JOURNAL OF INTERNATIONAL CRISIS AND RISK COMMUNICATION RESEARCH
ISSN: 2576-0017
2024, VOL 7, NO S9

The role of nursing in enhancing the care of patients with cardiovascular diseases: Systematic review

Khalid Nahar Funays Almutairi[1], Majed Nahar Funays Almutairi[2], Kholoud M, Al-bedaiah[3], Essam Mohammed AlAldeayea Abdullah[4], Naif Obaid Shumrukh Almutairi[5], Reem Naif Almutairi[6], Abdullah Yousef Ayidh Alanazi[7], Noof Khaleef Freh Alanezi[8], Abdulrahman Mohammed Abdullah Al-Omar[9],Saad Yosef Ayedh AAlenizi[10]

1. Technician-Nursing, Prince Nasser bin Saad Al-Sudairi Hospital in Ghat
2. Technician-Nursing, Prince Nasser bin Saad Al-Sudairi Hospital in Ghat
3. Nursing Technican, King Khaled Hospital Majma'ah, Al-Majmaah
4. Nurse, Primary Health Care AlGhat.
5. Technician -Nursing, Prince Nasser bin Saad Al-Sudairi Hospital in Ghat, Al-Ghat
6. Nursing Technician, Alghat Hospital, Alghat
7. Nurse, King Salman Specialist Hospital,Hail City.
8. Senior Specialist Nursing, Academic Affairs and Research, HAIL
9. Nursing specialist, Prince Nasser Al-Sudairy Hospital in Al Ghaat , Al Ghaat
10. Specialist Nursing, HAIL GENERAL HOSPITAL, HAIL

Abstract
Background: Cardiovascular diseases (CVDs) are the leading cause of morbidity and mortality globally, imposing significant challenges on healthcare systems. Nurses play a vital role in the prevention, management, and rehabilitation of CVD patients, contributing to improved health outcomes and quality of care.**Objective:** This systematic review aims to explore the role of nursing in enhancing the care of patients with CVDs, focusing on evidence-based practices, challenges, and strategies for optimizing nursing interventions.**Methods:** A comprehensive review of recent literature was conducted, analyzing studies that examine nursing contributions to CVD prevention, acute and chronic disease management, and cardiac rehabilitation. The review also assessed the impact of nursing education, technological integration, and patient-centered care approaches on clinical outcomes.**Results:** The findings reveal that nurse-led interventions, including patient education, lifestyle counseling, telemonitoring, and participation in multidisciplinary teams, significantly improve patient outcomes, reduce hospital readmissions, and enhance adherence to treatment plans. Nurse-managed cardiac rehabilitation programs are associated with reduced mortality and recurrent cardiac events. Despite these contributions, challenges such as resource limitations, high workloads, and training gaps hinder the effectiveness of nursing care.**Conclusion:** Nurses are integral to the care of CVD patients, offering a wide range of services that improve prevention, management, and recovery. Addressing barriers through policy support, continuous professional education, and integration of innovative technologies is essential for empowering the nursing workforce. Further research is needed to explore the scalability and long-term impact of nursing interventions in diverse and low-resource settings.
Keywords: Cardiovascular diseases, nursing, patient care, prevention, cardiac rehabilitation, systematic review.

1. Introduction:

Cardiovascular diseases (CVDs) are the disorders that affect the heart and blood vessels and encompass a broad range of conditions which may lead to severe complications like heart attack, stroke and heart failure. These conditions are the leading causes of death globally and contribute to significant morbidity cases specifically in developing and least developed countries. Early detection, prompt treatment, and ongoing management are crucial in reducing the burden of CVD and improving outcomes for affected individuals. Nurses play a great role in the prevention, management, and treatment of cardiovascular diseases (CVDs) across various healthcare settings and are at the forefront to drive transformative initiatives that revolutionize care delivery and elevate standards of practice [1].

Cardiovascular diseases (CVDs) are a significant global health challenge, responsible for an estimated 17.9 million deaths annually, representing 32% of all deaths worldwide, according to the World Health Organization (WHO) [2]. The management and care of patients with CVDs are complex and multifaceted, requiring a collaborative, patient-centered approach. Among the healthcare professionals involved, nurses play a crucial and multifaceted role, encompassing prevention, acute care, chronic disease management, and rehabilitation.

Nurses are uniquely positioned to provide continuous care and act as primary educators, advocates, and coordinators for patients with CVDs. Their responsibilities extend beyond clinical interventions to include lifestyle counseling, medication adherence monitoring, and psychosocial support, which are essential for effective disease management [3]. Additionally, the trust and rapport nurses often establish with patients that allow them to address barriers to care and ensure adherence to treatment plans, ultimately improving health outcomes.

