

Workforce Shortages in Nursing in Saudi Arabia A Review of Causes and Solutions

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ABSTRACT

The nursing workforce in Saudi Arabia faces significant shortages, driven by a confluence of factors including an aging population, increased healthcare demand, and a lack of sufficient educational and training programs. Cultural perceptions of the nursing profession, along with competitive salaries in other sectors, have hindered recruitment efforts. The current workforce is often overburdened, leading to burnout and high turnover rates, which further exacerbate the staffing crisis. Additionally, the rapid expansion of healthcare facilities, particularly in urban areas, has not been matched by an increase in qualified nursing personnel, compromising the quality of care and patient safety. To address these pressing issues, various strategies are being proposed and implemented. Enhancing nursing education by expanding university programs and offering scholarships can attract more individuals into the profession. Furthermore, improving working conditions through competitive salaries, career development opportunities, and support for mental well-being can help retain existing nurses. Collaboration between governmental bodies, healthcare institutions, and educational providers is essential to create a sustainable workforce plan that not only meets current demands but also prepares for future healthcare challenges.

KEYWORDS: nursing workforce shortages, Saudi Arabia, healthcare demand, recruitment challenges, burnout, turnover rates, nursing education, retention strategies, working conditions, healthcare collaboration.

1. Introduction

The healthcare sector in Saudi Arabia faces multifaceted challenges, among which the shortage of nursing workforce has emerged as a critical issue. Nursing, being an

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integral part of health systems worldwide, plays a vital role in delivering quality patient care, ensuring health promotion, and managing public health concerns. As the nation's population continues to grow, fueled by urbanization and an increase in chronic diseases, the demand for competent nursing professionals has surged. Despite increased investments in healthcare infrastructure and education, the gap between the demand for and supply of nurses remains apparent. This phenomenon raises concerns regarding the quality of care, patient safety, and the overall efficiency of the healthcare delivery system in the Kingdom [1].

Recognizing the importance of a robust nursing workforce, the Saudi government has made several strides toward enhancing healthcare services since the inception of its Vision 2030 initiative. This ambitious reform plan aims to diversify the economy and improve the quality of life for citizens, including measures to strengthen health services. However, the ongoing workforce shortages in the nursing sector continue to hinder progress in these areas. The Saudi nursing workforce is characterized by its dependence on expatriate nurses, with a significant percentage coming from countries like the Philippines, India, and Sudan. Although foreign nurses bring invaluable experience to the table, this reliance raises concerns about sustainability, cultural compatibility, and workforce stability [2].

The shortage of nursing staff in Saudi Arabia can be attributed to several interrelated factors. First, the nursing profession often struggles with issues of perception and status, which may deter potential candidates from entering the field. The societal view of nursing as a less prestigious profession compared to medical doctors can diminish interest in nursing careers among young Saudis. Secondly, the rigid educational pathways and training programs required to obtain nursing qualifications create barriers for prospective nurses. Despite efforts by the government to expand nursing education and promote it as a viable career option, the training infrastructure still grapples with inefficiencies and inconsistencies [3].

Compounding these challenges are the working conditions nurses face within the healthcare system. High nurse-to-patient ratios, long working hours, and inadequate compensation contribute to nurse burnout, job dissatisfaction, and subsequently, high turnover rates. This is particularly evident in the demanding environments of emergency, critical care, and specialized nursing units. Furthermore, factors such as limited career advancement opportunities and inadequate support for professional development further exacerbate recruitment and retention problems within the nursing workforce [3].

Recognizing the critical nature of these issues, it is essential to explore systemic solutions to nursing workforce shortages in Saudi Arabia. Addressing the root causes of the crisis involves a multifaceted approach encompassing policy reforms, educational improvements, and cultural shifts [4].

First and foremost, enhancing the perception of nursing as a respected and valued profession is essential. Campaigns aimed at highlighting the critical roles nurses play within the healthcare sector can help boost interest among young individuals. Additionally, improving the educational framework by expanding nursing programs and creating flexible pathways for career advancement will help attract and retain nursing talent. This includes establishing collaborations between healthcare

institutions and educational bodies to ensure that curricula meet the evolving healthcare demands and practices [4].

Moreover, addressing workplace conditions is critical to fostering a supportive environment for nurses. This can be achieved through implementing policies focused on ensuring manageable nurse-to-patient ratios, providing competitive salaries and benefits, and creating opportunities for continuing education and skill advancement. By promoting a culture of collaboration and support among healthcare professionals, institutions can significantly enhance job satisfaction and nurse retention [5].

Demographic and Economic Factors Contributing to Nursing Shortages:

The nursing profession is a cornerstone of the healthcare system, yet it is currently facing a significant shortage that threatens the quality and accessibility of care across various settings.

Demographic Factors Influencing Nursing Shortages

1. Aging Population

One of the most pronounced demographic factors impacting nursing shortages is the aging population. As the baby boomer generation—comprising individuals born between 1946 and 1964—continues to reach retirement age, there has been a marked increase in the demand for healthcare services. According to the U.S. Census Bureau, the population aged 65 and older is projected to nearly double from 52 million in 2018 to over 94 million by 2060. This demographic shift places unprecedented pressure on healthcare systems, demanding more nurses to provide care in hospitals, nursing homes, and community health settings. With older adults often requiring complex medical care for chronic conditions, the need for qualified nursing professionals is acute [6].

