19.8 million people died from CVD in 2022, accounting for approximately 32% of all global deaths, with 85% of these deaths resulting from heart attacks and strokes. More than three-quarters of CVD-related deaths occur in low- and middle-income countries, highlighting substantial global disparities in cardiovascular health outcomes. In addition, among the 18 million premature deaths (before the age of 70 years) attributed to noncommunicable diseases in 2021, approximately 38% were caused by CVD (WHO, 2025). Despite significant advances in pharmacological therapies, PCI, and coronary revascularization procedures, CAD remains one of the leading contributors to cardiovascular morbidity and mortality worldwide (Sigamani & Gupta, 2022). As a chronic condition, CAD requires ongoing management and secondary prevention strategies to reduce the risk of recurrent cardiovascular events and optimize long-term health outcomes. Early detection and effective management through lifestyle modification, risk-factor control, patient education, and adherence to treatment are therefore essential components of comprehensive CAD care (WHO, 2025).

In Indonesia, CAD represents a substantial and growing public health burden. CVD is one of the leading causes of mortality in the country, accounting for approximately one-third to 38% of all deaths, with ischemic heart disease and stroke consistently identified as major contributors to mortality and disability-adjusted life years (DALYs) (Goh et al., 2025; Sujarwoto et al., 2025). Evidence from Global Burden of Disease analyses indicates that the burden of CVD in Indonesia has increased over the past two decades, driven by population aging and the growing prevalence of modifiable cardiovascular risk factors, including hypertension, diabetes mellitus, obesity, dyslipidemia, and smoking (Goh et al., 2025; Harmadha et al., 2023; Muharram et al., 2024). National surveys have similarly reported a high prevalence of these risk factors among Indonesian adults, highlighting the ongoing challenge of

cardiovascular prevention and risk reduction (Adisasmito et al., 2020; Muharram et al., 2024; Wicaksono et al., 2025).

The implementation of Indonesia's National Health Insurance (JKN) since 2014 has expanded healthcare coverage and improved access to acute cardiovascular services, contributing to better utilization of healthcare facilities and improvements in acute cardiac care outcomes (Ikhlasia et al., 2025; Sujarwoto et al., 2025). Nevertheless, substantial geographic and socioeconomic disparities persist in access to specialized cardiovascular services, particularly in rural and underserved regions where the distribution of healthcare facilities and cardiovascular specialists remains uneven (Iqhrammullah et al., 2025; Rizky Perdana et al., 2022; Suryati & Suyitno, 2020). Furthermore, evidence suggests considerable gaps in secondary prevention, with only a minority of high-risk patients receiving optimal preventive therapies and many patients failing to achieve recommended cardiovascular risk-factor targets (Ikhlasia et al., 2025; Sujarwoto et al., 2025).

Although cardiac rehabilitation is recognized internationally as an effective strategy for secondary prevention and long-term cardiovascular risk reduction, access to such services remains limited in many low- and middle-income countries, including Indonesia (Ambrosetti et al., 2021; Taylor et al., 2023). Challenges related to healthcare infrastructure, workforce capacity, and continuity of follow-up care further constrain long-term disease management. Consequently, there is increasing recognition of the need for innovative, scalable, and patient-centered approaches that can strengthen self-management, improve adherence to secondary prevention strategies, and support ongoing monitoring beyond traditional facility-based care (Adisasmito et al., 2020; Harmadha et al., 2023; Ikhlasia et al., 2025; Sujarwoto et al., 2025). These conditions underscore the potential value of telehealth-supported self-management interventions for patients with CAD across diverse healthcare settings in Indonesia.

Patients who have experienced a coronary event remain at risk of recurrent myocardial infarction (MI), heart failure, or death from cardiovascular causes (Sigamani & Gupta, 2022). Therefore, secondary prevention is a critical component of CAD management. Controlling risk factors through physical activity, a healthy diet, smoking cessation, blood pressure and lipid control, adherence to pharmacological therapy, and participation in cardiac rehabilitation are key strategies to reduce the risk of recurrent events and improve long-term patient outcomes (Visseren et al., 2021). However, the success of these strategies is determined not only by the healthcare services provided but also by the patient's ability to maintain recommended healthy behaviors in daily life (van Trier et al., 2024).

Self-management is an approach that positions the patient as an active participant in managing their health condition, particularly in the management of chronic diseases (Chan, 2021). For CAD patients, self-management includes adherence to medication, regular physical activity, dietary management, smoking cessation, symptom monitoring, and participation in cardiac rehabilitation (Zhu et al., 2022). The importance of self-management stems from the nature of CAD, which requires ongoing management outside of healthcare facilities. Most decisions affecting treatment success are made by patients in their daily lives, including adherence to medication, dietary choices, physical activity, and control of other risk factors. Research indicates that good self-management skills are associated with more optimal risk factor control, improved quality of life, and reduced risks

of hospitalization and recurrent cardiovascular events (Khatib et al., 2019).

Maintaining self-management behaviors over the long term is often a challenge. Sustaining self-management behaviors is difficult to maintain over the long term. Low participation in cardiac rehabilitation, limited access to healthcare services, lack of continuity of care from hospitals, as well as geographical and social barriers can affect patients' ability to follow the care recommendations provided by healthcare professionals (Anderson et al., 2016; Turk-Adawi et al., 2019). These conditions highlight the need for innovative approaches capable of providing continuous support for patients in managing their health outside of healthcare facilities (Chaturvedi & Prabhakaran, 2024).

The importance of self-management in CAD can be understood through several behavioral theories that explain how individuals adopt and maintain health-promoting behaviors. Self-Efficacy Theory (SET) proposes that patients who possess greater confidence in their ability to perform specific health behaviors are more likely to adhere to medication regimens, engage in regular physical activity, and maintain dietary modifications. Evidence from patients with CAD, including those following percutaneous coronary intervention (PCI), indicates that self-efficacy is a key determinant of self-management behaviors, medication adherence, and health-promoting lifestyles, and may mediate the relationship between self-management and healthy behavioral outcomes (Babygeetha & Devineni, 2024; Cao et al., 2026). Furthermore, interventions incorporating self-efficacy-enhancing strategies such as mastery experiences, verbal persuasion, and behavioral support have demonstrated improvements in self-management, quality of life, and cardiovascular risk factor control among individuals with CAD (Hong et al., 2021; Mobini et al., 2023).

Similarly, Social Cognitive Theory (SCT) emphasizes the reciprocal interaction between personal factors, environmental influences, and behavioral experiences, suggesting that continuous feedback, goal setting, self-monitoring, reinforcement, and social support can strengthen self-management practices (Rad et al., 2024; Westland et al., 2020). Systematic reviews of SCT-based interventions in cardiovascular populations have reported improvements in physical activity, exercise self-efficacy, blood pressure, lipid profiles, daily step counts, and quality of life (Gray et al., 2022; Liu et al., 2025). Consistent with SCT principles, telehealth and eHealth interventions frequently incorporate behavior change techniques such as goal setting, remote monitoring, personalized feedback, coaching, and social support, which have been associated with enhanced adherence, self-care maintenance, and participation in cardiac rehabilitation programs (Cruz-Cobo et al., 2022; Heimer et al., 2023; Li et al., 2024). In addition, social support has been identified as an important facilitator of self-care adherence among individuals with CAD and other cardiovascular conditions (Babygeetha & Devineni, 2024).

The Health Belief Model (HBM) and related concepts of illness perception further explain why patients engage in preventive behaviors. According to this perspective, individuals are more likely to adopt recommended health behaviors when they perceive themselves to be susceptible to recurrent cardiovascular events, recognize the seriousness of the disease, perceive benefits from treatment, and encounter fewer barriers to action. Studies in CAD populations have shown that stronger illness perceptions and greater awareness of disease consequences are associated with higher self-efficacy and

better medication adherence, supporting the relevance of risk perception and perceived disease severity in shaping self-management behaviors (Mobini et al., 2023; Subedi et al., 2020).

Together, these theoretical perspectives provide an important foundation for understanding how telehealth interventions may facilitate sustainable behavior change among individuals living with CAD. Telehealth platforms operationalize these behavioral mechanisms through remote monitoring, digital education, self-monitoring tools, personalized feedback, goal setting, and ongoing professional or peer support. Evidence from telehealth, mHealth, and telerehabilitation studies demonstrates that such interventions can improve self-management behaviors, physical activity, medication adherence, quality of life, and cardiovascular risk factor control, while also supporting long-term engagement in secondary prevention programs (Cruz-Cobo et al., 2022; Heimer et al., 2023; Kanemitsu et al., 2024; Li et al., 2024; Subedi et al., 2020). Therefore, self-efficacy, social cognitive processes, and patients' perceptions of disease risk and severity provide a robust conceptual framework for understanding how telehealth can promote sustained self-management and improve outcomes among individuals with CAD.

Changes in information and communication technology have expanded the use of technology in healthcare, including in the management of cardiovascular diseases (Zwack et al., 2023). Telehealth refers to the use of digital technology to support healthcare services through education, consultations, monitoring of patient conditions, communication with healthcare providers, and the provision of remote health support. Through various digital platforms, telehealth enables patients to access health information, continuous monitoring, and clinical support without being limited by geographical distance or the frequency of in-person visits. In the context of chronic diseases, this approach is increasingly evolving in response to the growing need for continuous, flexible, and patient-centered care (Gajarawala & Pelkowski, 2021).

The use of telehealth for CAD patients has evolved into various forms, including mobile health (mHealth) applications, web-based platforms, telemonitoring, cardiac telerehabilitation, and wearable devices. These interventions are used to support physical activity, dietary management, medication adherence, control of cardiovascular risk factors, and cardiac rehabilitation. The use of telehealth enables continuous monitoring and communication between patients and healthcare providers. This can support self-management and address barriers to access for cardiac rehabilitation and post-discharge care, particularly for patients facing geographical barriers or time constraints (Gajarawala & Pelkowski, 2021).

The use of telehealth for CAD patients can increase participation in cardiac rehabilitation, physical activity, exercise capacity, adherence to secondary prevention programs, and control of cardiovascular risk factors. Telerehabilitation also yields results comparable to conventional cardiac rehabilitation, making it a viable option for patients who have difficulty accessing in-person rehabilitation services (Gallegos-Rejas et al., 2024). With its ability to expand service reach and support continuous monitoring, the use of telehealth has become one approach to supporting continuity of care for CAD patients (Gram et al., 2026).

Various forms of telehealth are increasingly being used in the care of CAD patients as digital health technology advances. However, each intervention has

different approaches and focuses. Self-management in CAD patients also encompasses various aspects, ranging from medication adherence and lifestyle changes to social support. This diversity makes existing research findings scattered and difficult to view as a cohesive whole (Munn et al., 2022). Therefore, a study is needed to map the forms of telehealth that have been used to support self-management in CAD patients.

Conceptually, telehealth can be viewed as an enabling mechanism that links healthcare support with patient self-management behaviors and subsequent health outcomes. Increasing evidence suggests that telehealth functions not merely as a technological platform but also as a behavioral intervention that facilitates self-management through remote monitoring, digital education, personalized feedback, behavioral coaching, and bidirectional communication (Akinosun et al., 2021; Heimer et al., 2023; Zhong et al., 2023). These intervention components commonly incorporate self-monitoring, goal setting, and feedback mechanisms, which have been identified as key behavior change techniques in digital and home-based cardiac rehabilitation programs (Sugiharto et al., 2025; Yang et al., 2025).

Through these mechanisms, telehealth interventions may strengthen patients' knowledge, self-efficacy, motivation, and engagement in self-care activities, thereby supporting sustained behavior change and chronic disease management (Akinosun et al., 2021; Su & Yu, 2021; Zhong et al., 2023). Enhanced self-management capacities are expected to improve adherence to lifestyle modification, medication management, symptom monitoring, and participation in cardiac rehabilitation programs. Previous studies have demonstrated that telehealth-supported interventions can improve self-care behaviors, physical activity levels, healthy lifestyle practices, and medication adherence among patients with coronary artery disease and other cardiovascular conditions (Li et al., 2024; Sugiharto et al., 2025; Yang et al., 2025).

Improved self-management behaviors may subsequently contribute to better clinical and patient-reported outcomes. Evidence from systematic reviews and clinical trials indicates that telehealth interventions can support cardiovascular risk factor control, including improvements in blood pressure, lipid profiles, waist circumference, physical activity, and dietary behaviors (Heimer et al., 2023; Li et al., 2024; Sugiharto et al., 2025; Yang et al., 2025). Telehealth-based cardiac rehabilitation has also been associated with enhanced functional capacity, including improvements in exercise performance and peak oxygen uptake (Heimer et al., 2023; Zhong et al., 2023). Furthermore, several studies have reported positive effects on health-related quality of life, psychological well-being, and patient engagement, with some evidence suggesting reductions in anxiety and depressive symptoms (Li et al., 2024; Su & Yu, 2021; Zhong et al., 2023). Emerging evidence also indicates that intensive telemedicine-supported management may reduce hospital readmissions and recurrent cardiovascular events among selected patient populations following acute coronary syndrome or coronary revascularization procedures (Tighe et al., 2020; Yang et al., 2025; Yang et al., 2026).

