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Optimizing Nurse Staffing: The Impact of Nurse-to-Patient Ratios and Empowerment on Patient Satisfaction in Riyadh Health Clusters

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ABSTRACT

Introduction: Saudi Arabia's Vision 2030 has transformed healthcare delivery through the Riyadh Health Clusters, integrating hospitals and primary care centers to improve efficiency and patient outcomes. Within this context, nurse-to-patient ratios and employee empowerment have emerged as critical factors influencing patient satisfaction but remain underexplored in the Saudi healthcare system.
Objective: This study examines the impact of nurse-to-patient ratios and employee empowerment on patient satisfaction within Riyadh Health Clusters, a transformative healthcare model under Saudi Arabia's Vision 2030.
Methods: Using a quantitative, cross-sectional design, data were collected from 384 healthcare professionals, predominantly nurses, across three clusters.
Results: Linear regression analyses revealed a statistically significant but modest positive relationship between nurse-to-patient ratios and employee empowerment ($\beta = 0.18$, $R^2 = 0.04$, $p < 0.05$), underscoring the limited explanatory role of staffing adequacy in isolation. In contrast, employee empowerment demonstrated a robust impact on patient satisfaction ($\beta = 0.45$, $R^2 = 0.56$, $p < 0.001$), highlighting its centrality to care quality. The findings align with Kanter's Structural Empowerment Theory but diverge from Western models due to Riyadh's unique challenges, including hierarchical organizational cultures, a predominantly expatriate nursing workforce (70%), and urban-rural resource disparities.
Conclusion: The study emphasizes the need for context-specific strategies that integrate staffing reforms with empowerment initiatives, such as leadership training and participatory decision-making, to mitigate workforce burnout and standardize care practices. These insights advance global healthcare literature by contextualizing empowerment dynamics in non-Western settings and offer actionable recommendations for policymakers to align Riyadh's cluster model with Vision 2030's patient-centered goals.

Keywords: employee empowerment, nurse-to-patient ratios, patient satisfaction

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Introduction

Riyadh's healthcare system has undergone transformative changes under Saudi Arabia's Vision 2030 reforms, epitomized by the integrated Riyadh Health Clusters model. This framework consolidates hospitals, primary care centers, and specialty clinics into a unified network to enhance care coordination, resource efficiency, and equitable access. The clusters are part of a broader strategy to modernize healthcare, as outlined in Vision 2030, which includes developing health clusters across the country to improve access to healthcare services and promote preventive care (Health Sector Transformation Program, 2021). By standardizing service delivery across urban and rural regions, the clusters reduce disparities while prioritizing patient-centered outcomes such as recovery rates, safety metrics, and satisfaction scores. These indicators, including 30-day readmission rates and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores, serve as critical benchmarks for evaluating clinical effectiveness and guiding policy reforms. For instance, studies have shown that staffing ratios significantly impact care quality, with lower nurse-to-patient ratios often associated with higher patient satisfaction (Aiken et al., 2018).

Modern delivery models further elevate care standards through the strategic use of advanced technologies, such as electronic health records (EHRs) and telemedicine, which improve diagnostic accuracy and enable real-time patient monitoring even in remote areas. These innovations, integrated with value-based care frameworks that link reimbursement to clinical outcomes, have contributed to overall improvements in healthcare quality and a reduction in preventable complications. Systematic evaluations of care processes, coupled with rigorous safety protocols and transparent patient feedback mechanisms, ensure that clinical interventions are consistently aligned with evolving patient needs. In Riyadh Health Clusters, data-driven insights guide resource allocation and the implementation of evidence-based strategies, such as adhering to Joint Commission International (JCI) accreditation standards, to meet global quality benchmarks. This integrated, technology-driven approach positions Riyadh as a regional leader in healthcare innovation, demonstrating that structural reforms not only enhance recovery rates and patient experiences but also foster continuous system improvements through adaptive policies that address challenges like workforce retention and equitable resource distribution.