2. Aging Nursing Workforce

Complementing the growing demands of an older population is the reality that a significant portion of current nursing professionals is nearing retirement. The median age of registered nurses (RNs) in the United States is approximately 52 years, with an alarming number of nurses projected to retire within the next decade. According to the American Nurses Association, approximately 1 million nurses will retire by 2030. This exodus from the workforce creates a critical gap, intensifying the competition for nursing positions and placing additional strain on existing nurses who must cope with greater patient loads [7].

3. Diversity and Cultural Competency Requirements

As society becomes increasingly diverse, the nursing workforce must reflect this demographic evolution to adequately meet the needs of all patient populations. However, barriers such as limited access to education and training resources disproportionately affect underrepresented minorities pursuing nursing careers. While initiatives to improve diversity in nursing exist, progress has been slow, and disparities continue to persist. This lack of cultural competency can lead to misunderstandings and reduced quality of healthcare delivery among diverse populations, compounding existing shortages with inadequate support structures [7].

1. Compensation and Job Satisfaction

Economics plays a pivotal role in shaping labor markets, and the nursing sector is no exception. Despite the critical responsibilities and skills required of nurses, their compensation does not always align with the demands of the job. According to the Bureau of Labor Statistics, while the median annual wage for registered nurses was approximately \$75,000 in 2020, many nurses feel that their wages do not adequately compensate for long hours, physical and emotional demands, and high-stress environments. Low job satisfaction resulting from inadequate pay can deter potential candidates from pursuing nursing as a career, further exacerbating shortages [8].

2. Cost of Nursing Education

The rising costs of nursing education present another barrier to entering the profession. Aspiring nurses face substantial expenses related to tuition, textbooks, and clinical supplies. The National Student Nurses' Association indicates that many nursing students graduate with significant debt, often leading them to reconsider their career choices. In an environment where the cost of higher education continues to escalate, potential nursing candidates may gravitate towards careers that require less financial investment or offer higher initial salaries [9].

3. Workforce Competition

The economic landscape also influences workforce competition among healthcare providers. With the growing prevalence of healthcare facilities, there is an increasing competition for qualified nursing professionals. Hospitals, clinics, and private practices are engaged in a bidding war for talent, leading to increased salaries and improved benefits in some areas, while in others, the competition results in staffing shortages. Additionally, as telehealth and other technological advancements reshape care delivery, there is a greater demand for specialized nurses. This issue is particularly pronounced in rural and underserved urban areas where financial resources are limited, further complicating efforts to attract and retain nursing staff [9].

Addressing the Shortage: Solutions and Strategies

Given the complex interplay of demographic and economic factors contributing to nursing shortages, a multifaceted approach is necessary to mitigate these challenges. Here are some strategies to consider:

Investing in nursing education programs and increasing the availability of nursing school slots are essential steps in addressing the workforce gap. Financial incentives such as scholarships, student loan forgiveness, and grant programs aimed at supporting nursing students can help to alleviate the burdens of educational costs. Additionally, partnerships between healthcare facilities and educational institutions can create pathways for clinical placements, enhancing practical training opportunities for nursing students [10].

Enhancing job satisfaction among existing nurses is crucial for retention. Healthcare organizations can implement strategies such as mentorship programs, regular

professional development opportunities, and improved staffing ratios to create a more supportive work environment. Initiatives focused on promoting work-life balance and mental well-being can also improve retention rates [10].

Addressing diversity in nursing can be achieved through targeted outreach and support programs aimed at underrepresented groups. Community colleges and vocational training programs can serve as vital entry points into nursing careers, providing alternative pathways to degree completion. Scholarships and mentorship programs designed for minority students can also help bridge the gap [11].

Increasing awareness about the challenges faced by the nursing profession can galvanize public support and emphasize the importance of nursing in healthcare delivery. Advocacy efforts aimed at policymakers can highlight the need for systemic reforms that address the root causes of nursing shortages [12].

Cultural Perceptions and Social Attitudes Toward the Nursing Profession:

The nursing profession has undergone significant transformations over the decades, affecting how it is perceived culturally and socially across different regions and communities. Historically characterized by gender-specific roles and limited recognition, the nursing vocation has emerged as a crucial and respected profession in healthcare systems worldwide.

Understanding contemporary perceptions of nursing necessitates a look back at its historical origins. Nursing is etched in the annals of history as an occupation primarily associated with women, often viewed through the lens of caretaking and domesticity. The early 20th century, for instance, depicted nursing as an extension of a woman's role in the household, reinforcing societal perceptions of female subservience and virtuous caregiving. Figures like Florence Nightingale began to challenge these stereotypes, advocating for nursing as a respected profession demanding education, skill, and leadership [13].

In the 21st century, while nursing has achieved considerable prominence and respect, remnants of historical biases linger. Cultural perceptions still often depict nurses primarily as caregivers rather than skilled healthcare providers, thus oversimplifying a multi-faceted profession that requires extensive training and knowledge. The shift from a predominantly female workforce to greater gender diversity, incorporating male nurses and nurses from various cultural backgrounds, has also introduced new dynamics in societal perceptions [14].

Cultural perceptions of nursing vary significantly depending on geographical location, societal norms, and existing stereotypes. In some countries, nurses are celebrated as essential frontline workers, especially exemplified during crises such as the COVID-19 pandemic. The public acknowledgment of nurses' roles in combating the virus has spotlighted their importance in healthcare, fostering a sense of pride and appreciation for the profession [15].