This conceptual pathway provides a rationale for examining telehealth not only as a technological tool but also as a behavioral intervention that influences patient-centered outcomes through self-management processes. By strengthening knowledge, self-efficacy, motivation, and engagement, telehealth may serve as a critical mechanism connecting healthcare support with improved self-management behaviors and, ultimately, better clinical

outcomes for individuals living with CAD (Akinosun et al., 2021; Yang et al., 2025; Zhong et al., 2023). Ultimately, the integration of technology-based self-management into standard care pathways not only ensures the continuation of healthy behaviors but also significantly reduces the risk of complications and future cardiovascular events.

Although telehealth has demonstrated promising outcomes in high-income countries, its implementation in low- and middle-income countries (LMICs) presents unique challenges and opportunities. Healthcare systems in many LMICs frequently encounter barriers related to inadequate digital infrastructure, unreliable electricity supply, limited internet connectivity, restricted access to smartphones or digital devices, and uneven network coverage, particularly in rural and remote areas. In addition, shortages of trained healthcare personnel, insufficient technical support, weak governance structures, and limited digital literacy among both healthcare providers and patients can hinder the implementation, scalability, and sustainability of telehealth programs (Hui et al., 2022; Mahmoud et al., 2022; Nittas et al., 2024; Phan et al., 2022; Yew et al., 2025). These challenges may disproportionately affect older adults, rural populations, women, and other marginalized groups, potentially exacerbate existing health inequities if not adequately addressed (Hui et al., 2022; Kissi et al., 2023; Xiong et al., 2023; Yew et al., 2025).

Despite these constraints, telehealth offers substantial opportunities for strengthening healthcare delivery in LMICs. Evidence suggests that telemedicine and other digital health interventions can improve access to specialist services, chronic disease management, rehabilitation, and palliative care, particularly for populations residing in underserved or geographically isolated areas (Dilhani et al., 2024; Mahmoud et al., 2022; Okafor et al., 2025; Xiong et al., 2023). Telehealth has also been associated with reduced travel time, lower out-of-pocket expenses, and decreased logistical burdens for patients and families, thereby improving healthcare accessibility and convenience (Craig et al., 2025; Nizeyimana et al., 2022; Xiong et al., 2023). Furthermore, digital platforms have played an important role in maintaining continuity of care for individuals with chronic conditions during periods of healthcare disruption, including the COVID-19 pandemic (Dilhani et al., 2024; Mahmoud et al., 2022; Nittas et al., 2024).

However, evidence on telehealth effectiveness and implementation remains largely dominated by studies conducted in high-income countries (HICs), where healthcare infrastructure, financing mechanisms, technological readiness, and digital literacy levels are generally more advanced (de Andrade et al., 2025; Nizeyimana et al., 2022; Tiwari et al., 2023). Consequently, telehealth models developed and validated in these settings cannot be assumed to be directly transferable to LMICs contexts without appropriate adaptation. Current literature emphasizes the need for context-specific implementation strategies, supportive policies, cultural tailoring, and consideration of local resource constraints to ensure the effectiveness, acceptability, and sustainability of telehealth interventions in LMICs (Flaherty et al., 2025; Hui et al., 2022; Okafor et al., 2025; Sylla et al., 2025; Tiwari et al., 2023). Therefore, understanding how telehealth interventions are designed, implemented, and adapted across diverse healthcare environments is essential for informing evidence-based practice and policy development in LMICs settings.

Beyond its clinical implications, telehealth-supported self-management has

important relevance for nursing practice and health policy. Nurses frequently serve as care coordinators, educators, and behavioral coaches throughout the continuum of CAD management, placing them in a strategic position to deliver and monitor telehealth interventions. Evidence from nurse-led telerehabilitation and telehealth programs demonstrates that regular nurse–patient communication, self-management support, behavioral coaching, and follow-up delivered through telephone-based services, mobile applications, and web platforms can improve patient engagement and facilitate long-term disease management (Bulto, 2024; Lee et al., 2022; Li et al., 2024; Qiu, 2024). In patients with CAD, nurse-led tele-interventions have been associated with improvements in self-care abilities, self-efficacy, blood pressure, lipid profiles, lifestyle behaviors, physical activity, and health-related quality of life, highlighting the central role of nursing in supporting secondary prevention and sustained behavior change (Leutualy et al., 2021; Li et al., 2024; Su & Yu, 2021; Wang et al., 2025).

Understanding the characteristics of effective telehealth-supported self-management programs may inform the development of nurse-led models of care and guide workforce training initiatives. Previous studies have shown that technology-enabled nursing interventions can enhance treatment adherence, improve clinical outcomes, reduce hospital utilization, and increase the efficiency of healthcare delivery; however, successful implementation requires adequate investment in digital infrastructure, workforce preparation, and competency development in areas such as remote monitoring, behavioral coaching, cardiovascular care, and culturally responsive communication (Abdu Asiri et al., 2025; Su & Yu, 2021). Furthermore, recent reviews have emphasized the need to standardize evidence-based nurse-led telehealth protocols and integrate digital health solutions within chronic care frameworks to ensure consistency, scalability, and sustainability across healthcare settings (Abdu Asiri et al., 2025; Bulto, 2024; Lee et al., 2022).

From a policy perspective, telehealth-supported self-management offers a promising strategy to strengthen secondary prevention services, particularly in settings where access to conventional cardiac rehabilitation remains limited. Systematic reviews and meta-analyses have demonstrated that telehealth interventions can improve cardiovascular risk factor control, support self-management behaviors, and reduce adverse cardiovascular outcomes, supporting their incorporation into routine CAD care pathways (He et al., 2025; Wong et al., 2025; X. Wu et al., 2025). At the same time, implementation-focused research highlights the need to address challenges related to program penetration, long-term sustainability, organizational readiness, reimbursement mechanisms, data security, licensure regulations, and digital inequities that may affect access to telehealth services (Jackson et al., 2023; Yu et al., 2025). Consequently, evidence regarding telehealth implementation may assist policymakers in designing sustainable digital health frameworks that improve access, equity, continuity of care, and the integration of telehealth into routine cardiovascular services, particularly for geographically dispersed and underserved populations (Bulto, 2024; Subedi et al., 2020; Yu et al., 2025).

Based on a literature review, no scoping review has been identified that specifically maps the use of telehealth to support self-management in CAD patients. Most available studies focus on the effectiveness of interventions or specific outcomes, so information regarding the forms of

telehealth used, the self-management components facilitated, and the reported outcomes remains scattered across various studies. This situation highlights the need for a study that can synthesize and map existing evidence to provide a clearer picture of telehealth utilization among CAD patients. A scoping review is considered an appropriate approach for this purpose as it allows for the identification, mapping, and synthesis of various types of evidence in a field that is still evolving and features heterogeneous intervention characteristics (Peters et al., 2020). Unlike systematic reviews, which generally focus on the effectiveness of a specific intervention, scoping reviews allow for a broader exploration of intervention characteristics, implementation contexts, facilitated self-management components, and existing research gaps.

Therefore, this scoping review was conducted to systematically map and synthesize the available evidence regarding the use of telehealth interventions to facilitate self-management among adults with coronary artery disease. Guided by the Population–Concept–Context (PCC) framework, the Population comprised adults diagnosed with CAD, the Concept focused on telehealth-based interventions designed to support self-management, and the Context encompassed healthcare and community settings where secondary prevention and long-term disease management are delivered. Specifically, this review aimed to identify the characteristics of telehealth interventions, describe the self-management components targeted, examine the reported patient outcomes, and identify existing evidence gaps to inform future research, nursing practice, service redesign, and health policy development.

Methods

Design

This study employs a scoping review design, which is a method of evidence synthesis aimed at systematically identifying and mapping the available evidence related to a specific topic, concept, field, or issue, without restricting the types of sources used, whether they be primary research, review articles, or non-empirical evidence (Pollock et al., 2024). This approach allows researchers to examine research findings within a broad conceptual scope in line with the research objectives. The implementation of the scoping review in this study follows the methodological framework developed by Arksey and O'Malley, which consists of five stages: formulating the research question, identifying relevant literature, selecting studies, mapping data, and collecting, summarizing, and reporting findings. This framework allows for the integration of various research designs, thereby providing a more comprehensive overview of the topic under investigation (Arksey & O'Malley, 2005).

The decision to undertake a scoping review was guided by the exploratory nature of the research topic and the need to comprehensively map the breadth, characteristics, and distribution of existing evidence regarding telehealth-supported self-management for patients with CAD. Consistent with the methodological guidance of the Joanna Briggs Institute (JBI), the review was structured using the PCC framework, which informed the development of the review objective, eligibility criteria, search strategy, and research questions. Within this framework, the Population comprised adults diagnosed with CAD, including those who had experienced MI or undergone coronary revascularization procedures; the Concept focused on telehealth interventions designed to facilitate self-management; and the Context encompassed healthcare and community settings in which secondary prevention, rehabilitation, and long-term CAD management were delivered.

Because the purpose of a scoping review is to identify, describe, and map existing evidence rather than determine intervention effectiveness or establish comparative efficacy, this review sought to explore the range of telehealth modalities, self-management components, implementation characteristics, and reported outcomes documented in the literature. This approach enabled a comprehensive examination of how telehealth has been used to support self-management among individuals with CAD, while also identifying knowledge gaps and areas requiring further investigation. One of the strengths of a scoping review is its ability to summarize and map the available literature, thereby identifying knowledge gaps and opportunities for future research (Mak & Thomas, 2022). In this study, the reporting process was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines. These guidelines were used to assist in the identification and selection of articles exploring the use of various forms of telehealth to support improved self-management in CAD patients.

This study aims to identify and map the utilization of telehealth technology to support self-management in patients with CAD. Guided by the PCC framework, this scoping review was designed to address the following research questions:

1. What types of telehealth interventions have been used to support self-management among adults with coronary artery disease?
2. What self-management components are targeted or facilitated by telehealth interventions in patients with coronary artery disease?
3. What patient, behavioral, psychosocial, and clinical outcomes have been reported in studies examining telehealth-supported self-management among adults with coronary artery disease?
4. What implementation characteristics, facilitators, barriers, and evidence gaps have been identified in the literature regarding the use of telehealth to support self-management in coronary artery disease?

These questions were intentionally formulated to map and characterize the existing body of evidence rather than evaluate comparative effectiveness. Accordingly, the review aimed to provide a comprehensive overview of intervention characteristics, self-management processes, reported outcomes, and implementation considerations related to telehealth-supported self-management in CAD, consistent with the objectives and methodological principles of a scoping review.

Eligibility Criteria

The eligibility criteria for this review were systematically designed using the PCC (Population, Concept, Context) framework to ensure that the evidence collected was relevant to the objective of mapping digital interventions for patients with CAD. The selected articles included only studies of the target population with specific intervention characteristics to ensure the reliability of the evidence synthesis.

Inclusion Criteria Studies were included in this review if they met the following criteria (1) Population: Adult patients (≥18 years) diagnosed with CAD, including those in the recovery phase following MI (MI), PCI, coronary artery bypass grafting (CABG), or those currently undergoing a cardiac rehabilitation program; (2) Concept: Interventions utilizing various telehealth platforms, including mHealth, web-based platforms, cardiac telerehabilitation, hybrid cardiac rehabilitation, remote monitoring systems

via wearable devices, and digital peer support; (3) Context: Interventions focus on self-management aspects, including lifestyle modifications (such as physical activity, dietary management, and smoking cessation), medication adherence, self-monitoring of cardiovascular risk factors, and psychosocial outcomes (such as self-efficacy and quality of life); (4) Study Types: Primary studies (RCTs, and pilot/feasibility RCTs) were eligible. Systematic reviews were included only for contextual evidence mapping and were not used to contribute primary outcome data; and (5) Language and Publication: Searches were limited to studies published in English or Indonesian between 2016 and 2026. This time frame was selected to capture contemporary evidence reflecting recent developments in telehealth technologies, digital health platforms, and remote self-management interventions for patients with CAD, consistent with the objectives of this scoping review.

RCTs, including pilot and feasibility RCTs, were eligible for inclusion because they provide the highest level of primary evidence for evaluating the effectiveness and implementation of telehealth-supported self-management interventions among adults with CAD. The decision to focus on RCTs was intended to ensure methodological rigor and to capture evidence derived from controlled intervention studies examining the impact of telehealth on self-management behaviors, psychosocial outcomes, and clinical outcomes (Creber et al., 2023; Prentis et al., 2025; Xu et al., 2025). In addition, systematic reviews and meta-analyses were considered when they provided relevant information regarding telehealth intervention characteristics, implementation approaches, self-management components, reported outcomes, or evidence gaps. Their inclusion was consistent with the exploratory purpose of scoping reviews, which seek to map the breadth and characteristics of available evidence rather than solely assess intervention effectiveness. To avoid duplication of evidence, systematic reviews were used primarily to inform evidence mapping, contextual interpretation, and the identification of research gaps rather than to contribute outcome data alongside primary studies (Subedi et al., 2020; Hong et al., 2021; Heimer et al., 2023; Li et al., 2024; Weddell et al., 2025).

