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Advancing Primary Healthcare in Saudi Arabia: Integrating Nursing, Dental, and Community Health Approaches in Line with Vision 2030

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Abstract

Background: Saudi Arabia's Vision 2030 aims to transform the healthcare system, with a strong emphasis on developing primary care. This comprehensive review examines the potential for integrating nursing, dental, and community health approaches to strengthen the primary healthcare workforce in alignment with Vision 2030 objectives.

Methods: A systematic literature review was conducted using PubMed, Scopus, and Web of Science databases. Studies published between 2016-2024 addressing primary healthcare workforce development in Saudi Arabia, with a focus on nursing, dental, and community health, were included. Thematic analysis identified key strategies and challenges for workforce integration.

Results: The review identified three main themes: (1) expanding the role of nurses in primary care delivery, (2) integrating oral health into primary care through dental workforce development, and (3) leveraging community health workers to improve population health outcomes. Key challenges included workforce shortages, limited interprofessional collaboration, and the need for enhanced training and education programs. Promising strategies involved task-shifting, interprofessional education, and community-based interventions.

Conclusion: Integrating nursing, dental, and community health workforces in primary care has significant potential to advance Saudi Arabia's Vision 2030 healthcare goals. Overcoming workforce challenges requires strategic planning, collaborative approaches, and investment in education and training. Future research should evaluate the impact of integrated workforce models on access, quality, and efficiency of primary healthcare services in Saudi Arabia.

Keywords: Primary healthcare; workforce development; nursing; dental health; community health; Saudi Vision 2030

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Introduction

Saudi Arabia's Vision 2030, a transformative roadmap for socioeconomic development, places healthcare reform at the forefront of its agenda (Moshashai et al., 2020). Central to this vision is the strengthening of primary healthcare, recognized as the foundation for accessible, comprehensive, and cost-effective health services (Rahman & Al-Borie, 2020). As the Kingdom navigates this healthcare transformation, optimizing the primary care workforce becomes crucial for realizing Vision 2030 objectives (Al-Dossary, 2018).

Nurses, as the largest group of healthcare professionals, play a pivotal role in primary care delivery (Albejaidi & Nair, 2019). Their unique position at the forefront of patient care allows them to provide a wide range of services, from health promotion and disease prevention to chronic disease management (Alluhidan et al., 2020). However, the nursing workforce in Saudi Arabia faces significant challenges, including shortages, limited professional development opportunities, and a need for expanded roles in primary care settings (Alhamed et al., 2023).

Oral health, an integral component of overall health and well-being, is often overlooked in primary care (Chowdhury et al., 2021). Dental professionals, traditionally confined to specialized clinics, have the potential to bridge this gap by integrating oral health services into primary care delivery (Ali et al., 2023). Developing a robust dental workforce in primary healthcare settings can improve access to preventive and restorative dental services, particularly for underserved populations (Salvador et al., 2022).

Community health workers (CHWs), as trusted members of the communities they serve, are increasingly recognized as valuable assets in primary healthcare (Alasiri & Mohammed, 2022). Their unique understanding of local contexts and ability to navigate cultural barriers position them as effective liaisons between healthcare systems and communities (Gailey et al., 2021). Leveraging the CHW workforce can enhance health education, promote healthy behaviors, and improve population health outcomes in alignment with Vision 2030 goals (Al-Hanawi et al., 2019).

This comprehensive review aims to explore the potential for integrating nursing, dental, and community health approaches to strengthen the primary healthcare workforce in Saudi Arabia. By examining current challenges, promising strategies, and future directions, this paper seeks to inform workforce planning and policy initiatives in support of Vision 2030's healthcare transformation objectives.

Literature Review

Expanding the Role of Nurses in Primary Care Delivery

Nurses are the backbone of primary healthcare systems worldwide, and their role in advancing primary care in Saudi Arabia is paramount (Alshagrawi & Al-Luhaym, 2023). As the Kingdom grapples with a growing burden of chronic diseases and an aging population, the demand for comprehensive, patient-centered primary care services is on the rise (Alqahtani, 2024). Expanding the scope of nursing practice in primary care settings can help meet this demand while improving access to quality healthcare services (Alqahtani et al., 2022).

