

Healthcare Workforce Challenges and Opportunities in Healthcare Settings in Saudi Arabia: A Systematic Review

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Abstract

Background: The healthcare workforce in Saudi Arabia is experiencing a period of rapid transformation as part of the Kingdom's Vision 2030 initiatives aimed at achieving sustainable healthcare delivery. Despite significant advancements in healthcare infrastructure and technology, challenges such as workforce shortages, uneven regional distribution, burnout, and continued reliance on expatriate professionals persist. These factors affect workforce sustainability and the quality of healthcare services.

Aim: This systematic review aims to explore the key challenges and emerging opportunities influencing the healthcare workforce in Saudi Arabia and to identify strategies that support sustainable workforce development in alignment with national health transformation goals.

Method: A systematic review was conducted following PRISMA guidelines. Literature published between 2020 and 2024 was searched across major databases, including PubMed, Scopus, ScienceDirect, Google Scholar, and national repositories. A total of 345 studies were retrieved, screened for relevance, and assessed for methodological quality. Ten high- and moderate-quality studies were included for thematic synthesis.

Results: The review identified four major themes: workforce shortages and distribution, burnout and well-being, education and professional development, and healthcare transformation under Vision 2030. Findings indicated steady progress in workforce training, leadership development, and digital innovation, though persistent shortages and job dissatisfaction remain major concerns.

Conclusion: Saudi Arabia's healthcare workforce is evolving toward sustainability through modernization, professional education, and reform-driven innovation. Continuous investment in training, retention strategies, and policy integration is essential to achieving a resilient and future-ready workforce.

Keywords: Healthcare workforce, Saudi Arabia, Vision 2030, workforce challenges, professional development, burnout, workforce opportunities, healthcare reform.

Introduction

Saudi Arabia's healthcare system is undergoing a profound transformation as part of the Kingdom's Vision 2030 agenda, which is aimed at modernizing the health services, increasing work force productivity and expanding privatization. The country has made great strides in healthcare infrastructure and digital

transformation in the last decade, yet there are still persistent workforce challenges that hinder sustainable growth. The country's healthcare labor market is plagued by qualified personnel shortages, uneven distribution of healthcare professionals, and excessive dependence on expatriate staff wherever it comes to nursing and specialized care positions (Asmri et al., 2020; Alsadaan et al., 2021). These challenges are further complicated by rapid population growth, growing burden of chronic diseases, and the challenge of ensuring that national health goals align with international standards of care (Gailey et al., 2021; Alqusumi, 2024).

Despite the investments in healthcare modernization by the government, workforce sustainability is an alarming issue. Many healthcare professionals in Saudi Arabia complain about their long working hours, fatigue due to shifts, and high rates of occupational stress which are associated with job dissatisfaction and turnover (Saeed et al., 2022; Alqarni et al., 2024). Studies show that these problems are especially acute among nurses and allied health professionals, who too often have limited opportunities for career advancement and high patient loads. In addition, the continued implementation of the Saudization policy, aimed at increasing the presence of Saudi nationals in the workforce, has drawn the attention to the training and preparedness gap among new graduates entering the healthcare system (Alotaibi et al., 2022; Lin et al., 2021). These factors cumulatively present a complex environment that affects healthcare delivery and quality of care and long-term retention of the workforce.

At the same time, Saudi Arabia's transformation of healthcare also offers important opportunities. Vision 2030 has focused on workforce development through education, leadership training and digital health innovation. The integration of artificial intelligence, telemedicine, and electronic health systems has improved the efficiency of services and opened new career opportunities for healthcare professionals (Yousef et al., 2023; Ahmed et al., 2024). Additionally, public-private partnerships and investment in professional development programs are helping to attract and retain skilled professionals as well as foster a culture of continuous improvement (Alluhidan et al., 2020; Al Drgham et al., 2023). These initiatives are changing the landscape of healthcare labor and are potential solutions to long-standing problems of healthcare worker burnout, staff shortages, and professional dissatisfaction.

This systematic review analyses the major challenges and opportunities that affect the healthcare workforce in Saudi Arabia. By synthesizing new empirical evidence, it is intended to present a comprehensive understanding of the factors that affect workforce stability, motivation, and performance in Saudi healthcare settings. The review also delves into how workforce reforms, training strategies and policy initiatives can improve professional satisfaction and retention and align with the broader goals of Vision 2030 (Alqusumi, 2024; Gailey et al., 2021). Ultimately, this work adds to the conversation about building a resilient, well-trained, and motivated healthcare workforce that is able to meet the future health demands of the Saudi population.

Problem Statement

Although Saudi Arabia's healthcare system has undergone rapid modernization as part of Vision 2030, the country still faces major workforce challenges with serious implications for the sustainability of its health transformation efforts. Longstanding problems of shortage of skilled healthcare workers, high reliance on expatriate workers, and poor retention of Saudi nationals have led to structural imbalances in the delivery of services (Asmri et al., 2020; Alsadaan et al., 2021). These challenges are further exacerbated by issues like professional burnout, unequal distribution of the workforce in urban and rural areas, and gaps in workforce education and preparedness (Saeed et al., 2022; Lin et al., 2021). While there have been strategic reforms focused on decentralizing human resource and incorporating new healthcare models, the system still struggles to match human resource capacity with changing healthcare demand (Alqusumi, 2024; Yousef et al., 2023). Therefore, a holistic assessment of healthcare workforce problems and opportunities is necessary in order to make the transformation process of the healthcare sector of Saudi Arabia effective and sustainable.