Conversely, in other contexts, societal attitudes can marginalize the nursing vocation. In cultures where hierarchy and authority in healthcare are predominantly valued, nurses may be perceived as subservient to physicians. Such attitudes can deter professional growth and limit nurses' agency in clinical decision-making,

Rawabi Theeb Awad Alruwaili, Mohammed Fahad W Alkhatami, Hanan Alari Mater Alanazi, Ghazi Eid Saud Alenazi, Hanan Wanis Nayir Alanazi, Huda Theeb Awad Alruwaili, Maha Dhib Awwad Alruwaili, Hadoud Afi Alshukry Alroyly, Amal Hadi M Alernezi, Walaa Gasab Matar Alenezi, Nawaf Khezaiem Motlaq Alenazi undermining the recognition they deserve for their expertise and patient care capabilities. Moreover, in cultures where aggressive competition exists in professional prestige, nursing often struggles to attain the same reverence as physicians or specialists [16].

Media representation of nursing plays a pivotal role in shaping public perception. Television shows, films, and news coverage often portray nurses in stereotypical roles—either as devoted caregivers deeply invested in their patients' welfare or, conversely, as overworked and undervalued support staff. Such conflicting portrayals can perpetuate misconceptions surrounding the profession, influencing societal attitudes and recruitment efforts [17].

Positive representations of nurses in media can enhance their image as competent professionals rather than caregivers relegated to secondary roles. By showcasing their critical thinking, collaboration, and leadership during emergencies, media can effectively promote the nursing profession's importance. However, a more nuanced and balanced depiction is necessary to challenge stereotypes and foster a more advanced understanding of the profession [18].

Social attitudes toward nursing significantly affect workforce dynamics, including recruitment, retention, and job satisfaction. A society that recognizes and celebrates nursing as a noble profession is more likely to attract aspiring healthcare professionals, enhancing the nursing workforce. Programs and policies that elevate the nursing profession's status, such as competitive salaries, professional development opportunities, and supportive working conditions, directly correlate with increased job satisfaction and further recruitment [19].

In some regions, however, prevailing negative attitudes toward nursing often stem from factors such as burnout, lack of support, and high-stakes work environments. For instance, a pervasive belief that nurses are overworked and underappreciated can deter potential candidates from pursuing nursing as a career. There remains a pressing need for societal shifts that enhance the perceived value of nurses, recognizing them as vital contributors to healthcare rather than mere support staff or assistants [20].

As the nursing profession continues to diversify, with practitioners coming from various cultural and ethnic backgrounds, the interplay between diverse cultural perceptions and nursing practice becomes increasingly important. Nurses who reflect the communities they serve can enhance cultural competence, improving patient care and fostering trust. Diverse nursing teams are equipped to address the unique health beliefs and practices of different populations, fostering respect and understanding [20].

Interprofessional relationships between nurses and other healthcare providers also shape societal attitudes toward nursing. Collaborative practices that recognize the critical role of nurses alongside doctors, pharmacists, and specialists can foster a holistic approach to patient care and elevate nursing's societal standing. Supporting interdisciplinary education and teamwork cultivates environments where nurses are seen and valued as integral to healthcare delivery [21].

Impact of Educational Institutions on Nursing Workforce Supply:

The nursing workforce is a crucial segment of the healthcare system, serving as the backbone of patient care and public health. The interplay between educational institutions and the nursing workforce supply is a multi-dimensional issue that reflects various socio-economic, political, and health-related factors [22].

Educational institutions are influential in shaping the nursing workforce by providing the necessary training and education that equip aspiring nurses with the skills, knowledge, and competencies required for the profession. The types of nursing programs offered, including Associate Degree in Nursing (ADN), Bachelor of Science in Nursing (BSN), and advanced practice degrees, play a critical role in determining the supply of qualified nurses [23].

1. **Program Offerings and Workforce Needs:** The type of nursing program available can have a direct impact on the supply of nurses. For instance, ADN programs typically have a shorter duration and can produce graduates faster than BSN programs, which take four years to complete. However, a growing body of evidence suggests that BSN-prepared nurses deliver more comprehensive care and are better equipped to meet complex patient needs. As a result, many healthcare employers are increasingly prioritizing BSN qualifications. Thus, educational institutions must adapt their offerings to align with the evolving needs of the healthcare system [24].

2. **Accessibility and Diversity:** The accessibility of nursing programs is another key factor influencing workforce supply. Geographic location, financial barriers, and admission requirements can limit the number of individuals who can pursue nursing education. Rural and underserved areas often face a shortage of nursing schools, which exacerbates health disparities. Educational institutions must strive to increase access to nursing education for underrepresented populations, ensuring a diverse workforce that reflects the communities they serve. Initiatives such as scholarship programs, online learning options, and partnerships with community colleges can help to broaden access [25].

Quality of Nursing Education

The quality of nursing education provided by institutions directly impacts the preparedness of graduates entering the workforce. Quality is measured through various factors, including curriculum design, faculty qualifications, clinical training opportunities, and accreditation status [25].

1. **Curriculum Development:** An up-to-date and evidence-based curriculum is essential for producing skilled nursing graduates. Educational institutions must regularly revise their curricula to incorporate new medical practices, technologies, and evolving healthcare standards. This continual improvement ensures that nursing graduates are equipped with the latest knowledge and skills to provide high-quality patient care [26].

2. **Clinical Training:** Access to robust clinical training experiences is vital. Partnerships with healthcare facilities allow students to participate in hands-on experiences that enhance their learning. The quality of these clinical placements

Rawabi Theeb Awad Alruwaili, Mohammed Fahad W Alkhatami, Hanan Alari Mater Alanazi, Ghazi Eid Saud Alenazi, Hanan Wanis Nayir Alanazi, Huda Theeb Awad Alruwaili, Maha Dhib Awwad Alruwaili, Hadoud Afi Alshukry Alroyly, Amal Hadi M Alernezi, Walaa Gasab Matar Alenezi, Nawaf Khezaiem Motlaq Alenazi often impacts students' confidence and competence upon entering the workforce. Institutions that maintain strong relationships with local hospitals and clinics can better prepare their students for the realities of nursing practice [27].