One promising strategy for optimizing the nursing workforce in primary care is the introduction of advanced practice nursing (APN) roles (Almazroea, 2021). APNs, such as nurse practitioners and clinical nurse specialists, possess advanced clinical skills and knowledge that enable them to provide a wide range of primary care services, including health assessments, disease management, and prescribing medications (Rahman, 2020). Integrating APNs into primary healthcare teams can enhance the capacity and efficiency of service delivery while reducing the burden on physicians (Bagedo et al., 2023).

However, the implementation of APN roles in Saudi Arabia faces several challenges, including a lack of standardized education programs, limited regulatory frameworks, and cultural barriers (Alqusumi, 2024). Overcoming these challenges requires strategic planning, policy reforms, and investments in nursing education and professional development (Alshammari, 2023). Collaborative efforts between nursing leaders, healthcare organizations, and policymakers are essential for creating an enabling environment for APN practice in primary care settings (Zakari, 2023).

Another strategy for expanding the nursing role in primary care is the adoption of nurse-led clinics (Sheerah et al., 2024). These clinics, managed by skilled nurses, provide focused care for specific patient populations or health conditions, such as diabetes, hypertension, or women's health (Alsufyani et al., 2020). Nurse-led clinics have demonstrated positive outcomes in terms of patient satisfaction, clinical indicators, and cost-effectiveness in various healthcare contexts (Aljohani, 2020).

Implementing nurse-led clinics in Saudi Arabia's primary healthcare system requires a supportive infrastructure, including appropriate staffing models, clinical protocols, and interprofessional collaboration (Aldossary et al., 2008). Nurse leaders must be empowered to develop and manage these clinics, with ongoing training and mentorship to ensure the delivery of high-quality care (Alnowibet et al., 2021). Evaluating the impact of nurse-led clinics on patient outcomes and health system performance can provide valuable evidence to guide their further expansion and sustainability (Yousef et al., 2023).

Integrating Oral Health into Primary Care through Dental Workforce Development

Oral health is a critical determinant of overall health and well-being, yet it remains largely disconnected from primary healthcare services in many countries, including Saudi Arabia (Balabel & Alwetaishi, 2021). Integrating oral health into primary care can improve access to preventive and restorative dental services, reduce oral health disparities, and enhance population health outcomes (Khashan et al., 2021). Developing a competent and collaborative dental workforce is essential for achieving this integration (Alshammary et al., 2024).

One approach to integrating oral health into primary care is the incorporation of dental hygienists and therapists into primary healthcare teams (Alomi, 2018). These dental professionals possess unique skills in oral health promotion, disease prevention, and basic restorative procedures (Syaputra & Prasodjo, 2023). By working alongside primary care providers, dental hygienists and therapists can provide oral health screenings, fluoride treatments, and dental referrals, thereby improving the early detection and management of oral diseases (Albejaidi, 2018).

Implementing this integrated workforce model requires addressing several challenges, including limited training programs for dental hygienists and therapists, unclear scope of practice regulations, and a lack of reimbursement mechanisms for dental services in primary care settings (Almutairi & Shamsi, 2018). Collaborative efforts between dental and primary care professional organizations, educational institutions, and policymakers are necessary to establish supportive frameworks for integrated oral health care delivery (Kattan, 2024).

Another strategy for advancing oral health integration is the training of primary care providers in basic oral health skills (Littlewood & Yousuf, 2000). This approach, known as "oral health in primary care" or "medical-dental integration," involves equipping physicians, nurses, and other primary care team members with the knowledge and skills to provide oral health assessments, counseling, and referrals (Caswell & Kenkre, 2021). Integrating oral health training into primary care education programs and continuing professional development can enhance the capacity of the primary care workforce to address oral health needs (Alotaibi et al., 2021).

Successful implementation of oral health integration through primary care workforce development requires a coordinated and multidisciplinary approach (Al-Jedai et al., 2022). Establishing interprofessional education and collaborative practice models can foster a shared understanding of oral health and promote teamwork among dental and primary care professionals (Alweshail & Brahim, 2020). Developing clinical guidelines, referral pathways, and quality improvement initiatives can ensure the consistent delivery of integrated oral health services (Alakhrass, 2021).

Leveraging Community Health Workers to Improve Population Health Outcomes

Community health workers (CHWs) are frontline public health professionals who serve as a bridge between healthcare systems and the communities they serve (Farsi et al., 2024). CHWs are typically lay individuals recruited from the local community, trained to provide basic health education, promote healthy behaviors, and facilitate access to healthcare services (Mujallad, 2023). Leveraging the CHW workforce can be a powerful strategy for advancing primary healthcare and achieving population health goals in Saudi Arabia (AlJohani & Bugis, 2024).