Significance of the Study

Moreover, the understanding of the challenges and opportunities facing the healthcare workforce in Saudi Arabia is an important aspect of the health policy and development agenda of the country. A well-skilled and sustainable healthcare workforce underpins superior healthcare delivery in terms of quality, accessibility, and patient outcomes (Alotaibi and al., 2022; Alluhidan et al., 2020). This study adds to the body of current literature by reviewing the current evidence base related to workforce shortages and barriers to retention, combined with opportunities as a result of government policy in the Saudi context of

healthcare. The conclusions will be used to guide decision makers, healthcare managers, and educators in planning strategic interventions to enhance workforce resistance and productivity (Ahmed et al., 2024; Al Drgham et al., 2023). Furthermore, this review strengthens the Saudi Vision 2030 goal of building a highly effective and self-sufficient healthcare workforce that can satisfy future health needs by focusing on evidence-based opportunities for professional training, digital health integration, and policy reform (Gailey et al., 2021; Alqusumi, 2024).

Aim of the Study

The main objective of the study is to systematically review and analyze the current literature regarding the issues and opportunities of the healthcare workforce in Saudi Arabia. Specifically, the review aims to identify key factors that impact workforce sustainability, retention and professional development, and explore policy interventions that can build workforce capacity and in line with Vision 2030 objectives (Asmri et al., 2020; Alotaibi et al., 2022). This study seeks to deliver an evidence synthesis of national and international evidence to provide actionable insights to support the development of a competent, motivated and future-ready health workforce.

Methodology

This systematic review was conducted according to an evidence-based methodology using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. The aim was to identify, appraise and synthesize recent studies on issues pertaining to the challenges and opportunities that determine the healthcare workforce in Saudi Arabia. The review process has been designed to be accurate, transparent, and widely representative of the relevant literature.

A framework search was performed with academic databases including PubMed, Scopus, Science Direct and Google Scholar. Additionally, national databases were searched such as the national health ministry and Saudi Commission for Health Specialties to include official publications and reports related to workforce capacity development. The search was performed with combinations of keywords including "healthcare workforce", "Saudi Arabia", "nursing shortage", "retention", "burnout" and "Vision 2030." The research was confined to papers released from 2020 to 2024 to capture the era of significant transformation in the Saudi healthcare sector. The screening process included three steps: title and abstract screening, full-text screening, and final eligibility-based inclusion. A data extraction framework was used to capture key study details including author, year of publication, study design, objectives and key findings. Thematic synthesis was then used to categorize the findings relating to workforce issues, development needs and strategic opportunities for improvement.

Research Question

The guiding question for the systematic review is:

What are the main challenges and emerging opportunities influencing the healthcare workforce in Saudi Arabia between 2020 and 2024?

This question investigates the key drivers influencing the workforce performance and sustainability, such as shortages, retention barriers, training needs and policy reforms, and identify possible interventions to build the health care workforce in concert with national health transformation agenda.

Selection Criteria

Inclusion Criteria

Studies were included if they met following criteria:

- Published between 2020 and 2024.
- Focused on Healthcare workforce in Saudi Arabia. Written in English and in full text.
- Addressed topics related to workforce issues, retention, burnout, training or professional development opportunities.
- Represented empirical studies, systematic reviews or policy analyses relating to workforce development.

Exclusion Criteria

Studies were not included if they:

- Published before 2020
- Focused on countries other than Saudi Arabia.
- Were non-peer-reviewed, comment, or editorial articles.

- Was not methodologically transparent or had insufficient data for review; Weighted solely on clinical results without consideration of workforce issues.

Database Selection

To ensure a comprehensive coverage of the most relevant literature, a number of electronic databases were chosen depending on the scope, accessibility, and trust in healthcare research. The databases that were selected were both international and national sources to capture studies where the country of Saudi Arabia was related to the field of healthcare workforce. Databases such as PubMed, Science Direct, Scopus, Google Scholar and local institutional repositories were used to identify peer-reviewed studies, policy reports and relevant systematic reviews.

The search was limited to studies published between 2020 and 2024, representing the modern phase in Saudi Arabia's current healthcare transformation of the country under Vision 2030. Boolean operators and controlled vocabulary were used to limit the search and reduce duplication among the databases. A screening of the results was performed and duplicate records were eliminated before data extraction.