Searches were limited to studies published in English or Indonesian between 2016 and 2026 to capture contemporary evidence on telehealth-supported self-management in CAD. This language restriction was applied because the review team was proficient in both languages, enabling accurate screening, critical appraisal, and data extraction. However, restricting the search to English- and Indonesian-language publications may introduce language bias and result in the underrepresentation of evidence from other linguistic and cultural contexts. Nevertheless, language restrictions are recognized as a pragmatic methodological approach in evidence syntheses conducted under limited translation resources (Peters et al., 2020; Pollock et al., 2024), and previous research suggests that such restrictions rarely substantially alter overall review conclusions (Hannah et al., 2024).

Exclusion Criteria Articles will be excluded if (1) The study was conducted on a pediatric population with heart disease; (2) The intervention did not use telehealth as a primary component or did not evaluate outcomes related to self-management; (3) The publication type is a case report, conference proceedings, thesis/dissertation, research protocol, or an article not available in full text (4) Grey Literature: This literature is excluded because the scientific discourse on the topic

of telehealth for CAD has developed very well in indexed journals that have clear quality standards and have undergone a peer-review process (Brown et al., 2025). Therefore, sources from scientific journals are considered more credible as the foundation for the evidence synthesis of this review.

Information Sources

The selection of PubMed, Scopus, ScienceDirect, and EBSCOhost was based on their broad coverage of biomedical, public health, nursing, and digital health literature, as well as their ability to capture evidence relevant to cardiovascular disease, secondary prevention, rehabilitation, and self-management interventions. These topics are particularly important in the context of CAD, which represents a major and growing contributor to the cardiovascular disease burden in Indonesia and globally (Goh et al., 2025; Harmadha et al., 2023; Muharram et al., 2024). Collectively, these databases provide extensive indexing of peer-reviewed studies across clinical, multidisciplinary, and health sciences disciplines, thereby maximizing the retrieval of relevant evidence on telehealth-supported self-management and chronic disease care. Although Web of Science and CINAHL are recognized as valuable sources for nursing, rehabilitation, and telehealth research, they were not included because of institutional access limitations and the substantial overlap in indexed journals with the selected databases, particularly Scopus and EBSCOhost. To mitigate the potential risk of missing relevant studies, backward citation tracking of all included articles was conducted as a supplementary search strategy. Given the recognized challenges in secondary prevention, long-term follow-up, and cardiac rehabilitation access among patients with cardiovascular disease, particularly in low- and middle-income settings (Ambrosetti et al., 2021; Sujarwoto et al., 2025; Taylor et al., 2023), this search strategy was considered sufficient to identify the breadth of peer-reviewed evidence relevant to the review objectives.

Grey literature, including theses, dissertations, conference proceedings, organizational reports, policy documents, and non-peer-reviewed publications, was not included in this review. This decision was made to prioritize evidence that had undergone formal peer-review processes and met established scientific quality standards. Given the rapid growth of telehealth research and the substantial volume of peer-reviewed literature available in major international databases (De Cassai et al., 2025; Kolaski et al., 2023). The review aimed to synthesize evidence derived from studies with transparent methodologies and sufficient reporting detail to support data extraction and interpretation. Nevertheless, the exclusion of grey literature may have limited the identification of emerging implementation initiatives, local telehealth programs, and unpublished findings, particularly from low- and middle-income countries. This limitation is acknowledged and should be considered when interpreting the comprehensiveness of the evidence map.

Search Strategy

The comprehensive search conducted for this review utilized the PCC framework, which was systematically designed to ensure that the evidence collected was relevant to the objectives of mapping digital interventions. In this review, the Population is defined as adult patients diagnosed with CAD, including those in the recovery phase following MI, PCI, or CABG. The Concept encompasses interventions utilizing various telehealth platforms, such as mHealth, web-based platforms, cardiac telerehabilitation, and remote monitoring systems via wearable devices. Meanwhile,

the Context focuses on aspects of self-management, which include lifestyle modifications (physical activity, diet, smoking cessation), medication adherence, and psychosocial outcomes.

A systematic literature search was conducted through major electronic databases, including PubMed, ScienceDirect, Scopus, and EBSCOhost, to enhance coverage and reduce the risk of missing relevant studies. The search strategy was developed using a combination of relevant keywords and MeSH Terms to support transparency and replicable reporting. To ensure reproducibility, complete search strings were predefined and combined using the Boolean operators "AND" and "OR."

The keywords and search terms used include:

(coronary artery disease OR CAD OR coronary heart disease) AND (telehealth OR telemedicine OR telemonitoring OR telepractice OR telenursing OR telecare) AND (self-management OR self management OR self-care OR self care)

Similar search terms were also adapted for more specific searches in the Scopus and ScienceDirect databases using the following combinations:

(coronary artery disease) AND (telehealth OR telemedicine OR telenursing) AND (self-management) AND (cardiac) AND (Adult) AND (PCI OR CABG)

A formal pilot search was not conducted prior to the database search. However, the search strategy was systematically developed in accordance with the PCC framework and informed by methodological guidance for scoping reviews provided by the JBI (Peters et al., 2020; Pollock et al., 2024). Relevant keywords, synonyms, and controlled vocabulary terms were identified through an examination of previously published reviews, key primary studies, and indexing terms related to coronary artery disease, telehealth, and self-management. The search strategy was then adapted to the indexing systems and search functionalities of each database to maximize the retrieval of relevant studies. To enhance comprehensiveness and relevance, the search terms underwent several rounds of iterative refinement and discussion among the research team, with particular attention to the alignment between the review objectives, PCC elements, and database-specific search requirements.

Although the search strategy was not formally peer-reviewed or validated by an information specialist or health sciences librarian, its development followed established methodological recommendations for evidence synthesis and was informed by terminology used in previous telehealth, cardiovascular disease, and self-management reviews (Peters et al., 2020; Pollock et al., 2021). Furthermore, the use of multiple multidisciplinary databases and supplementary backward citation tracking was intended to reduce the likelihood of missing relevant studies and to enhance the overall comprehensiveness of the search process. Nevertheless, the absence of formal librarian validation is acknowledged as a methodological limitation and should be considered when interpreting the completeness of the evidence identified in this review. The strategy was iteratively refined through team discussion to improve comprehensiveness and relevance. Complete database-specific search strategies, including all keywords, controlled vocabulary terms, Boolean operators, and applied limits, are provided in Supplementary Table S1 to enhance transparency and reproducibility.

Selection Process

The study selection process was conducted systematically in accordance with the PRISMA-ScR framework. A

comprehensive literature search was performed across four electronic databases PubMed, ScienceDirect, Scopus, and EBSCOhost which initially identified 452 records, including 98 from PubMed, 101 from ScienceDirect, 134 from Scopus, and 119 from EBSCOhost. Following the removal of 123 duplicate records, the remaining articles were screened against the predefined eligibility criteria. Four reviewers independently screened the titles and abstracts of all retrieved records, and articles considered potentially relevant by any reviewer were retained for further assessment. During the screening stage, 78 records were excluded because they were published before 2016. Consequently, 251 full-text articles were assessed for eligibility. Full-text screening was conducted independently by the same four reviewers, and any discrepancies regarding study eligibility were resolved through discussion and consensus. When consensus could not be reached, the article was re-evaluated collectively by the review team, and a final decision was made based on the predefined inclusion and exclusion criteria. This collaborative approach was adopted to enhance the consistency, transparency, and rigor of the study selection process while minimizing the risk of selection bias. Following full-text assessment, 234 articles were excluded for not meeting the review criteria, including 37 studies focusing on diseases other than CAD, 192 studies involving individuals at risk of CAD rather than patients with an established diagnosis, and 5 studies with ineligible study designs (non-RCT). Ultimately, 17 studies met all eligibility criteria and were included in the review. These studies subsequently underwent methodological quality appraisal using the JBI Critical Appraisal Tools. A detailed overview of the identification, screening, eligibility assessment, and inclusion process is presented in Figure 1.

Data Collection Process

The data collection process began with a comprehensive literature search across four electronic databases PubMed, ScienceDirect, Scopus, and EBSCOhost. The initial search was conducted on 22 May 2026 using predefined search strategies developed according to the PCC framework, and the search was subsequently updated and finalized on 25 May 2026 to ensure the inclusion of all relevant studies available at the time of the review. This search identified a total of 452 records. Following the removal of 123 duplicate articles using reference management software, the remaining records were screened against the predefined eligibility criteria. Articles published before 2016 (n = 78) were excluded, and the titles and abstracts of the remaining studies were evaluated by the research team to assess their relevance to telehealth-supported self-management among patients with CAD. This screening process resulted in 251 full-text articles being selected for eligibility assessment. Full-text screening and eligibility assessment involved all authors, who collaboratively reviewed each article against the predefined inclusion and exclusion criteria. During this stage, 234 articles were excluded, including 37 studies focusing on diseases other than CAD, 192 studies involving individuals at risk of CAD rather than patients with an established diagnosis, and 5 studies with ineligible study designs. Any uncertainties or disagreements regarding study eligibility were resolved through discussion and consensus among the authors. Ultimately, 17 studies met all eligibility criteria and were included in the review. When full-text articles were not readily accessible, attempts were made to contact the corresponding authors to obtain the necessary documents before final inclusion decisions were made (**Figure 1**).

Data extraction was conducted using a structured extraction form developed in accordance with the objectives of the review and the PCC framework. Extracted data included study characteristics, participant characteristics, telehealth intervention modalities, self-management components, implementation features, and reported outcomes. Although a formal pilot test of the extraction form was not conducted, the extraction framework was developed based on the review objectives and refined through iterative discussions among the research team to ensure consistency and comprehensiveness. The first author was primarily responsible for data extraction and methodological quality appraisal using the JBI Critical Appraisal Tools. Subsequently, the extracted data and quality appraisal findings were reviewed and discussed with all authors to verify their accuracy, completeness, and consistency. Any uncertainties related to data interpretation, methodological quality, or study categorization were resolved through consensus. All authors also participated in cross-checking and internal verification of the extracted information to ensure alignment with the review focus on telehealth interventions, including telemonitoring, mHealth, telerehabilitation, and digital self-management support. Although formal inter-rater reliability statistics were not calculated, the use of collaborative review, consensus-based decision-making, and repeated verification procedures was intended to enhance the credibility, transparency, and trustworthiness of the evidence synthesis.

Data Charting Process

The data charting process was conducted systematically following the scoping review framework proposed by Arksey and O'Malley, the PRISMA-ScR reporting guidelines, and methodological recommendations from the JBI. After the study identification and selection process was completed, key information from the 17 included studies was extracted using a structured charting form developed in accordance with the review objectives and the PCC framework. The charting form was designed to systematically capture publication details, study design, participant characteristics, telehealth intervention modalities, self-management components, implementation features, and reported outcomes. Variables included in the charting form were determined through discussions among the research team to ensure their relevance and alignment with the review objectives. Although a formal calibration exercise or pilot testing of the charting form was not undertaken, the form was refined iteratively throughout the review process to improve clarity, consistency, and comprehensiveness. The first author was primarily responsible for completing the data charting and methodological quality appraisal using the JBI Critical Appraisal Tools, while all authors subsequently reviewed and verified the charted data to ensure accuracy, completeness, and consistency. Any uncertainties regarding study characteristics, intervention categorization, outcome classification, quality appraisal findings, or data interpretation were resolved through collaborative discussion and consensus among the research team. The extraction table summarized key study elements, including study identifiers, populations of adults with coronary artery disease, study designs, telehealth modalities such as telemonitoring, mobile health applications, telerehabilitation, and online education, as well as findings related to self-management outcomes. All authors also conducted cross-checking and internal verification to ensure alignment between the extracted data and the review focus. Although formal independent charting procedures and inter-rater reliability

statistics were not employed, the iterative processes of review, verification, and consensus-based decision-making were used to strengthen the transparency, consistency, and trustworthiness of the evidence mapping and data synthesis process. The integration of the five-stage scoping review framework is presented in Figure 2, while a summary of the JBI critical appraisal results is shown in Figure 3.

Data Items

The selection of data items was guided by the review objectives and the PCC framework to ensure a comprehensive mapping of telehealth-supported self-management interventions for adults with CAD. For the Population domain, extracted variables included study characteristics (year of publication, geographical location, and study design) and participant characteristics, focusing on adults (≥18 years) diagnosed with CAD, including those with a history of MI or who had undergone coronary revascularization procedures such as PCI or CABG. For the Concept domain, data were extracted on telehealth intervention modalities, including telemonitoring, mHealth applications, telerehabilitation, telephone-based support, and online education, as well as self-management components such as lifestyle modification, medication adherence, symptom monitoring, self-care practices, and psychosocial support. Additional information related to implementation characteristics, intervention delivery, patient engagement, and digital platform utilization was also collected. These variables were considered essential for understanding how telehealth interventions support self-management and for identifying evidence gaps and research priorities within the field.

