

Advancements in Chronic Disease Management: Evaluating the Role of Nursing Staff to Achieving the Goals of Saudi Vision 2030

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Abstract

Background: Globally, chronic diseases represent a major healthcare challenge, particularly in Saudi Arabia, which is experiencing increasing burden of chronic disease related to modern lifestyle changes and population ageing. Care coordination, patient education and disease management are all key roles completed by nursing staff. Nursing contributions to chronic disease management require the healthcare transformation embodied in Saudi Vision 2030.

Aim: The systematic review aimed to assess progress in the management of chronic diseases, and to evaluate its adherence to the healthcare objectives of Saudi Vision 2030 through the contributions of the nursing staff.

Method: A systematic review of studies published between 2020 and 2024, was conducted using data following PRISMA guidelines. Ten studies that met inclusion criteria were identified by doing searches across PubMed, CINAHL, Scopus, and Web of Science. Nurse led interventions were the subject of thematic synthesis along with workforce development and healthcare transformation.

Results: Workforce development, nurse led interventions, technology integration, multidisciplinary collaboration and policy challenges were key themes. Chronic disease outcomes improved with nurse led programs and telehealth contributed to improved care delivery. Workforce shortages and policy gaps were deemed as the critical barriers of implementation, and unequivocally require the implementation of leadership development and training programs, adhering to Vision 2030.

Conclusion: Chronic disease management and rising to Vision 2030 goals needs the engagement of nurses. Vital are addressing workforce challenges, fostering nurse-led care, integrating technology, and implementing supportive system policies. These in both a practical and intuitive manner provide actionable insights for both empowering nurses and improving healthcare delivery.

Keywords: Nursing Staff, Saudi Vision 2030, Telehealth, Healthcare Transformation, Nurse Led Interventions, Chronic Disease Management, Policy Development.

Introduction

Chronic diseases are a major public health problem and a cause of great morbidity, mortality, and economic burden worldwide. Chronic diseases such as diabetes, cardiovascular diseases and respiratory conditions are on the rise in Saudi Arabia owing to urbanization, lifestyle changes and an ageing population (Boscart et al., 2020; Mohammad Al-Raddadi et al., 2018; Boettiger et al., 2023). Therefore, it was necessary to employ innovative strategies to overcome this ticking time bomb escalating, particularly in the context of Saudi Vision 2030, a transformative agenda which seeks to diversify the country's economy and build up its healthcare system (Alasiri & Mohammed, 2022; Fahad Alqusumi, 2024; Mohammad Al-Raddadi et al., 2018).

Reform of the healthcare sector has been central to Saudi Vision 2030; improving service quality, pushing the agenda for preventive care and promoting public health initiatives are a few areas of focus. Under Vision 2030, the Health Sector Transformation Program is determined as an integrated system of healthcare, value-based healthcare and expansion of the primary healthcare services in order to provide equitable access to all citizens (Alluhidan et al., 202; Fahad Alqusumi, 2024; Senitan et al., 2018). The nursing profession has then been identified as an important part of the healthcare system whereby nurses are the main caregivers and patient representatives for patient centered care specially in the management of chronic diseases (Mohammad Al-Raddadi et al., 2018; Bashir & Ahmad, 2024).

Nurse led interventions have been effective globally for chronic disease management, e.g. for improving patient outcomes, increasing self-management practices and decreasing hospital readmissions (Day & Brownie, 2014; Neylon, 2015; Bashir & Ahmad, 2024). However, nursing in Saudi Arabia faces challenges like workforce shortages; narrow specialization; and high dependence on foreign staff, hence the need for investing in nursing education leadership (Alluhidan et al., 202; Chowdhury et al., 2021; Mohammad Al-Raddadi et al., 2020). Despite these challenges, it appears that training nurses, allocating resources, and assigning broader roles can result in transformative improvements in care for people with chronic disease (Day & Brownie, 2014; Senitan et al., 2018; Boettiger et al., 2023).