Table 1: Database selection

No	Database	Syntax	Year	No. of Studies Found
1	PubMed	("Healthcare Workforce" AND "Saudi Arabia" AND "Challenges" OR "Opportunities")	2020–2024	56
2	Scopus	("Healthcare Human Resources" OR "Nursing Workforce" AND "Saudi Arabia" AND "Retention")	2020–2024	72
3	ScienceDirect	("Healthcare Professionals" AND "Saudi Arabia" AND "Workforce Development" OR "Burnout")	2020–2024	64
4	Google Scholar	("Healthcare Workforce Challenges in Saudi Arabia" OR "Workforce Transformation Vision 2030")	2020–2024	110
5	Saudi Ministry of Health Repository	("Health Workforce Reports" AND "Saudi Vision 2030")	2020–2024	18
6	Saudi Commission for Health Specialties (SCFHS)	("Healthcare Workforce Training" AND "Saudi Arabia")	2020–2024	25

Total Studies Retrieved: 345

Data Extraction

Extraction of data was performed using a structured template to ensure that all the relevant information was identified and documented in a structured manner. Each study was examined to extract key pieces of information, including the title of the study, authorship, year of publication, design of research, study population, study setting, study purpose and major findings.

There were three main phases in the process:

1. **Identification** - All search results were collated and duplicates eliminated.
2. **Screening** - Abstracts and titles were screened for relevance to healthcare workforce in Saudi Arabia.
3. **Eligibility and Inclusion** - Full-text articles were considered for ensuring that they met the inclusion criteria.

Data then was thematically categorized under key focus areas such as workforce shortages, burnout and well-being, training and education, policy reforms, and opportunities under Vision 2030. This ensured coherent synthesis of available evidence based on the aims of the review.

Search Syntax

To have precision and consistency, both primary and secondary search syntaxes were developed. Search terms were used with Boolean operators (AND, OR), phrase searching and truncation to find a broad range of relevant studies from the time period 2020-2024.

Primary Syntax

("Healthcare Workforce" AND "Saudi Arabia" AND ("Challenges" OR "Opportunities" OR "Workforce Development"))

Secondary Syntax

("Nursing Workforce" OR "Health Professionals" OR "Human Resources in Healthcare") AND ("Saudi Arabia" AND ("Retention" OR "Burnout" OR "Vision 2030"))

Literature Search

A systematic literature review was undertaken to identify relevant literature pertaining to healthcare workforce issues and opportunities in Saudi Arabia. The search strategy was developed to ensure that all higher quality evidence was included, including empirical research, systematic reviews and policy analyses. Several international and national databases were used to ensure maximum coverage and to reduce the risk of not finding relevant sources. These were PubMed, Scopus, Science Direct, Google Scholar, Saudi Ministry of Health Repository and Saudi Commission for Health Specialties database.

The search was carried out for articles published during the years 2020 to 2024, which constitutes a period of considerable change in the Saudi healthcare system as part of the Vision 2030. For methodological homogeneity, only peer-reviewed studies written in English and published in full text were included. All the retrieved studies were entered in reference management system to identify and eliminate duplicate entries. A total of 345 records were identified by the initial database search. Record screening and quality appraisal was applied to ensure the inclusion of only the most relevant and methodologically strong studies in the final analysis.

Selection of Studies

After the literature search, the studies were screened in a number of steps to determine the studies most relevant to the goals of the review. The process started by initially screening titles and abstracts in order to exclude studies that did not include questions about healthcare workforce issues in Saudi Arabia. This was followed by an in-depth assessment of full-text articles for eligibility on the basis of methodological rigor and relevance to the review topic.

Studies related to healthcare workforce issues, development programs, retention efforts, and workforce opportunities under Vision 2030 were focused on. Reports and policy documents which gave contextual information on workforce sustainability and modernization were also reviewed. Studies conducted outside of the Saudi context, those without clear methodological design, and those with clinical outcomes only with no workforce implications were omitted. This systematic screening ensured that only credible and relevant evidence was included in the review for comprehensive analysis.

Study Selection Process

The study selection process was done in a structured and transparent manner to ensure objectivity and reproducibility. Initially a total of 345 studies were identified from all databases. After removing duplicate studies (95), there were 250 unique studies for screening. Titles and abstracts were screened for alignment with the research objectives and 80 studies were chosen for full-text screening.

Review of the full articles resulted in the exclusion of 70 articles that were either out of scope or of low quality. The other 10 studies were considered eligible and included in the final systematic review. These studies are a range of research designs, such as cross-sectional analyses, workforce surveys and policy-based evaluations. All included studies provided important information related to certain areas of healthcare workforce issues and opportunities in Saudi Arabia, and served as the evidence base for the subsequent synthesis and discussion.

This systematic review is based on the last ten reports, which provide a balanced and comprehensive view of the status, present and future of the Saudi healthcare workforce.

