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Leveraging wearable technology and remote patient monitoring to enhance cardiovascular rehabilitation outcomes, medication adherence and preventive health strategies in community settings

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Abstract

Cardiovascular disease (CVD) remains a leading cause of morbidity and mortality worldwide, creating substantial pressure on healthcare systems and communities. Although evidence supports structured cardiac rehabilitation (CR), medication adherence, and preventive cardiovascular strategies, major implementation gaps remain, particularly in community settings where access and continuity of care are limited. The increasing use of wearable technology and remote patient monitoring (RPM) platforms presents an opportunity to address these challenges. This review examines current evidence regarding the integration of wearable devices and RPM into cardiovascular rehabilitation, medication adherence support, and preventive cardiovascular care in community environments. It discusses the technological

landscape, clinical applications, barriers to implementation, equity concerns, and emerging innovations such as artificial intelligence-driven analytics and integrated digital care models. Current evidence indicates that wearable-enabled RPM may improve exercise participation, physiological monitoring, medication adherence, and early identification of cardiovascular deterioration outside traditional healthcare settings. Wider adoption of these technologies, supported by effective clinical workflows and equitable access strategies, may contribute to improved cardiovascular outcomes and reduced disease burden.

Keywords: Wearable Technology; Remote Patient Monitoring; Cardiac Rehabilitation; Medication Adherence; Preventive Cardiology

1. Introduction

Cardiovascular disease remains one of the most significant causes of death globally and continues to impose a major burden on healthcare systems. Structured cardiac rehabilitation programs have consistently been associated with improved cardiovascular outcomes and reduced mortality among patients recovering from myocardial infarction, heart failure, and coronary revascularization procedures[1]. Despite these benefits, participation in traditional center-based cardiac rehabilitation programs remains low in many regions due to barriers such as transportation difficulties, geographic distance, occupational commitments, physical disability, and limited access to specialized centers.

Medication non-adherence following cardiovascular events also contributes significantly to recurrent cardiovascular complications and hospitalizations[2]. Patients recovering from myocardial infarction or living with chronic

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cardiovascular disease frequently discontinue prescribed medications because of side effects, financial constraints, poor health literacy, inadequate follow-up, or psychosocial challenges. These gaps in long-term adherence reduce the effectiveness of evidence-based secondary prevention strategies.

The growing availability of wearable technologies, including smartwatches, ambulatory electrocardiography (ECG) patches, connected blood pressure devices, and fitness trackers, has introduced new possibilities for continuous physiological monitoring outside conventional healthcare environments. When integrated with remote patient monitoring platforms, these technologies enable clinicians to assess patient status between visits, support rehabilitation programs, monitor adherence behaviors, and identify early signs of cardiovascular deterioration.

This review examines current evidence on wearable technology and RPM in cardiovascular rehabilitation, medication adherence, and preventive cardiovascular care within community settings, while also discussing implementation challenges and future directions.

2. The Technological Landscape: Wearable Devices and Remote Monitoring Platforms

2.1. Classification of Wearable Technologies

Wearable cardiovascular monitoring technologies may be categorized according to regulatory status and anatomical placement. Consumer-grade devices such as the Apple Watch, Fitbit, Samsung Galaxy Watch, and Garmin products commonly measure heart rate, physical activity, sleep patterns, oxygen saturation, and, increasingly, single-lead ECG recordings[3]. These devices are widely available and generally acceptable to patients, although concerns remain regarding the consistency of certain measurements across populations and clinical conditions.

Medical-grade wearable devices include ambulatory ECG patches, continuous blood pressure monitors, wearable cardiac defibrillators, and biosensor-integrated garments. These devices are typically subject to regulatory review and are designed to provide clinically reliable measurements for cardiovascular assessment and monitoring.

Implantable monitoring technologies, including loop recorders and cardiac implantable electronic devices with telemetry capability, provide continuous long-term monitoring in higher-risk cardiovascular populations and are increasingly integrated into remote monitoring systems[4].