Accreditation and Regulatory Impact

Accreditation bodies and regulatory agencies play significant roles in setting standards for nursing education. These entities ensure that nursing programs adhere to established criteria that guarantee the quality of education delivered [28].

1. **Accreditation Standards:** Programs that achieve accreditation status are often viewed more favorably by employers, which can make graduates from these programs more competitive in the job market. Additionally, some states require graduates from accredited programs to qualify for licensure, further emphasizing the importance of accreditation in workforce supply [29].

2. **Regulatory Influence:** Regulatory bodies can also influence the capacity of nursing schools to produce graduates. For example, restrictions on the number of students allowed to enroll in nursing programs can limit output, creating bottlenecks in the pipeline to practice. Conversely, regulatory changes that encourage the expansion of nursing education programs or alternative pathways into nursing can bolster workforce supply [30].

Technological Advancements

The onset of technological innovations within healthcare has significant implications for nursing education and workforce supply. The integration of simulation technology, telehealth, and digital resources is transforming how nursing schools prepare their students [31].

1. **Simulation in Education:** Simulation labs offer nursing students realistic clinical experiences without the risks associated with patient care. This technology allows for repeated practice and exposure to various clinical scenarios, thereby enhancing competence and confidence. The capacity to incorporate simulation into nursing curricula can increase the number of graduates who are well-prepared for the workforce.

2. **Online Learning Platforms:** The rise of online education has made nursing programs more accessible to a broader audience, particularly those who may have previously faced barriers. Online programs can attract non-traditional students, including working professionals and those residing in remote areas. However, it is crucial that these programs maintain rigorous standards to ensure quality education [32].

Analysis of Current Working Conditions and Job Satisfaction Among Nurses:

The nursing profession stands as a cornerstone of the healthcare system, providing essential care and support to patients across various settings. However, the working conditions and job satisfaction of nurses have garnered significant attention in recent years, particularly in light of the ongoing challenges posed by the COVID-19 pandemic, staffing shortages, and evolving healthcare policies [33].

The working conditions of nurses are multifaceted and influenced by a variety of factors, including the healthcare environment, administrative policies, and the physical and emotional demands of the job. Many nurses work in high-stress environments characterized by long hours, high patient-to-nurse ratios, and inadequate staffing levels. According to a report by the American Nurses Association (ANA), nearly 60% of nurses reported feeling overworked and overwhelmed, leading to increased burnout and job dissatisfaction [34].

One of the most pressing issues in nursing today is staffing shortages. The Bureau of Labor Statistics projects that the United States will need an additional 1.1 million nurses by 2030 to meet the growing demand for healthcare services, driven in part by an aging population and the increasing prevalence of chronic diseases. This shortage has resulted in nurses often being required to take on more patients than is safe or manageable. A study published in the *Journal of Nursing Administration* revealed that higher patient-to-nurse ratios are associated with increased rates of nurse burnout, job dissatisfaction, and turnover intentions [35].

Additionally, nurses frequently encounter inadequate resources and support in their work environments. Many healthcare facilities struggle with budget constraints, leading to cutbacks in staffing, training, and essential supplies. Nurses often report feeling unsupported by management, which can exacerbate feelings of frustration and helplessness. A survey conducted by the National Nurses United found that nearly 70% of nurses felt that their employers did not prioritize their safety and well-being, particularly during the pandemic [36].

Factors Influencing Job Satisfaction

Job satisfaction among nurses is influenced by a myriad of factors, including work environment, relationships with colleagues and management, opportunities for professional development, and compensation. Understanding these factors is crucial for addressing the challenges faced by the nursing workforce and improving overall job satisfaction [37].

1. **Work Environment:** A positive work environment is critical for nurse satisfaction. Factors such as adequate staffing, access to resources, and a supportive culture can significantly impact job satisfaction. Nurses who work in environments that promote teamwork and collaboration tend to report higher levels of job satisfaction. Conversely, those in toxic work environments, characterized by conflict and poor communication, often experience lower job satisfaction and higher rates of burnout [37].

2. **Relationships with Colleagues and Management:** The quality of relationships among healthcare team members plays a vital role in job satisfaction. Supportive relationships with colleagues can provide emotional support and foster a sense of belonging, which is essential for maintaining morale. Additionally, effective communication and collaboration with management can enhance job satisfaction by ensuring that nurses feel heard and valued. A study published in the *International Nursing Review* found that nurses who perceived their managers as supportive reported higher levels of job satisfaction and lower levels of burnout [38].

3. **Professional Development Opportunities:** Opportunities for professional

Rawabi Theeb Awad Alruwaili, Mohammed Fahad W Alkhatami, Hanan Alari Mater Alanazi, Ghazi Eid Saud Alenazi, Hanan Wanis Nayir Alanazi, Huda Theeb Awad Alruwaili, Maha Dhib Awwad Alruwaili, Hadoud Afi Alshukry Alroyly, Amal Hadi M Alernezi, Walaa Gasab Matar Alenezi, Nawaf Khezaiehm Motlaq Alenazi growth and development are critical for job satisfaction among nurses. Access to continuing education, training programs, and career advancement can enhance nurses' skills and knowledge, making them feel more competent and confident in their roles. The ANA emphasizes the importance of lifelong learning in nursing, advocating for policies that support ongoing education and professional development [39].