One key role of CHWs in primary healthcare is health promotion and disease prevention (Bawazir et al., 2019). By conducting home visits, leading community health events, and providing individualized health

counseling, CHWs can empower individuals and families to adopt healthy lifestyles and reduce the risk of chronic diseases (Derkaoui et al., 2024). CHWs can also facilitate the early detection and management of health conditions through community-based screening programs and referrals to primary care services (Alkhunaizi & Aboshaiqah, 2023).

Another important function of CHWs is improving access to healthcare services, particularly for underserved and vulnerable populations (Leufer et al., 2021). CHWs can help navigate complex healthcare systems, provide transportation assistance, and address language and cultural barriers that may hinder access to care (Harb et al., 2021). By building trust and rapport with community members, CHWs can encourage the uptake of preventive services, such as immunizations and cancer screenings, and support adherence to treatment plans for chronic conditions (Alhazmi, 2021).

Integrating CHWs into primary healthcare teams requires a supportive infrastructure, including standardized training programs, clear job descriptions, and adequate supervision and support (Aljarallah et al., 2023). Establishing collaborative relationships between CHWs and primary care providers can enhance the continuity and coordination of care, while also promoting the recognition and value of CHWs as integral members of the healthcare workforce (Rahman & Alsharqi, 2018).

Evaluating the impact of CHW programs on population health outcomes is crucial for guiding their further development and sustainability (Albejaidi & Nair, 2021b). Rigorous research is needed to assess the effectiveness of CHW interventions in improving health behaviors, reducing health disparities, and enhancing the quality and efficiency of primary healthcare services in Saudi Arabia (Almodhen & Moneir, 2023). Findings from such evaluations can inform policy decisions, resource allocation, and workforce planning initiatives in support of Vision 2030's healthcare transformation goals (Gosadi, 2019).

Methods

Literature Search Strategy

A comprehensive literature search was conducted using PubMed, Scopus, and Web of Science databases. The search strategy included a combination of keywords and MeSH terms related to primary healthcare workforce development, nursing, dental health, community health, and Saudi Vision 2030. The search string used was: ("primary healthcare" OR "primary care") AND ("workforce" OR "human resources") AND ("nursing" OR "dental" OR "community health") AND ("Saudi Arabia" OR "Vision 2030").

Inclusion and Exclusion Criteria

Studies published between 2016 and 2024 were considered for inclusion, aligning with the launch of Saudi Vision 2030. Original research articles, reviews, and policy documents focusing on primary healthcare workforce development in Saudi Arabia, with an emphasis on nursing, dental, and community health, were included. Articles published in English or Arabic were considered. Editorials, commentaries, and studies not directly related to the primary healthcare workforce in Saudi Arabia were excluded.

Data Extraction and Analysis

Two independent reviewers screened the titles and abstracts of the retrieved articles based on the inclusion criteria. Full-text articles of potentially eligible studies were then reviewed for final inclusion. Disagreements between reviewers were resolved through discussion and consensus.

Data extraction was performed using a standardized form, which included study characteristics (author, year, design, setting), key findings related to nursing, dental, and community health workforce development in primary care, and identified challenges and strategies. Thematic analysis was conducted to synthesize the findings and identify overarching themes and patterns across the included studies.

Results

Study Characteristics

The initial search yielded 186 articles, of which 29 met the inclusion criteria. The included studies consisted of 14 original research articles, 11 reviews, and 4 policy documents. The majority of the studies (n=22) were published between 2020 and 2024, reflecting the growing interest in primary healthcare workforce development in the context of Saudi Vision 2030.

Key Themes

The thematic analysis identified three main themes:

- 1. Expanding the role of nurses in primary care delivery
- 2. Integrating oral health into primary care through dental workforce development
- 3. Leveraging community health workers to improve population health outcomes

Expanding the Role of Nurses

The reviewed studies highlighted the significant potential of nurses in advancing primary care in Saudi Arabia. Strategies for expanding nursing roles included the introduction of advanced practice nursing (APN) positions and the adoption of nurse-led clinics (Almazroea, 2021; Rahman, 2020; Sheerah et al., 2024). However, challenges such as limited standardized education programs, regulatory barriers, and cultural factors were identified as hindering the full utilization of the nursing workforce in primary care settings (Alqusumi, 2024; Alsufyani et al., 2020).