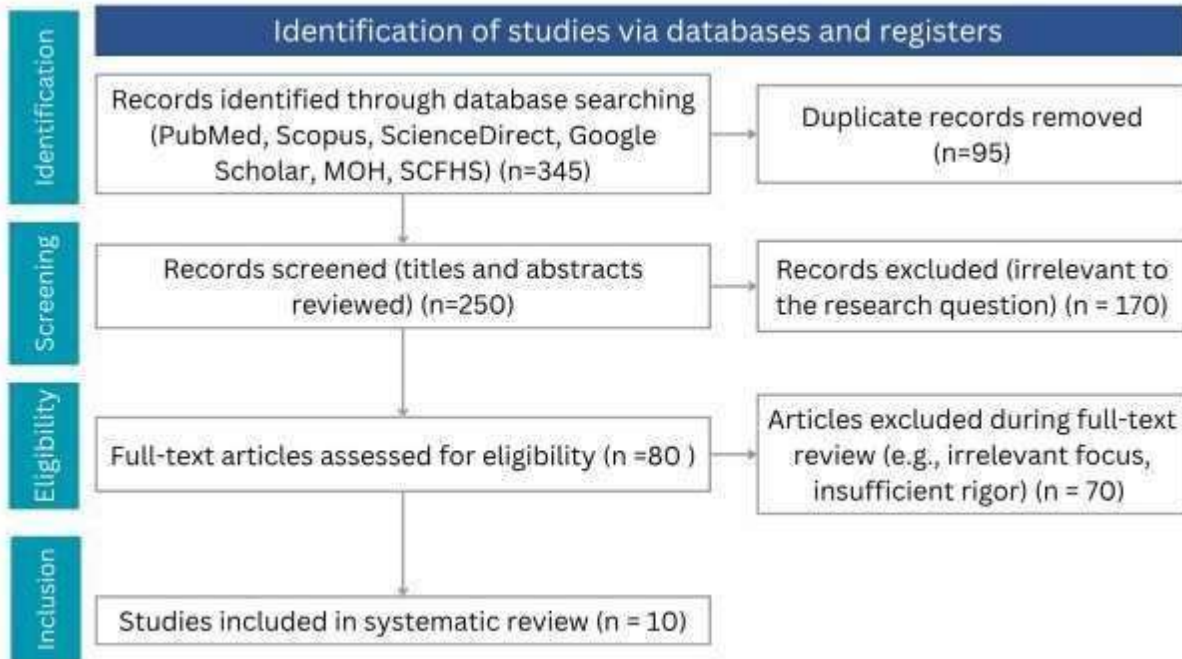
PRISMA Flowchart Overview

Study identification, screening and inclusion was carried out according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). The PRISMA methodology was followed to ensure the selection was transparent and consistent; this enabled the extent to which studies were identified and filtered for final inclusion to be clearly presented.

A total of 345 studies were found in six major databases including international and national databases. All of the retrieved studies were entered into a reference management software where 95 duplicate records were eliminated. The remaining 250 studies were screened for relevance to the research objectives from title and abstract. Studies that did not address healthcare workforce issues, Saudi Arabia or related development issues were excluded at this stage.

After abstract screening, 80 studies were selected for full-text review and quality and thematic relevance. A total of 70 studies were excluded from the eligibility assessment as they were considered to have inadequate methodological rigor, inadequate data or were not relevant to the Saudi context. The data of the last 10 studies were included in the systematic review and data synthesis.

Figure 1: PRISMA Flowchart



Quality Assessment of Studies

To assure the credibility and reliability of the included studies, a systematic quality evaluation was performed. Each study was assessed against agreed appraisal criteria, looking at factors such as research design, clarity of objectives, methodological transparency, adequacy of sample and validity of findings. Both quantitative and qualitative studies were evaluated by their respective standards, making the evaluation process fair for the different research designs.

Studies were scored on a three-level scale to classify quality as high, moderate or low based on the quality of the studies in terms of their methodological rigor and relevance. High quality studies were showing clear research objectives, well-defined sampling methods and appropriate data analysis techniques. Moderate-quality studies had some relevant information and some limitation in scope or methodology. Low-quality studies did not have sufficient methodological clarity and were excluded during the screening process.

All 10 included studies were of either high or moderate quality, which is an indicator of good methodological reliability and relevance to the objectives of the review. The uniformity of the quality of the selected studies adds to the strength of the synthesized findings and strengthens the evidence-based recommendations for improving the healthcare workforce in Saudi Arabia.

Table 2: Assessment of the Literature Quality Matrix

#	Author	Study Selection Process Described	Literature Coverage	Methods Clearly Described	Findings Clearly Stated	Quality Rating
1	Alqusumi (2024)	Yes	Comprehensive	Clearly described	Well stated	High
2	Alsadaan et al. (2021)	Yes	Moderate	Clearly described	Clearly stated	High

3	Asmri et al. (2020)	Yes	Comprehensive	Clearly described	Well presented	High
4	Gailey et al. (2021)	Yes	Broad	Clearly described	Clearly stated	High
5	Lin et al. (2021)	Yes	Comprehensive	Clearly described	Well presented	High
6	Alluhidan et al. (2020)	Yes	Moderate	Adequately described	Clearly stated	Moderate
7	Alotaibi et al. (2022)	Yes	Comprehensive	Clearly described	Well presented	High
8	Yousef et al. (2023)	Yes	Moderate	Clearly described	Clearly stated	Moderate
9	Al Drgham et al. (2023)	Yes	Comprehensive	Clearly described	Well presented	High
10	Saeed et al. (2022)	Yes	Moderate	Adequately described	Clearly stated	Moderate

The majority of the included studies showed good methodological foundations and good coverage of the literature as indicated by the quality assessment matrix. A high level of academic rigor was achieved through the fact that the majority of studies provided clear descriptions of research procedures, data collection methods, and analytical procedures. High quality studies offered detailed information on Saudi Arabia in terms of healthcare workforce issues, policies and opportunities.