For the Context domain, data extraction included healthcare and community settings in which telehealth interventions were implemented, together with reported outcomes. Self-management outcomes were operationally defined as patient behaviors and capabilities related to disease management, including medication adherence, symptom monitoring, self-care behaviors, physical activity, dietary practices, smoking cessation, and participation in rehabilitation programs. Clinical outcomes referred to physiological and health-related indicators such as blood pressure, lipid profiles, body mass index, cardiovascular events (including Major Adverse Cardiovascular and Cerebrovascular Events/MACCE), hospital readmissions, and mortality. Psychosocial outcomes included self-efficacy, health-related quality of life, anxiety, depression, motivation, and patient activation, commonly measured using validated instruments such as the Exercise Self-Efficacy Scale (ESE), Health Promoting Lifestyle Profile II (HPLP II), Short Form-36 (SF-36), Short Form-12 (SF-12), Hospital Anxiety and Depression Scale (HADS), MedDietScore, and the Patient Activation Measure (PAM-13). Implementation-related outcomes encompassed intervention adherence, acceptability, feasibility, usability, patient satisfaction, barriers and facilitators to implementation, health literacy, social support, and the role of nurses in coordinating care. Collectively, these extracted variables reflected the three PCC domains and enabled a comprehensive assessment of telehealth-supported self-management interventions and their reported outcomes across diverse healthcare contexts.

Critical Appraisal of Individual Sources of Evidence

A critical appraisal of the included studies was conducted using the appropriate JBI Critical Appraisal Tools according to each study design to assess methodological quality, evaluate

methodological rigor, and identify potential sources of bias. This step was considered important given the methodological diversity of the included evidence, which ranged from randomized controlled trials and observational studies to feasibility studies and mixed-methods research. Common methodological limitations identified across studies included small sample sizes, single-center designs, selection bias related to voluntary participation, and variations in outcome measurement and reporting. The appraisal process was undertaken to assess the quality of the articles included in the synthesis and to provide an understanding of the strengths and limitations of the available evidence. Consistent with JBI recommendations for scoping reviews, the findings of the critical appraisal were not used as exclusion criteria, and all studies meeting the predefined eligibility criteria were retained regardless of methodological quality. Furthermore, no overall quality score or categorical rating was assigned because the purpose of the appraisal was to identify methodological strengths and limitations rather than generate summary quality rankings. The appraisal findings were reported descriptively and considered during data interpretation and evidence synthesis to provide context regarding the quality, strengths, limitations, and potential risk of bias of the included studies. Together with the structured extraction of study characteristics, telehealth intervention features, self-management components, implementation factors, and reported outcomes, this approach contributed to a more transparent and nuanced mapping of the evidence and facilitated the identification of knowledge gaps and future research priorities in telehealth-supported self-management for individuals with coronary artery disease. Consistent with JBI guidance for scoping reviews, methodological appraisal was conducted to describe the quality and potential limitations of the evidence, and the results were not used as criteria for study exclusion.

Consultation to Expert

In the process of identifying research gaps and providing context for the mapped literature, the research team conducted a systematic appraisal of the included studies using the JBI Critical Appraisal Tools to evaluate methodological rigor, identify potential sources of bias, and assess the relevance of the evidence to the objectives of this review (Peters et al., 2020; Pollock et al., 2024). In accordance with Arksey and O'Malley's scoping review framework, consultation with experts and stakeholders is considered an optional stage that may complement, rather than replace, the literature review process (Arksey & O'Malley, 2005). Therefore, expert consultation was not undertaken in this review, as the primary objective was to systematically map and synthesize evidence derived from published literature using transparent and reproducible methods. The identification of evidence gaps, intervention characteristics, implementation issues, and outcome patterns was based solely on findings extracted from the included studies and assessed through the structured review process.

Although subsequent methodological developments have suggested that consultation can strengthen scoping reviews by providing additional contextual insights, validating emerging findings, and identifying relevant evidence that may not be captured through database searches alone (Brown et al., 2025). This component was not incorporated into the present review. Consequently, the interpretation of findings may not fully reflect the perspectives of clinicians, telehealth practitioners, patients, policymakers, or other stakeholders involved in the

implementation of telehealth-supported self-management for coronary artery disease. The absence of expert consultation may also have limited the identification of context-specific implementation challenges, emerging practices, and unpublished experiences that are not represented in the published literature. To mitigate this limitation, the review employed a comprehensive search strategy, systematic study selection procedures, structured data charting, and critical appraisal using established methodological guidance from JBI and PRISMA-ScR (Peters et al., 2020; Pollock et al., 2024). Nevertheless, the lack of stakeholder consultation should be considered when interpreting the findings and translating the results into clinical practice, service development, or policy recommendations.

Synthesis of Results

The charted data were synthesized using a descriptive evidence-mapping approach and narrative summary. Extracted information from the included studies was organized according to key review domains, including study characteristics, telehealth intervention modalities, self-management components, implementation features, and reported outcomes. Similar interventions and outcomes were grouped into thematic categories to identify patterns, trends, and variations across studies. Quantitative pooling or meta-analysis was not performed due to the heterogeneity of study designs, intervention characteristics, and outcome measures. The synthesized findings were presented descriptively to address the review objectives and highlight evidence gaps related to telehealth-supported self-management for adults with coronary artery disease.

Results

Selection of Sources of Evidence

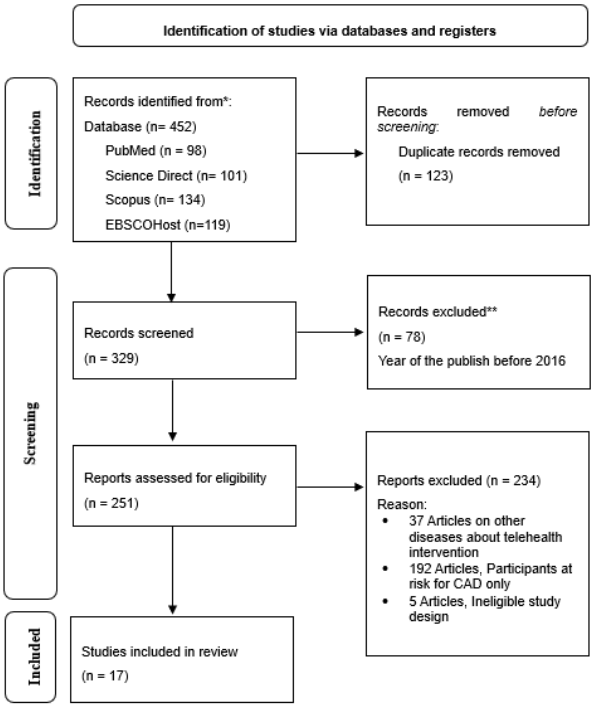

Figure 1. Illustrate Result of Screening Process Used the PRISMA-ScR Flow Diagram.

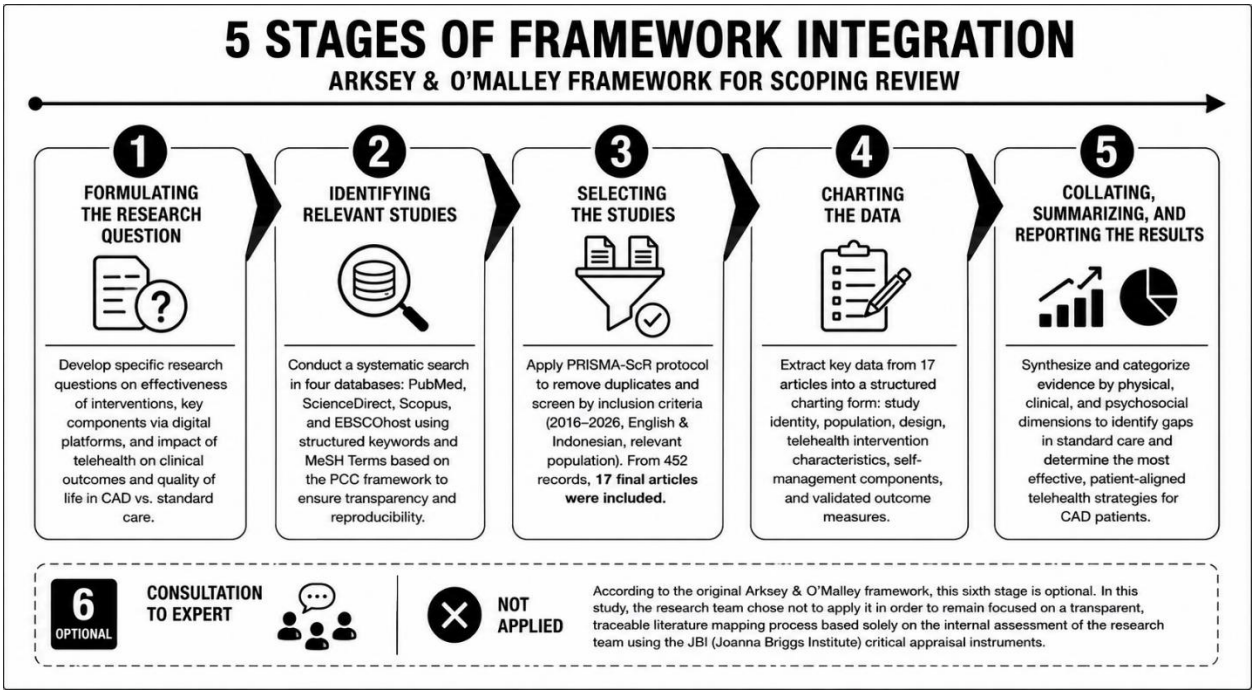

Figure 2. Integration of the Five-Stage Arksey and O'Malley Framework

This scoping review was conducted using the five main pillars of the Arksey and O'Malley methodological framework, which has been refined by the JBI to ensure research rigor. The process began with the formulation of research questions, followed by a systematic and comprehensive literature search, and the selection of evidence based on predefined inclusion and exclusion criteria. The data were then mapped through a charting and categorization process before being synthesized into a comprehensive findings report. To ensure the study's direction remains consistent, the PCC framework is used to operationalize key variables: Population focuses on adult patients with CAD, Concept encompasses telehealth interventions to support self-management, and Context covers various healthcare settings worldwide (**Figure 2**).

Adherence to the PRISMA-ScR guidelines ensures that the entire workflow is transparently documented via flowcharts so that it can be replicated by other researchers. This methodological approach was chosen for its strength in mapping literature with heterogeneous intervention characteristics and its ability to identify existing research gaps. This makes a scoping review more effective for exploring broad questions regarding multidimensional self-management components including physical activity, medication adherence, and psychosocial support compared to systematic reviews, which tend to be narrower in scope. Although an expert consultation phase is included in the original framework by Arksey and O'Malley, this review prioritizes an objective and traceable literature mapping phase in accordance with JBI standards. Therefore, the consultation component was intentionally omitted so that the research team could focus entirely on synthesizing the scientific evidence available in global electronic databases.

Characteristics of Sources of Evidence

The 17 studies included in this review demonstrated substantial methodological and geographical diversity in the evaluation of telehealth-supported self-management interventions for CAD. RCTs were the predominant design, including pilot, parallel-group, multicenter, single-blind, prospective, and waitlist-controlled trials (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Kaihara et al., 2023; Lunde et al., 2025; Michelsen et al., 2022; Salvi et al., 2018; Santo et al., 2018; van Bakel et al., 2023; Y. Wu et al., 2025a; Yu et al., 2025). In addition, one single-group pre–post study explored the feasibility of an mHealth peer-support intervention among women with cardiovascular disease, while one systematic review synthesized broader evidence regarding theory-based health information technology interventions for cardiovascular self-management (Hong et al., 2021; Sakakibara et al., 2017). The studies were conducted across a wide range of healthcare settings in North America, Europe, Asia, and Australia, including the United States, Canada, Spain, Belgium, Sweden, Norway, the Netherlands, the Czech Republic, the United Kingdom, Germany, Malaysia, Taiwan, Iran, China, and Australia, reflecting the growing global adoption of telehealth in secondary prevention and long-term CAD management.