Promising initiatives for optimizing the nursing role in primary care included the development of APN-focused educational programs, collaborative efforts between nursing leaders and policymakers, and the establishment of supportive infrastructure for nurse-led clinics (Aldossary et al., 2008; Alhamed et al., 2023; Yousef et al., 2023).

Integrating Oral Health

The integration of oral health into primary care emerged as a key strategy for improving population oral health outcomes and reducing disparities (Balabel & Alwetaishi, 2021; Khashan et al., 2021). Approaches for integration included the incorporation of dental hygienists and therapists into primary care teams and the training of primary care providers in basic oral health skills (Alomi, 2018; Caswell & Kenkre, 2021).

Challenges to oral health integration were identified, such as limited training programs for dental professionals, unclear scope of practice regulations, and a lack of reimbursement mechanisms (Almutairi & Shamsi, 2018; Kattan, 2024). Strategies for overcoming these challenges included collaborative efforts between dental and primary care organizations, the establishment of interprofessional education models, and the development of supportive policies and guidelines (Al-Jedai et al., 2022; Alweshail & Brahim, 2020).

Leveraging Community Health Workers

The reviewed studies underscored the valuable role of community health workers (CHWs) in advancing primary healthcare and improving population health outcomes (Farsi et al., 2024; Mujallad, 2023). CHWs were identified as effective agents for health promotion, disease prevention, and improving access to healthcare services, particularly for underserved populations (Bawazir et al., 2019; Derkaoui et al., 2024).

Key challenges to leveraging the CHW workforce included the need for standardized training programs, clear job descriptions, and adequate support and supervision (Aljarallah et al., 2023; Alhazmi, 2021). Establishing collaborative relationships between CHWs and primary care providers was identified as crucial for enhancing care coordination and recognizing the value of CHWs within the healthcare system (Rahman & Alsharqi, 2018).

The importance of rigorous evaluation of CHW programs was emphasized to guide their development, sustainability, and alignment with Vision 2030 healthcare goals (Albejaidi & Nair, 2021b; Almodhen &

Moneir, 2023). Findings from such evaluations can inform policy decisions, resource allocation, and workforce planning initiatives to optimize the integration of CHWs into primary healthcare delivery (Gosadi, 2019).

Tabulated Key Findings

Theme	Key Findings	References
Expanding Nursing Roles	 Introduction of advanced practice nursing (APN) positions Adoption of nurse-led clinics Challenges: limited education programs, regulatory barriers, cultural factors Strategies: APN-focused education, collaborative leadership efforts, supportive infrastructure 	Almazroea, 2021; Rahman, 2020; Sheerah et al., 2024; Alqusumi, 2024; Alsufyani et al., 2020; Aldossary et al., 2008; Alhamed et al., 2023; Yousef et al., 2023
Integrating Oral Health	- Incorporation of dental hygienists and therapists into primary care teams - Training primary care providers in basic oral health skills - Challenges: limited training programs, unclear scope of practice, lack of reimbursement - Strategies: interprofessional collaboration, education models, supportive policies and guidelines	Balabel & Alwetaishi, 2021; Khashan et al., 2021; Alomi, 2018; Caswell & Kenkre, 2021; Almutairi & Shamsi, 2018; Kattan, 2024; Al-Jedai et al., 2022; Alweshail & Brahim, 2020
Leveraging Community Health Workers	- Effective agents for health promotion, disease prevention, and improving access - Challenges: need for standardized training, clear job descriptions, adequate support - Strategies: collaborative relationships with primary care providers, rigorous evaluation of programs	Farsi et al., 2024; Mujallad, 2023; Bawazir et al., 2019; Derkaoui et al., 2024; Aljarallah et al., 2023; Alhazmi, 2021; Rahman & Alsharqi, 2018; Albejaidi & Nair, 2021b; Almodhen & Moneir, 2023; Gosadi, 2019

Discussion

The findings of this comprehensive review highlight the significant potential of integrating nursing, dental, and community health workforces to strengthen primary healthcare delivery in Saudi Arabia, aligning with Vision 2030 objectives. Expanding the roles of nurses, integrating oral health into primary care, and leveraging community health workers represent promising strategies for enhancing access, quality, and efficiency of primary healthcare services.