2.2. 2Remote Patient Monitoring Platforms

RPM platforms function as the interface between patient-generated health data and healthcare teams[5]. These systems collect and organize information from wearable devices, support clinician review, facilitate communication with patients, and increasingly integrate with electronic health record systems. Interoperability through standards such as HL7 FHIR is becoming important for ensuring that wearable-generated data can be incorporated into routine clinical workflows.

2.3. Artificial Intelligence and Machine Learning Integration

Artificial intelligence (AI) and machine learning are increasingly being integrated into wearable and RPM ecosystems. These technologies can assist in identifying clinically relevant patterns in continuous physiological data, including arrhythmias and signs of cardiovascular deterioration. Studies involving wearable-based atrial fibrillation detection algorithms have demonstrated promising diagnostic performance, while machine learning approaches applied to wearable ECG data continue to show potential in arrhythmia classification and predictive cardiovascular analytics[6,7].

3. Wearable Technology in Cardiovascular Rehabilitation

3.1. Limitations of Traditional Center-Based Cardiac Rehabilitation

Traditional center-based cardiac rehabilitation programs have a strong evidence base but face important limitations related to accessibility and scalability[8]. Many programs are concentrated in urban healthcare centers, creating barriers for rural populations and individuals with transportation or occupational limitations. In addition, patients remain unsupervised outside scheduled rehabilitation sessions, limiting opportunities for continuous monitoring and individualized feedback.

3.2. Home-Based and Hybrid Cardiac Rehabilitation

Home-based cardiac rehabilitation supported by wearable technologies has emerged as an alternative or complementary model to traditional center-based rehabilitation. Research suggests that home-based rehabilitation programs can achieve outcomes comparable to center-based programs for exercise capacity and quality of life when appropriate monitoring and support systems are in place[9].

Wearable devices enable patients to monitor exercise intensity, physical activity levels, heart rate trends, and other physiological parameters in real time. Clinicians can remotely review these data to support individualized exercise prescription, monitor rehabilitation adherence, and identify potential safety concerns[10]. ECG-enabled wearable devices may also assist in detecting exercise-related arrhythmias in selected patients.

Hybrid rehabilitation models combining periodic in-person assessment with remote wearable monitoring are increasingly viewed as practical approaches for expanding access while maintaining clinical oversight[11]. Effective implementation of these models depends on structured workflows, clear escalation protocols, and appropriate interpretation of wearable-derived data.

3.3. Exercise Prescription and Personalized Rehabilitation

Continuous wearable monitoring may contribute to more individualized rehabilitation strategies by allowing clinicians to adjust exercise recommendations according to patient-specific physiological responses and recovery patterns. Parameters such as resting heart rate, heart rate variability, activity trends, oxygen saturation, and sleep quality may provide additional context for tailoring rehabilitation intensity and monitoring patient progress over time[12].

4. Remote Patient Monitoring and Medication Adherence

4.1. Medication Adherence Challenges in Cardiovascular Disease

Long-term adherence to cardiovascular medications remains a major challenge in secondary prevention. Antiplatelet agents, statins, beta-blockers, and renin-angiotensin system inhibitors are well established in reducing recurrent cardiovascular events, yet adherence often declines over time because of financial limitations, medication complexity, adverse effects, and psychosocial factors.

4.2. Digital Interventions for Medication Adherence

Digital health tools such as medication reminder applications, smart pill dispensers, and connected monitoring systems have been explored as methods to improve adherence[13]. Studies evaluating text-message reminders and mobile health interventions generally report modest improvements in medication-taking behavior[14]. Integration of medication adherence information with wearable physiological data may also allow clinicians to identify patterns suggestive of non-adherence and provide targeted interventions.

Emerging approaches combine wearable monitoring with patient education, motivational messaging, and pharmacist or nurse-led follow-up[15]. These multidimensional interventions appear more effective than isolated reminder systems alone because they address behavioral, educational, and clinical aspects of adherence simultaneously.