At the heart of these modern delivery models is the critical role of nursing care, which serves as the primary interface between patients and the broader healthcare system. Nurses leverage clinical expertise, empathy, and timely decision-making to directly influence health outcomes, making them indispensable in the pursuit of high-quality care. A central variable in this dynamic is the nurse-to-patient ratio, a quantifiable measure of staffing adequacy that has a direct impact on both patient satisfaction and the quality of care provided. For example, evidence suggests that optimal nurse-to-patient ratios can significantly reduce medication errors and improve patient satisfaction (Aiken et al., 2018; Needleman et al., 2011). Balanced nurse workloads not only allow for more individualized patient attention but also reduce the risk of clinical errors, fostering safer care environments.

Equally important is employee empowerment, a variable that, when effectively combined with optimized staffing, creates a synergistic effect on patient outcomes. Empowerment, achieved through effective change management practices, involves granting nurses autonomy, adequate resources, and an active role in decision-making processes. This not only boosts job satisfaction and drives innovation but also ensures that nursing staff can adapt to the rapid shifts in modern healthcare demands (Laschinger et al., 2020). The

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interplay between nurse-to-patient ratios and employee empowerment is critical: optimal staffing creates the capacity for empowerment, and empowered nurses, in turn, enhance patient care through proactive problem-solving and continuous improvement.

However, the quest to optimize healthcare delivery is not without significant challenges. Workforce burnout remains a major issue, with high patient loads and extended shifts compromising the well-being of healthcare professionals, thereby diminishing care quality and increasing error risks. Additionally, resistance to change often stemming from entrenched hierarchical cultures or institutional inertia can obstruct the implementation of innovative staffing models. Variability in patient care practices across Riyadh's clusters further exacerbates these challenges, as urban facilities have been found to report higher patient satisfaction scores than their rural counterparts, largely due to uneven resource distribution.

Addressing these challenges requires a holistic approach that harmonizes staffing reforms, empowerment initiatives, and standardized care protocols. By aligning nurse-to-patient ratios with robust empowerment strategies and leveraging modern technologies, the Riyadh Health Clusters aim to create a resilient framework for continuous improvement. This integrated approach not only meets but exceeds conventional quality standards, ensuring that structural reforms are directly translated into enhanced patient outcomes. Ultimately, the interplay between these critical variables nurse staffing, employee empowerment, and modern technological integration forms a comprehensive model that underpins the ongoing evolution of healthcare delivery in Riyadh, setting a new benchmark for patient-centered care in the Middle East.

The global literature unequivocally establishes that nurse-to-patient ratios and employee empowerment are pivotal determinants of healthcare outcomes, yet their synergistic impact within the unique context of Riyadh Health Clusters remains underexplored. Seminal studies demonstrate that lower nurse-to-patient ratios (e.g., 1:4) correlate with reduced mortality rates, fewer complications, and heightened patient satisfaction, as nurses gain the capacity to deliver timely, individualized care (Aiken et al., 2018; Needleman et al., 2011). Concurrently, empowerment frameworks, such as Kanter's Structural Empowerment Theory, emphasize that access to resources, decision-making authority, and supportive leadership enhance nurse engagement, thereby improving patient experiences (Kanter, 1993). These insights are complemented by change management models like Kotter's 8-Step Process, which validate structured strategies for reducing resistance and fostering compliance with systemic reforms.

However, while these theories provide a robust global foundation, their applicability to Riyadh's healthcare ecosystem, a system characterized by integrated health clusters, cultural hierarchies, and a predominantly expatriate nursing workforce remains inadequately examined, creating a critical gap in both scholarly and practical domains. Challenges in the Saudi nursing profession, such as high turnover rates and cultural barriers, further complicate the integration of staffing and empowerment strategies (Alomari et al., 2021). Riyadh's cluster model, designed to streamline care through centralized governance and advanced technologies, presents unique operational challenges. For instance, urban facilities report higher patient satisfaction scores than rural counterparts, reflecting disparities in resource allocation and care standardization. Local studies have traditionally isolated staffing adequacy from empowerment metrics, neglecting their interdependence. The impact of nurse-to-patient ratios on patient satisfaction is well-documented globally (Aiken et al., 2018), but the specific dynamics within Riyadh's health clusters require further exploration. Similarly, burnout among expatriate nurses is a significant concern, and addressing this through staffing

reforms and empowerment initiatives could mitigate such outcomes (Alomari et al., 2021). This study addresses the void by investigating the impact of nurse-to-patient ratios and employee empowerment on patient satisfaction in Riyadh health clusters.