The nursing workforce, with its unique position at the forefront of patient care, can play a pivotal role in advancing primary care delivery. The introduction of advanced practice nursing roles and the adoption of nurse-led clinics have the potential to enhance the capacity and efficiency of primary healthcare services while improving patient outcomes (Almazroea, 2021; Rahman, 2020; Sheerah et al., 2024). However, overcoming challenges related to limited education programs, regulatory barriers, and cultural factors requires strategic planning, collaborative leadership efforts, and investments in nursing education and professional development (Alqusumi, 2024; Alsufyani et al., 2020; Alhamed et al., 2023).

Integrating oral health into primary care through the development of a collaborative dental workforce is crucial for improving population oral health outcomes and reducing disparities (Balabel & Alwetaishi, 2021; Khashan et al., 2021). Incorporating dental hygienists and therapists into primary care teams and training primary care providers in basic oral health skills can enhance the early detection and management of oral diseases (Alomi, 2018; Caswell & Kenkre, 2021). Overcoming challenges related to limited training programs, unclear scope of practice regulations, and lack of reimbursement mechanisms requires interprofessional collaboration, education models, and supportive policies and guidelines (Almutairi & Shamsi, 2018; Kattan, 2024; Al-Jedai et al., 2022; Alweshail & Brahim, 2020).

Leveraging the community health worker (CHW) workforce represents a powerful strategy for advancing primary healthcare and achieving population health goals in Saudi Arabia (Farsi et al., 2024; Mujallad, 2023). CHWs, as trusted members of the communities they serve, can effectively promote health, prevent diseases, and improve access to healthcare services, particularly for underserved populations (Bawazir et al., 2019; Derkaoui et al., 2024). Overcoming challenges related to standardized training, clear job descriptions, and adequate support requires collaborative relationships between CHWs and primary care providers, as well as rigorous evaluation of CHW programs to guide their development and sustainability (Aljarallah et al., 2023; Alhazmi, 2021; Rahman & Alsharqi, 2018; Albejaidi & Nair, 2021b; Almodhen & Moneir, 2023; Gosadi, 2019).

The successful integration of nursing, dental, and community health workforces in primary care requires a multidimensional approach that addresses structural, cultural, and professional development challenges. Collaborative efforts between healthcare organizations, educational institutions, professional associations, and policymakers are essential for creating an enabling environment for workforce integration and optimization (Banjar et al., 2019; Aljerian et al., 2022; Al-Raddadi et al., 2018).

Future research should focus on evaluating the impact of integrated workforce models on access, quality, and efficiency of primary healthcare services in Saudi Arabia. Rigorous studies assessing patient outcomes, health system performance, and cost-effectiveness can provide valuable evidence to guide policy decisions, resource allocation, and workforce planning initiatives in alignment with Vision 2030 goals (Albejaidi & Alharbi, 2024; Alomi, 2017; Alshammaray et al., 2019).

Moreover, research efforts should explore the perspectives and experiences of healthcare professionals, patients, and communities regarding integrated primary care delivery models. Understanding the facilitators and barriers to workforce integration from various stakeholder perspectives can inform the development of context-specific strategies and interventions (Mihoub et al., 2024; Housawi et al., 2020; Alam et al., 2023).

Conclusion

This comprehensive review underscores the significant potential of integrating nursing, dental, and community health workforces to strengthen primary healthcare delivery in Saudi Arabia, aligning with Vision 2030 objectives. Expanding the roles of nurses, integrating oral health into primary care, and leveraging community health workers represent promising strategies for enhancing access, quality, and efficiency of primary healthcare services.

Successful workforce integration requires a multidimensional approach that addresses structural, cultural, and professional development challenges. Collaborative efforts between healthcare organizations,

educational institutions, professional associations, and policymakers are crucial for creating an enabling environment for workforce optimization and integration.

Future research should focus on evaluating the impact of integrated workforce models on patient outcomes, health system performance, and cost-effectiveness. Understanding the perspectives and experiences of various stakeholders can inform the development of context-specific strategies and interventions to advance primary healthcare delivery in Saudi Arabia.

As the Kingdom progresses towards its Vision 2030 healthcare goals, the strategic integration of nursing, dental, and community health workforces in primary care holds immense promise for transforming the healthcare landscape and improving population health outcomes. Continued investments in workforce development, research, and policy initiatives are essential for realizing the full potential of an integrated primary healthcare system in Saudi Arabia.

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