Across the included studies, telehealth interventions were delivered through diverse modalities, including mHealth applications such as EVITE, eMOTIVA, Green Heart, YiDong, and Healing Circles; web-based self-management platforms; telemonitoring systems; wearable activity trackers; SMS-based interventions; teleconsultation; telerehabilitation programs; and nurse-led telephone or video coaching (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Kaihara et al., 2023; Lunde et al., 2025; Michelsen et al., 2022; Salvi et al., 2018; Santo et al., 2018; van Bakel et al., 2023; Y. Wu et al., 2025a; Yu et al., 2025). The target populations primarily comprised adults with established CAD, including individuals following MI, PCI, CABG, or participation in cardiac rehabilitation programs, many of whom also had comorbid hypertension, diabetes mellitus, dyslipidemia, obesity, or smoking-related cardiovascular risk factors (Barnason et al., 2019; Batalik et al., 2021; Ghavami et al., 2024; van Bakel et al., 2023; Yu et al., 2025). Self-management components commonly addressed lifestyle modification, physical activity promotion, exercise adherence, dietary improvement, smoking cessation, medication adherence, blood pressure and risk-factor monitoring, health literacy, self-efficacy enhancement, psychosocial support, and patient activation (Hong et al., 2021; Kaihara et al., 2023; Lunde et al., 2025; Sakakibara et al., 2017; Salvi et al., 2018; Santo et al., 2018). Reported outcomes consistently demonstrated improvements in health-promoting behaviors, exercise capacity, dietary adherence, smoking cessation rates, medication adherence, health literacy, self-efficacy, quality of life, blood pressure control, sedentary behavior reduction, cardiovascular risk-factor management, and, in some studies, reductions in MACCE and hospital readmissions (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Cruz-Cobo et al., 2024; Ghavami et al., 2024; van Bakel et al., 2023; X. Wu et al., 2025; Yu et al., 2025). Collectively, the evidence highlights the potential of telehealth-supported self-management interventions to enhance continuity of care, strengthen patient engagement, and support long-term secondary prevention strategies for individuals living with CAD.

Critical Appraisal Within Sources of Evidence

The critical appraisal findings indicated that the overall methodological quality of the included studies was generally high. Most studies employed randomized controlled trial (RCT) designs with appropriate randomization procedures, comparable baseline characteristics, validated outcome measures, and strategies to minimize bias, including allocation concealment, blinded outcome assessment, intention-to-treat analyses, and statistical adjustment for potential confounders (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Kaihara et al., 2023; Lunde et al., 2025; Michelsen et al., 2022; Salvi et al., 2018; Santo et al., 2018; van Bakel et al., 2023; Y. Wu et al., 2025a; Yu et al., 2025). Several studies further strengthened their methodological rigor through the use of objective outcome measures, such as blood pressure monitoring, cardiopulmonary exercise testing, wearable activity trackers, and independently adjudicated clinical events, thereby reducing the risk of measurement bias. However, some methodological limitations were identified. Sakakibara et al. (2017) was rated as having moderate methodological quality due to its single-group pre–post design, absence of a control group, and relatively small sample size, which limited causal inference. Similarly, Salvi et al. (2018) demonstrated moderate quality because technical connectivity challenges and participant attrition may have influenced intervention fidelity and outcome validity. Despite these limitations, both studies provided valuable insights into the feasibility, usability, and acceptability of telehealth interventions in real-world settings. Figure 3 summarizes the methodological appraisal results across all included studies.

The findings of the critical appraisal were not used as exclusion criteria, consistent with the exploratory purpose of a scoping review. All studies meeting the predefined eligibility criteria were retained regardless of methodological quality. Nevertheless, the appraisal findings informed the interpretation of the evidence by providing context regarding the strength, reliability, and limitations of the reported outcomes. Greater confidence was placed on findings derived from large-scale, well-conducted RCTs with rigorous methodological safeguards, such as those reported; whereas findings from feasibility studies, pilot trials, and non-controlled designs were interpreted more cautiously because of their limited sample sizes and reduced ability to establish causal relationships (Chong et al., 2025; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Santo et al., 2018; Yu et al., 2025). Overall, the predominance of studies with high methodological quality strengthens confidence in the observed benefits of telehealth-supported self-management interventions for individuals with coronary artery disease, while highlighting the need for continued evaluation of intervention effectiveness across diverse populations and healthcare settings (**Table 3** and **Table 4**).

Table 3. Illustrates JBI Appraisal Findings for Telehealth Intervention Studies in CAD Patients

Title & Source (Author, Year)	Study Design	Sampling & Comparability	Measurement & Outcomes	Confounding Management	Overall Internal Validity	Applicability
Weight Management Telehealth Intervention... (Barnason et al., 2019)	Experimental Clinical Trial (Pilot RCT)	Purposive sample from two tertiary hospitals; groups comparable at baseline.	Weight, BMI, physical activity (Actigraph), and self-management questionnaires.	1:1 Randomization; followed CONSORT guidelines for transparency.	High; measurement validity maintained through validated instruments.	Highly relevant for remote weight management interventions in rural communities.
Effectiveness of an Interactive mHealth App (EVITE)... (Bernal-Jiménez et al., 2024)	Randomized Controlled Trial (RCT)	Post-PCI CAD patients; intervention and control groups were homogeneous.	Mediterranean diet, physical activity (Minnesota Survey), SF-12, and knowledge levels.	Outcome assessors and statisticians were blinded.	High; clinically registered protocol and ITT analysis.	Highly applicable for interactive mHealth apps post-coronary events.
A Theory-Based, Technology-Assisted Intervention... (Chong et al., 2023)	Feasibility Study (Parallel RCT)	Consecutive sampling at a cardiac rehab clinic; homogeneous groups.	Exercise self-efficacy (ESE), exercise capacity (METs), and HPLP II.	Allocation concealed using opaque sealed envelopes.	High; based on the Health Belief Model (HBM) theoretical framework.	Highly relevant for developing hybrid cardiac rehab in Southeast Asia.
The Effects of a Technology-Assisted Hybrid CR... (Chong et al., 2025)	Randomized Controlled Trial (RCT)	Block randomization (1:1); clinical characteristics comparable between groups.	ESE, HPLP II, anxiety (HADS-A), and cardiovascular risk factors.	Outcome assessors blinded; confounders like age and education controlled in GEE.	High; analysis using ITT principle and GEE models.	Highly applicable for nurse integration as digital program coordinators.
Efficacy of a Mobile Health App (eMOTIVA)... (Cruz-Cobo et al., 2024)	Randomized Controlled Trial (RCT)	300 post-PCI patients; computerized random allocation.	Diet adherence, IPAQ, 6-MWT, and knowledge levels.	Researchers analyzing results were blinded to group allocation.	High; large sample size with adequate statistical power.	Highly relevant as a supplement to conventional cardiac rehabilitation.
Effectiveness of Applying Green Heart App... (Ghavami et al., 2024)	Single-blinded RCT	Stratified block randomization based on cardiovascular risk factors.	Smoking cessation and nicotine dependence (Fagerström test).	Medical practitioners evaluating risk status were blinded to group assignment.	High; utilized NICE guideline algorithms in app development.	Highly applicable for managing specific risk factors (smoking) via mobile.
Effectiveness of Theory-Based Health IT Interventions... (Hong et al., 2021)	Clinical Randomized Waitlist-Controlled Trial	1:1 Internet randomization; groups comparable upon admission.	Systolic blood pressure (SBP), self-management behavior (PIH scale), and QOL.	Allocation concealed from study personnel; analysis used GEE models.	High; nurse-led intervention based on self-efficacy theory.	Highly relevant for remote web-based blood pressure monitoring.
The impact of dietary education... (TeleDiet study) (Kaihara et al., 2023)	Randomised Controlled Study	1:1 Randomization using sealed envelopes; comparable at baseline.	MedDietScore, Nutrition-Score, GSES, and nutrition knowledge.	Used sensitivity analysis to handle missing data.	High; simple intervention focusing on food image feedback.	Highly applicable for personalized remote nutrition education.

Effect of a mHealth intervention on health literacy... (Lunde et al., 2025)	Randomized Controlled Trial (RCT)	Stratified permuted block randomization based on rehab program.	Health literacy (HLS-Q12) and exercise capacity (VO2peak).	Allocation concealed; VO2peak assessors blinded to groups.	High; long-term follow-up (1 and 5 years).	Highly relevant for evaluating the sustainability of digital intervention effects.
Effect of a Lifestyle-Focused Web-Based Application... (Michelsen et al., 2022)	Multicenter RCT	Unbalanced 1:2 allocation (control:intervention) across three rehab centers.	Submaximal exercise capacity (Watts), BP, and dietary habits.	Analysis adjusted for covariates: age, gender, and CAD history.	High; utilized objective data from the national quality registry (SWEDEHEART).	Highly applicable for mHealth integration into national healthcare systems.
Using mHealth to Connect Women... (Sakakibara et al., 2017)	Single Group Pre-Post Study	Volunteer sampling from heart foundations and hospitals; focus on women.	Self-management (heiQ), social support (MOS), and HRQoL.	No control group; analysis used Wilcoxon signed-rank tests.	Moderate; limited by the absence of a control group and small sample size.	Relevant for gender-specific digital peer support.
An m-Health System for Education and Motivation... (Salvi et al., 2018)	Randomised Controlled Trial (RCT)	Multicenter study in three different countries; baseline characteristics comparable.	Heart health knowledge, user satisfaction, and system usability.	Technical connectivity issues affected the smoothness of exercise sessions.	Moderate; fairly high drop-out rates impacted the validity of findings.	Relevant for Designing mHealth systems based on persuasive principles.
The effects of a lifestyle-focused text-messaging... (Santo et al., 2018)	RCT Analysis (TEXT ME Study)	Single-blind randomized RCT with a large sample (710 patients).	Diet adherence (10-item questionnaire), salt and alcohol consumption.	Used mediation analysis to link diet with LDL and BMI.	High; high external validity due to broad inclusion.	Highly applicable as a low-cost, scalable intervention solution.
Efficacy of Telemedical Interventional Management... (Yu et al., 2025)	Open-label RCT	Internet randomization 1:1; 2,086 patients enrolled (very large sample).	MACCE events, BP control, and medication adherence (aspirin/ACEI).	Clinical events adjudicated by an independent committee blinded to allocation.	High; supported by artificial intelligence (AI) consultation capabilities.	Highly applicable for long-term coronary risk management post-PCI.
Effectiveness of a digital technology-assisted personalized exercise... (Y. Wu et al., 2025a)	Prospective RCT	Centralized randomization via IWRS; comparable at baseline.	VO2AT, SF-36 (Quality of Life), and exercise duration.	Outcome evaluation and statistical analysis blinded by a third party.	High; use of real-time ECG monitoring for exercise safety.	Highly applicable for personalized digital exercise prescriptions at home.
Long-term exercise effects after cardiac telerehabilitation... (Batalik et al., 2021)	RCT Follow-up Study	Prospective monocentric RCT in the Czech Republic.	CRF (pVO2) via CPET, SF-36, and hospitalization rates.	1:1 Randomization; pVO2 assessors blinded to group allocation.	High; 1-year follow-up demonstrates sustainability of effects.	Highly relevant as an alternative to center-based cardiac rehab during pandemics.
Effectiveness of an intervention to reduce sedentary behaviour... (van Bakel et al., 2023)	Randomised Clinical Trial (RCT)	Stratified random block randomization by sex and hospital.	Device-based sedentary time (activity tracker), HeartQoL, and PAM-13.	Analysis using linear mixed models.	High; utilized objective measurements via activity trackers.	Highly applicable for secondary prevention strategies based on sedentary behavior.