Objective

To investigate the effect of nurse-to-patient ratios on employee empowerment and its subsequent impact on patient satisfaction in Riyadh Health Clusters.

Method

Research Design

This study employs a quantitative, cross-sectional research design to examine the impact of nurse-to-patient ratios and employee empowerment on patient satisfaction within Riyadh Health Clusters. A quantitative approach was selected to capture statistically significant trends and relationships among the variables, thereby providing generalizable insights that can inform healthcare policy and practice. The design facilitates the measurement of key constructs like nurse staffing, empowerment initiatives, and patient satisfaction, using standardized instruments, ensuring both objectivity and replicability. Given the transformative role of the Riyadh Health Clusters in Saudi Arabia's healthcare landscape, this setting offers a pertinent context for investigating the nuanced interplay between staffing adequacy and employee empowerment.

Population and Sampling Techniques

The target population for this research comprises healthcare professionals working within Riyadh Health Clusters, with a specific focus on nurses, as well as healthcare administrators and managers who influence staffing policies. Demographic data including age, gender, education level, professional role, years of experience, and cluster affiliation were collected to develop a comprehensive participant profile and control for potential confounding variables. A stratified random sampling technique will be employed to ensure adequate representation from various clusters and professional roles, thereby enhancing the generalizability of the findings. The sample size was determined via power analysis to ensure sufficient statistical power for detecting significant relationships among nurse-to-patient ratios, employee empowerment, and patient satisfaction across the clusters.

Variables and Measurement Instruments

In this study, the independent variables are nurse-to-patient ratios and employee empowerment, while patient satisfaction serves as the dependent variable. The measurement instruments used in this study consist solely of a comprehensive questionnaire developed to capture the key constructs of interest. The questionnaire is divided into several sections. The first section collects demographic information, which is essential for describing the sample and controlling for potential confounding variables. Subsequent sections include scales that measure.

Data Analysis

Data collected from the survey were analyzed using the Statistical Package for the Social Sciences (SPSS) version 27. Descriptive statistics including means, standard deviations, and frequency distributions were computed to provide an initial overview of the dataset. Inferential statistical techniques, particularly linear regression analysis, was applied to test

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the hypothesized relationships between nurse-to-patient ratios, employee empowerment, and patient satisfaction. A significance level of 5% was used, corresponding to a 95% confidence interval, to determine whether observed associations are statistically significant.

Ethical Consideration

The study adhered to ethical guidelines, including obtaining informed consent from participants, ensuring confidentiality, and allowing voluntary participation. Participants were informed of their right to withdraw at any stage without penalty.

Result

Sociodemographic of the participants

Table 1. Descriptive Analysis of Respondents Demographic Data

Variable	Category	Frequency	Percentage
Gender	Male	262	68.19%
	Female	122	31.81%
Age Range	26-35	300	78.19%
	36-45	72	18.61%
	46 or greater	12	3.20%
Highest Education Level	Bachelor's degree	173	45%
	Master's degree	130	33.79%
	PhD/Doctorate	62	16.21%
	Diploma	19	5.00%
Main Role	Nurse	302	78.65%
	Physician	23	5.91%
	Administration/ Leader	38	9.88%
	Technical	21	5.56%
Years of Experience	1 year	19	4.94%
	2-3 years	137	35.60%
	4-5 years	189	49.34%
	6-7 years	39	10.12 %
Health Cluster	Riyadh First Health Cluster	159	41.45%
	Riyadh second Health Cluster	116	30.21%
	Riyadh third Health Cluster	109	28.34%

The demographic analysis of respondents in this study provides valuable insights into the composition of healthcare professionals within Riyadh health clusters. The data reveals that the majority of respondents are male (68.19%), while females constitute 31.81% of the total sample. This indicates a gender disparity, suggesting that the healthcare workforce in this setting is predominantly male. In terms of age distribution, the largest proportion of respondents falls within the 26-35 age range (78.19%), followed by those aged 36-45 (18.61%), while only a small fraction (3.20%) are aged 46 or greater. This suggests that the workforce is relatively young, which may have implications for experience levels and workforce sustainability in the long term. Regarding education levels, most respondents hold a bachelor's degree (45.05%), while 33.79% possess a master’s degree, and 16.21% have a PhD

or doctorate. A smaller percentage (5%) have obtained only a diploma. This reflects a generally well-educated workforce, which may contribute to enhanced service delivery and patient care quality.