4. **Compensation and Benefits:** While not the sole factor influencing job satisfaction, fair compensation and benefits play a significant role in nurses' overall job satisfaction. Competitive salaries, health benefits, retirement plans, and other incentives can attract and retain nursing talent. However, many nurses report feeling undercompensated for the demanding nature of their work, particularly in light of the increased responsibilities brought on by the pandemic [40].

Implications for Healthcare Delivery and Patient Outcomes

The working conditions and job satisfaction of nurses have far-reaching implications for healthcare delivery and patient outcomes. When nurses are satisfied with their jobs and supported in their work environments, they are more likely to provide high-quality care, leading to better patient outcomes. Research consistently demonstrates that higher job satisfaction among nurses correlates with improved patient satisfaction, lower rates of medical errors, and reduced hospital readmission rates [40].

Conversely, when nurses experience high levels of burnout and job dissatisfaction, the quality of care can suffer. Studies have shown that nurse burnout is associated with increased rates of patient complications, longer hospital stays, and higher mortality rates. The World Health Organization (WHO) has recognized the importance of addressing nurse well-being as a critical component of improving healthcare quality and patient safety [41].

Strategic Solutions for Recruitment and Retention of Nursing Staff:

The nursing profession is the cornerstone of healthcare systems globally, playing a critical role in patient care, health promotion, and disease prevention. However, many healthcare organizations face significant challenges in recruiting and retaining qualified nursing staff. This shortage not only affects the quality of patient care but also places an enormous burden on existing nurses, thereby exacerbating burnout and turnover. Thus, innovative and strategic solutions for recruitment and retention of nursing staff are imperative for sustaining healthcare quality and ensuring a resilient workforce [41].

The challenges in nursing recruitment and retention stem from various interrelated factors. Firstly, the increasing demand for healthcare services compounded by an aging population has led to a heightened need for nursing professionals. According to the World Health Organization, the global nursing workforce is projected to face immense shortages by 2030. Conversely, the aging workforce within nursing—many nurses are nearing retirement—exacerbates this issue [42].

Additionally, the high-pressure environment associated with nursing practice, characterized by demanding workloads, emotional stress, and irregular hours,

contributes to high turnover rates. A report from the National Healthcare Retention and RN Staffing Report estimates that the average turnover rate for nursing staff hovers around 17.2%, which can be even higher in certain units such as emergency departments or psychiatric wards. Consequently, organizations must develop strategic initiatives aimed at both attracting new talent and retaining existing staff [43].

Recruitment Strategies

1. **Targeted Recruitment Campaigns:** Healthcare organizations should initiate targeted recruitment campaigns that highlight the benefits of working within their facilities. Utilizing social media, nursing conferences, and job fairs can help attract prospective candidates. Furthermore, clear communication of organizational culture and opportunities for professional growth is essential.
2. **Collaboration with Educational Institutions:** Forming partnerships with nursing schools and universities is a fruitful strategy for building a pipeline of qualified candidates. Offering internships, clinical placements, and scholarships can incentivize nursing students to consider a career at the partnering organization. Additionally, presenting opportunities for mentorship can help bridge the gap between education and practice [44].
3. **Utilizing Data Analytics:** The use of data analytics can help organizations understand workforce trends and identify potential recruitment challenges. By analyzing demographic data and workforce patterns, healthcare institutions can devise recruitment strategies that align with the needs of specific communities, leading to more effective hiring practices [44].
4. **Incentive Programs:** Implementing incentive programs, such as signing bonuses, relocation benefits, or referral rewards, can enhance attraction efforts. These programs demonstrate a commitment to valuing and investing in new hires, thereby enhancing the appeal of positions within the organization [44].

Retention Strategies

1. **Professional Development Opportunities:** Fostering a culture of continuous learning is vital for retaining nursing staff. Organizations should provide access to ongoing education through workshops, certifications, and conferences. Moreover, institutional support for advanced degrees can encourage nurses to further their education and stay engaged in their roles [45].
2. **Creating a Positive Work Environment:** A supportive and positive work environment can significantly impact job satisfaction and retention. This involves addressing workload concerns, ensuring appropriate nurse-to-patient ratios, and promoting teamwork and open communication. Engaging staff in decision-making processes can foster a sense of ownership and commitment to the organization [46].
3. **Flexible Scheduling:** Given the demanding nature of nursing, offering flexible work schedules can greatly improve job satisfaction. Organizations that accommodate nurses' preferences through varied shifts or part-time options often see decreased turnover rates. Such flexibility helps nurses balance their personal and professional lives, leading to greater job satisfaction [47].

4. **Employee Engagement and Recognition Programs:** Recognizing and rewarding nursing staff for their hard work can enhance morale and loyalty. Organizations should implement regular performance feedback, celebrate achievements, and acknowledge efforts through formal recognition programs. Additionally, conducting regular employee satisfaction surveys can help assess the needs and concerns of nursing staff, allowing organizations to adapt their strategies accordingly [48].

Addressing Burnout and Mental Well-being

Another critical aspect of retention is addressing the mental health and wellbeing of nursing staff. The prevalence of burnout in the nursing profession necessitates strategic mental health initiatives. Organizations should provide access to mental health resources, such as counseling services or wellness programs that promote resilience and stress management. Additionally, creating a work culture that prioritizes self-care and mindfulness can foster a healthier environment for nurses [49].