Results of Individual Sources of Evidence

Table 2. Summary of the Characteristics of the Included Sources of Evidence

Title & Source (Author, Year)	Country	Study Design	Sample Size	Telehealth Intervention Characteristics	Daily Intervention Duration	Self-Management Components	Reported Outcomes
Weight Management Telehealth Intervention... (Barnason et al., 2019)	USA	Randomized controlled trial (pilot)	43 participants completed (22 WMI, 21 control)	12-week Weight Management Intervention (WMI) using the Viterion® telehealth device and bi-weekly nurse-led telephone coaching.	Not specified (Sessions were daily for 3 weeks, then 5/week for 3 weeks)	Focused on self-monitoring, self-evaluation, and self-regulation of weight reduction behaviors, diet modification, and physical activity.	Significant reduction in weight; significantly higher scores in diet/exercise self-management and eating habit self-efficacy.
Effectiveness of an Interactive mHealth App (EVITE)... (Bernal-Jiménez et al., 2024)	Spain	Randomized controlled trial (parallel)	128 analyzed (67 mHealth, 61 control)	36-week intervention using the EVITE interactive smartphone app for goal setting, educational tutorials, and nurse-led messaging.	Minimum 15 minutes daily	Facilitated Mediterranean diet adherence, physical activity (PA), smoking cessation, and medication adherence.	Significant improvements in diet adherence, PA minutes/week, smoking cessation rates, and physical component of quality of life (SF-12).
A Theory-Based, Technology-Assisted Intervention... (Chong et al., 2023)	Malaysia	Randomized controlled trial (parallel feasibility)	28 participants (14 per group)	12-week hybrid program; included a fitness watch for cues to action, six educational videos, and weekly video calls (Google Meet).	30 minutes weekly (for video calls) + 30 min exercise	Emphasized exercise self-efficacy, health-promoting behaviors (stress management, nutrition), and exercise capacity monitoring.	Significant improvement in health-promoting behaviors (large effect size); within-group improvements in exercise self-efficacy and capacity.
The Effects of a Technology-Assisted Hybrid CR... (Chong et al., 2025)	Malaysia	Randomized controlled trial (parallel)	160 participants (80 per group)	12-week program; used the Amazfit Band 5 fitness watch, six audio-visual videos, and weekly follow-up video calls.	20–30 minutes weekly (for video calls) + 30 min exercise	Targeted exercise self-monitoring, lifestyle modification (diet, smoking), and psychological well-being (anxiety/depression).	Significant greater improvement in exercise self-efficacy, health-promoting behaviors, and perceived anxiety levels at 24 weeks.
Efficacy of a Mobile Health App (eMOTIVA)... (Cruz-Cobo et al., 2024)	Spain	Randomized controlled trial (parallel)	287 analyzed (145 mHealth, 142 control)	6-month intervention via the eMOTIVA app featuring a virtual classroom with videos, CVRF self-recording, and gamification feedback.	Not specified (Includes self-recording data as needed)	Addressed healthy eating habits, exercise capacity (6-MWT), sedentary time, and knowledge of risk factors.	Significant gains in Mediterranean diet adherence, physical activity intensity, and reduced sedentary time; significant blood sugar reduction.
Effectiveness of Applying Green Heart App... (Ghavami et al., 2024)	Iran	Randomized controlled trial (single-blind)	668 smokers (336 application, 332 control)	24-week Green Heart mobile application providing personalized quit plans, motivational messages, and progress tracking.	Not specified (Automated messages and feedback as needed)	Primary focus on smoking cessation and nicotine dependence; also addressed dyslipidemia and blood pressure management.	Application users had significantly higher odds of smoking cessation (OR 2.14) and general reduction in cigarette consumption.
Effectiveness of Theory-Based Health IT Interventions... (Hong et al., 2021)	Taiwan	Randomized waitlist-controlled trial	60 participants (30 per group)	3-month Health IT program; web-based blood pressure (BP) tracking, nurse-led telephone calls, and wearable activity device.	~5 minutes (for BP check) + As needed for logging	Promoted BP self-monitoring, self-administered goal setting, and modification of diet and exercise habits.	Significant improvement in systolic BP, self-management behaviors (PIH scale), and total physical/psychological quality of life.
The impact of dietary education... (TeleDiet study) (Kaihara et al., 2023)	Belgium	Randomized controlled trial	60 participants (30 per group)	12-week TeleDiet study; used the "Signal" messaging app for meal photo transmission and personalized dietitian feedback.	Brief (Time to take ~4 photos per day)	Focused on improving nutrition knowledge and implementation of the Mediterranean diet pattern.	Significant improvement in the Nutrition-Score and nutrition knowledge; trend towards improved MedDietScore.
Effect of a mHealth intervention on health literacy... (Lunde et al., 2025)	Norway	Randomized controlled trial	113 patients	1-year follow-up via a smartphone app for goal monitoring, automated reminders, and communication with a supervisor.	Not specified (As needed for goal monitoring and reminders)	Targeted health literacy proficiency (finding, understanding, and applying health info) and long-term	Significant within-group improvement in total health literacy (HLS-Q12) from baseline to the one-year follow-up point.

Title & Source (Author, Year)	Country	Study Design	Sample Size	Telehealth Intervention Characteristics	Daily Intervention Duration	Self-Management Components	Reported Outcomes
						treatment adherence.	
Effect of a Lifestyle-Focused Web-Based Application... (Michelsen et al., 2022)	Sweden	Randomized controlled trial (multicenter)	150 patients (101 intervention, 49 control)	25-week access to the LifePod web-based mobile app for logging risk factors with twice-weekly nurse medical interface reviews.	Not specified (Min. twice weekly logging required)	Supported self-control of BP, weight, smoking, diet, and adherence to exercise prescriptions.	Significant reduction in SBP at 2 and 10 weeks; initial increase in fruit and fish consumption.
Using mHealth to Connect Women... (Sakakibara et al., 2017)	Canada	Single group pre/post study	21 participants analyzed	10-week "Healing Circles" mHealth program facilitating peer support in groups of 5-9 through comments, sharing, and status updates.	Voluntary / As needed	Emphasized social integration, self-monitoring of symptoms, and health behavior skill acquisition.	Significant improvements in health behaviors, self-monitoring, and social support domains of the heiQ.
An m-Health System for Education and Motivation... (Salvi et al., 2018)	Spain, Germany, UK	Randomized controlled trial	118 participants (55 intervention, 63 control)	HeartCycle Guided Exercise (GEx) system; used sensors, smartphone app with a virtual coach avatar, and 131 personalized HTML pages.	Varied (Exercise sessions + time to read messages)	Addressed heart disease knowledge, risk factor reduction techniques, and autonomous healthy behavior maintenance.	Significant increase in heart-related health knowledge quizzes; high user acceptance and system usability scores.
The effects of a lifestyle-focused text-messaging... (Santo et al., 2018)	Australia	Randomized controlled trial (parallel)	710 participants (352 intervention, 358 control)	6-month TEXT ME study; delivered four semi-personalized motivational text messages per week.	Brief (Time to read 4 texts per week)	Encouraged adherence to dietary guidelines (vegetables, fruits, fish, salt intake) and global modifiable risk factors.	Significantly improved consumption of vegetables, fruits, and fish; improvements partially mediated reductions in LDL-cholesterol and BMI.
Efficacy of Telemedical Interventional Management... (Yu et al., 2025)	China	Randomized controlled trial (single-center)	2086 analyzed (1040 intervention, 1046 control)	1-year web-based platform; AI-assisted consultations, vital sign monitoring, and personalized health education.	As needed (AI consultations and vital sign monitoring)	Focused on medication adherence (aspirin/ACEI), BP control, and reduction of smoking and alcohol consumption.	Significant reduction in MACCE (3.5% vs 5.3%); improved SBP/DBP control and higher adherence to cardioprotective drugs.
Effectiveness of a digital technology-assisted personalized exercise... (Y. Wu et al., 2025a)	China	Randomized controlled trial	58 participants analyzed (30 intervention, 28 control)	12-week YiDong TM mobile app; digital personalized exercise prescriptions with weekly real-time ECG monitoring and adjustments.	30–45 minutes (for exercise) + Weekly video sessions	Emphasized exercise adherence, aerobic movement training, and social functioning during recovery.	Significant improvements in VO2AT, social functioning dimensions of SF-36, and significantly prolonged exercise test duration.
Long-term exercise effects after cardiac telerehabilitation... (Batalik et al., 2021)	Czech Republic	Randomized controlled trial (prospective)	56 participants (28 per group)	12-week CR-GPS telerehabilitation followed by 1-year follow-up; included wrist HR monitors and educational booklets.	60 minutes (3 times a week)	Monitored cardiorespiratory fitness (CRF), anthropometric changes, and hospital readmission rates.	Telerehabilitation group maintained significantly higher peak VO2 (25.5 vs 23.6 mL/kg/min) at the 15-month mark compared to center-based care.
Effectiveness of an intervention to reduce sedentary behaviour... (van Bakel et al., 2023)	Netherlands	Randomized clinical trial	212 participants (108 intervention, 104 control)	12-week SIT LESS intervention; pocket-worn activity tracker with vibrotactile feedback + RISE smartphone app + nurse telephone coaching.	1 hour (supervised exercise) + Coaching calls	Targeted the reduction of objective sedentary time (ST) and improvement of self-management competencies (PAM-13).	Reduced odds of exceeding 9.5 h/day of sedentary time; intervention was feasible and well-graded by participants.

Synthesis of Results

To facilitate the synthesis and interpretation of findings, a conceptual framework was developed based on the extracted evidence to illustrate the relationships between telehealth intervention characteristics, self-management components, implementation factors, and reported patient outcomes. This framework served as an organizing structure for a narrative synthesis, enabling findings to be mapped according to telehealth modalities, self-management strategies, implementation characteristics, and outcome domains. Following data charting, extracted information was systematically reviewed and compared across studies to identify recurring

patterns, similarities, differences, and evidence gaps. Because the primary objective of this scoping review was to map and characterize the existing evidence rather than generate interpretive themes, no formal coding procedures, thematic analysis, or theme development were undertaken. Instead, findings were descriptively organized into predefined review domains informed by the PCC framework and grouped into descriptive categories representing common concepts reported in the literature. The categorization process was refined through iterative discussions among all authors to ensure consistency, transparency, and alignment with the review objectives. The resulting conceptual framework and roadmap were used to visualize the current landscape of telehealth-supported self-management for coronary artery disease, identify areas with substantial evidence, and highlight priorities for future research and implementation.

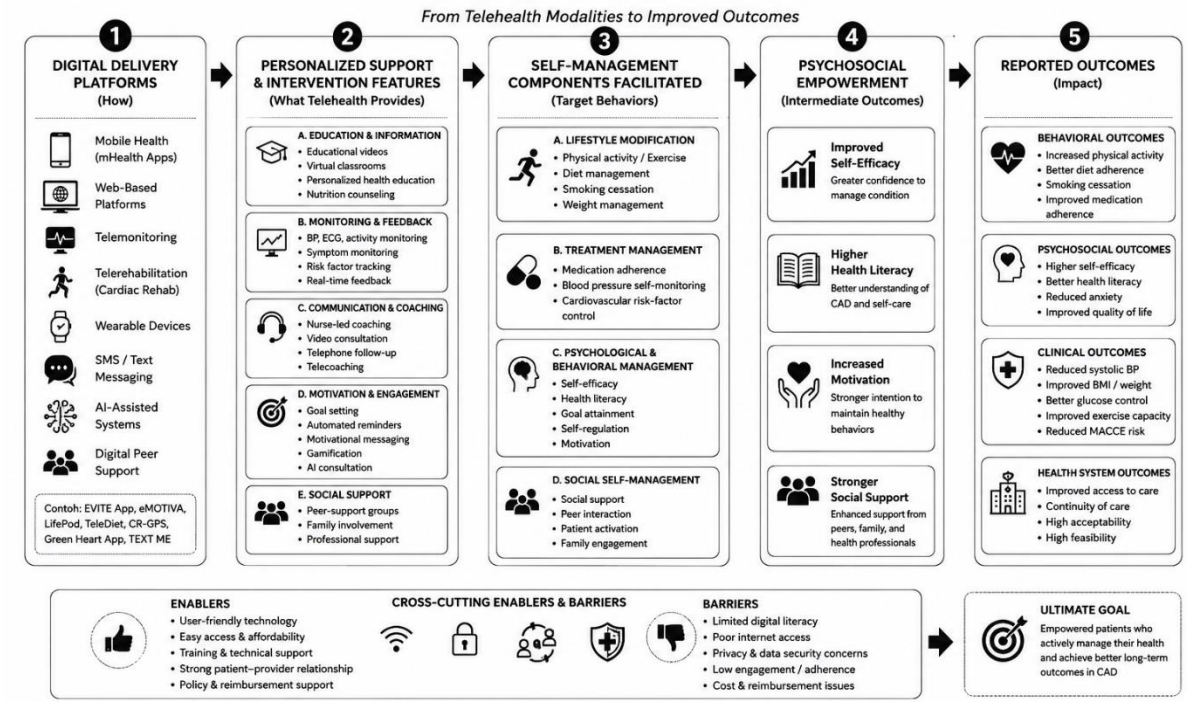

Figure 5. Illustrates Conceptual Framework of Telehealth-Supported Self-Management for Coronary Artery Disease: Pathways from Digital Delivery Platforms to Patient Outcomes.

The conceptual framework developed to guide the synthesis and interpretation of evidence regarding telehealth-supported self-management for adults with CAD. The framework illustrates a continuum from telehealth intervention modalities to patient outcomes. At the intervention level, telehealth services are delivered through a variety of digital platforms, including mHealth applications, web-based systems, telemonitoring, telerehabilitation programs, smartphone-assisted counseling, wearable technologies, and SMS-based communication. Evidence from the included studies demonstrates that these modalities provide personalized support through education, monitoring, feedback, coaching, motivational strategies, and social support mechanisms that facilitate self-management behaviors (Bernal-Jiménez et

al., 2024; Cruz-Cobo et al., 2024; Hong et al., 2021; Kaihara et al., 2023; Michelsen et al., 2022; Salvi et al., 2018; Santo et al., 2018; Yu et al., 2025). Consistent with the PCC framework, these intervention components target key domains of CAD self-management, including lifestyle modification, treatment adherence, symptom monitoring, psychological and behavioral management, physical activity promotion, smoking cessation, dietary management, and social self-management. The included studies indicate that telehealth interventions can enhance health education, support adherence to rehabilitation recommendations, improve health literacy, and strengthen patient engagement in secondary prevention and long-term disease management (Chong et al., 2023, 2025; Lunde et al., 2025; Sakakibara et al., 2017) (**Figure 2**).