4.3. Pharmacist and Nursing Roles in RPM Programs

Pharmacists and nurses play important roles in RPM-supported cardiovascular care. Remote follow-up programs involving medication reconciliation, counseling, refill support, and monitoring of patient-generated data have demonstrated benefits in chronic cardiovascular disease management[16]. Team-based approaches supported by RPM may improve continuity of care and facilitate earlier intervention when adherence or clinical concerns arise.

5. Preventive Cardiovascular Health Strategies in Community Settings

5.1. Risk Factor Surveillance and Early Detection

Wearable technology has growing applications in community-based cardiovascular prevention. Connected blood pressure monitors, wearable ECG devices, and activity trackers can support early detection and monitoring of hypertension, atrial fibrillation, and sedentary behavior[17]. Home blood pressure monitoring integrated with RPM

systems may improve long-term blood pressure management and support more individualized treatment adjustments[18,19].

Wearable ECG technologies have also demonstrated usefulness in opportunistic atrial fibrillation screening, particularly in older adults and higher-risk populations. Earlier identification of atrial fibrillation may facilitate timely anticoagulation and stroke prevention interventions[20].

5.2. Physical Activity Promotion

Wearable activity trackers support physical activity promotion by enabling self-monitoring, goal-setting, and behavioral feedback. Research suggests that wearable devices may increase daily physical activity levels and reduce sedentary behavior in some populations[21]. Features such as reminders, activity goals, and social engagement mechanisms may enhance motivation and long-term participation in exercise programs.

5.3. Weight Management and Lifestyle Modification

Connected scales, dietary tracking applications, and wearable activity monitors are increasingly integrated into lifestyle modification programs targeting obesity and cardiometabolic risk[22]. Although wearable estimates of caloric expenditure may have limitations, these tools can still support behavioral awareness and self-management when combined with dietary counseling and clinical support.

5.4. Tobacco Cessation Support

Emerging wearable technologies are also being explored for smoking cessation support. Experimental systems capable of identifying smoking-related behaviors through motion or physiological sensing may allow delivery of real-time behavioral interventions through linked mobile applications[23]. While many of these approaches remain investigational, they represent a potential future direction in preventive cardiovascular care.

6. Implementation in Community Settings

6.1. Community Health Center-Based Programs

Community health centers and primary care facilities may serve as important settings for RPM-supported cardiovascular programs, particularly for underserved populations[24]. Programs involving community health workers and technology support services may improve patient engagement and facilitate use of wearable monitoring systems among populations with limited digital literacy[25,26].

6.2. Pharmacy-Based Monitoring Programs

Community pharmacies represent accessible environments for cardiovascular monitoring and preventive care. Pharmacist-led RPM programs have demonstrated potential benefits in hypertension management, medication counseling, and cardiovascular risk monitoring through regular patient contact and remote follow-up systems[27].

6.3. Workplace and Employer-Based Wellness Programs

Employer-sponsored wearable wellness initiatives have expanded in recent years and may contribute to increased physical activity and cardiovascular risk awareness among working-age adults[28]. Some programs combine wearable monitoring with health coaching, telehealth services, and preventive screening strategies.

6.4. Telehealth-Integrated Care Models

The expansion of telehealth infrastructure has accelerated integration between wearable technologies, RPM systems, and virtual cardiovascular care[29]. Telehealth-supported RPM models may improve follow-up for patients with chronic cardiovascular disease, particularly in rural or underserved communities where specialist access is limited[30,31].

7. Barriers to Adoption and Implementation Challenges

7.1. Digital Divide and Health Equity

One of the most significant concerns surrounding wearable and RPM implementation is the risk of widening existing healthcare disparities. Populations with high cardiovascular disease burden, including low-income, elderly, rural, and underserved groups, may also face limited access to smartphones, internet connectivity, and digital health literacy resources[32]. Equity-focused implementation strategies should therefore include affordable device access, multilingual support, and community-based technology assistance[33].

7.2. Data Privacy and Security

Wearable technologies generate large volumes of sensitive personal health data. Concerns regarding privacy, data sharing, and unauthorized access may reduce patient willingness to participate in RPM programs[34]. Strong regulatory protections, transparent data governance practices, and patient-centered privacy controls are important for maintaining trust in digital cardiovascular care systems[35,36].