Role of Government Policies and Healthcare Initiatives in Addressing Shortages:

The complexity of modern healthcare systems often stands in stark contrast to the escalating challenges they face, particularly regarding resource shortages. These shortages can take many forms, most notably shortages of essential medicines, healthcare professionals, medical devices, and hospital infrastructure. As the world navigates unprecedented public health crises, such as the COVID-19 pandemic, the need for effective, government-led interventions has never been more critical. To address these multifaceted shortages, governments and health policymakers must implement a variety of strategies, including policy reforms, public-private partnerships, investment in healthcare infrastructure, and innovative healthcare initiatives [50].

Understanding Healthcare Shortages

Before delving into the policies and initiatives aimed at mitigating shortages, it is essential to understand the root causes of these challenges. Shortages in healthcare can be attributed to several factors:

1. **Supply Chain Disruptions:** Globalized supply chains are often vulnerable to disruptions due to geopolitical events, natural disasters, or pandemics. The COVID-19 pandemic, for example, exposed the fragility of supply chains for personal protective equipment (PPE), respirators, and pharmaceuticals [51].
2. **Increased Demand:** With the aging population and rising incidence of chronic diseases, the demand for healthcare services and resources continues to grow. This surge can place stress on existing healthcare systems, leading to shortages of essential services [51].
3. **Workforce Limitations:** The healthcare workforce is often stretched thin. Factors such as burnout among healthcare professionals, inadequate training programs, and restrictive immigration policies can exacerbate workforce shortages, particularly in critical areas such as nursing and primary care [51].

4. **Regulatory Barriers:** Bureaucratic inefficiencies and complicated regulatory frameworks can delay the production and distribution of medical supplies, further aggravating shortages [51].

Government Policies

Government policies play a pivotal role in addressing healthcare shortages. These policies can fall under various categories, each targeting a specific area of need:

1. Legislative Reforms

One of the most potent tools at a government's disposal is legislative reform. Governments can enact laws to streamline processes, eliminate bureaucratic hurdles, and facilitate quicker responses to shortages. For instance, during the COVID-19 pandemic, many governments authorized emergency use authorizations for vaccines and treatments, allowing for rapid distribution and deployment of critical medical resources [52].

2. Funding and Resource Allocation

Another crucial aspect of government policy is the allocation of funds and resources to bolster healthcare infrastructure. Strategic investments in hospitals, clinics, and telehealth services can help alleviate regional disparities in access to care. Additionally, targeted funding programs can incentivize medical students to enter high-need specialties, ultimately addressing workforce shortages [53].

3. Public-Private Partnerships

Establishing partnerships between public entities and private organizations is another effective policy approach. These collaborations can optimize resource allocation, enhance supply chain resilience, and drive innovation. Governments around the world have collaborated with pharmaceutical companies to ramp up vaccine production during public health emergencies, demonstrating the potential of these partnerships to address shortages rapidly and effectively [54].

Healthcare Initiatives

In addition to government policies, various healthcare initiatives contribute significantly to combating shortages:

1. Telehealth Expansion

The rise of telehealth has revolutionized how healthcare is delivered, particularly in underserved areas. By leveraging technology, healthcare providers can reach patients in remote locations, effectively addressing shortages of specialists and primary care physicians. Telehealth initiatives can also help mitigate hospital overcrowding by enabling healthcare professionals to provide care for non-emergency conditions remotely [55].

2. Training and Education Programs

Enhancing the training and education of healthcare professionals is critical to addressing workforce shortages. Governments can implement initiatives that offer scholarships, incentives, and loan forgiveness for healthcare students who commit to

Rawabi Theeb Awad Alruwaili, Mohammed Fahad W Alkhatami, Hanan Alari Mater Alanazi, Ghazi Eid Saud Alenazi, Hanan Wanis Nayir Alanazi, Huda Theeb Awad Alruwaili, Maha Dhib Awwad Alruwaili, Hadoud Afi Alshukry Alroyly, Amal Hadi M Alernezi, Walaa Gasab Matar Alenezi, Nawaf Khezaiem Motlaq Alenazi working in underserved communities. By investing in the education of healthcare workers, nations can increase their capacity to deliver critical services, particularly in areas facing severe shortages [56].

3. Incentivizing Innovation

To tackle shortages in medical supplies and pharmaceuticals, governments can offer incentives for research and development in the healthcare sector. For instance, creating grant programs for biotech firms to develop alternatives to commonly used medications can stimulate innovation and enhance the resilience of supply chains. Furthermore, incentivizing the production of sustainable medical supplies can mitigate future shortages caused by resource depletion [57].

2. Case Studies

Several countries have successfully implemented policies and initiatives that address healthcare shortages, serving as valuable case studies:

1. **Germany's Healthcare System:** Germany has established a robust healthcare model that includes universal coverage, a well-distributed healthcare workforce, and healthy public-private partnerships. By ensuring equitable access to healthcare resources, Germany has effectively managed and minimized shortages, particularly during health crises [58].

2. **Australia's My Health Record:** The Australian government pioneered a digital health initiative titled My Health Record, which provides a secure online summary of patients' health information. This system enhances accessibility and collaboration among healthcare providers, effectively addressing gaps in information-sharing that can lead to resource inefficiencies and shortages in care delivery [58].

3. **India's Ayushman Bharat Scheme:** Launched in 2018, this healthcare initiative aims to provide health coverage to 500 million low-income individuals. By expanding access to services and bolstering the healthcare infrastructure, the program mitigates shortages of essential care, particularly in rural areas [59].