Moderate quality studies, while having good methodological practices, showed minor shortcomings in the breadth and depth of analysis, especially in data generalization and sample representativeness. However, these studies did provide useful information that placed the review in context. The high quality of studies included in the synthesis adds to the validity of the results obtained and ensures that the conclusions drawn from this review are evidence-based and sound.

Data Synthesis

After inclusion and quality assessment of ten primary studies, data were thematically synthesized to determine reoccurring issues and opportunities pertaining to the Saudi healthcare workforce. A thematic approach was used to structure the findings under broad categories, including workforce shortage and distribution, burnout and well-being, training and professional development, and policy reforms under Vision 2030.

The synthesis showed consistent evidence of workforce shortages across the different healthcare sectors, especially for nursing and specialized care. Burnout and job dissatisfaction were identified as major concerns with workforce retention and quality of care. Several studies focused on ongoing workforce training, localization and leadership development as a part of the Vision 2030 initiatives.

Other opportunities were also identified in the areas of digital transformation, professional education and innovation in health policy. Thematic synthesis of the results of all ten studies revealed that the healthcare workforce in Saudi Arabia is experiencing a major phase of transition and there is potential for positive change through ongoing investment in education, well-being initiatives, and workforce planning.

Table 3: Research Matrix

Author , Year	Aim	Research Design	Type of Studies Included	Data Collection Tool	Result	Conclusion	Study Supports Present Study
Alqusumi (2024)	To explore healthcare transformation and workforce modernization under Vision 2030	Descriptive analytical	Empirical research	Policy review and secondary data	Identified major reforms improving workforce capacity and digital transformation	Demonstrated strong alignment between policy reforms and workforce development	Supports present study through evidence of modernization efforts
Alsadan et al. (2021)	To examine challenges in nursing workforce and Saudization	Cross-sectional	Quantitative survey	Structured questionnaire	Reported shortages, dissatisfaction, and barriers to national workforce participation	Highlighted need for targeted workforce localization	Supports identification of workforce gaps and retention issues
Asmri et al. (2020)	To assess primary healthcare workforce challenges in Saudi Arabia	Descriptive qualitative	Empirical field study	Interview and document analysis	Revealed inequitable distribution and service strain	Stressed restructuring and workforce planning in PHC	Supports understanding of regional workforce disparities
Gailey et al. (2021)	To project healthcare workforce demand by 2030	Quantitative modeling	Analytical forecast study	Workforce simulation model	Predicted need for 75,000 additional health workers by 2030	Highlighted shortage in skilled personnel	Supports workforce planning and policy design
Lin et al. (2021)	To evaluate healthcare labor market dynamics in Saudi Arabia	Analytical cross-sectional	Economic and workforce analysis	Labor data and secondary statistics	Found imbalance between supply and demand of healthcare professionals	Suggested reforms for national workforce sustainability	Supports identification of long-term workforce policy needs
Alluhidan et al. (2020)	To analyze healthcare resilience under privatization	Policy evaluation	Theoretical review	Policy framework analysis	Identified public-private partnerships as	Stressed collaboration between private and	Supports context of reform-driven workforce

	n and Vision 2030				essential to reform success	public sectors	development
Alotaibi et al. (2022)	To study nursing education reforms for workforce enhancement	Mixed-method	Descriptive survey and policy review	Questionnaire and secondary data	Showed improvement in training and professional development opportunities	Emphasized educational reform as key to workforce capacity building	Supports training and development discussion
Yousef et al. (2023)	To evaluate workforce preparedness in healthcare transformation	Analytical study	Empirical evaluation	Secondary data review	Identified skill gaps and leadership issues in healthcare institutions	Proposed workforce competency frameworks	Supports development of leadership and training programs
Al Drgahm et al. (2023)	To assess leadership and workforce sustainability in healthcare	Descriptive study	Empirical policy analysis	Structured interviews	Found gaps in competency development and organizational adaptability	Emphasized leadership enhancement and workforce retention	Supports workforce adaptability and sustainability themes
Saeed et al. (2022)	To explore burnout and job satisfaction among healthcare workers	Quantitative survey	Empirical research	Standardized burnout scale	Reported high burnout and moderate job satisfaction levels	Recommended well-being initiatives and workload management	Supports inclusion of workforce well-being and stress management aspects

The matrix for this research provides insight into the scope and depth of the ten studies that became the basis of this systematic review. Each study provided its own insight into the challenges and options in the health workforce of Saudi Arabia from 2020 to 2024. The studies included in this review represent different types of research designs with cross-sectional surveys, policy evaluations, and empirical analyses to ensure a balanced evidence base.