7.3. Clinical Workflow Integration

Successful integration of wearable-generated data into healthcare systems requires clear clinical workflows, staff training, and appropriate alert management systems[37]. Excessive or poorly calibrated alerts may contribute to clinician burden and reduce responsiveness to clinically significant findings[38].

7.4. Reimbursement and Regulatory Challenges

Although reimbursement mechanisms for RPM have expanded in some healthcare systems, administrative complexity and inconsistent payer coverage continue to limit scalability[39,40]. Regulatory standards and reimbursement structures also vary considerably across countries, contributing to differences in access and adoption.

7.5. Device Accuracy and Reliability

The clinical usefulness of wearable-generated data depends on measurement accuracy and reliability. Some studies have reported variability in consumer-grade device performance across different patient populations and clinical conditions. Clinicians must therefore interpret wearable-derived data cautiously and consider device limitations when making clinical decisions[41].

8. Emerging Technologies and Future Directions

8.1. Multi-Parameter Wearable Systems

Future wearable technologies are expected to integrate multiple physiological sensors into single devices capable of monitoring ECG, blood pressure trends, activity patterns, temperature, and metabolic indicators simultaneously[42]. Such systems may provide a more comprehensive understanding of cardiovascular and metabolic health in real-world settings.

8.2. Artificial Intelligence and Predictive Analytics

AI-driven predictive models applied to longitudinal wearable data may improve early identification of cardiovascular deterioration and support preventive interventions[43]. Ongoing research is exploring how combinations of physiological and behavioral data can be used to predict hospitalization risk and guide individualized care[44,45].

8.3. Digital Therapeutics

Digital therapeutics are emerging as software-based interventions designed to support cardiovascular risk reduction, rehabilitation participation, and chronic disease self management[46]. Some platforms are currently undergoing regulatory evaluation and clinical validation for cardiovascular applications.

8.4. Integration with Social Determinants of Health

Future RPM systems may increasingly incorporate social determinants of health, including transportation access, food security, and housing stability, alongside physiological monitoring data[47]. Integrating these broader contextual factors may support more comprehensive cardiovascular risk management and improve health equity.

8.5. Large-Scale Digital Cardiovascular Research

Large decentralized clinical studies using wearable technologies have demonstrated the feasibility of conducting cardiovascular research at scale using remote data collection and monitoring approaches[48]. These models may accelerate evidence generation and improve understanding of real-world cardiovascular health behaviors and outcomes.

9. Conclusion

Wearable technology and remote patient monitoring are reshaping approaches to cardiovascular rehabilitation, medication adherence support, and preventive cardiovascular care in community settings. Current evidence suggests that these technologies may improve patient engagement, support continuous monitoring, expand access to rehabilitation services, and facilitate earlier identification of clinical deterioration. However, successful implementation requires careful attention to health equity, data privacy, device accuracy, workflow integration, and sustainable reimbursement structures.

As wearable technologies, artificial intelligence systems, and telehealth infrastructures continue to evolve, digital cardiovascular care models are likely to become increasingly integrated into routine healthcare delivery. With appropriate validation, equitable implementation strategies, and multidisciplinary collaboration, wearable-enabled cardiovascular care may contribute meaningfully to improved cardiovascular outcomes and reduced disease burden across diverse populations.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

[1] Zaree A, Dev S, Khan IY, Arain M, Rasool S, Rana MA, Kanwal K, Bhagat R, Prachi FN, Puri P, Varrassi G. Cardiac rehabilitation in the modern era: optimizing recovery and reducing recurrence. Cureus. 2023 Sep 26;15(9).

[2] Mavridis A, Viktorisson A, Leósdóttir M, Sunnerhagen KS. Medication adherence after myocardial infarction: Predictors, mortality and cardiovascular outcomes. Atherosclerosis. 2026 Mar 1;414:120664.