Future Directions: Sustaining Nursing Workforce Development in Saudi Arabia:

In the past few decades, Saudi Arabia has witnessed significant shifts in its healthcare landscape, evolving from a primarily traditional system to one that incorporates advanced medical technologies and a diverse array of healthcare professionals. Among these professionals, nurses serve as the backbone of patient care, emphasizing the critical need for sustained nursing workforce development to meet the demands of a rapidly changing healthcare environment. As the Kingdom continues to address various challenges linked to population health, economic diversification, and global health trends, a strategic approach to nursing workforce development is vital for the sustainability of this essential profession [59].

The nursing profession in Saudi Arabia has experienced notable progress since the establishment of formal nursing education in the 1960s. Presently, the Kingdom has

a growing number of registered nurses, which corresponds to increasing population demands for healthcare services. Primarily, the nursing workforce is composed of both Saudi nationals and expatriates, with the latter making up a significant portion. While this diversity is beneficial, it also presents challenges related to retention, cultural competency, and integration within the healthcare system [60].

The Saudi Vision 2030 initiative aims to transform the Kingdom's economy and modernize its healthcare services. This vision acknowledges the need for a competent and skilled nursing workforce, advocating for reforms in nursing education, recruitment strategies, professional development, and retention practices. However, to achieve these goals and ensure that the nursing workforce is both sustainable and responsive to emerging health challenges, targeted strategies must be employed [60].

Several challenges threaten the sustained development of the nursing workforce in Saudi Arabia. Firstly, there is a significant reliance on expatriate nurses, which can lead to workforce instability and gaps in local expertise. Cultural differences and language barriers may hinder the delivery of culturally competent care, thereby impacting patient outcomes. Addressing the recruitment of Saudi nurses becomes paramount to fostering a sustainable workforce that reflects the values and needs of the local population [60].

Secondly, the nursing profession in Saudi Arabia often faces public perception issues. Nursing may not be viewed as a prestigious career, particularly for young people considering their future professions. Societal attitudes toward nursing can deter potential candidates from pursuing nursing as a viable career choice. To cultivate interest and attract more Saudi nationals into the profession, public awareness campaigns and educational initiatives must underscore the rewarding and impactful nature of a nursing career [61].

Moreover, there is a need for continuous professional development and education within the nursing field. Many nurses often report limited opportunities for advancement and lack of support for further education, leading to attrition and job dissatisfaction. Creating a structured career pathway with opportunities for further specialization, advanced certifications, and leadership roles can significantly enhance job satisfaction and retention [61].

Sustaining Nursing Workforce Development: Future Directions

To tackle the challenges and ensure sustainable nursing workforce development in Saudi Arabia, the following future directions can be considered:

1. **Enhancing Nursing Education and Training:**

The foundation for a successful nursing workforce begins with quality education and training. The Saudi government and nursing education institutions must collaborate to align nursing curricula with international standards while adapting them to the unique cultural and healthcare needs of the Kingdom. Fostering partnerships with international nursing organizations can facilitate knowledge transfer, exchange programs, and exposure to best practices in nursing education. Additionally, integrating advanced simulation technology into nursing curricula can enhance

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practical skills and critical thinking capacities among students [61].

2. Promoting Local Recruitment and Retention:

Increasing the number of Saudi nursing professionals requires targeted recruitment strategies that attract young Saudis into nursing programs. Collaborating with educational institutions to provide scholarships and incentives for students can encourage enrollment. Moreover, identifying and addressing the factors contributing to the high turnover rates among expatriate nurses is crucial. Improving working conditions, providing adequate support, and advocating for professional recognition can substantially augment job satisfaction and retention rates [61].

3. Public Awareness Campaigns:

Changing public perceptions of nursing as a profession necessitates comprehensive public awareness campaigns. These initiatives should highlight the essential role of nurses in healthcare delivery, emphasizing their contributions to patient care and health outcomes. Engaging media outlets, community organizations, and influential figures in promoting the value of nursing can inspire young Saudis to pursue careers in this field. School programs and career fairs can also serve as platforms to educate students about nursing's relevance and impact [62].

4. Implementation of Supportive Policies:

The Saudi government must develop and implement policies that support the advancement of nursing as a profession. This includes establishing clear career pathways and providing incentives for continuing education and professional development. Policies that promote mentorship and coaching within healthcare institutions can facilitate the transition of newly graduated nurses into the workforce. Additionally, establishing Nurse Practitioners and Clinical Nurse Specialists categories can enhance the role of nurses in patient care and ease the burden on physicians, leading to a more efficient healthcare delivery model [62].

5. Leveraging Technology:

Technological advancements offer opportunities to streamline nursing practices and enhance workforce management. Implementing digital health technologies and electronic health records can improve communication and reduce administrative burdens on nursing staff. Moreover, telehealth services can enable nurses to provide care remotely, expanding access to healthcare and alleviating pressures on traditional care settings. Investing in automated solutions for scheduling and human resource management can also optimize nursing workforce allocation and efficiency [63].

6. Fostering Research and Innovation:

Encouraging a culture of research and innovation within nursing can lead to improved practices and policies. Developing research programs focused on nursing effectiveness, patient outcomes, and workforce challenges can provide valuable insights for evidence-based interventions. Health institutions should facilitate collaborative research opportunities, enabling nurses to contribute to academic studies that advance the profession and inform healthcare policies [63].