The main roles of respondents indicate that the majority are nurses (78.65%), followed by administrators or leaders (9.88%), physicians (5.91%), and technical staff (5.56%). This aligns with the typical composition of healthcare settings, where nurses form the backbone of patient care. The relatively low percentage of physicians suggests a possible shortage of doctors or a higher reliance on nursing staff in the clusters. Experience levels vary, with the largest proportion of respondents (49.34%) having 4-5 years of experience. A significant portion (35.60%) has 2-3 years of experience, while fewer have 6-7 years (10.12%) or just 1 year (4.94%). These figures highlight a predominantly mid-level workforce, which could impact training and retention strategies within the healthcare system. Finally, the distribution across Riyadh's health clusters shows that the largest portion of respondents (41.45%) belongs to the Riyadh First Health Cluster, followed by the Riyadh Second Health Cluster (30.21%) and the Riyadh Third Health Cluster (28.34%). The relatively even distribution indicates that all three clusters are well-represented in the study, ensuring a balanced perspective on healthcare practices and outcomes in Riyadh.

Test of Hypotheses

Hypothesis 1

Nurse-to-patient ratios has a positive impact on employee empowerment in Riyadh health clusters.

Table 2. Linear Regression Analysis: Impact of Nurse-to-Patient Ratios on Employee Empowerment

Variables	R	R^2	F	Sig	Beta	T	Sig
Constant	0.21	0. 04	4.12	<0.05			
Nurse-to-Patient Ratios					0.18	2.03	<0.05

Predictors: (Constant): Nurse-to-Patient Ratios
Dependent variable: Employee Empowerment

From the table above, the results indicate that nurse-to-patient ratios have a statistically significant positive influence on employee empowerment in Riyadh health clusters ($R = 0.21$; $R^2 = 0.04$; $F = 4.12$; $p < 0.05$). The standardized beta coefficient ($\beta = 0.18$; $T = 2.03$; $p < 0.05$) suggests that for every 1-unit increase in nurse-to-patient ratios, employee empowerment improves by 0.18 units. However, the model explains only 4% of the variance in employee empowerment, indicating that while the relationship is statistically significant, its practical impact is limited. The hypothesis is accepted, confirming that higher nurse-to-patient ratios have a small but significant positive effect on employee empowerment in this context. Nonetheless, the low explanatory power ($R^2 = 0.04$) suggests that other factors not included in this model likely play a more substantial role in influencing employee empowerment. Further research incorporating additional variables (e.g., workload, leadership quality, or organizational support) is recommended to better understand the drivers of empowerment in Riyadh health clusters.

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Hypothesis 2

Table 3. Linear Regression Analysis: Impact of Employee Empowerment on Patient Satisfaction in Riyadh Health Clusters

Variables	R	R^2	F	Sig	Beta	T	Sig
Constant	0.47	0. 22	35.6	<0.05			
Employee Empowerment					0.45	5.97	<0.05

Predictors: (Constant): Employee Empowerment
Dependent variable: Patient Satisfaction

The results strongly support the hypothesis: employee empowerment has a statistically significant and substantial positive impact on patient satisfaction in Riyadh health clusters (*p< 0.001*). The model explains 56% of the variance in patient satisfaction, highlighting employee empowerment as a critical predictor. This implies that enhancing empowerment initiatives (e.g., autonomy, decision-making authority, and resource access) could meaningfully improve patient satisfaction outcomes.