The framework further proposes that effective telehealth interventions contribute to intermediate psychosocial outcomes, including improved self-efficacy, health literacy, motivation, self-management capacity, and social support, which are recognized determinants of sustainable health behaviors. These intermediate outcomes are expected to influence a range of reported outcomes across behavioral, psychosocial, clinical, and health-system domains. Findings from the included studies suggest improvements in physical activity levels, exercise capacity, dietary adherence, smoking cessation, medication adherence, weight management, sedentary behavior reduction, quality of life, cardiovascular risk-factor control, and participation in cardiac rehabilitation programs (Barnason et al., 2019; Batalik et al., 2021; Ghavami et al., 2024; van Bakel et al., 2023; Y. Wu et al., 2025a). The framework also highlights contextual factors that may facilitate or hinder implementation, including digital literacy, technology accessibility, patient engagement, usability of digital platforms, privacy concerns, healthcare system support, and the coordinating role of healthcare professionals, particularly nurses. By integrating these interconnected components, the framework provides a structured representation of how telehealth-supported self-management interventions may influence patient outcomes and serves as a roadmap for identifying evidence gaps and informing future research, clinical practice, and implementation strategies for CAD care.

Discussion

Main Findings of Telehealth-Supported Self-Management in CAD

This scoping review mapped the current evidence on telehealth-supported self-management interventions for adults with CAD. Across the included studies, telehealth was delivered through various modalities, including mHealth applications, telemonitoring systems, web-based platforms, wearable devices, text messaging programs, teleconsultation, and cardiac telerehabilitation (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Hong et al., 2021; Kaihara et al., 2023; Lunde et al., 2025; Michelsen et al., 2022; Sakakibara et al., 2017; Salvi et al., 2018; Santo et al., 2018; van Bakel et al., 2023; Y. Wu et al., 2025a; Yu et al., 2025). These interventions primarily targeted lifestyle modification, medication adherence, symptom monitoring, cardiovascular risk-factor management, physical activity, health literacy, and psychosocial support. Overall, the evidence suggests that telehealth-supported self-management is associated with improvements in self-efficacy, health-promoting behaviors, medication adherence, physical activity, quality of life, cardiovascular risk-factor control, and selected clinical outcomes (Barnason et al.,

2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Chong et al., 2025; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Lunde et al., 2025; Y. Wu et al., 2025a; Yu et al., 2025). Common features of successful interventions included personalized feedback, remote monitoring, digital education, behavioral coaching, multidisciplinary collaboration, and nurse-led follow-up.

These findings are consistent with previous evidence syntheses reporting that telehealth can improve self-management behaviors, physical activity, medication adherence, cardiovascular risk-factor control, and health-related quality of life through education, monitoring, and ongoing professional support (Hong et al., 2021). However, whereas previous reviews largely focused on the effectiveness of specific telehealth modalities, this scoping review provides a broader understanding of how telehealth interventions are delivered and implemented across different healthcare settings (Barnason et al., 2019; Chong et al., 2025). In addition to clinical outcomes, the review highlights the contribution of telehealth to health literacy, self-efficacy, patient engagement, psychosocial support, and continuity of care, while emphasizing the important role of nurses and multidisciplinary teams in supporting long-term secondary prevention (Chong et al., 2025; Y. Wu et al., 2025a). Furthermore, the review identifies important evidence gaps related to implementation, digital equity, and the applicability of telehealth interventions in low- and middle-income countries, thereby providing directions for future research and practice.

Telehealth as a Facilitator of Self-Management Behavior Change

The findings of this review suggest that telehealth functions not merely as a technological platform for communication but as an important facilitator of behavior change that supports self-management among individuals with CAD. Across the included studies, telehealth interventions incorporated a variety of strategies designed to promote active patient engagement, including remote monitoring, personalized feedback, educational support, goal setting, reminders, symptom tracking, and ongoing communication with healthcare professionals through mobile applications, telemonitoring systems, web-based platforms, wearable devices, text messaging programs, and telerehabilitation services (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Hong et al., 2021; Kaihara et al., 2023; Lunde et al., 2025; Michelsen et al., 2022; Sakakibara et al., 2017; Salvi et al., 2018; Santo et al., 2018; van Bakel et al., 2023; Y. Wu et al., 2025a; Yu et al., 2025). These intervention components enabled patients to participate more actively in managing their condition while maintaining regular contact with healthcare providers outside traditional clinical settings. Consequently, telehealth created opportunities for continuous support and reinforcement of healthy behaviors, which are essential for long-term secondary prevention and disease management in CAD.

Several studies demonstrated that telehealth interventions enhanced patients' ability to monitor and manage cardiovascular risk factors. Telemonitoring systems, wearable devices, smartphone applications, and web-based platforms allowed patients to track physiological parameters, symptoms, medication use, blood pressure, physical activity, smoking behaviors, and other lifestyle-related factors in real time (Barnason et al., 2019; Hong et al., 2021; Michelsen et al., 2022; van Bakel et al., 2023; Yu et al., 2025). Healthcare professionals subsequently provided individualized feedback and

recommendations based on patient-generated data, facilitating early identification of potential problems and supporting adherence to treatment plans. Studies utilizing remote monitoring and personalized feedback reported improvements in blood pressure control, cardiovascular risk-factor management, smoking cessation, sedentary behavior reduction, and medication adherence (Ghavami et al., 2024; Hong et al., 2021; Michelsen et al., 2022; van Bakel et al., 2023; Yu et al., 2025). These findings suggest that continuous monitoring and timely feedback may increase patients' awareness of their health status and promote greater accountability for disease management.

Educational support emerged as another important mechanism through which telehealth facilitated behavior change. Several interventions delivered structured educational materials through mobile applications, web-based platforms, messaging systems, virtual classrooms, teleconsultation, and digital rehabilitation programs (Bernal-Jiménez et al., 2024; Chong et al., 2025; Cruz-Cobo et al., 2024; Kaihara et al., 2023; Salvi et al., 2018; Santo et al., 2018). Educational content commonly addressed CAD management, symptom recognition, medication adherence, dietary modification, physical activity, smoking cessation, and cardiovascular risk-factor reduction. Studies reported improvements in health literacy, nutrition knowledge, disease knowledge, and adherence to recommended lifestyle behaviors following exposure to these educational interventions (Kaihara et al., 2023; Lunde et al., 2025; Salvi et al., 2018). By increasing patients' knowledge and awareness, telehealth interventions empowered individuals to make informed decisions regarding their health behaviors and encouraged long-term adherence to secondary prevention recommendations.

The review also identified personalized feedback and behavioral coaching as key elements contributing to successful self-management outcomes. Many interventions incorporated regular communication with nurses, physicians, dietitians, or multidisciplinary healthcare teams through telephone consultations, video conferencing, messaging platforms, and digital coaching systems (Barnason et al., 2019; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Hong et al., 2021; Michelsen et al., 2022). These interactions provided opportunities for individualized counseling, motivational support, problem-solving, and reinforcement of self-management goals. Interventions involving nurse-led coaching and personalized follow-up demonstrated improvements in health-promoting behaviors, exercise self-efficacy, dietary adherence, and treatment adherence (Barnason et al., 2019; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025). Personalized approaches may therefore be particularly valuable for addressing barriers to adherence and adapting recommendations to individual patient needs and circumstances.

Furthermore, telehealth interventions appeared to strengthen self-management by promoting adherence to lifestyle modification and secondary prevention behaviors. Across the included studies, improvements were reported in physical activity participation, exercise capacity, dietary behaviors, smoking cessation, medication adherence, symptom monitoring, cardiovascular risk-factor management, and engagement in cardiac rehabilitation programs (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Cruz-Cobo et al., 2024; Ghavami et al., 2024; Y. Wu et al., 2025a; Yu et al., 2025). Digital reminders, activity-tracking tools, wearable technologies, personalized exercise prescriptions, and remote coaching facilitated the incorporation of these

behaviors into daily routines and supported the long-term maintenance of healthy habits. In particular, telerehabilitation interventions demonstrated the potential to overcome common barriers associated with conventional center-based rehabilitation, including transportation difficulties, geographical distance, scheduling constraints, and limited access to specialized cardiovascular services (Chong et al., 2023, 2025; Y. Wu et al., 2025a).

The psychosocial benefits observed across several studies further support the role of telehealth as a facilitator of behavior change. Beyond improving clinical and behavioral outcomes, telehealth interventions contributed to increased self-efficacy, confidence in disease management, patient engagement, perceived social support, health literacy, and quality of life (Barnason et al., 2019; Chong et al., 2023; Hong et al., 2021; Lunde et al., 2025; Sakakibara et al., 2017). For example, the Healing Circles intervention promoted social integration and peer support among women with cardiovascular disease, while several mHealth and telecoaching programs improved exercise self-efficacy, health-promoting behaviors, and confidence in managing cardiovascular risk factors (Chong et al., 2023, 2025; Sakakibara et al., 2017). Enhanced self-efficacy is particularly important because confidence in one's ability to perform self-management behaviors has consistently been associated with better adherence, greater patient activation, and improved health outcomes.

Overall, the evidence suggests that the effectiveness of telehealth-supported self-management extends beyond the technological tools themselves. Rather than acting solely as a medium for information exchange, telehealth serves as a comprehensive behavior change intervention that integrates monitoring, education, feedback, coaching, and social support (Bernal-Jiménez et al., 2024; Chong et al., 2023; Hong et al., 2021; Michelsen et al., 2022; Sakakibara et al., 2017; Santo et al., 2018). Through these interconnected mechanisms, telehealth facilitates sustained patient engagement, strengthens self-management capabilities, and supports the adoption and maintenance of health-promoting behaviors that are critical for long-term CAD management and secondary prevention (Barnason et al., 2019; Batalik et al., 2021; Ghavami et al., 2024; van Bakel et al., 2023; Y. Wu et al., 2025a; Yu et al., 2025). Despite differences in intervention modalities and implementation approaches, the included studies consistently indicate that successful telehealth-supported self-management depends not only on the technology used but also on the integration of patient-centered support, behavioral strategies, and continuous professional engagement.

Interpretation Through Behavioral Theories

The findings are consistent with SET, which posits that individuals are more likely to engage in and sustain health behaviors when they have confidence in their ability to perform the required actions. Several included studies incorporated self-monitoring, personalized feedback, goal setting, remote monitoring, and ongoing professional support, all of which are recognized strategies for enhancing self-efficacy. For example, telehealth interventions utilizing mobile applications, telemonitoring systems, wearable devices, and nurse-supported coaching reported improvements in exercise self-efficacy, health-promoting behaviors, medication adherence, physical activity, symptom management, and self-care practices through regular feedback and progress tracking (Barnason et al., 2019; Chong et al., 2023, 2025; Hong et al., 2021; van Bakel et al., 2023). Similarly, telehealth-supported cardiac rehabilitation and personalized coaching programs enabled patients to

develop greater confidence in managing cardiovascular risk factors, maintaining lifestyle modifications, and adhering to prescribed exercise regimens over time (Batalik et al., 2021; Chong et al., 2023; Y. Wu et al., 2025a). These findings suggest that telehealth-supported self-management may strengthen patients perceived capability to manage coronary artery disease, thereby facilitating sustained engagement in secondary prevention behaviors.

The findings also align with SCT, which emphasizes the dynamic interaction between personal factors, environmental influences, and behavior. Across the included studies, telehealth interventions provided opportunities for self-regulation, reinforcement, observational learning, and social support through remote coaching, educational content, interactive platforms, peer-support systems, and ongoing communication with healthcare professionals (Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Sakakibara et al., 2017; Salvi et al., 2018). Telemonitoring systems, wearable devices, and digital rehabilitation programs enabled patients to monitor their progress, receive tailored feedback, and adjust their behaviors accordingly, thereby supporting self-regulatory processes and strengthening accountability for disease management (Hong et al., 2021; Michelsen et al., 2022; van Bakel et al., 2023; Yu et al., 2025). In addition, interventions incorporating regular contact with healthcare providers fostered motivation, engagement, and adherence to recommended lifestyle behaviors, which are important determinants of behavior change within the Social Cognitive Theory framework (Barnason et al., 2019; Bernal-Jiménez et al., 2024; Chong et al., 2023). These mechanisms may explain the positive effects observed on lifestyle modification, treatment adherence, physical activity, and cardiovascular risk-factor management across the included studies.

The HBM provides another useful framework for interpreting the findings, particularly regarding improvements in health literacy, risk awareness, and engagement in preventive behaviors. Many telehealth interventions delivered educational materials, risk-factor information, symptom-monitoring tools, dietary counseling, and personalized guidance designed to increase patients' understanding of coronary artery disease and the consequences of inadequate self-management (Bernal-Jiménez et al., 2024; Cruz-Cobo et al., 2024; Kaihara et al., 2023; Salvi et al., 2018). Studies reporting improvements in disease knowledge, nutrition knowledge, health literacy, adherence to secondary prevention recommendations, and participation in cardiac rehabilitation suggest that telehealth may enhance perceived susceptibility to recurrent cardiovascular events, reinforce perceptions of disease severity, and increase awareness of the benefits of preventive actions (Kaihara et al., 2023; Lunde et al., 2025; Salvi et al., 2018). Furthermore, the accessibility and convenience of telehealth may reduce perceived barriers to care, a key construct of the Health Belief Model, thereby encouraging greater engagement in self-management activities and long-term cardiovascular risk reduction. Collectively, these findings indicate that telehealth interventions influence behavior through multiple psychological pathways, including enhanced self-efficacy, self-regulation, motivation, health literacy, and perceived benefits of preventive action.