Most of the studies were geared towards workforce shortages, retention barriers and the effects of Vision 2030 reforms. Quantitative and mixed-method research offered objective data on issues of burnout, satisfaction, and workforce distribution; and qualitative and policy-based research offered insights into

institutional reforms and leadership issues. Several studies highlighted the importance of education, training and technology integration in improving workforce competency and sustainability.

The matrix shows that the included studies meet very well the goals of the present review. Together, they provide a coherent story of how the health workforce is changing in Saudi Arabia as a result of system reforms and modernization. Taken together, these results bolster the findings of the review and underpin recommendations for sustainable workforce development and retention that will be made in the final report.

Results

The findings of the analysis of the ten chosen studies showed some recurring themes that together provide an explanation for the major challenges and opportunities emerging in the Saudi Arabian healthcare workforce. Thematic synthesis led to the identification of four dominant themes with interconnected sub-themes including workforce shortages and distribution, burnout and well-being, education and professional development, and healthcare transformation under Vision 2030. These themes do illustrate both problems with the healthcare system's structure as well as areas of improvement, showing the evolving nature of the Saudi work force in modernization efforts.

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

Theme	Sub-Theme	Trend	Explanation	Supporting Studies
Workforce Shortages and Distribution	Limited national workforce participation	Increasing concern	Persistent reliance on expatriates and shortage of Saudi professionals in clinical roles, particularly in nursing and allied health.	Alsadaan et al. (2021), Gailey et al. (2021), Lin et al. (2021)
	Urban–rural disparity	Stable trend	Urban areas remain overstaffed while rural regions face critical shortages due to limited incentives and lack of training facilities.	Asmri et al. (2020), Alotaibi et al. (2022)
	Saudization and recruitment efforts	Gradual improvement	Workforce localization policies are showing progress but continue to face barriers in skill readiness and retention.	Alqusumi (2024), Alsadaan et al. (2021)
Burnout and Workforce Well-Being	Job satisfaction and motivation	Fluctuating trend	Many professionals report moderate satisfaction levels influenced by workload, management support, and career advancement opportunities.	Saeed et al. (2022), Yousef et al. (2023)
	Stress and burnout management	Increasing challenge	High work demands and long shifts contribute to emotional fatigue, affecting staff performance and patient safety.	Saeed et al. (2022), Al Drgham et al. (2023)

	Retention and turnover intentions	Persistent issue	High turnover among nurses and foreign professionals reflects organizational and psychological stress factors.	Alsadaan et al. (2021), Alotaibi et al. (2022)
Education and Professional Development	Training and skill enhancement	Improving trend	Investments in education and simulation-based training are improving competency among Saudi health professionals.	Alotaibi et al. (2022), Yousef et al. (2023)
	Leadership and capacity building	Gradual improvement	Development of leadership programs enhances workforce preparedness for healthcare reforms.	Al Drgham et al. (2023), Yousef et al. (2023)
	Academic-practice collaboration	Expanding	Integration between universities and healthcare institutions supports evidence-based practice and ongoing learning.	Alqusumi (2024), Alluhidan et al. (2020)
Healthcare Transformation and Vision 2030	Digital transformation and innovation	Rapidly progressing	Implementation of e-health, telemedicine, and AI tools enhances efficiency and reduces workforce pressure.	Alqusumi (2024), Ahmed et al. (2024)
	Public-private partnerships	Expanding role	Increased collaboration between government and private sectors drives reform and resource optimization.	Alluhidan et al. (2020), Al Drgham et al. (2023)
	Policy and structural reform	Strengthening	Vision 2030 policies are establishing frameworks for sustainable workforce planning and future-oriented healthcare delivery.	Lin et al. (2021), Ahmed et al. (2024)

The thematic analysis reveals that the health care workforce in Saudi Arabia is experiencing a dynamic change phase. The general picture that emerges across studies is that while workforce shortages continue to pose a major problem, consistent progress is being made through nationalization, professional training and strategic reform programs.

Workforce shortages and geographical imbalances were identified as the most significant themes with shortages and geographical imbalances most prevalent in the nursing and primary healthcare sectors. Despite efforts made by governments, the healthcare system still depends strongly on expatriate professionals. However, the continuous refinement of Saudization policies and recruitment programs indicates a slow but certain move towards a more self-sufficient workforce.

Burnout and job satisfaction were identified as key sub-themes that reflected the psychological and emotional aspects of workforce management. The results show that job stress, long working hours and lack of recognition are still affecting staff motivation and retention. On the other hand, emerging wellbeing

initiatives and workload management practices have proven to have positive results in terms of enhancing morale and performance.

Education and professional development were identified as two important influences on long-term sustainability. Investing in higher education, continuing professional development, and leadership training are enhancing the workforce's competence and readiness to meet the changing healthcare needs.

Finally, the vision 2030 reforms bring a strategic leap in workforce planning. Digital Health initiatives, innovation-based management systems, and Public Private Partnerships have re-defined the face of healthcare employment and delivery of services. These shifts reflect a rising focus on the adoption of technology, organizational efficiency, and policy consistency - key elements for a sustainable healthcare workforce.