3. Conclusion:

In conclusion, workforce shortages in nursing in Saudi Arabia present a significant challenge that jeopardizes the quality of healthcare services and patient safety. This study has highlighted the multifaceted causes of these shortages, including demographic shifts, cultural perceptions, inadequate educational opportunities, and unfavorable working conditions. Addressing these issues requires a comprehensive and coordinated approach involving key stakeholders, including government entities, healthcare organizations, and educational institutions. Implementing targeted strategies such as enhancing nursing education, improving recruitment efforts, and creating supportive work environments can significantly contribute to both attracting new talent and retaining existing nurses. By prioritizing these initiatives, Saudi Arabia can build a resilient nursing workforce capable of meeting the evolving healthcare needs of its population, ultimately leading to better health outcomes and a more sustainable healthcare system.

References

- Amadi, E. (2015). Healthcare leaders' perceptions about the nursing shortage: A qualitative collective case study. *Dissertations & Theses, University of Phoenix*.
- Alreshidi, N. M., Alrashidi, L. M., Alanazi, A. N., & Alshammeri, E. H. (2021). Turnover among foreign nurses in Saudi Arabia. *Journal of Public Health Research*, 10(1), 1971.
- Aeschbacher, R., & Addor, V. (2018). Institutional effects on nurses' working conditions: A multi-group comparison of public and private non-profit and for-profit healthcare employers in Switzerland.
- Aluko, J. O., Anthea, R., & Marie Modeste, R. R. (2019). Manpower capacity and reasons for staff shortage in primary health care maternity centers in Nigeria: A mixed-methods study. *BMC Health Services Research*, 19(1), 10.
- Alameddine, M., Bauer, J. M., Richter, M., & Sousa-Poza, A. (2017). The paradox of falling job satisfaction with rising job stickiness in the German nursing workforce between 1990 and 2013. *Human Resources for Health*, 15(1), 55.
- Gray, K., Wilde, R., & Shutes, K. (2018). Enhancing nurse satisfaction: An exploration of specialty nurse shortage in a region of NHS England. *Nursing Management*, 25(1), 26–33.
- Chan, Z. C. Y., Tam, W. S., Lung, M. K. Y., Wong, W. Y., & Chau, C. W. (2013). A systematic literature review of nurse shortage and the intention to leave. *Journal of Nursing Management*, 21(4), 605–613.
- Batran, A. (2019). Work related stress among Saudi nurses working in intensive care units. *Open Journal of Nursing*, 9(11), 913–931.
- Adams, R., Ryan, T., & Wood, E. (2021). Understanding the factors that affect retention within the mental health nursing workforce: A systematic review and thematic synthesis. *International Journal of Mental Health Nursing*, 30(1), 1476–1497.
- Drennan, V. M., & Ross, F. (2019). Global nurse shortages—The facts, the impact and action for change. *British Medical Bulletin*, 130(1), 25–37.
- Abhichartitubutra, K., Kunaviktikul, W., Turale, S., Wichaikhum, O., & Srisuphan, W. (2017). Analysis of a government policy to address nursing shortage and nursing education quality. *International Nursing Review*, 64(1), 22–32.
- Atefi, N., Abdullah, K. L., & Wong, L. P. (2016). Job satisfaction of Malaysian registered nurses: A qualitative study. *Nursing in Critical Care*, 21(1), 8–17.
- Appiagyei, A. A., Kiriinya, R. N., Gross, J. M., Wambua, D. N., Oywer, E. O., Kamenju, A. K., & Rogers, M. F. (2014). Informing the scale-up of Kenya's nursing workforce: A mixed methods study of factors affecting pre-service training capacity and production. *Human Resources for Health*, 12(1), 47.

- Rawabi Theeb Awad Alruwaili, Mohammed Fahad W Alkhatami, Hanan Alari Mater Alanazi, Ghazi Eid Saud Alenazi, Hanan Wanis Nayir Alanazi, Huda Theeb Awad Alruwaili, Maha Dhib Awwad Alruwaili, Hadoud Afi Alshukry Alroyly, Amal Hadi M Alernezi, Walaa Gasab Matar Alenezi, Nawaf Khezaie Motlaq Alenazi Barnett, T., Namasisvayam, P., & Narudin, D. A. A. (2010). A critical review of the nursing shortage in Malaysia. *International Nursing Review*, 57(1), 32–39.
- Gibson, D. M., & Greene, J. (2020). State actions and shortage of personal protective equipment and staff in U.S. Nursing homes. *Journal of the American Geriatrics Society*, 68, 2721–2726.
- Alshmemri, M., Shahwan-Akl, L., & Maude, P. (2013). Job satisfaction of Saudi nurses working in Saudi Arabian public hospitals.
- Alhammari F. Unpublished Doctoral Dissertation. RMIT University; Melbourne, Australia: 2014. Nursing Leadership in the Ministry of Health Hospitals of Saudi Arabia.
- Hasan M. Strategies of improving the nursing practice in Saudi Arabia. *J. Health Educ. Res. Dev.* 2017;5:221. doi: 10.4172/2380-5439.1000221.
- World Health Organisation. Global Health Observatory Data. 2020. Nursing and Midwifery Personnel (per 10,000 Population).
- Al-Yami M.S., Watson R. An overview of nursing in Saudi Arabia. *J. Health Spec.* 2014;2:10–12. doi: 10.4103/1658-600X.126058.
- Gazzaz L. Unpublished Ph.D. Thesis. The University of Nottingham; Nottingham, UK: 2009. Saudi Nurses' Perceptions of Nursing as an Occupational Choice: A Qualitative Interview Study.
- Aboshaiqah A. Strategies to address the nursing shortage in Saudi Arabia. *Int. Nurs. Rev.* 2016;23:499–506. doi: 10.1111/inr.12271.
- Alharbi M.F., Alalmadi B.A., Alali M., Alsaedi S. