

Healthcare Transformation in Saudi Arabia: Perceptions and Knowledge of Providers in the Hail Region

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Abstract The healthcare system in Saudi Arabia is undergoing significant transformation as part of the Kingdom's 2030 initiative. This comprehensive literature review examined the perceptions and knowledge of Hail healthcare providers regarding the ongoing health transformation system. A systematic analysis was conducted on peer-reviewed articles published between 2015 and 2023, focusing on healthcare providers' awareness, attitudes, and readiness towards various aspects of the transformation, including electronic health records, telemedicine, artificial intelligence integration, and quality improvement initiatives. The review synthesises findings from 35 relevant studies and presents key themes through tables and figures. The results indicate varying levels of knowledge and acceptance among different healthcare specialities, with generally positive perceptions of digital health technologies but concerns about implementation challenges. Notably, there is a significant knowledge gap regarding specific national healthcare transformation policies among healthcare providers in Ha'il City. This review also highlights the need for targeted educational programs and change management strategies to facilitate the successful adoption of new healthcare practices. This study provides valuable insights for policymakers and healthcare administrators to address potential barriers and optimize the implementation of the health transformation system in Ha'il and similar regions of Saudi Arabia.

Keywords: Health system, Transformation, Hail, Saudi Arabia

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1. Introduction

The health care system in Hail, Saudi Arabia, is undergoing significant transformations driven by the ambitious goals of Saudi Vision 2030. This literature review aimed to provide an in-depth analysis of healthcare providers' perceptions and knowledge within this changing landscape, focusing on the region of Ha'il. By examining the current state of healthcare delivery, challenges in digital health integration, quality improvement efforts, and workforce development, this review seeks to elucidate the nuances of healthcare providers' experiences and attitudes. The pivotal role of healthcare professionals in successfully implementing health reforms underscores the importance of understanding their perspectives, readiness, and adaptability to change.

2. Overview of Saudi Arabia's Healthcare Transformation

This chapter focuses on the comprehensive transformation of Saudi Arabia's healthcare system under Vision 2030, addressing the research question: {Overview of Saudi Arabia's Healthcare Transformation. The transformation encompasses the introduction of a new Model of Care, incorporation of technology and Total Quality Management (TQM), shifts towards privatization, and enhanced Public-Private Partnerships (PPPs) to improve healthcare delivery and sustainability. Through a synthesis of various studies, this chapter highlights significant progress in policy and planning, while acknowledging ongoing challenges in implementation, workforce readiness, and maintaining equitable access amidst privatization efforts. This transformation aims to

modernize Saudi Arabia's healthcare sector, ensuring its preparedness to meet future health needs and challenges.

2.1. Vision 2030 and Healthcare Reforms

Saudi Arabia's healthcare transformation, as part of the ambitious Vision 2030, aims to modernize the health sector by introducing a new Model of Care (MOC), enhancing private sector participation, and improving overall health system readiness for change. The transformation emphasizes preventive care, enhancing service delivery, and ensuring sustainability through public-private partnerships (PPPs). Ali et al. [1] elucidate the new MOC introduced under Vision 2030, highlighting its foundation on six systems of care designed to encompass the spectrum of healthcare needs from preventative measures to end-of-life care. This study underscores the necessity of a modernized healthcare system to achieve the Vision 2030 objectives. Yousef et al. [2] provided insight into the practical applications and challenges of implementing MOC in the Eastern Region of Saudi Arabia. This study identifies successes in data management and patient engagement, while acknowledging the imperative of addressing systemic challenges within the Saudi healthcare system. Alagiri et al. [3] emphasized the role of privatization and PPPs in the healthcare sector's transformation, indicating legislative progress and strategic steps towards developing a privatized healthcare system. This approach aims to enhance investor confidence and ensure the provision of high-quality healthcare. Chowdhury et al. [4] offer a complementary perspective on the MOC, reiterating its objective to streamline healthcare delivery across different service layers. This study reinforces the importance of implementing all MOC interventions to fulfill Vision 2030 goals. Rahman's series of articles [5,6,7] analyze the drivers behind healthcare reforms, the role of Vision 2030 in strengthening the healthcare system, and the alignment with Sustainable Development Goals. These papers present a critical examination of the challenges and suggest that while Vision 2030 is a step in the right direction, actual improvements in population health may be limited without further action. Alharbi [8] discussed the Saudi healthcare system's readiness for envisioned changes, emphasizing the significance of organizational readiness and the willingness of organizational members to embrace and implement changes. Collectively, these studies provided a comprehensive overview of Saudi Arabia's healthcare transformation under Vision 2030. They highlight significant progress in policy and planning, while acknowledging the challenges that lie ahead in implementing the plan and achieving the desired health outcomes.

2.2. Key Components of the Health Transformation System

Healthcare transformation in Saudi Arabia is characterized by the integration of technology, Total Quality Management (TQM), and a shift towards privatization and public-private partnerships (PPPs) to enhance service quality and sustainability. Almeshari et al.

[9] provide an overview of the role of information technology in transforming the Saudi healthcare system, emphasizing the government's commitment to healthcare and the potential of technology to improve patient treatment standards. Ghalibi et al. [10] focused on the awareness and readiness of healthcare workers in the Tabuk region regarding the National Transformation Program, revealing a high level of awareness, but a partial understanding of the transformation process and new care models. Samarkand [11] discussed the implementation of TQM as a critical step in healthcare transformation, highlighting a new Model of Care (MoC) that includes six care systems and service layers, emphasizing continuous improvement. The reform of primary health care, as explored by Khashan [12], has demonstrated significant improvements in patient satisfaction and service coverage, although challenges remain in human resources and infrastructure. Alhanawi [13] examined the sustainability of funding models for healthcare, suggesting a shift towards a social insurance model to maintain equitable access amidst rising costs. Rahman [14] assesses the privatization of healthcare in the context of Vision 2030, highlighting the challenges of ensuring affordable and high-quality care for all amid increasing privatizations. Hassanain [15] evaluated the Ministry of Health performance improvement initiatives and indicated the challenges in sustaining improvements over time. Alhanawi's study [16] on PPPs in healthcare provision suggests that such partnerships could modernize the healthcare system but require cautious implementation. Kuwaiti [17] addressed the challenges and strategies of privatizing academic medical centers, highlighting the need for a balance between privatization benefits and their potential impacts on core healthcare functions in summary, transforming Saudi Arabia's healthcare system involves a multifaceted approach that integrates technology, quality management, and new funding and organizational models to improve service delivery and sustainability.

2.3. Research Gaps and Suggested Agenda

Despite comprehensive efforts to transform Saudi Arabia's healthcare system as part of Vision 2030, several research gaps remain, particularly in evaluating the effectiveness of implemented changes, readiness and adaptability of healthcare workers, and impact of technology integration. To address these gaps, the following research agenda is proposed:

1. Assessing the long-term outcomes and sustainability of healthcare reforms, focusing on quality of care, patient satisfaction, and financial viability [13,15].
2. Investigating the readiness and adaptability of healthcare workers to changes, including their engagement, training needs, and perspectives on the transformation process [10].
3. Evaluating the impact of technology integration within the healthcare system, particularly in improving service delivery and patient care outcomes [9].

This agenda aims to address the identified research gaps and contribute to the continuous improvement of the Saudi Arabian health care system.

3. Digital Health Technologies in Saudi Arabia

This chapter examines the research question of Digital Health Technologies in Saudi Arabia," providing a comprehensive overview of the status and challenges of digital health implementation across electronic health records (EHR), telemedicine, and artificial intelligence (AI) in healthcare. Collectively, these studies demonstrate a positive trajectory towards the adoption of digital health technologies among healthcare providers in Saudi Arabia. Despite the perceived benefits of healthcare delivery, significant challenges persist, such as the need for enhanced training, financial investment, system reliability, and regulatory framework. Addressing these barriers is crucial for the full realization and effectiveness of digital health technologies in alignment with Saudi Vision 2030, indicating a transformative yet complex journey towards digital healthcare integration.

3.1. Electronic Health Records Implementation

The implementation and perception of Electronic Health Records (EHR) in Saudi Arabia have generally been positive among healthcare providers, with identified obstacles primarily related to system performance, training, and financial resources. Jabali et al. [18] revealed a positive perception of EHRs among healthcare providers, highlighting benefits such as improved ease of work despite the increased time required to complete tasks. Otaybi et al. [19] emphasized the role of EMR training in enhancing satisfaction and performance scores among healthcare workers while also identifying the temporary loss of patient records due to system failures as a significant barrier. Alzghaibi et al. [20] focused on the critical impact of financial resources on overcoming barriers to large-scale EHR implementation. Khalifa et al. [21] and Alghamdi [22] discussed various challenges in implementing an HIS, including organizational, financial, and regulatory hurdles, with financial challenges being the most significant. These studies collectively suggest that while transitioning to digital health technologies such as EHRs in Saudi Arabia is on a positive trajectory, attention to training, financial planning, and system reliability is essential to overcome the remaining barriers.

3.2. Telemedicine Adoption and Utilization

This subsection presents insights from recent studies on telemedicine adoption and utilization within the Saudi Arabian healthcare system. A collective examination of these studies reveals an increasing acceptance of digital health technologies among healthcare providers (HCPs), along with identified barriers and recommendations for enhancing telemedicine services. Alghamdi et al. [23] conducted a comprehensive survey revealing that while telehealth applications are positively perceived and valued for their confidentiality and quality of care delivery, HCPs encounter significant barriers, such as time constraints and additional training. Similarly, Alwathinani's study [24] on 937 virtual medical call centers indicated high satisfaction

levels among HCPs, but underscored challenges in remote medical assessments and the need for clearer telehealth regulations and management support. Altwayrib [25] focused on medication adherence applications for patients with chronic arthritis, suggesting that these should include informational content and features fostering patient motivation and socialization, emphasizing the importance of a design that respects privacy and is accessible to diverse patient groups. Wali et al. [26] assessed primary care physicians' satisfaction with telehealth, identifying technical knowledge among patients and access to technology as significant barriers, while Zaman [27] highlighted the utilization of e-health in Makkah, identifying costs and a lack of technical expertise as key challenges. Collectively, these studies underscore the critical role of telemedicine in enhancing healthcare delivery in Saudi Arabia while also highlighting the need to address operational challenges, improve regulatory frameworks, and ensure the accessibility and effectiveness of telehealth services to meet the goals of Saudi Vision 2030.

3.3. Artificial Intelligence Integration in Healthcare

Integrating Artificial Intelligence (AI) in healthcare within Saudi Arabia exhibits a positive reception among healthcare providers, with significant potential to enhance clinical practice, educational frameworks, and operational efficiency in alignment with Vision 2030. A cross-sectional study conducted by Esmaeel et al. [28] found that dermatologists in Saudi Arabia have a positive attitude towards AI, recognizing its potential to reduce clinical errors and improve diagnostic accuracy in dermatology. Similarly, Syed et al. [29] reported that pharmacy students at King Saud University demonstrated substantial awareness and positive perceptions of AI, indicating readiness for broader implementation despite the perceived need for more education and training in the field. Mahfouz et al. [30] highlighted healthcare providers' favorable attitudes towards virtual reality (VR) in surgical training, suggesting a growing openness to adopting digital innovations. Muafa [31] assessed the impact of AI applications on digital transformation in healthcare delivery, identified opportunities and challenges in line with Vision 2030, and emphasized the role of AI in disease detection, healthcare management, and scientific research enhancement. Collectively, these studies underscore the growing enthusiasm for and readiness for AI integration across various healthcare sectors in Saudi Arabia, indicating a transformative impact on the quality and efficiency of healthcare services.

3.4. Research Gaps and Suggested Agenda

Despite advancements in digital health technologies in Saudi Arabia, gaps persist in understanding user acceptance, integration challenges, and comprehensive impact assessments, thus necessitating further research. Research on digital health technologies in Saudi Arabia has highlighted significant advancements and benefits such as improved healthcare quality and accessibility [20,22]. However, several gaps remain, indicating areas for future research. There is a need for a more nuanced

understanding of healthcare providers' and patients' acceptance of and resistance to digital health technologies, particularly in under-researched areas such as artificial intelligence in dermatology [28] and virtual reality in surgical training [30]. Comprehensive integration strategies of digital health technologies into existing healthcare infrastructure, considering organizational, financial, and regulatory challenges [21]. Longitudinal impact assessments of digital health technologies on health outcomes, operational efficiencies, and patient satisfaction aligned with Saudi Arabia's Vision 2030 objectives [31].

4. Healthcare Providers' Perceptions and Knowledge

This chapter addresses the research question: {Healthcare providers' perceptions and knowledge, presenting a coherent narrative of Saudi healthcare providers' positive attitudes towards national healthcare policies and readiness for system changes. Studies collectively demonstrate that, while healthcare providers exhibit a favorable outlook towards policies and patient safety, challenges persist in areas such as medical error reporting, emergency preparedness, pharmacist involvement in mental health, and telemedicine adoption. These findings underscore the need to enhance education, communication, and infrastructure to improve healthcare providers' capabilities to adapt to system changes and ensure effective healthcare delivery.

4.1. Awareness of National Healthcare Policies

Studies by [32] and [33] collectively reveal that Saudi healthcare providers possess positive perceptions and attitudes towards national healthcare policies, including the Central Board for Accreditation of Healthcare Institutions (CBAHI) standards and patient rights and safety, despite encountering certain barriers and diverse viewpoints on medical errors and reporting.

4.2. Readiness for Healthcare System Changes

Healthcare providers' readiness for system change is multifaceted, encompassing their perceptions of preparedness, willingness to work during emergencies, expectations of pharmacists in mental healthcare, and adoption of telemedicine. A study by [34] found that healthcare workers' willingness to work during disasters varied according to the type of emergency, with knowledge, skills, and family safety being significant determinants of their readiness. Additionally, [35] revealed that interactions between healthcare providers and pharmacists in mental health are limited, indicating a need for enhanced communication and education among pharmacists. Meanwhile, [36] demonstrated a positive perception of telemedicine among healthcare professionals, suggesting its potential for broader adoption in the healthcare system. These studies highlight the importance

of education, communication, and infrastructure in improving health care providers' readiness for systemic change.

4.3. Research Gaps and Suggested Agenda

The reviewed studies highlight the perceptions and knowledge of healthcare providers in Saudi Arabia regarding different aspects; however, research gaps remain [32,33,34,35,36]. There is a need to explore the longitudinal impact of accreditation standards such as CBAHI on the quality of healthcare services and patient outcomes. Further research is required to investigate the effectiveness of educational programs in improving healthcare providers' knowledge of and attitudes towards patient safety and emergency preparedness. Studies should assess the integration of telemedicine in post-pandemic healthcare settings and its impact on healthcare delivery and provider-patient interactions

5. Quality Improvement Initiatives

This chapter, focusing on Quality Improvement Initiatives, synthesizes the findings from various studies to explore healthcare providers' engagement in enhancing the quality and safety of healthcare services in Saudi Arabia. The synthesized research reveals a concerted effort among healthcare professionals towards adopting quality improvement methodologies, leveraging technology, and embracing accreditation standards to improve patient care and outcomes. Despite these efforts, studies have collectively identified ongoing challenges in sustaining long-term improvements. Moreover, patient satisfaction and perceptions of healthcare quality have emerged as pivotal elements influenced by demographic factors, healthcare delivery processes, and the broader healthcare system's transformation efforts. This chapter underscores the critical importance of continuous quality improvement initiatives supported by positive safety cultures and structured methodologies to achieve and sustain high-quality patient care within the Saudi Arabian healthcare system.

5.1. Healthcare Providers' Engagement in Quality Improvement

This review presents findings from recent studies that elucidate healthcare providers' engagement with quality improvement initiatives in the Saudi Arabian healthcare system. Collectively, these studies demonstrate a positive correlation between healthcare staff perceptions of safety culture and patient experiences, utilization of quality improvement methodologies, and challenges and successes in implementing quality improvement standards and accreditation in healthcare settings. [37] examined the relationship between hospital nurses' attitudes towards safety culture and patients' perceptions of healthcare quality, revealing a strong positive correlation. This study underscores the significance of fostering a positive safety culture among healthcare providers to enhance the quality of patient care. [38] focused on Saudi nurses' attitudes towards quality improvement and found that while attitudes were moderate, factors such as age, gender,

marital status, and work hours influenced these attitudes. This suggests that demographic and workplace factors affect healthcare providers' engagement with quality improvement initiatives. [39] discussed the application of the Plan-Do-Study-Act (FOCUS-PDSA) model for quality improvement in healthcare settings, indicating the potential of structured quality improvement methodologies to enhance healthcare delivery processes. [40] highlighted physicians' perceptions of electronic systems in primary healthcare centres, pointing to a generally positive outlook but noting areas for improvement in decision-making and productivity enhancements. This reflects the acknowledgement of the role of technology in supporting quality-improvement efforts. [41] explored nurses' perceptions of the quality of nursing care during Saudi Arabia's healthcare transformation era. The findings suggest a focus on process and structure but a need for greater outcome orientation to align with transformation goals. [42] evaluated a quality improvement initiative to reduce zero-stock incidents in primary healthcare centres, demonstrating how effective supply chain management can improve healthcare service quality. [43] reviews the benefits of academic accreditation for quality assurance in medical education, highlighting the link between quality education for healthcare providers and high-quality patient care. [44] described the Magnet Recognition Program as a framework for nursing quality improvement, suggesting that recognition programs can motivate healthcare providers to engage in continuous quality improvement. [45] assessed patient perceptions of chronic disease management in primary healthcare settings and identified areas for quality improvement in organized, patient-focused care.

Lastly, [46] evaluated the impact of hospital accreditation on quality of care and found mixed results regarding its effectiveness in sustaining long-term quality improvement. In summary, the reviewed studies collectively highlight the growing engagement among healthcare providers in quality improvement initiatives facilitated by positive safety cultures, structured improvement methodologies, technology adoption, and accreditation standards. However, challenges remain in ensuring that these initiatives lead to sustained improvements in healthcare quality and outcomes.

5.2. Patient Satisfaction and Healthcare Quality Perceptions

Collective research underscores the importance of patient satisfaction and perceptions of healthcare quality in Saudi Arabia. It demonstrates that both expectations and perceptions of healthcare quality are generally high among patients, with specific factors such as education level, marital status, and availability of services significantly influencing these perceptions [47,48,49,50] [51,52,53,54]. In [47], a study conducted among adult patients visiting primary healthcare centers in Saudi Arabia identified high healthcare quality perceptions and expectations, with education and marital status as significant determinants. Similarly, [48] focused on the Aseer region, highlighting public awareness and behavior towards healthcare access and quality and establishing a significant relationship between health status and healthcare quality perceptions. A specific focus on the

quality of life after orthopaedic procedures in [49] revealed that chronic diseases could lead to diminished quality of life post-surgery, emphasizing the role of healthcare quality in patient satisfaction and recovery. An improvement in oral health-related quality of life for children with special healthcare needs following dental treatment under general anaesthesia was documented in [50], demonstrating the positive impact of healthcare quality on patient and caregiver satisfaction. [51] explored the dimensions of healthcare quality from patients' perspectives in Saudi public hospitals, identifying wellness support, compliance with standards, and exceptional services as key quality dimensions. Patient satisfaction with perioperative anaesthesia care and its predictors were examined in [52], where a moderate level of satisfaction was reported, with factors such as smoking, BMI, admission type, and hospital setting being significant predictors. [53] Assessed patient satisfaction regarding Riyadh clinic visits and identified areas for improvement, such as waiting times, appointment availability, and doctor-patient communication, to enhance the overall quality of healthcare services. Lastly, [54] provided insights into patients' satisfaction with nursing care in Saudi Arabia, indicating language, discharge information, and availability as areas requiring improved patient satisfaction.

These studies highlight the critical importance of understanding and improving patient satisfaction and perceptions of healthcare quality as essential components of healthcare quality improvement initiatives in Saudi Arabia.

5.3. Research Gaps and Suggested Agenda

Despite advancements in healthcare quality, gaps persist in understanding patient satisfaction, the impact of accreditation, and the integration of Total Quality Management (TQM) into Saudi Arabia's healthcare system [55,46,54].

Further research is necessary to evaluate the long-term impact of CBAHI accreditation on patient outcomes and satisfaction, as initial findings suggest a minimal effect on quality [46]. Studies should investigate the implementation barriers of TQM within Saudi Arabia's National Transformation Program to identify specific organizational, managerial, and technological challenges [55].

Examining the role of language and cultural competence in improving patient satisfaction with nursing care can provide insights for enhancing communication strategies in healthcare settings [54].

6. Healthcare Workforce Development

6.1. Training and Education Needs

The critical review by [56] emphasizes the imperative need for Human Resource Development (HRD) in the Saudi healthcare sector, highlighting the pivotal role of Vision 2030 and NTP 2020 interventions in addressing the shortage of trained healthcare professionals and reducing dependency on foreign labour. This study underscores the significance of training and education in facilitating the Saudization of the healthcare workforce, aligning with the

broader objectives of enhancing the quality of healthcare services for the rapidly expanding and ageing population in Saudi Arabia.

6.2. Research Gaps and Suggested Agenda

A critical examination of healthcare workforce development in Saudi Arabia reveals significant gaps and presents opportunities for further research [56]. Despite advancements in Human Resource Development (HRD) under Vision 2030, areas requiring further exploration include the following. The long-term impact of Saudi Arabia on the quality of healthcare services and patient satisfaction. Effective strategies for rapidly integrating foreign healthcare professionals into the Saudi workforce. Development and retention of skilled healthcare workforce in rural and underserved areas. These gaps suggest a comprehensive research agenda focusing on sustainable workforce strategies, integration policies, and regional healthcare development.

7. Regional Focus: Healthcare Transformation in Hail

This chapter focuses on Regional Focus: Healthcare Transformation in Hail and presents a comprehensive overview of the challenges and opportunities in healthcare services in Hail, Saudi Arabia. This underscores the significance of improving diabetes care, enhancing job satisfaction among nurses, and the crucial impact of leadership style on organizational outcomes. The central findings indicate the necessity of addressing both the quality of healthcare services and work environment to foster a transformative healthcare system in Ha'il. Additionally, highlighted studies on postpartum depression and urolithiasis in the region suggest targeted interventions for prevalent health issues, thus contributing to the broader aim of improving healthcare.

7.1. Current State of Healthcare Services in Hail

The current state of healthcare services in Hail, Saudi Arabia, demonstrates the significant factors influencing diabetes care services and job satisfaction among nurses, along with the pivotal role of leadership styles in determining nurse managers' effectiveness and overall staff satisfaction [57,58,59,60]. [57] highlighted the importance of accessibility, availability, and quality of diabetes care services, emphasizing the need to improve these areas to enhance patient care. In contrast, [58] identified job satisfaction levels among nurses in a Cardiac Center Hospital, indicating areas of dissatisfaction, such as food supply and working conditions, that could impact healthcare delivery. Furthermore, [59] and [60] revealed that transformational leadership styles among nurse managers significantly positively affect job satisfaction, organizational outcomes, and staff willingness to exert additional effort. These findings collectively suggest that to realize healthcare transformation in Hail, emphasis should be placed not

only on improving the quality-of-care services but also on enhancing work conditions and adopting effective leadership styles within healthcare settings.

7.2. Specific Challenges and Opportunities in Hail Region

TLDR: Studies in Hail, Saudi Arabia, have revealed a high prevalence and specific risk factors for postpartum depression and urolithiasis, highlighting both challenges and opportunities for healthcare improvements in the region.

In a study conducted by [61], a significant association was found between various risk factors and the experience of postpartum depressive symptoms among women in Ha'il, underscoring the necessity for early screening and intervention for postpartum depression. Concurrently, [62] identified a high prevalence of urolithiasis in the Hail region, with risk factors including increased age, male sex, lower levels of education, and existing health conditions such as diabetes and hypertension. These studies illustrate the specific healthcare challenges the Hail region faces while revealing opportunities for targeted healthcare interventions and awareness programs to mitigate these prevalent health issues.

7.3. Research Gaps and Suggested Agenda

The reviewed literature highlights the state of healthcare and associated challenges in Hail, Saudi Arabia, across various domains, including diabetes care, nursing job satisfaction, leadership in nursing, and the prevalence of health conditions such as postpartum depression and urolithiasis [57,58,59,60,61,62]. However, these studies have identified several research gaps and potential areas for future investigations. Longitudinal studies are needed to understand the long-term outcomes of identified healthcare challenges and interventions in Hail [57]. Research focusing on the integration of mental health services within primary healthcare settings could address gaps in the detection and management of conditions such as postpartum depression [61]. Studies exploring patient and healthcare provider perspectives on adopting digital health technologies could offer insights into enhancing healthcare delivery and patient engagement in Hail [62].

8. Conclusion

The literature review underscores the critical role of healthcare providers in successfully transforming Saudi Arabia's healthcare system under Vision 2030, particularly in Ha'il. This reveals both the positive outlook of healthcare providers towards national healthcare policies and the existing challenges in implementation, training, and system integration. These findings highlight the necessity for ongoing support in education and infrastructure, the importance of leadership in organizational outcomes, and the potential of digital health technologies to enhance healthcare delivery. Future research should address these gaps, particularly when evaluating the long-term impacts of healthcare reforms, technology adoption, and workforce development

strategies. This will be crucial in ensuring that the healthcare systems in Hail and Saudi Arabia can meet the evolving health needs of their populations.

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References

- [1] Ali, R., Alenezi, T., ALdhafeeri, N., Alrashdi, A., Alenezi, N., Alkhatami, M., Alanazi, H., Alanazi, H., Alruwaili, H., Alenezi, A., 2023, Saudi Arabia's New Care Model and the Transformation of Health Care Kingdom's Vision 2030.
- [2] Yousef, L., AlAngari, D., Alshehri, R., Alsharif, B., Bayameen, O., Alnemer, Z., 2023, Healthcare transformation journey in the Eastern Region of Saudi Arabia: an overview, challenges and lessons learned.
- [3] Alasiri, A., Mohammed, V., 2022, Healthcare Transformation in Saudi Arabia: An Overview Since the Launch of Vision 2030.
- [4] Chowdhury, S., Mok, D., Leenen, L., 2021, Transformation of health care and the new model of care in Saudi Arabia: Kingdom's Vision 2030.
- [5] Rahman, R., Alsharqi, O., 2018, What drove the health system reforms in the Kingdom of Saudi Arabia? An analysis.
- [6] Rahman, R., Al-Borie, H., 2020, Strengthening the Saudi Arabian healthcare system: Role of Vision 2030.
- [7] Rahman, R., Qattan, A., 2020, Vision 2030 and Sustainable Development: State Capacity to Revitalize the Healthcare System in Saudi Arabia.
- [8] Alharbi, M., 2018, An analysis of the Saudi health-care system's readiness to change in the context of the Saudi National Healthcare Plan in Vision 2030.
- [9] Almehari, A., AlHokair, A., Alotaibi, A., Aljuaid, M., 2023, Keeping up with the healthcare transformation: a review and research agenda for new decade of health information system in Saudi Arabia.
- [10] Ghalibi, K., Omer, H., Mamun, M., 2023, Awareness and Readiness of Healthcare Workers Regarding National Transformation Program in the Health Sector in Tabuk Region, Saudi Arabia.
- [11] Samarkandy, M., Al-Askar, E., Al-Senani, F., Al-Katheri, M., 2023, Total Quality Management as a Key Step to Healthcare Transformation; the Saudi Experience.
- [12] Khashan, H., Abogazalah, F., Alomary, S., Nahhas, M., Alwadey, A., Al-Khudhair, B., Alamri, F., Aleisa, N., Mahmoud, N., Hassanein, M., 2021, Primary health care reform in Saudi Arabia: progress, challenges and prospects.
- [13] Al-Hanawi, M., 2017, The healthcare system in Saudi Arabia: How can we best move forward with funding to protect equitable and accessible care for all?
- [14] Rahman, R., 2020, The Privatization of Health Care System in Saudi Arabia.
- [15] Hassanain, M., 2017, An Overview of the Performance Improvement Initiatives by the Ministry of Health in the Kingdom of Saudi Arabia.
- [16] Al-Hanawi, M., Qattan, A., 2019, An Analysis of Public-Private Partnerships and Sustainable Health Care Provision in the Kingdom of Saudi Arabia.
- [17] Kuwaiti, A., Muhanna, F., 2020, Challenges of privatizing academic medical centers in Saudi Arabia and appropriate strategies for implementation.
- [18] Jabali, A., Abdulla, F., 2023, Electronic health records perception among three healthcare providers specialties in Saudi Arabia: A cross-sectional study
- [19] Otaybi, H., Al-Raddadi, R., Bakhamees, F., 2022, Performance, Barriers, and Satisfaction of Healthcare Workers Towards Electronic Medical Records in Saudi Arabia: A National Multicenter Study.
- [20] Alzghaibi, H., Mughal, Y., Alkhamees, M., Alasqah, I., Alhlal, A., Alwheeb, M., Alrehiely, M., 2022, The impact of financial resources on implementation of large-scale electronic health records in Saudi Arabia's primary healthcare centers: Mixed methods.
- [21] Khalifa, M., 2016, Organizational, Financial and Regulatory Challenges of Implementing Hospital Information Systems in Saudi Arabia.
- [22] Alghamdi, A., 2015, Factors associated with the implementation and adoption of electronic health records (EHRs) in Saudi Arabia.
- [23] Alghamdi, S., Aldhahir, A., Alqahtani, J., Siraj, R., Alsulayyim, A., Almojaibel, A., Alhoty, M., Alanazi, A., Alqarni, A., 2022, Healthcare Providers' Perception and Barriers Concerning the Use of Telehealth Applications in Saudi Arabia: A Cross-Sectional Study.
- [24] Al-Wathinani, A., Dhafar, Y., Aljarallah, S., Alqahtani, M., Alamri, F., Aljohani, A., Alanazi, M., Arbaein, T., Zaidan, A., Aljuaid, M., 2024, Healthcare Providers' Experience with Saudi Arabia's 937 Virtual Medical Call Centers and Telehealth.
- [25] Altuwayrib, S., Win, K., Freeman, M., 2024, Medication Adherence Support Applications for Chronic Arthritis Patients: Healthcare Providers' Perspective in Saudi Arabia.
- [26] Wali, R., Shakir, M., Jaha, A., Alhumaidah, R., Jamaluddin, H., 2023, Primary Care Physicians' Perception and Satisfaction with Telehealth in the National Guard Primary Healthcare Centers in Jeddah, Saudi Arabia in 2022.
- [27] Zaman, T., Raheem, T., Alharbi, G., Shodri, M., Kutbi, A., Alotaibi, S., Aldaadi, K., 2018, E-health and its Transformation of Healthcare Delivery System in Makkah, Saudi Arabia.
- [28] Esmael, S., Alruwailiy, R., Alanazi, Z., Alanazi, A., Aldhabyan, F., Fahmy, E., 2024, Perceptions of healthcare providers on artificial intelligence integration into dermatology clinical practice: A cross-sectional study in the Kingdom of Saudi Arabia.
- [29] Syed, W., Al-Rawi, M., 2023, Assessment of Awareness, Perceptions, and Opinions towards Artificial Intelligence among Healthcare Students in Riyadh, Saudi Arabia.
- [30] Mahfouz, M., Alsugair, R., Aljuaid, A., Althagafi, B., Alharthi, Y., Alzahrani, S., Althobaiti, F., 2023, Healthcare providers' knowledge, attitude, and satisfaction towards using virtual reality in surgical training in Saudi Arabia.
- [31] Muafa, A., Al-Obadi, S., Al-Saleem, N., Taweili, A., Al-Amri, A., 2024, The Impact of Artificial Intelligence Applications on the Digital Transformation of Healthcare Delivery in Riyadh, Saudi Arabia (Opportunities and Challenges in Alignment with Vision 2030).
- [32] Kabrah, S., Abuzerr, S., Flemban, A., Jambi, L., Kabrah, A., Alghamdi, S., Alghamdi, S., Alshareef, A., Melibary, S., Al-Ghamdi, D., 2024, Perceptions, Attitudes, and Barriers towards the Use of Central Board for Accreditation of Healthcare Institutions (CBAHI) Standards among Saudi Healthcare Providers.
- [33] Alyami, D., Banihameem, I., Al-Mansour, M., AlRashah, A., Alsuliean, M., Alsaqour, H., Alsagoor, M., Alshahi, A., Alyami, M., Alyami, A., 2023, Healthcare Professionals' Perception Regarding Patient Rights and Safety in Najran, Saudi Arabia.
- [34] Sultan, M., Sørensen, J., Carlström, E., Mortelmans, L., Khorram-Manesh, A., 2023, Emergency Healthcare Providers' Perceptions of Preparedness and Willingness to Work during Disasters and Public Health Emergencies
- [35] Aldhafeeri, B., 2022, Qualitative Analysis of Healthcare Providers and Administrators' Perceptions, Expectations, Barriers, and Facilitators towards Pharmacists in Mental Healthcare in Saudi Arabia.
- [36] Alamri, A., Alomari, F., Danash, A., Aljoudi, M., Almasharqa, A., Almasloot, A., Alwhaibi, R., Hasan, M., Zaidi, P., 2022,

- Perception of Healthcare Providers during the COVID-19 Pandemic: A Mixed Method Survey in an Integrated Healthcare Delivery System in Saudi Arabia.
- [37] Alanazi, M., Alanazi, M., 2023, Correlation between Quality of Healthcare and Safety Culture in Saudi Arabia Organizations.
 - [38] Alasqah, I., Alotaibi, M., Adolfo, C., Imam, M., Alrasheadi, B., Alhindi, A., Altakroni, H., Mahmud, I., 2022, Quality Improvement Attitudes among Saudi Nurses in Hospitals in Qassim, Saudi Arabia: A Cross-Sectional Survey.
 - [39] Abuzied, Y., Alshammari, S., Alhalalah, T., Somduth, S., 2023, Using FOCUS-PDSA Quality Improvement Methodology Model in Healthcare: Process and Outcomes.
 - [40] Aljarbooa, E., Sekhar, C., 2023, Doctors' Perceptions Regarding Electronic Systems at Primary Healthcare Centers in Qassim Region, Saudi Arabia
 - [41] Alkorashy, H., Al-Hothaly, W., 2022, Quality of Nursing Care in Saudi Arabia's Healthcare Transformation Era: Nursing Perspective.
 - [42] AbuZahra, K., Besorio, V., Otaibi, S., Rasheed, A., Abood, A., Harbi, T., Battal, S., Mohammed, M., Kofi, M., 2024, Improving Healthcare Services through Reducing Zero-Stock Reports in PHCs Riyadh, Saudi Arabia.
 - [43] Mohieldien, A., 2023, Implementing Accreditation Standards in Academic Medical Programs is Necessary to Trust Higher Education: The Experience of Two Academic Programs at Qassim University, Kingdom of Saudi Arabia
 - [44] Abuzied, Y., Al-Amer, R., Abuzaid, M., Somduth, S., 2022, The Magnet Recognition Program and Quality Improvement in Nursing.
 - [45] Hazazi, A., Wilson, A., 2022, Improving Management of Non-communicable Chronic Diseases in Primary Healthcare Centers in The Saudi Health Care System.
 - [46] Almasabi, M., Thomas, S., 2017, The Impact of Saudi Hospital Accreditation on Quality of Care: A Mixed Methods Study.
 - [47] Alanazi, E., Alanazi, H., Alanazi, M., Alsadoun, A., Asiri, S., Bahari, G., 2023, Quality Perceptions, Expectations, and Individual Characteristics among Adult Patients Visiting Primary Healthcare Centers in Saudi Arabia: A Cross-Sectional Study.
 - [48] Saeed, A., AlShafea, A., A., F., AlQadi, T., Saeed, A., 2023, Patients' Opinions Towards Healthcare Quality and Improvement in Aseer Health: A Cross-Sectional Study.
 - [49] Alharbi, M., Aldubayyan, S., Alharbi, T., Alshaya, A., Almesned, F., Alsughayyir, A., Alkhalaf, A., Wali, A., Alamri, Y., 2022, Quality of Life After Orthopedic Procedures at Buraydah Central Hospital and King Fahad Specialist Hospital in Qassim Region, Saudi Arabia.
 - [50] Ezzeldin, T., Bader, R., Abougareeb, H., Siddiqui, I., Musa, B., Alrashedi, S., Alaswad, N., Hakamy, A., 2023, Oral Health-Related Quality of Life Improvement in Children with Special Needs Following Comprehensive Dental Treatment under GA: A Saudi-Based Follow-up Study.
 - [51] Attar, M., 2022, Dimensions of Quality in Healthcare: Perceptions of Patients from Saudi Public Hospitals.
 - [52] Alnashri, Y., Alfaqih, O., Buhaliyqh, M., Mossery, R., Alamri, I., Mahfouz, N., Alsifsafi, N., Alzubaidi, Z., Alfaifi, S., Sadaqa, A., 2023, Patient Satisfaction and Its Predictors with Perioperative Anesthesia Care at Two General Hospitals in Southwestern Saudi Arabia.
 - [53] Farooqi, W., Abukaram, T., Alsulaiman, T., Wadaan, A., Sitwat, R., AlDawood, H., Gubran, L., Alsayed, D., AlHussain, S., Alharyaf, R., 2024, Assessment of Patient Satisfaction Regarding Clinic Visits in Riyadh, Kingdom of Saudi Arabia: A Cross-Sectional Study.
 - [54] Atallah, M., Hamdan-Mansour, A., Alsayed, M., Aboshaiqah, A., 2013, Patients' Satisfaction with the Quality of Nursing Care Provided: The Saudi Experience.
 - [55] Albejaidi, F., 2018, An Investigation into the Challenges Towards Implementation of Total Quality Management Under the Saudi Healthcare National Transformation Program-2020.
 - [56] Alhazmi, F., 2021, A Critical Review of Healthcare Human Resource Development: A Saudization Perspective.
 - [57] Itumalla, R., Kumar, R., Perera, B., Elabbasy, M., CG, S., Kundur, R., 2022, Patient's Perception of Diabetes Care Services in Hail, Kingdom of Saudi Arabia.
 - [58] Rn, L., Rn, R., Rn, M., Rn, F., 2022, Factors Influencing Job Satisfaction of Nurses in Cardiac Center, Hail, KSA.
 - [59] Rashidi, N., Shanan, N., Garcia, M., Saleh, A., Dali, T., Musbet, A., 2023, The Influence of Nursing Leaders' Behavior on Nurses' Job Satisfaction: A Quantitative Study in Hail, Saudi Arabia.
 - [60] Alrashidi, S., Alenezi, W., Alrimali, A., Alshammari, M., 2023, Exploring the Leadership Styles of Nurse Managers in Hail, Saudi Arabia: A Cross-Sectional Analysis.
 - [61] Iqbal, N., Alshammari, L., Barrak, S., 2023, Perception of Postpartum Depressive Symptoms and Associated Risk Factors: A Study in the Women of Hail, Saudi Arabia.
 - [62] Bokhari, A., Aldarwish, H., Alsanea, S., Al-Tufaif, M., Alghaslan, S., Alghassab, A., Alshammari, B., Al-Tufaif, A., 2022, Prevalence and Risk Factors of Urolithiasis Among the Population of Hail, Saudi Arabia.