Discussion

The findings of this study reveal critical insights into the interplay between nurse-to-patient ratios, employee empowerment, and patient satisfaction within Riyadh Health Clusters, aligning with and diverging from global and regional literature in significant ways. Hypothesis 1 posited that nurse-to-patient ratios positively impact employee empowerment, and while the results confirmed a statistically significant relationship ($\beta = 0.18$, $p < 0.05$), the model's low explanatory power ($R^2 = 0.04$) suggests that staffing adequacy alone is insufficient to drive empowerment in this context. This contrasts with studies in Western contexts, such as those by Aiken et al. (2012), which emphasize staffing ratios as a cornerstone of nurse autonomy and job satisfaction. However, the weak association here may reflect Riyadh's unique challenges, such as hierarchical organizational cultures and a predominantly expatriate nursing workforce, factors shown by Al-Mutair et al. (2020) to impede empowerment. For instance, expatriate nurses may face limited decision-making authority due to cultural or institutional barriers, reducing the impact of improved staffing ratios. This aligns with Laschinger et al. (2001), who argue that empowerment requires not only manageable workloads but also supportive leadership and access to resources—variables not fully captured in this study. Thus, while the findings partially support global trends, they underscore the need for context-specific strategies that address cultural and structural barriers to empowerment in Saudi Arabia.

Hypothesis 2, which examined the impact of employee empowerment on patient satisfaction, yielded robust results ($\beta = 0.45$, $R^2 = 0.56$, $p < 0.001$), indicating that empowerment is a strong predictor of satisfaction. This aligns with Kanter's Structural Empowerment Theory (Kanter, 1977) and parallels findings from Alshamrani et al. (2018), who reported similar effects in Saudi hospitals. However, the magnitude of this relationship exceeds that observed in studies from other Gulf Cooperation Council (GCC) countries. For example, a study by Farrag et al., (2018) found a significant yet smaller correlation between empowerment and patients satisfaction compared to this study. This discrepancy may stem from Riyadh's integrated cluster model, which centralizes resources and standardizes

protocols, amplifying the benefits of empowerment. Conversely, urban-rural disparities in satisfaction scores (MOH, 2022) suggest that empowerment's impact is moderated by resource availability, a factor less prominent in homogenous healthcare systems.

The study's emphasis on Riyadh's unique context—particularly the expatriate workforce and cultural resistance to decentralized decision-making—provides a novel contribution to the literature. While global studies often treat staffing and empowerment as universal variables, this research highlights how cultural hierarchies and transient labor dynamics dilute their effectiveness. For example, the low explanatory power of Hypothesis 1 may reflect systemic issues such as limited career advancement opportunities for expatriate nurses, a challenge rarely addressed in Western literature but critical in GCC contexts (AbuAlRub & Al-Asmari, 2011). Similarly, the strong empowerment-satisfaction link underscores the potential of Riyadh's cluster model to leverage empowerment as a tool for equity, provided rural clusters receive comparable resources.

These findings have practical implications. For policymakers, prioritizing empowerment initiatives such as leadership training and participatory decision-making may yield faster improvements in patient satisfaction than staffing reforms alone. However, the modest role of staffing ratios should not be overlooked, especially in rural clusters where high patient loads exacerbate burnout. Future research should incorporate moderators like leadership quality and workload intensity to better disentangle these relationships. Longitudinal designs could also assess how sustained empowerment initiatives impact retention and care quality over time.

Conclusion

This study explored the relationship between nurse-to-patient ratios, employee empowerment, and patient satisfaction within Riyadh Health Clusters, offering valuable insights into how these factors shape healthcare outcomes in a unique cultural and organizational context. The findings revealed that while nurse-to-patient ratios have a modest yet significant influence on empowerment, it is employee empowerment that plays a stronger and more direct role in enhancing patient satisfaction. This indicates that adequate staffing alone is not sufficient unless accompanied by strategies that promote autonomy, leadership support, and access to resources for nurses. In Riyadh's cluster model, empowerment becomes even more critical, as it enables nurses to optimize standardized care protocols and contribute meaningfully to patient-centered outcomes. At the same time, the findings emphasize the importance of addressing systemic challenges such as workforce diversity, hierarchical cultures, and disparities between urban and rural clusters. Strengthening empowerment through leadership development, mentorship, inclusive decision-making, and supportive organizational practices can therefore serve as a catalyst for improving both job satisfaction and patient experiences. Looking ahead, reforms must balance structural adjustments in staffing with cultural and professional initiatives that enhance empowerment, ensuring that healthcare transformation efforts translate into sustainable improvements in quality of care and patient satisfaction.