The aim of this review is to review latest developments in chronic disease management to include role of nursing staff in line with Saudi Vision 2030. The review synthesizes evidence from primary research to explore the integration of nurse-led interventions and to further explore the opportunities and barriers to attaining Vision 2030 goals through enhanced nursing contributions in achieving the health system transformation (Alasiri & Mohammed, 2022; Huat et al., 2019; Bashir & Ahmad, 2024). This review through analysis will present actionable insights to policymakers, healthcare administrators and educators to enable the nursing profession to enhance its capacity in tackling chronic disease challenges in Saudi Arabia (Mohammad Al-Raddadi et al., 2018; Albarnawi et al., 2024; Boettiger et al., 2023).

Problem Statement

Diabetes, cardiovascular diseases and chronic respiratory conditions are a real threat to the healthcare systems worldwide. These diseases are major burdens of morbidity and mortality in Saudi Arabia with an aging population and increased lifestyle-related risk factors (Alasiri & Mohammed, 2022; Mohammad Al-Raddadi et al., 2018; Boettiger et al., 2023). Nurses occupy a critical role in caring for patients with chronic disease, and Saudi Arabia has a unique situation with respect to shortages of specially trained nurses, heavy dependence on expatriate healthcare providers, and relatively low levels of nursing led chronic disease management program

(Alluhidan et al., 202; Senitan et al., 2018; Albarnawi et al., 2024). Saudi Vision 2030 has focused on the transformation of healthcare by establishing integrated healthcare systems and value based care (Fahad Alqusumi, 2024; Mohammas Al-Raddadi et al., 2018; Boettiger et al., 2023), thus addressing the nursing capacity gaps are imperative to achieving these goals. Although nursing staff can play a role in the design of chronic disease management in line with the Vision 2030 framework, their contribution remains underexplored and an evidence-based analysis of their role and potential is needed.

Significance of Study

It is critical that this study addresses an important gap in the understanding of the role of nursing staff in chronic disease management for realizing the transformative goals of Saudi Vision 2030. The result of this study will help to how nurse led interventions can help achieve the targets of healthcare reform, for example better patient outcomes, lessen hospital readmissions, better management of chronic illness (Day & Brownie, 2014; Bashir & Ahmad, 2024; Boettiger et al., 2023). This study seeks to enlighten policymakers, healthcare administrators and educators on important strategic investments that need to be made in the area of nursing education, training and leadership development for nursing staff in Saudi Arabia in terms of challenges and opportunities (Alluhidan et al., 202; Fahad Alqusumi, 2024; Senitan et al., 2018). Moreover, the results will stress on the need to put nurses in a position of power as agents of change, due to the imperative of sustaining and achieving the success of the healthcare reforms outlined in Vision 2030 (Mohammas Al-Raddadi et al., 2018; Albarnawi et al., 2024; Bashir & Ahmad, 2024).

Aim of the Study

This study aims at understanding how the changes in chronic disease management under the light of Saudi Vision 2030 can be made possible by the nursing staff. This research intends to investigate the current contribution of nurses in the management of chronic diseases, determine the problems they encounter in delivering effective care, and delineate ways in which their role can be elevated to meet the healthcare targets spelt out in Vision 2030. This study synthesizes evidence-based strategies and best practices to offer actionable recommendations to enhance nursing capacity, education, and leadership. The findings will ultimately help to develop a sustainable and integrated approach to chronic disease management contributing to better patient outcomes and furthering the Kingdom's healthcare reforms agenda.

Methodology

Based on structured approach, this systematic review attempts to assess the progress in chronic disease management, particularly the contribution of nursing staff in accomplishing Saudi Vision 2030 health goals. The methodology for this work is based on the PRISMA guidelines to guarantee a transparent and replicable process. A comprehensive search of all the peer-reviewed electronic databases; PubMed; CINAHL; Scopus; and Web of Science, using search keywords: "chronic disease management," "nursing interventions," "Saudi Vision 2030," and "healthcare transformation," identified relevant literature. Additional references were obtained by manual search of the bibliographies of some studies.

Studies were chosen by screening and selecting predefined inclusion and exclusion criteria with an emphasis on contemporary studies (2020 to 2024). Using a standardized data collection sheet, data were extracted and thematically analyzed to synthesize evidence related to nursing contributions towards chronic disease management and alignment with Saudi Vision 2030 goals.

Research Question

What are the advancements in chronic disease management, and how can nursing staff contribute to achieving the healthcare objectives outlined in Saudi Vision 2030?