Considerations for LMICs

Although telehealth-supported self-management interventions demonstrated generally positive outcomes across the included studies, the evidence base was

predominantly derived from HICs, including the United States, Canada, Australia, Sweden, the Netherlands, Belgium, Norway, Spain, and the Czech Republic (Barnason et al., 2019; Batalik et al., 2021; Bernal-Jiménez et al., 2024; Cruz-Cobo et al., 2024; Kaihara et al., 2023; Lunde et al., 2025; Michelsen et al., 2022; Sakakibara et al., 2017; Salvi et al., 2018; Santo et al., 2018; van Bakel et al., 2023). Only a limited number of studies originated from middle-income countries, including Malaysia, Iran, China, and Taiwan (Chong et al., 2023, 2025; Ghavami et al., 2024; Hong et al., 2021; Y. Wu et al., 2025a; Yu et al., 2025). These findings indicate that the current evidence base largely reflects healthcare systems with relatively advanced digital infrastructure, greater access to internet services, higher levels of digital literacy, and more mature telehealth ecosystems. Consequently, the effectiveness and feasibility reported in these studies may not be directly transferable to LMICs, where healthcare systems often face resource constraints and disparities in access to digital technologies.

Several studies highlighted that successful telehealth implementation depends on patients' ability to engage with digital platforms, perform self-monitoring activities, receive timely feedback, and maintain regular communication with healthcare providers (Barnason et al., 2019; Chong et al., 2023; Hong et al., 2021; Lunde et al., 2025; Michelsen et al., 2022). In LMICs settings, these requirements may be challenged by limited internet connectivity, inadequate access to smartphones or wearable devices, lower levels of digital health literacy, and shortages of trained healthcare personnel. Such barriers may reduce patient engagement, hinder intervention fidelity, and affect the long-term sustainability of telehealth-supported self-management programs (Barnason et al., 2019; Lunde et al., 2025). Furthermore, older adults with CAD, who constituted a substantial proportion of participants across the included studies, may experience additional difficulties in adopting digital technologies without adequate training and ongoing support.

Despite these challenges, telehealth may offer substantial opportunities for improving cardiovascular care in LMICs. Several interventions included in this review demonstrated that remote monitoring, mHealth applications, telecoaching, web-based platforms, and text-messaging programs can effectively support medication adherence, lifestyle modification, symptom monitoring, smoking cessation, cardiovascular risk-factor control, and self-management behaviors while reducing the need for frequent in-person visits (Bernal-Jiménez et al., 2024; Ghavami et al., 2024; Hong et al., 2021; Santo et al., 2018; Yu et al., 2025). These characteristics are particularly relevant in LMICs, where geographical barriers, transportation costs, and shortages of specialist cardiovascular services often limit access to ongoing secondary prevention and rehabilitation programs. Telehealth therefore has the potential to extend the reach of healthcare services to rural and underserved populations while supporting continuity of care beyond hospital settings.

Importantly, the findings of this review suggest that telehealth interventions do not necessarily require highly sophisticated technologies to achieve meaningful outcomes. Several studies reported positive effects using relatively accessible approaches, such as telephone coaching, text messaging, web-based education, wearable activity trackers, and simple mobile applications (Barnason et al., 2019; Hong et al., 2021; Kaihara et al., 2023; Santo et al., 2018; van Bakel et al., 2023). These findings indicate that scalable and cost-conscious telehealth models may be feasible

in resource-limited settings when interventions are tailored to local infrastructure and user capabilities. Adaptation strategies should consider language preferences, cultural beliefs, health literacy levels, and patterns of technology use within specific populations to maximize engagement and effectiveness.

Given the limited representation of LMICs among the included studies, further implementation and effectiveness research is needed to evaluate how telehealth-supported self-management interventions can be adapted to diverse healthcare systems and socioeconomic contexts (Chong et al., 2025; Ghavami et al., 2024; Hong et al., 2021; Y. Wu et al., 2025a; Yu et al., 2025). Future studies should examine implementation barriers and facilitators, cost-effectiveness, digital equity, and long-term sustainability in resource-constrained settings. Such evidence will be essential for informing policies and implementation frameworks that support the equitable integration of telehealth into CAD management and secondary prevention programs worldwide.

Implications for Nursing Practice

The findings of this review have important implications for cardiovascular nursing practice, particularly in supporting long-term self-management among individuals with CAD. Across the included studies, nurses frequently played central roles as educators, care coordinators, telecoaches, and facilitators of self-management support through various telehealth modalities, including mobile applications, telemonitoring systems, web-based platforms, telephone follow-up, text messaging programs, and cardiac telerehabilitation services (Barnason et al., 2019; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Hong et al., 2021; Michelsen et al., 2022; Yu et al., 2025). These interventions enabled nurses to maintain regular contact with patients beyond traditional clinical encounters by providing ongoing education, symptom monitoring, behavioral counseling, and individualized feedback. Such activities are consistent with the expanding role of cardiovascular nurses in secondary prevention and chronic disease management, where continuity of care and patient engagement are essential for achieving optimal outcomes.

Several studies included in this review demonstrated that nurse-supported telehealth interventions contributed to improvements in self-management behaviors, medication adherence, physical activity, cardiovascular risk-factor control, and health-promoting behaviors (Barnason et al., 2019; Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Hong et al., 2021; Yu et al., 2025). Through remote monitoring and timely communication, nurses were able to identify emerging patient needs, reinforce treatment recommendations, and provide motivational support that encouraged adherence to prescribed therapies and lifestyle modifications. For example, interventions involving nurse-led telephone coaching, individualized messaging, remote monitoring, and personalized goal setting reported improvements in self-management behaviors, exercise self-efficacy, dietary adherence, and treatment adherence (Barnason et al., 2019; Bernal-Jiménez et al., 2024; Hong et al., 2021). These findings suggest that telehealth can enhance the effectiveness of nursing interventions by extending support into patients' daily environments, where many self-management decisions are made. Furthermore, the ability to deliver personalized feedback and behavioral coaching remotely may strengthen patients' confidence and self-efficacy in managing their condition, which are critical determinants of sustained behavior change.

The review also highlights the importance of nursing involvement in telehealth-enabled cardiac rehabilitation and secondary prevention programs. Several studies reported that multidisciplinary interventions incorporating nurse-led education, coaching, monitoring, and follow-up were associated with improvements in exercise participation, quality of life, health literacy, physical activity, and self-care behaviors (Batalik et al., 2021; Bernal-Jiménez et al., 2024; Chong et al., 2023; Lunde et al., 2025; Y. Wu et al., 2025a). Nurses often served as the primary point of contact for patients, coordinating care among physicians, physiotherapists, dietitians, and other healthcare professionals while ensuring that educational content and self-management strategies were tailored to individual needs. This finding underscores the potential of nurses to lead telehealth-supported models of care that promote patient-centered management and facilitate long-term engagement in secondary prevention activities.

In addition, the increasing adoption of digital health technologies requires nurses to develop competencies in telehealth delivery, remote assessment, digital communication, data interpretation, and behavioral coaching. Several interventions relied on the active involvement of healthcare professionals to review patient-generated data, provide personalized feedback, monitor progress, and respond to emerging clinical concerns (Bernal-Jiménez et al., 2024; Chong et al., 2023, 2025; Hong et al., 2021; Michelsen et al., 2022). These findings suggest that the effectiveness of telehealth depends not only on technological infrastructure but also on the ability of healthcare professionals to translate digital information into meaningful clinical support. Consequently, integrating telehealth competencies into undergraduate nursing curricula, continuing professional education, and cardiovascular specialty training may enhance the preparedness of nurses to deliver high-quality digital care. Healthcare organizations should also consider developing standardized protocols and competency frameworks to support the implementation of nurse-led telehealth services. Overall, the evidence suggests that telehealth has the potential to strengthen the role of nurses in CAD management by improving continuity of care, facilitating early identification of patient needs, supporting self-management behaviors, and expanding access to secondary prevention services. As healthcare systems increasingly adopt digital models of care, nurses will remain essential in ensuring that telehealth interventions are patient-centered, evidence-based, and responsive to the complex needs of individuals living with CAD.

The successful implementation of telehealth-supported self-management interventions requires careful adaptation to diverse cultural and resource-constrained settings. Most telehealth interventions identified in this review were developed and evaluated in healthcare systems with relatively advanced digital infrastructure and may not fully reflect the sociocultural contexts of LMICs (Barnason et al., 2019; Batalik et al., 2021; Lunde et al., 2025; Michelsen et al., 2022; Sakakibara et al., 2017; van Bakel et al., 2023). Cultural beliefs regarding illness, health-seeking behaviors, family involvement in care, communication preferences, and perceptions of digital technology may influence how patients engage with telehealth interventions. Furthermore, resource limitations such as inadequate internet connectivity, limited access to smartphones or wearable devices, low digital literacy, and shortages of trained healthcare personnel may affect intervention feasibility and sustainability

(Chong et al., 2023, 2025; Ghavami et al., 2024; Hong et al., 2021; Yu et al., 2025). Consequently, telehealth programs should be tailored to local contexts by incorporating culturally appropriate educational materials, language-specific content, family-centered approaches, and technologies that are accessible and affordable for target populations.

The positive outcomes reported from interventions using relatively simple modalities, such as telephone follow-up, text messaging, and basic mobile applications, suggest that effective telehealth-supported self-management does not necessarily require sophisticated technologies but rather interventions that are responsive to patients' cultural, social, and healthcare needs (Barnason et al., 2019; Hong et al., 2021; Kaihara et al., 2023; Santo et al., 2018). Future implementation research should therefore focus on co-designing telehealth interventions with patients, families, healthcare providers, and community stakeholders to ensure cultural relevance, acceptability, and long-term sustainability across diverse healthcare settings.

Implications and limitations

This review has implications for clinical practice, research, and health service development by highlighting the potential of telehealth to support long-term self-management and secondary prevention in coronary artery disease while emphasizing the need for context-sensitive implementation across diverse healthcare settings. Future research should focus on implementation strategies, sustainability, cost-effectiveness, digital equity, and adaptation to resource-constrained environments. Several limitations should be acknowledged. The review was restricted to English- and Indonesian-language publications, which may have introduced language bias, and excluded grey literature and unpublished studies, increasing the possibility of publication bias. In addition, not all potentially relevant databases were searched, and the search strategy was not formally validated by an information specialist. Most included studies were conducted in high-income countries, limiting the generalizability of the findings to low- and middle-income settings. Finally, as a scoping review, this study aimed to map and characterize the available evidence rather than determine intervention effectiveness or establish causal relationships; therefore, the findings should be interpreted as an overview of the existing evidence landscape.

Relevance to Practice

The findings of this review provide practical guidance for integrating telehealth-supported self-management into routine CAD care. Healthcare organizations should develop standardized telehealth protocols that include patient assessment, monitoring procedures, communication pathways, documentation standards, and referral mechanisms to ensure safe and consistent care delivery. Nurses are strategically positioned to lead these interventions by providing telecoaching, remote monitoring, health education, motivational support, and coordination of multidisciplinary care involving cardiologists, physiotherapists, and dietitians. To support effective implementation, healthcare systems should strengthen digital health competencies among healthcare professionals, provide digital literacy support for patients and families, and actively involve family caregivers in education and self-management planning. In resource-limited settings, scalable approaches such as telephone follow-up, text messaging, and simple mobile applications may improve access to secondary prevention and cardiac rehabilitation services, particularly when

supported by adequate digital infrastructure, internet connectivity, and technical support. Collectively, these strategies may enhance patient engagement, continuity of care, and equitable access to long-term cardiovascular management.

Conclusion

This scoping review mapped the current evidence on telehealth-supported self-management interventions for adults with CAD. The findings indicate that telehealth has been implemented through a range of digital modalities to support lifestyle modification, medication adherence, symptom monitoring, cardiovascular risk-factor management, and participation in secondary prevention programs. The review identified evidence suggesting potential benefits across behavioral, psychosocial, and clinical outcomes, while also highlighting important evidence gaps related to implementation strategies, digital equity, long-term sustainability, cost-effectiveness, and the applicability of telehealth interventions in diverse healthcare settings, particularly LMICs. These findings provide a foundation for future implementation research and support the continued integration of telehealth into patient-centered models of CAD management and secondary prevention.

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CrediT Authorship Contributions Statement

Desy Hendriyani: Conceptualization, Methodology, Literature Search, Study Selection, Data Curation, Formal Analysis, Writing – Original Draft.

Tuti Pahria: Supervision, Methodology, Validation, Writing – Review & Editing.

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All authors contributed to manuscript revision, reviewed the final version of the manuscript, and approved the submitted version.

Conflicts of Interest

There is no conflict of interest.

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Supplementary Materials

Supplementary File S1 contains additional materials supporting the findings of this review.

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