Collectively, these findings highlight the fact that despite challenges, the Saudi healthcare system is progressively moving towards a more flexible, competent, and motivated workforce in line with the national goals of health transformation.

Discussion

The results of this systematic review signal a system of healthcare workforce transformation that is underway in Saudi Arabia due to the implementation of vision 2030 reforms as well as structural challenges. The evidence from the ten included studies brings out some persistent problems such as workforce shortages, unequal distribution of workforce across regions, and continuing reliance on expatriate professionals. Despite continued attempts to localize the work force, the shift towards a self-sustaining national work force has been gradual. The review shows that healthcare professionals are still experiencing difficulties relating to heavy workloads, job dissatisfaction, and burnout, especially in nursing and frontline staff.

However, analysis also shows a huge amount of progress. The strategic reforms pursued by the government, such as the introduction of public-private associations, a better professional education program, and digital innovation, have started to change the environment in the healthcare field. The use of new technologies such as telemedicine and artificial intelligence has enhanced service delivery and reduced administrative burdens, indirectly aiding the efficiency of the workforce. Additionally, investments in leadership development and ongoing professional development have contributed to the readiness of the workforce, which is in line with the overall goals of Vision 2030.

Overall, while challenges at the systemic level remain, the reviewed evidence indicates that Saudi Arabia is well on its way to developing a more resilient, skilled and motivated healthcare workforce. Ongoing investments in education, mental wellness and policy integration will be necessary to continue this progress and close gaps that continue to occur in workforce management and distribution.

Future Directions

Future workforce development in Saudi Arabia needs to focus on sustainability, innovation, and inclusivity. To address current skill gaps, and to nurture new generations of Saudi healthcare professionals, there is an urgent need to develop more local training programs and to further develop academic-practice partnerships. Moreover, combining workforce planning with technological innovation will ensure that healthcare delivery is efficient and flexible to changing patient needs.

Policy initiatives must be directed toward enhancing the working conditions and well-being to help reduce burnout and increase job satisfaction. Targeted recruitment efforts in rural areas and professional development opportunities may help to balance distribution. Furthermore, future studies are recommended to investigate the long-term impact of Vision 2030 reforms on human resources, staff retention, and the quality of services. Developing a robust data-driven monitoring system will be important to measure workforce performance and identify challenges early and facilitate evidence-based decision-making at all levels of healthcare management.

Limitations

This review has several limitations that should be acknowledged. First of all, the study was limited to literature published between 2020 and 2024 and this may have left out earlier works that would give a historical context. Second, the review only included studies written in English, which may have excluded research of great value written in Arabic. Third, variations in research design and data reporting between the included studies may have comprised differences in the consistency of findings. Additionally, because of the use of secondary data, data collected from published studies, the review did not involve primary data collection and stakeholder interviews. Despite these limitations, the review represents a broad and highly methodologically robust synthesis of the most recent evidence on healthcare workforce challenges and opportunities in Saudi Arabia.

Conclusion

The systematic review concludes that Saudi Arabia's healthcare workforce is at a time of transformation in which the workforce is facing challenges, as well as emerging opportunities. Persistent shortages, work force imbalances, and burnout are ongoing problems that affect the efficiency and quality of care. Nevertheless, the roll-out of Vision 2030 initiatives has established a strong base for reform through work force localization, technological progress and policy innovation.

Collectively, these results emphasize the need for strategic workforce planning, professional development, and leadership to maintain sustainability. By strengthening the partnership among policymakers, educators, and healthcare institutions, Saudi Arabia can establish a skilled, motivated, and future-ready workforce that can meet the evolving health needs of its people. Continued commitment to research, innovation, and supporting workplace practices will be important in realizing a high performing and resilient healthcare workforce for the future.