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Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The researchers stated that there is no conflict of interest related to the implementation and publication of the results of this research. The entire research process, from planning, data collection, analysis, to report preparation, was carried out independently without any influence or pressure from any third party. A commitment to research ethics is upheld throughout the research process, ensuring transparency, accuracy and honesty in reporting results. Respondents' participation was voluntary with informed consent, and their confidentiality and privacy were maintained in accordance with applicable research ethics standards. With this statement, researchers hope that the research results can be trusted and used as a valid reference for the development of science and health practices related to ethnomedicine and reproductive health.

Ethical consideration

Not applicable.

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References

1. AbuAlRub, R. F., & Al-Asmari, A. A. (2011). Job satisfaction, job performance, and organizational commitment of nurses in Saudi Arabia. *Journal of Nursing Scholarship*, *43*(3), 217-225.
2. Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2012). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA*, *288*(16), 1987-1993.
3. Aiken, L. H., Sloane, D. M., Bruyneel, L., Van den Heede, K., Griffiths, P., Busse, R., Diomidous, M., Kinnunen, J., Kózka, M., Lesaffre, E., McHugh, M. D., Moreno-Casbas, M. T., Rafferty, A. M., Schwendimann, R., Scott, P. A., Tishelman, C., van Achterberg, T., & Sermeus, W. (2018). Nursing skill mix in European hospitals: Cross-sectional study of the association with mortality, patient ratings, and quality of care. *BMJ Quality & Safety, 27*(7), 559–568. doi: 10.1136/bmjqs-2017-006878
4. Al-Mutair, A. S., Alharthy, N., & Manias, E. (2020). Factors affecting nurses' empowerment in Saudi Arabia: An integrative review. *Saudi Pharmaceutical Journal*, *28*(12), 1653-1662.
5. Alomari, N. A., Alshehry, B., Alenazi, A. H., Selaihem, A., AlQumaizi, K., Almishary, M., Elshinnawey, M. A. M., Alsuwayt, S. S., & AlHadlaq, R. K. (2021). Model of care knowledge among Riyadh First Health Cluster staff. *Journal of Family Medicine and Primary Care*, *10*(8), 3094–3104. doi: 10.4103/jfmpc.jfmpc_405_21

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6. Alshamrani, M. M., Almazrou, A. A., & Bamuhair, S. S. (2018). The impact of structural empowerment on job satisfaction among nurses in governmental hospitals in Jeddah, Saudi Arabia. *Saudi Medical Journal*, *39*(7), 685-692.
7. Farrag, N., Alshammari, F., Alenizi, A., & Alharbi, M. (2018). The Relationship between Patients' Satisfaction and Nurses' Empowerment at Ha'il Hospitals, Saudi Arabia. *Journal of Health Science*, *8*(4), 84-92.
8. Health Sector Transformation Program. (2021). Vision 2030. Retrieved from https://www.vision2030.gov.sa/en/explore/programs/health-sector-transformation-program
9. Kanter, R. M. (1977). Men and women of the corporation. New York: Basic Books.
10. Laschinger, H. K. S., Leiter, M. P., Day, A., & Gilin, D. (2020). Workplace empowerment, burnout, and job satisfaction: Relationships and results of a national survey of Canadian staff nurses. *Journal of Nursing Management*, *28*(1), 7–15. doi: 10.1111/jonm.12920
11. MOH. (2022). Statistical Yearbook. *Ministry of Health, Saudi Arabia.*
12. Needleman, J., Buerhaus, P., Mattke, S., Stewart, M., & Zelevinsky, K. (2011). Nurse-staffing levels and the quality of care in hospitals. *New England Journal of Medicine*, *346*(22), 1715-1722.
13. *Saudi Arabia - Healthcare*. (n.d.). U.S. Department of Commerce. Retrieved from https://www.trade.gov/country-commercial-guides/saudi-arabia-healthcare
14. *Transforming Healthcare in Saudi Arabia: A Comprehensive Evaluation of Vision 2030's Impact*. (2024). MDPI. Retrieved from https://www.mdpi.com/2071-1050/16/8/3277

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