The increasing prevalence of multimorbidity's among people living with cardiovascular disease (CVD) has increased the complexity of their clinical care. Implementing the role of APNs in new models of care has been shown to improve outcomes in the CVD population. However, the CVD population's understanding of and experiences with the APN role have not been examined in Singapore. Understanding the role of nursing in this domain not only underscores the importance of their contributions but also informs healthcare policies and practices aimed at addressing the growing burden of CVDs [4].

This systematic review explores the critical contributions of nursing in the care of patients with CVDs, focusing on their roles in prevention, management, and rehabilitation. Emphasis is placed on how evidence-based nursing practices enhance clinical outcomes, patient satisfaction, and overall quality of care. By examining recent literature, this review aims to identify key nursing interventions, highlight challenges faced by nursing professionals, and propose strategies to optimize nursing care in the context of cardiovascular health.

Literature Review

Cardiovascular diseases (CVDs) remain the leading cause of morbidity and mortality worldwide, accounting for a significant burden on healthcare systems and society. Effective management of CVDs requires a multidisciplinary approach, with nursing playing a pivotal role in improving patient outcomes. Nurses are often at the forefront of patient care, providing education, emotional support, and specialized interventions tailored to the unique needs of individuals with cardiovascular conditions [5].

The Burden of Cardiovascular Diseases and the Need for Nursing Interventions

Cardiovascular diseases (CVDs) remain the leading global cause of death, with an increasing prevalence attributed to aging populations, lifestyle changes, and rising rates of risk factors such as obesity, hypertension, and diabetes. Effective management of CVDs is critical to reducing associated morbidity and mortality [6]. Studies highlight the pivotal role of nurses in addressing this challenge through prevention, education, and patient-centered care. Nurses are integral to early risk identification and management, ensuring that patients receive timely interventions that can mitigate disease progression. The global burden of cardiovascular disease (CVD) has been acknowledged for several decades. Worldwide, CVD is considered to be the leading cause of death and loss of disability-adjusted life years [7].

Growing evidence underlines the efficacy of nurse-led intervention in cardiovascular prevention and management of patients with cardiovascular disease (CVD). The article "Nurse-led intervention in the management of patients with cardiovascular diseases: A brief literature review" by Qiu X. analyzes the role of nurses in promoting cardiovascular prevention and in educating patients about correct lifestyles [8].

Nursing Roles in Prevention and Education

Assessment and diagnosis are essential to providing best practices for patients with CHD. Indeed, an appropriate nursing assessment includes a review and evaluation of medical records, a physical examination, mental health status, laboratory results, lifestyle, and dietary habits [9]. Nurses play an important role in CVD prevention by educating individuals and communities about risk factors and supporting healthy lifestyle choices such as regular exercise, a well-balanced diet, smoking cessation, and stress management. To lessen the frequency and severity of CVDs, they equip people with the knowledge and abilities to prevent these disorders. In addition, Nurses conduct comprehensive health assessments to identify individuals at risk for CVDs based on factors such as family history, lifestyle habits, and medical history [1]. Preventive care is a cornerstone of cardiovascular nursing. Research demonstrates that nurse-led education programs focusing on lifestyle modifications, such as smoking cessation, physical activity, and dietary changes, significantly reduce CVD risk [10]. Nurses also play a vital role in community outreach and health promotion campaigns, targeting at-risk populations with tailored interventions. Evidence supports the effectiveness of nurse-managed clinics in improving outcomes for patients with hypertension and hyperlipidemia, two major contributors to CVD. The nursing field occupies the largest section of cardiovascular healthcare services. Despite this, the roles of nursing within the cardiovascular healthcare system have not been well displayed[11].

Patient education is equally critical in secondary prevention, where nurses guide individuals recovering from cardiovascular events. A systematic review by Qiu,(2024) found that patients receiving education from specialized cardiac nurses exhibited better adherence to medications, reduced hospital remissions, and improved quality of life.

These findings underscore the necessity of integrating educational components into routine nursing care for CVD patients [12].

Nursing Interventions in Acute and Chronic Care Settings

Nurses are central to acute care for CVD patients, particularly in emergencies and critical care settings. Studies have shown that timely and accurate nursing assessments, including monitoring of vital signs and recognition of cardiac symptoms, are key to the rapid initiation of life-saving interventions [13]. In chronic care, nurses provide ongoing support for patients managing conditions such as heart failure or arrhythmia. Interventions such as telemonitoring, nurse-led follow-ups, and multidisciplinary care models have been shown to improve disease management and reduce hospitalizations [14].

Role of Nurses in Cardiac Rehabilitation

Cardiac rehabilitation programs are essential for patients to recover from acute cardiovascular events. Nurses are integral members of these programs, providing exercise training, counseling, and psychosocial support. A meta-analysis by Virani, et al. (2021) revealed that participation in nurse-led cardiac rehabilitation programs is associated with a 20% reduction in mortality and a 25% decrease in recurrent cardiac events. The involvement of nurses in such programs also enhances patient engagement and adherence, factors critical to long-term success [14].