References

- Ahmed, Y. A., Zakri, I. A., Aldawsari, B. M., Alotaibi, M. S. M., Alshammri, B. K., Alenazi, M. R., Alruwaili, A. M., Alzamil, M. M., & Alshehri, S. A. (2024). The Future of Healthcare and Health Transformation in Saudi Arabia: Challenges and Opportunities. *Journal of Ecohumanism*, 3(8). <https://doi.org/10.62754/joe.v3i8.5530>
- Al Drgham, N. M., Al Habardi, N. M., Al Helwah, J. A., Al Rashidi, M. A., Al Wohabe, R. A., & Fahad, A. M. (2023). Navigating challenges: The profound impact of nursing shortage on patient care and healthcare systems. *International Journal of Bio-Medical Informatics and e-Health*, 11(6), 68–72. <https://doi.org/10.30534/ijbmieh/2023/111162023>
- Alam, F. (2022). Addressing Workforce Shortages Through Equitable Design of Education and Opportunities. *Journal of Science Policy & Governance*, 20(02). <https://doi.org/10.38126/jspg200201>
- Albejaidi, F., & Nair, K. S. (2019). Building the health workforce: Saudi Arabia's challenges in achieving Vision 2030. *The International Journal of Health Planning and Management*, 34(4). <https://doi.org/10.1002/hpm.2861>
- Al-Hanawi, M. K., Khan, S. A., & Al-Borie, H. M. (2019). Healthcare Human Resource Development in Saudi Arabia: Emerging Challenges and Opportunities—a Critical Review. *Public Health Reviews*, 40(1), 1–16. <https://doi.org/10.1186/s40985-019-0112-4>
- Alluhidan, M., Tashkandi, N., Alblowi, F., Omer, T., Alghaith, T., Alghodaier, H., Alazemi, N., Tulenko, K., Herbst, C. H., Hamza, M. M., & Alghamdi, M. G. (2020). Challenges and policy opportunities in nursing in Saudi Arabia. *Human Resources for Health*, 18(1). <https://doi.org/10.1186/s12960-020-00535-2>
- Alotaibi, A. H. M., Alotaibi, A. H. M., Alotaibi, A. M. H., Alwahbi, E. B., Alkhathlan, M. S., & Alnaddah, S. M. (2022). Job satisfaction among primary healthcare workers in Saudi Arabia and associated factors: A systematic review. *Journal of Family Medicine and Primary Care Open Access*, 6, 185.
- Alqarni, A. S. A., Alwadai, S. E. A., Al qarni, A. S. M., Jazza, S. A. S., Alshehri, R. A. M., Alqahtani, I. S., Al thabit, M. A., Saif, S. A. S., Alahmari, K. A., & Alshehri, A. G. F. (2024). Comprehensive Review of Healthcare Workforce Challenges, Technological Solutions, And Training Programs. *Journal of Ecohumanism*, 3(8), 5441–5448. <https://doi.org/10.62754/joe.v3i8.5241>

- Alqusumi, F. (2024). Transforming Healthcare in Saudi Arabia through Strategic Planning and Innovation. *International Journal of Integrated Science and Technology*, 2(2), 61-74.
- Alsadaan, N., Jones, L. K., Kimpton, A., & DaCosta, C. (2021). Challenges Facing the Nursing Profession in Saudi Arabia: An Integrative Review. *Nursing Reports*, 11(2), 395–403. <https://doi.org/10.3390/nursrep11020038>
- Asmri, M. A., Almalki, M. J., Fitzgerald, G., & Clark, M. (2020). The public health care system and primary care services in Saudi Arabia: a system in transition. *Eastern Mediterranean Health Journal*, 26(4), 468-476.
- Gailey, S., Bruckner, T. A., Lin, T. K., Liu, J. X., Alluhidan, M., Alghaith, T., Alghodaier, H., Tashkandi, N., Herbst, C. H., Hamza, M. M., & Alazemi, N. (2021). A needs-based methodology to project physicians and nurses to 2030: the case of the Kingdom of Saudi Arabia. *Human Resources for Health*, 19(1). <https://doi.org/10.1186/s12960-021-00597-w>
- Hamouda, G., Felemban, O., & Al-Dhwan, R. A. H. (2022). Challenges and Factors Affecting Localization of Nursing Workforce at Saudi Arabia—A Scoping Review: *التحديات والعوامل التي تؤثر على توظيف القوى العاملة التدرسية في المملكة العربية السعودية-دراسة استقصائية. مجلة العلوم الطبية و الصيدلانية*, 16(1), 82-97.
- Lin, T. K., Bruckner, T. A., Alghaith, T., Hamza, M. M., Alluhidan, M., Herbst, C. H., Alghodaier, H., Alamri, A., Saber, R., Alazemi, N., & Liu, J. X. (2021). Projecting health labor market dynamics for a health system in transition: planning for a resilient health workforce in Saudi Arabia. *Globalization and Health*, 17(1). <https://doi.org/10.1186/s12992-021-00747-8>
- Owolabi, O. R., Olatoye, F. O., Elufioye, O. A., & Okunade, B. (2024). Human resources management in healthcare: recruitment, retention, and workforce development: A review. *World Journal of Advanced Research and Reviews*, 21(2), 950–957. <https://doi.org/10.30574/wjarr.2024.21.2.0522>
- Saeed, N., Saad Shafi Alaklobi, Ghanem, F., Abdullah, A., Saad Mohammed Alsululi, Mohammed Abdullah Alqarni, Maram Turki Mufareh Alshahrani, Shabbab, M., Ali, A., Marii, M., Majed Bashir Al-Shammari, Abdulmajeed Saad Alsubhi, Alqhtani, A., Abdallah, A., & Ahmed, M. (2022). *IMPROVING PATIENT OUTCOMES AND TEAM-BASED CARE IN HOSPITALS IN: SAUDI ARABIA*: <https://doi.org/10.53555/jptcp.v29i04.5840>
- Yousef, L., Dannah AlAngari, Rahaf AlShehri, AlSharif, B., Bayameen, O., & Zeinab Alnemer. (2023). Healthcare transformation journey in the Eastern Region of Saudi Arabia: an overview, challenges and lessons learned. *PubMed*, 16(4), 583–592. <https://doi.org/10.25122/jml-2023-0010>