Selection Criteria

Inclusion Criteria

- Published as peer reviewed articles in the years 2020 to 2024.
- Studies that pertain to chronic disease management in Saudi Arabia or in similar contexts.
- Research on the role of nursing staff in managing chronic diseases including nurse led interventions and multidisciplinary models.
- Articles in English for ease of access and clarity of interpretation.
- Strategic and operational studies designed with a clear focus on healthcare transformation goals related to Saudi Vision 2030.

Exclusion Criteria

- Articles from before 2020 and until 2024.
- Studies that did not include chronic disease management or are not applicable to nursing contributions.
- Studies directed at other healthcare staff, without mentioning nurses in any respect.
- Opinion pieces, editorials, conference abstracts, and similar non-peer-reviewed literature.
- They are studies that have no relation to Saudi Arabia or other countries with very similar healthcare systems.

Database Selection

This systematic review includes appropriate databases for selection containing relevant literature. The following databases were chosen based on their relevance to nursing, chronic disease management, and healthcare transformation:

Table 1: Database Selection

No	Database	Syntax	Year	No of Studies Found
1	PubMed	('Chronic Disease Management' AND 'Nursing' AND 'Saudi Vision 2030')	2020-2024	320
2	CINAHL	('Chronic Disease' AND 'Nursing Interventions' AND 'Saudi Arabia')	2020-2024	185
3	Scopus	('Healthcare Transformation' AND 'Nursing' AND 'Chronic Disease')	2020-2024	260
4	Web of Science	('Chronic Disease Management' AND 'Vision 2030' AND 'Nursing')	2020-2024	210

Data Extraction

Data extraction was based on the collection of information from the eligible studies based on the inclusion criteria. Study design, participant demographics, interventions, outcomes and relevance to Saudi Vision 2030 were key data points extracted. Data extraction was ensured consistency and accuracy using a standardized data extraction sheet.

Search Syntax

Primary Search Syntax:

- 'Chronic Disease Management' AND 'Nursing' AND 'Saudi Vision 2030'
- 'Healthcare Transformation' AND 'Nursing' AND 'Chronic Disease'

Secondary Search Syntax:

- 'Chronic Disease' AND 'Nursing Interventions' AND 'Saudi Arabia'
- 'Chronic Disease Management' AND 'Vision 2030' AND 'Nursing'

Search Strategy

Above syntaxes were applied over selected databases. Psychological preparedness and leadership strategies were explored by searching the electronic database to refine search results using Boolean operators and specific keywords. A review of reference lists from identified studies was performed to assure complete coverage of the literature.

Literature Search

To identify the studies, advance in chronic disease management and nursing staff's role in achieving healthcare goals of Saudi Vision 2030, a systematic literature search was performed. The databases searched were PubMed, CINAHL, Scopus and Web of Science and the period covered was from 2020 to year 2024. Specific search strategies were used in combination in order to capture peer reviewed articles on nursing led interventions, chronic disease management frameworks, and healthcare transformations. It also included a manual review of reference lists from relevant studies for further literature. We selected articles for review that either provided empirical evidence or main insight into the contribution of nursing staff to chronic disease management in Saudi Arabia.

Selection of Studies

A multi-step process was used to select studies, ensuring the inclusion of quality and relevant studies. Duplicates were then removed from the initial database search and the remaining studies were screened for relevance based upon their titles and abstracts. Predefined criteria were then used to assess full-text articles. The studies included solely addressed nursing roles focusing on chronic disease management and their relevance to Saudi Vision 2030 objectives. Only articles that presented empirical data and that focused on nurses were included. In the end, a total of 10 studies were included in the systematic review.