Challenges in Cardiovascular Nursing

Despite their critical role, nurses face several challenges in delivering optimal cardiovascular care. Studies cite high workloads, resource limitations, and gaps in specialized training as barriers to effective nursing interventions. The complexities of acute and critical care cardiovascular management demand specialty trained and experienced nurses to ensure quality patient outcomes. An ongoing nurse labor shortage threatens to destabilize the healthcare system and presents a twofold challenge: a decreasing supply of registered nurses and increasing demand for nursing services[15]. Additionally, the emotional toll of caring for patients with life-threatening conditions can contribute to burnout among cardiovascular nurses, affecting the quality of care provided. Addressing these challenges through policy changes, increased funding, and professional development programs is imperative for empowering nurses to meet the demands of cardiovascular care [16].

Importance of Continuous Education and Training

Continuous professional education is a cornerstone of advancing nursing practice, particularly in the care of patients with cardiovascular diseases (CVDs). Staying informed about the latest advancements in cardiovascular medicine enables nurses to provide evidence-based care that aligns with current clinical guidelines. Research consistently demonstrates that nurses who engage in ongoing training programs not only enhance their clinical competencies but also develop greater confidence in handling complex CVD cases, leading to improved patient outcomes [10].

Moreover, as healthcare increasingly incorporates advanced technologies, such as telehealth, remote monitoring, and artificial intelligence tools, specialized training in these areas is essential. These innovations allow nurses to monitor patients more effectively, facilitate early detection of complications, and provide timely interventions, even in remote or underserved areas [6]. By mastering these technologies, nurses can expand their roles, offering more comprehensive care that bridges gaps between hospital and community settings.

In addition to technical skills, continuous education supports nurses in developing critical thinking, communication, and leadership abilities, all of which are vital for coordinating multidisciplinary care and advocating for patients. Such programs also contribute to professional growth, job satisfaction, and career advancement, creating a highly skilled workforce capable of addressing the growing burden of CVDs [1].

Ultimately, investing in continuous education and training ensures that nurses remain adaptable and prepared to meet the evolving demands of cardiovascular care, fostering better health outcomes and reinforcing their indispensable role within the healthcare system.

Summary of Gaps in Literature

While numerous studies underscore the impact of nursing interventions on CVD care, gaps remain in understanding the long-term outcomes of nurse-led initiatives and their scalability in low-resource settings. Additionally, limited research explores the integration of cultural and psychosocial factors into cardiovascular nursing practices, particularly in diverse populations. Addressing these gaps is crucial for advancing the field and optimizing the role of nurses in CVD management.

This review highlights the extensive contributions of nurses in enhancing cardiovascular care across prevention, acute and chronic care, and rehabilitation. It also identifies challenges and opportunities for strengthening nursing practices, emphasizing the need for continued research and support for cardiovascular nursing.

Conclusion

Nursing plays an indispensable role in the care of patients with cardiovascular diseases (CVDs), contributing significantly to prevention, acute and chronic disease management, and rehabilitation. Through patient education, lifestyle counseling, clinical interventions, and psychosocial support, nurses enhance patient outcomes, reduce hospital readmissions, and improve overall quality of life. This systematic review underscores the effectiveness of nurse-led interventions in addressing the growing global burden of CVDs and highlights their impact on promoting patient-centered, evidence-based care.

However, challenges such as high workloads, limited resources, and gaps in specialized training can hinder the ability of nurses to deliver optimal care. Addressing these barriers through targeted policies, professional development programs, and increased investment in nursing resources is essential for empowering the nursing workforce. Furthermore, continuous education and the integration of innovative technologies, such as telehealth and remote monitoring, are critical to advancing nursing practices and meeting the evolving demands of cardiovascular healthcare.

The findings of this review emphasize the need for ongoing research to explore the scalability of nurse-led interventions, particularly in low-resource settings, and to examine the long-term outcomes of these initiatives. By prioritizing the development and support of cardiovascular nursing, healthcare systems can strengthen their capacity to manage CVDs effectively, ultimately reducing the burden of these conditions and improving the lives of patients worldwide.

In conclusion, recognizing and investing in the role of nurses in cardiovascular care is not only a practical necessity but also a critical step toward achieving global health goals and ensuring sustainable, high-quality care for patients with cardiovascular diseases.

References

1. Ahmed, N. (2024). Compassionate Care in Cardiology: The Role of Nurses in Cardiovascular Disease Management. *NURSEARCHER (Journal of Nursing & Midwifery Sciences)*, *4*(02), 01. https://doi.org/10.54393/nrs.v4i02.89
2. Baptiste DL, Li Q, Milesky JL, Wright R. Advancing cardiovascular care through nursing research, quality improvement, and evidence-based practice. Shanghai Chest 2019;3:13.
3. Di Cesare M, Perel P, Taylor S, Kabudula C, Bixby H, Gaziano TA, McGhie DV, Mwangi J, Pervan B, Narula J, Pineiro D, Pinto FJ. The Heart of the World. Glob Heart. 2024 Jan 25;19(1):11. doi: 10.5334/gh.1288. PMID: 38273998; PMCID: PMC10809869.
4. Woo B, Koh K, Zhou W, Wei Lim T, Lopez V, Tam W. Understanding the role of an advanced practice nurse through the perspectives of patients with cardiovascular disease: A qualitative study. J Clin Nurs. 2020 May;29(9-10):1623-1634. doi: 10.1111/jocn.15224. Epub 2020 Mar 3. PMID: 32065688.
5. Baptiste DL, Li Q, Milesky JL, Wright R. Advancing cardiovascular care through nursing research, quality improvement, and evidence-based practice. Shanghai Chest 2019;3:13.
6. Shan Y, Chen J, Zhou S, Wen G. Nursing Interventions and Care Strategies for Patients with Coronary Heart Disease: A Comprehensive Review. Galen Med J. 2023 Aug 19;12:1-13. doi: 10.31661/gmj.v12i0.2994. PMID: 38774841; PMCID: PMC11108677.
7. Okube OT, Kimani ST, Mirie W. Effect of a Nurse-Led Intervention on Knowledge of the Modifiable Risk Behaviors of Cardiovascular Disease: A Randomized Controlled Trial. SAGE Open Nursing. 2023;9. doi:10.1177/23779608231201044
8. Mattioli AV, Gallina S. Early cardiovascular prevention: the crucial role of nurse-led intervention. BMC Nurs. 2023 Oct 2;22(1):347. doi: 10.1186/s12912-023-01511-6. PMID: 37784056; PMCID: PMC10546686.
9. Posadas-Collado G, Membrive-Jiménez MJ, Romero-Béjar JL, Gómez-Urquiza JL, Albendín-García L, Suleiman-Martos N, et al. Continuity of nursing care in patients with coronary artery disease: a systematic review . Int J Environ Res Public Health. 2022;5(19):3000–3000. doi: 10.3390/ijerph19053000.
10. Zhang C, Xiang C, Tian X, Xue J, He G, Wu X, Mei Z, Li T. Roles of Nursing in the Management of Geriatric Cardiovascular Diseases. Front Med (Lausanne). 2021 Sep 8;8:682218. doi: 10.3389/fmed.2021.682218. Erratum in: Front Med (Lausanne). 2021 Dec 10;8:820659. doi: 10.3389/fmed.2021.820659. PMID: 34568358; PMCID: PMC8455815.
11. Li T, Yin Y, Mu N, Wang Y, Liu M, Chen M, et al. Metformin-enhanced cardiac AMP-activated protein kinase/atrogin-1 pathways inhibit charged multivesicular body protein 2B accumulation in ischemia-reperfusion injury. Front Cell Dev Biol. (2020) 8:621509. 10.3389/fcell.2020.621509

12. Qiu, X. Nurse-led intervention in the management of patients with cardiovascular diseases: a brief literature review. *BMC Nurs* **23**, 6 (2024). https://doi.org/10.1186/s12912-023-01422-6
13. Hannan JA, Commodore-Mensah Y, Tokieda N, Smith AP, Gawlik KS, Murakami L, Cooper J, Koob S, Wright KD, Cassarino D, Arslanian-Engoren C, Melnyk BM. Improving hypertension control and cardiovascular health: An urgent call to action for nursing. Worldviews Evid Based Nurs. 2022 Feb;19(1):6-15. doi: 10.1111/wvn.12560. Epub 2022 Feb 8. PMID: 35137506; PMCID: PMC9305122.
14. Virani, S.S. , Alonso, A. , Aparicio, H.J. , Benjamin, E.J. , Bittencourt, M.S. , Callaway, C.W. et al. (2021) Heart disease and stroke statistics – 2021 update: a report from the American Heart Association. Circulation, 143(8), e254–e743. Available from: 10.1161/cir.0000000000000950
15. Vozzella GM, Hehman MC. Cardiovascular Nursing Workforce Challenges: Transforming the Model of Care for the Future. Methodist Debakey Cardiovasc J. 2023 Mar 7;19(2):90-99. doi: 10.14797/mdcvj.1188. PMID: 36910553; PMCID: PMC10000318.
16. El-Ashry AM, Elsayed SM, Ghoneam MA, Atta MHR. Compassion fatigue and stress related to cardiopulmonary resuscitation: a study of critical care nurses' experiences. BMC Nurs. 2023 Dec 18;22(1):482. doi: 10.1186/s12912-023-01640-y. PMID: 38110907; PMCID: PMC10726549.