[3] Rytkin E, Zotova I, Passman R, Ardashev A, Trachiotis G, Efimov I, Knight BP. Consumer-grade wearable devices in arrhythmia diagnostics for clinicians: where we are and where we are going. Journal of Interventional Cardiac Electrophysiology. 2025 Oct;68(7):1531-41.

[4] Reinhardt A, Ventura R. Remote monitoring of cardiac implantable electronic devices: what is the evidence?. Current Heart Failure Reports. 2023 Feb;20(1):12-23.

[5] Erickson TJ. Evidence of improved outcomes using patient-generated health data. Nursing Management. 2022 Jun 1;53(6):12-5.

[6] Weber M, Klisares M, Li-Jedras M, Kabach A. Evaluating AI-Enabled Technologies for Atrial Fibrillation Detection: A Systematic Review of Diagnostic Performance. Critical pathways in cardiology. 2026 May 5:10-97.

[7] Dave A, Dave A, Moussa ID. The Evolving Role of Artificial Intelligence and Machine Learning in the Wearable Electrocardiogram: A Primer on Wearable-Enabled Prediction of Cardiac Dysfunction. Bioengineering. 2026 Jan 29;13(2):167.

[8] Karisa P, Sylviana N, Syamsunarno MR, Fitria N, Tiksnadi BB, Setiawan S. Comparative systematic review of home-based and center-based cardiac rehabilitation of delivery models and outcomes. Patient preference and adherence. 2026 Dec 31:581645.

[9] Karisa P, Sylviana N, Syamsunarno MR, Fitria N, Tiksnadi BB, Setiawan S. Comparative systematic review of home-based and center-based cardiac rehabilitation of delivery models and outcomes. Patient preference and adherence. 2026 Dec 31:581645.

[10] Greco G, Petrelli A, Poli L, Fischetti F, Cataldi S. Machine Learning in Adapted Physical Activity: Clinical Applications, Monitoring, and Implementation Pathways for Personalized Exercise in Chronic Conditions: A Narrative Review. Journal of Functional Morphology and Kinesiology. 2026 Mar 4;11(1):106.

[11] Gao CM, Fu P, Du W, Li Y. Integrating digital health and remote monitoring: emerging trends in cardiac rehabilitation research for chronic heart failure. Frontiers in Cardiovascular Medicine. 2026 Apr 9;13:1774181.

[12] Singh N, Moneghetti KJ, Christle JW, Hadley D, Froelicher V, Plews D. Heart rate variability: an old metric with new meaning in the era of using health technologies for health and exercise training guidance. part two: prognosis and training. Arrhythmia & electrophysiology review. 2018 Dec;7(4):247.

[13] Faisal S, Samoth D, Aslam Y, Patel H, Park S, Baby B, Patel T. Key features of smart medication adherence products: updated scoping review. JMIR aging. 2023 Dec 19;6:e50990.

[14] Akinrele E. *Improving Medication Adherence in Adult Students Using Mobile Technology*(Doctoral dissertation, Azusa Pacific University).2025.

[15] Singh K, Joy GV, Al Bulushi A, Alomari AM, Mannethodi K, Kunjavara J, Hassan N, Idris Z, Yassin MA, Al Lenjawi B. Nurse-led medication self-management intervention in the improvement of medication adherence in adult patients with multi-morbidity: A Protocol for a Feasibility Randomized controlled trial. Global Epidemiology. 2025 Jun 1;9:100184.

[16] Chervonski E, Pelegri E, De La Calle F, Mandal S, Graves CA, Colella D, Elmaleh-Sachs A, Nay J, Dapkins I, Schoenthaler A. Cardiovascular health markers with remote team-based hypertension management in a safety-net population. American Journal of Preventive Medicine. 2025 Aug 5:108031.

[17] Sultana S, Hriday MS, Haque R, Das M. Health monitoring through wearables: A systematic review of innovations in cardiovascular disease detection and prevention. Strategic Data Management and Innovation. 2025 Jan 28;2(01):96-115.

[18] Ullah A, Ahmad I, Deng W. Association of Mobile-Enhanced Remote Patient Monitoring with Blood Pressure Control in Hypertensive Patients with Comorbidities: A Multicenter Pre–Post Evaluation. Diagnostics. 2026 Jan 12;16(2):244.

[19] Tang M, Nakamoto CH, Stern AD, Zubizarreta JR, Marcondes FO, Uscher-Pines L, Schwamm LH, Mehrotra A. Effects of remote patient monitoring use on care outcomes among medicare patients with hypertension: an observational study. Annals of internal medicine. 2023 Nov;176(11):1465-75.

[20] Silva MS, Resende EH, Silva JT. The importance of early diagnosis and treatment of atrial fibrillation for the prevention of ischemic stroke [A importância do diagnóstico e tratamentoprecoces da fibrilação atrial para a prevenção do acidente vascular cerebral isquêmico]. Rev Med (São Paulo). 2024 Jul;103(4):224916.

[21] Longhini J, Marzaro C, Bargeri S, Palese A, Dell'Isola A, Turolla A, Pillastrini P, Battista S, Castellini G, Cook C, Gianola S. Wearable devices to improve physical activity and reduce sedentary behaviour: an umbrella review. Sports medicine-open. 2024 Jan 14;10(1):9.

[22] Tate AR, Rao G. Activity trackers, wearables, noninvasive technologies for early detection, and management of cardiometabolic risks. Int. J. Biomed. 2020;10:189-97.

[23] Casu M, Guarnera F, La Rosa GR, Battiato S, Caponnetto P, Polosa R, Emma R. Smoking Detection and Cessation: An Updated Scoping Review of Digital and Mobile Health Technologies. IEEE journal of biomedical and health informatics. 2025 Mar 10.

[24] Chervonski E, Pelegri E, De La Calle F, Mandal S, Graves CA, Colella D, Elmaleh-Sachs A, Nay J, Dapkins I, Schoenthaler A. Cardiovascular health markers with remote team-based hypertension management in a safety-net population. American Journal of Preventive Medicine. 2025 Aug 5:108031.

[25] Maha CC, Kolawole TO, Abdul S. Revolutionizing community health literacy: The power of digital health tools in rural areas of the US and Africa. GSC Advanced Research and Reviews. 2024 May;19(02):286-96.

[26] Dunn P, Hazzard E. Technology approaches to digital health literacy. International journal of cardiology. 2019 Oct 15;293:294-6.

[27] Sabatino JA, Lee NS, Barnes KD, Coffey CP, Jonas DE, Tayal NH. Implementation modifications and outcomes of a pharmacist-led primary care remote hypertension service. Journal of the American Pharmacists Association. 2025 Nov 1:102971.

[28] Fonarow GC, Calitz C, Arena R, Baase C, Isaac FW, Lloyd-Jones D, Peterson ED, Pronk N, Sanchez E, Terry PE, Volpp KG. Workplace wellness recognition for optimizing workplace health: a presidential advisory from the American Heart Association. Circulation. 2015 May 19;131(20):e480-97.

[29] Khan U. Remote patient monitoring and telehealth: The future of cardiac care. International Journal of Engineering Technology Research & Management (ijetrm). 2024;8(06).

[30] Rutledge CM, Gustin T. Telehealth and Interprofessional Collaboration. InTelehealth Essentials for Advanced Practice Nursing 2024 Jun 1 (pp. 193-212). Routledge.

[31] Spinsante S. Home telehealth in older patients with heart failure–costs, adherence, and outcomes. Smart Homecare Technology and TeleHealth. 2014 Sep 18:93-104.

[32] Ogungbe O, Longenecker CT, Beaton A, de Loizaga S, Brant LC, Turkson Ocran RA, Bastani P, Sarfo FS, Commodore-Mensah Y. Advancing cardiovascular health equity globally through digital technologies. Journal of the American Heart Association. 2024 Jan 16;13(2):e031237.

[33] Acosta J, Shearer A, Chinman M. Advancing the science and practice of training and technical assistance to improve the equitable implementation of evidence-based practices. Evaluation & the Health Professions. 2024 Dec;47(4):446-66.

[34] Sharma V, Mishra K, Agarwal U. Security and Privacy Issues of Remote Patient Monitoring System. Int. J. Res. Publ. Rev. 2024;5(1):2528-31.

[35] Akintola AS, Fawehinmi YO, Aiyenitaju O, Chinemerem B, Emmanuella O. Digital Transformation in Telehealth: A Systematic Review of User Trust, Privacy, and Regulatory Governance in AI-Powered Remote Monitoring Systems. Journal of Scientific Research and Reports. 2025 Oct 31;31(11):163-82.

[36] Goldfarb MJ, Saylor MA, Bozkurt B, Code J, Di Palo KE, Durante A, Flanary K, Masterson Creber R, Ogunniyi MO, Rodriguez F, Gulati M. Patient-centered adult cardiovascular care: a scientific statement from the American Heart Association. Circulation. 2024 May 14;149(20):e1176-88.

[37] Adeghe EP, Okolo CA, Ojeyinka OT. A review of wearable technology in healthcare: Monitoring patient health and enhancing outcomes. OARJ of Multidisciplinary Studies. 2024 Mar;7(01):142-8.

[38] McGreevey III JD, Mallozzi CP, Perkins RM, Shelov E, Schreiber R. Reducing alert burden in electronic health records: state of the art recommendations from four health systems. Applied clinical informatics. 2020 Jan;11(01):001-12.

[39] Rakers MM, van Os HJ, Recourt K, Mosis G, Chavannes NH, Struijs JN. Perceived barriers and facilitators of structural reimbursement for remote patient monitoring, an exploratory qualitative study. Health Policy and Technology. 2023 Mar 1;12(1):100718.

[40] Millet L. Enhancing Health Care Access and Quality through Remote Patient Monitoring: Insights from a Field Study in the United States. Journal de gestion et d'économie de la santé. 2024;4(4):35-55.

[41] Roos LG, Slavich GM. Wearable technologies for health research: Opportunities, limitations, and practical and conceptual considerations. Brain, behavior, and immunity. 2023 Oct 1;113:444-52.

[42] Mahato K, Saha T, Ding S, Sandhu SS, Chang AY, Wang J. Hybrid multimodal wearable sensors for comprehensive health monitoring. Nature Electronics. 2024 Sep;7(9):735-50.

[43] Khan AO, Islam SM, Sarkar A, Islam T, Paul R, Bari MS. Real-time predictive health monitoring using AI-driven wearable sensors: Enhancing early detection and personalized interventions in chronic disease management. International Journal for Multidisciplinary Research. 2024;6(5):1-21.

[44] Rajagopalan R, Litvan I, Jung TP. Fall prediction and prevention systems: recent trends, challenges, and future research directions. Sensors. 2017 Nov 1;17(11):2509.

[45] Narayanan U. *Patient Behavior Prediction Using Big Data Analytics and Machine Learning*(Doctoral dissertation, National University).

[46] Ma S, Chen Z, Zhang J, Liu J, Xu L, Huang B, Zhou M, Wang H, Chen Y, Wang M, Li C. Evaluation of the efficacy of integrating digital therapeutics with home-based cardiac rehabilitation on cardiovascular health in high-risk post-PCI patients (DTx-HBCR): Study protocol for a randomized controlled trial. Digital Health. 2025 Jul;11:20552076251360885.

[47] Tan SY, Sumner J, Wang Y, Wenjun Yip A. A systematic review of the impacts of remote patient monitoring (RPM) interventions on safety, adherence, quality-of-life and cost-related outcomes. NPJ Digital Medicine. 2024 Jul 18;7(1):192.

[48] Baudry G, Kulkarni P, Biering-Sørensen T, DeVore AD, Gibson CM, Granger CB, Van Spall HG. Decentralized clinical trials in cardiovascular disease: A primer for clinical trialists. Nature cardiovascular research. 2026 Mar;5(3):193-203.