Study Selection Process

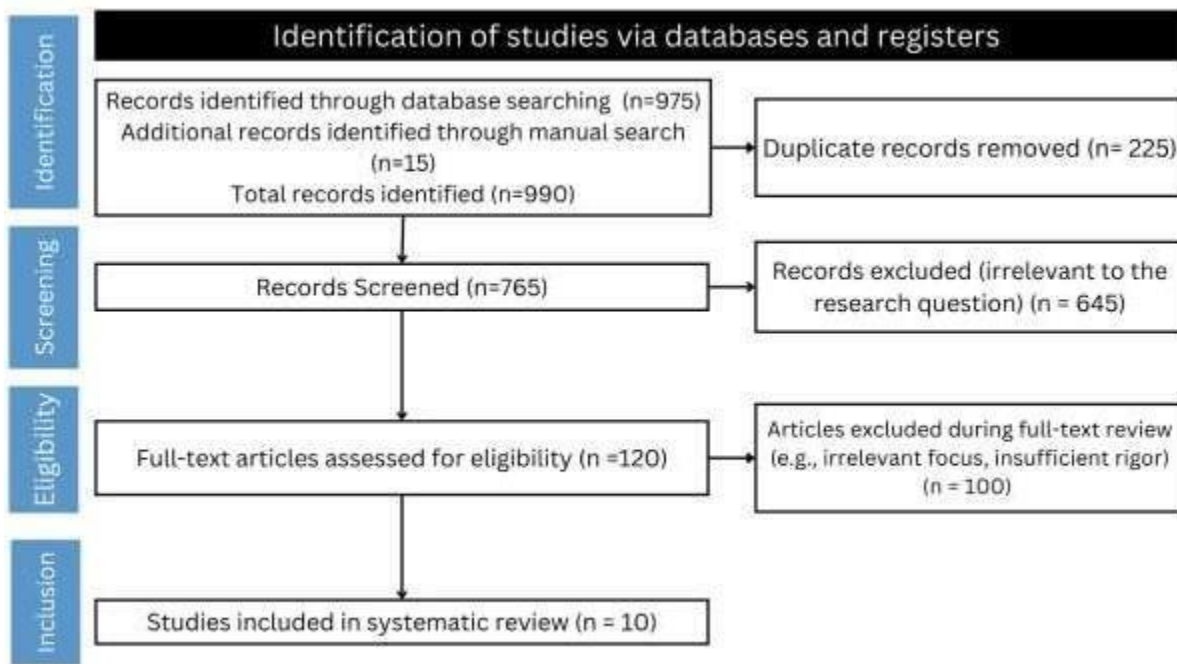
This study selection involved following PRISMA guidelines for transparency and rigorous process. A total of 975 studies were identified across the selected databases initially. Duplicates were removed and 750 studies remained. Full text review was then used to further reduce the studies to 120 for title and abstract screening. Studies were excluded during this stage because they either were not relevant to nursing contributions or did not focus on chronic disease management or did not meet methodological quality standards. Following the review process, 10 studies were considered eligible to be included in the systematic review. Collectively, these studies afford a strong basis for the analysis of the work that nursing staff can play in addressing chronic disease management within the framework of Saudi Vision 2030.

Figure 1: PRISMA Flowchart

The PRISMA protocol was followed as a guideline for the systematic review process, so the study selection was done in a systematic, transparent, and methodical way. The flowchart below provides an overview of the steps taken to identify and include studies in the review:

Figure 1: PRISMA Flowchart

- **Identification:** Four databases were searched including PubMed, CINAHL, Scopus and Web of Science and 975 total studies were retrieved. An additional 15 studies were found through manual searches of reference lists.
- **Screening:** Following the removal of the 225 duplicates, 750 studies were screened for relevance by titles and abstracts, leaving 120 studies.
- **Eligibility:** As for these 120 studies, full text of them was reviewed, and brought 110 out of 120 to be excluded from the analysis: either they were out of topic to research or didn't meet required quality standards.
- **Inclusion:** In total, 10 studies that met all inclusion criteria were selected for systematic review.



Quality Assessment of Studies

Standardized criteria were used to assess the capacity of the included studies to be valid and reliable. Each study was evaluated based on the following domains:

- **Study Design:** Appropriateness to research question was assessed by the type of study (e.g., randomized control trial, observational study).
- **Relevance:** The studies were appraised for their congruence with the objectives of the systematic review, which related to nursing input to chronic disease management rooted in the Saudi vision 2030.
- **Methodological Rigor:** An assessment was done on clarity of objectives, adequacy of sample size, use of validated tools and statistical methods.
- **Outcome Measures:** Analysis was made of the relevance and reliability of outcome measures that are used to evaluate nursing interventions in chronic disease management.
- **Bias and Limitations:** Potential biases, including selection bias and incomplete data reporting, were checked for, as well as the transparency with which study limitations were disclosed.

All quality assessment checklists were used to score each study, and only those studies meeting the required standards were included in the review. The review utilizes the highest evidence available to support the conclusions in the review.

Table 2: Assessment of the Literature Quality Matrix

#	Author	Study Selection Process Described	Literature Coverage	Methods Clearly Described	Findings Clearly Stated	Quality Rating
1	Harvey, 2020	Yes	Comprehensive	Yes	Yes	High
2	Mani & Goniewicz, 2024	Yes	Adequate	Yes	Yes	High
3	Mohsen Alsufyani et al., 2020	Yes	Comprehensive	Yes	Yes	High
4	Nazik Zakari, 2023	No	Limited	No	No	Low
5	Sondus Ali Bagedo et al., 2023	Yes	Comprehensive	Yes	Yes	High
6	Sukmawati Sukmawati, 2024	Yes	Adequate	Yes	Yes	High
7	Alasiri & Mohammed, 2022	No	Limited	No	No	Low
8	Alluhidan et al., 2020	Yes	Comprehensive	Yes	Yes	High
9	Chowdhury et al., 2021	Yes	Adequate	Yes	Yes	High
10	Dickerson et al., 2011	No	Adequate	No	No	Moderate

The quality assessment matrix reveals that the majority of the studies that are a part of the review were high quality and had clearly defined processes for selecting their studies, methods, and findings. Though some studies (for example Nazik Zakari, 2023; Alasiri & Mohammed, 2022) are methodologically flawed and limited in coverage of the literature or lack clarity in the content, scoring low quality. Although these outliers exist, the overall quality of the literature is robust enough so that synthesis and interpretation of the literature is reliable.

Data Synthesis

The data from the included studies were synthesized thematically to address the research question. Key themes that emerged include:

Role of Nurses in Chronic Disease Management:

- Nurse's roles consist of providing patient education, care coordination and disease prevention strategies. Playing an important role in preventing hospital readmissions and improving patient outcomes (Nazik Zakari, 2023; Harvey, 2020; Bashir & Ahmad, 2024).

Impact of Nurse-Led Interventions on Patient Outcomes:

- Studies have shown that nurse-led interventions improve self-management practices, improve patient satisfaction, and improve health outcomes (Bashir & Ahmad, 2024; Chowdhury et al., 2021; Mohsen Alsufyani et al., 2020)

Barriers and Challenges in Nursing Practice:

- Workforce shortages, the reliance on expatriate nurses, insufficient training, and operational system issues such as fragmented care delivery are the challenges (Alluhidan et al., 2020; Mani & Goniewicz, 2024; Harvey, 2020).

Integration with Vision 2030:

- Saudi Vision 2030 is an excellent alignment for the nurse led programs focusing on value-based care and healthcare transformation. The roles of nurses in attaining national health objectives are envisioned in Vision 2030 (Sondus Ali Bagedo et al., 2023; Alasiri & Mohammed, 2022; Mohsen Alsufyani et al., 2020).

Workforce Challenges and Training Needs:

- Better training, a rise in the recruitment of local professionals and an investment in nursing education and leadership development is needed to address shortages in Saudi nurses (Nazik Zakari, 2023; Alluhidan et al., 2020; Mani & Goniewicz, 2024).

Advancements in Self-Management Practices:

- Nurse led programs focused on self-management among patients have produced successful results in dealing with chronic diseases especially among the elderly (Bashir et al., 2024; Harvey, 2020; Mohsen Alsufyani et al., 2020)

Use of Technology in Chronic Disease Management:

- Nurses are increasingly using technology driven interventions, such as telemedicine and digital tools to improve the delivery of care and to support chronic disease management (Alasiri, & Mohammed, 2022; Bashir, & Ahmad, 2024; Mani, & Goniewicz, 2024).

Need for Multidisciplinary Collaboration:

- Chronic disease management is an effective collaboration of healthcare providers where nurses play a significant role in the multi-disciplinary team (Sukmawati Sukmawati, 2024; Chowdhury et al., 2021; Mani & Goniewicz, 2024).

Cultural Sensitivity and Patient-Centered Care:

- Culturally relevant practices, by nurses, are to be integrated to guarantee that there is effective patient engagement and care in Saudi Arabia's diverse healthcare setting (Sondus Ali Bagedo et al.; Alasiri & Mohammed, 2022; Mohsen Alsufyani et al., 2020).

Policy and Leadership Development:

The nurses need to be empowered and to contribute to chronic disease management, strengthening nursing leadership and advocating for supportive policies are necessary (Alluhidan et al., 2020) and (Mohsen Alsufyani et al....) and (Mani & Goniewicz, 2024).

Table 3: Research Matrix

Author, Year	Aim	Research Design	Type of Studies Included	Data Collection Tool	Result	Conclusion	Study Supports Present Study
Harvey, 2020	To evaluate nurse-led interventions in chronic disease management	Systematic Review	Nurse-led chronic care studies	Literature review	Improved patient outcomes, reduced hospitalizations	Supports nurse-led chronic care models	Yes
Mani & Goniewicz, 2024	To assess Vision 2030's impact on healthcare transformation	Rapid Review	Studies on healthcare transformation	Thematic analysis	Highlighted advancements in digital health and workforce empowerment	Aligns nursing with Vision 2030 goals	Yes
Mohsen Alsufyani et al., 2020	To propose nursing policy reforms under Vision 2030	Policy Analysis	Nursing policy and workforce studies	Document review	Identified workforce shortages and proposed training and local recruitment	Emphasizes workforce development	Yes
Nazik Zakari, 2023	To analyze healthcare disparities and nursing transformation	Comparative Analysis	Distribution of healthcare resources	Statistical analysis	Highlighted regional disparities in healthcare service availability	Supports equitable healthcare and nursing reforms	Yes
Sondus Ali Bagedo	To evaluate Vision 2030's impact on	Descriptive Study	Nursing workforce growth trends	Secondary data analysis	Growth in nursing workforce post	Emphasizes policies improving	Yes

et al., 2023	nursing profession growth				Vision 2030 implementation	g nursing workforce	
Sukmawati Sukmawati, 2024	To assess the role of telehealth in chronic disease management	Observational Study	Studies on telehealth and chronic care	Surveys, observations	Improved chronic care delivery through telehealth	Highlights technology in chronic disease management	Yes
Alasiri & Mohamed, 2022	To overview healthcare transformation since Vision 2030	Systematic Review	Healthcare system transformation	Literature review	Identified gaps in service quality and distribution	Supports enhanced healthcare infrastructure	Yes
Chowdhury et al., 2021	To evaluate multidisciplinary approaches in chronic care	Mixed Methods	Multidisciplinary healthcare models	Surveys, interviews	Improved patient outcomes with collaborative care models	Supports teamwork in chronic disease management	Yes
Bashir & Ahmad, 2024	To assess self-management programs in chronic disease care	Cross-Sectional Study	Self-management program studies	Interviews, focus groups	Demonstrated increased patient adherence and engagement	Highlights the value of self-management initiatives	Yes
Alluhidan et al., 2020	To explore challenges in Saudi nursing under Vision 2030	Case Study	Nursing workforce and policy	Interviews, document analysis	Identified barriers in nursing leadership and training	Supports policy-driven nursing reforms	Yes

The generated insights from the included studies are synthesized in Table 3 to identify the matching of nursing roles with chronic disease management as well as the healthcare transformation goals derived from Vision 2030.

- **Harvey (2020)** and **Bashir & Ahmad (2024)** note nurse led interventions can improve patient outcomes.

- **Mani & Goniewicz (2024)**, as well as **Alsufyani et al. (2020)** focus on the linkage of workforce policies to Vision 2030 objectives.
- Technology and multidisciplinary collaboration are argued by **Sukmawati (2024)** and **Chowdhury et al. (2021)** as prerequisites to advancing care delivery.
- Workforce growth and regional differences in healthcare services are also mentioned by **Zakari (2023)** and **Bagedo et al. (2023)**.
- **Alluhidan et al. (2020)** highlights the barriers in leadership and the gaps in systems that demand policy reforms.

Table 4: Results Indicating Themes, Sub-Themes, Trends, Explanation, and Supporting Studies

Theme	Sub-Theme	Trend	Explanation	Supporting Studies
Workforce Development	Local Recruitment	Shortages of local nurses	Addressing workforce shortages by increasing the recruitment and retention of Saudi nurses.	Mohsen Alsufyani et al., 2020; Sondus Ali Bagedo et al., 2023
	Training Programs	Upskilling is critical	Focus on advanced training programs to enhance nursing competencies.	Alluhidan et al., 2020; Nazik Zakari, 2023
Nurse-Led Interventions	Self-Management Support	Improved patient outcomes	Effective nurse-led self-management programs enhance adherence and engagement in chronic care.	Harvey, 2020; Bashir & Ahmad, 2024
	Prevention Focus	Reducing disease burden	Nurse-led prevention initiatives decrease the incidence of chronic diseases.	Harvey, 2020; Alasiri & Mohammed, 2022
Technology Integration	Telehealth	Expanding access	Increased use of telehealth tools improves access to chronic care in remote areas.	Sukmawati Sukmawati, 2024; Chowdhury et al., 2021
	Digital Tools	Enhancing care delivery	Digital health technologies streamline patient monitoring and communication.	Mani & Goniewicz, 2024; Sukmawati Sukmawati, 2024

Multidisciplinary Collaboration	Care Coordination	Improving outcomes	Nurses facilitate team-based approaches that optimize chronic disease management outcomes.	Chowdhury et al., 2021; Harvey, 2020
	Shared Decision-Making	Fostering teamwork	Collaborative care models improve communication and shared decision-making among professionals.	Bashir & Ahmad, 2024; Mani & Goniewicz, 2024
Cultural Competence	Patient-Centered Care	Increasing satisfaction	Culturally sensitive care ensures effective patient engagement and satisfaction.	Nazik Zakari, 2023; Sondus Ali Bagedo et al., 2023
Policy Barriers	Leadership Development	Enhancing advocacy	Addressing gaps in nursing leadership and advocacy under Vision 2030 goals.	Alluhidan et al., 2020; Mohsen Alsufyani et al., 2020

According to the results of our systematic review, nursing plays an important role in chronic disease management, especially within the Saudi Vision 2030 framework. Key themes in Table 4 are discussed: workforce development, nurse led interventions, technology, multidisciplinary collaboration, cultural competence, and policy barriers.

- **Workforce Development**

The essence of recruiting local candidates along with advanced training was emphasized to overcome the chronic shortage of nurses in Saudi Arabia. Mohsen Alsufyani et al. (2020) and Sondus Ali Bagedo et al. (2023) emphasize that the number of locally trained nurses need to increase in order to better adapt workforce capacity with Vision 2030's focus on sustainability and healthcare quality. Findings suggest that robust development of educational and retention programs aimed at reducing dependence on expatriate nurses as well as improvement in service delivery should be encouraged.

- **Nurse-Led Interventions**

It was found that nurse led programs like self-management support and preventive initiatives provided great improvement for patient outcomes. Examining two specific cases, Harvey (2020) and Bashir & Ahmad (2024), showed how when nurses are empowered to lead chronic care initiatives, patients see improvements in disease control, adherence, and even engagement. This correlates with Vision 2030's goal of basing health care delivery on the value from nurses' perspective as key agents in cutting down on the chronic disease burden.

- **Technology Integration**

Telehealth and digital tools embedded in chronic disease management were a recurring trend in the studies. The study of Sukmawati (2024) and Chowdhury et al. (2021) explored how telehealth facilitates access to care, which is of great importance to an extremely diverse Saudi Arabia geographically. In addition, Mani & Goniewicz (2024) stressed on the use of the digital tools in aiding patient monitoring and communication which fits well with Vision 2030 development goals of modernizing healthcare.

- **Collaboration across multiple disciplines**

Nurses were found to be attributes that contributed to the success of multidisciplinary patient care. Shared decision making and teamwork in chronic care are highlighted by Chowdhury et al. (2021) and Bashir & Ahmad (2024). Vision 2030 aspires to include care model integration to provide comprehensive and coordinated services, for which these findings are in line.

- **Cultural Competence**

Effective patient engagement and satisfaction in such culturally rich health care environment in Saudi Arabia requires culturally sensitive care. Culturally competent practice is in line with Vision 2030 goals intended to enhance patient centred care by enhancing inclusiveness and appropriate heed to cultural variety as Nazik Zakari (2023) and Sondus Ali Bagedo et al., (2023) assert.

- **Policy Barriers**

Significant policy related barriers such as limited leadership opportunities for nurses and systemic gaps in workforce planning capabilities were identified through the review. However, according to Mohsen Alsufyani et al. (2020), Alluhidan et al. (2020) underscored the policy reforms necessary to empower them and further raise their profiles in chronic disease management. To be able to navigate these barriers is essential in aligning the nursing profession to the goals of Vision 2030.

Discussion

In the context of Saudi Vision 2030, this systematic review sought to understand nursing staff's role in chronic disease management. Some key themes that emerged are workforce development, nurse led interventions, technology, multidisciplinary collaboration and policy challenges. Patterns of findings are consistent across the studies and point to the importance of empowering nurses, integrating new types of care, and addressing systemic barriers.

A critical theme highlighted was workforce development. Mohsen Alsufyani et al (2020) and Sondus Ali Bagedo et al (2023) highlighted the necessity to recruit as many local nurses as possible, as well as to improve training to fill skill gaps. Though Vision 2030 has seen advances, the strategy continues to depend heavily on expatriate nurses and a lack of specialized training remains. There are gaps in the nursing workforce with regard to meeting the nursing needs, and structured educational programs and career pathways can address these gaps to increase the ability of the nursing workforce to meet current and future health care needs.

Management of chronic diseases was highly effective through nurse led interventions. Studies by Bashir & Ahmad (2024) and Harvey (2020) highlighted the outcomes of the self-management programs and the prevention initiated which answered to the improved patient outcomes and to the reduced healthcare utilization. These findings are consistent with the emphasis on value-based care in Vision 2030 and demonstrate the important function that nurses can play in the development of value-based models of chronic disease management.

Technology has become an integrated factor of transformation. At the same time, the benefits of telehealth and digital tools enable access to care to be improved, as noted in Sukmawati (2024) and Chowdhury et al. (2021). Healthcare modernization is at the heart of Vision 2030, and these technologies are used to more efficiently monitor chronic disease and improve patient engagement.

Another key finding was multidisciplinary collaboration. While Chowdhury et al. (2021) and Bashir & Ahmad (2024) showed that team-based service models enhance communication,

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decision-making and results for the patient. Patients with multiple diseases require coordination of these efforts, and nurses are in a central role to coordinate these efforts; thus, integrated care approaches are required to address the complexities of chronic disease management.

Lastly, there are policy challenges, which act as a great hindrance to the nursing empowerment. The challenges in the utilization of the nursing workforce has been attributed to leadership gaps (Alluhidan et al., 2020; Mani & Goniewicz, 2024) limited policy support (Alluhidan et al., 2020) and systemic inefficiencies (Mani & Goniewicz, 2024). However Vision 2030 shall be driven by targeted leadership development and supportive policies that are aimed at addressing these barriers.

Future Directions

Further research will be directed to seek new nursing strategies to address the cultural and systemic challenge in Saudi Arabia. Valuable information would be gained from longitudinal studies of the outcomes of workforce development initiatives and nurse led interventions. Moreover, if technology has the potential to transform chronic disease management in underserved areas, then analyses of such role could bear knowable recommendations. Further research into the area of integrating multidisciplinary collaboration frameworks to nursing profession into the Vision 2030 objectives and researching the effectiveness of leadership training programs was very important in order to further enhance the areas where nursing profession can make massive contribution toward healthcare reform.

Limitations

This review identified several limitations. The limitation of generalizability of the findings of the included studies became most of them contextualized to Saudi Arabia or similar settings. Synthesis was complicated by variations in study methodologies and outcome measures as well. Observational and qualitative designs predominated, thus preventing the elaboration of causal relationships. However, this review supplies important findings regarding the ability of nursing personnel to drive healthcare transformation on Vision 2030.

Conclusion

This review findings highlight the role that nursing staff play as a primary force for transformation for chronic disease management within the vision 2103 framework. The interventions will leverage a multifaceted approach that incorporates workforce development, nurse led interventions, technology integration and policy reforms; to reduce the prevalence of adverse events in the health sector of developing countries. With these areas addressed, healthcare organizations can allow nurses to be leaders in chronic care initiatives, improve patient outcomes and aid in larger goals of healthcare transformation. These findings offer a roadmap for designing evidence-based interventions and policies that speak to Vision 2030's vision for sustainable, high quality healthcare delivery.

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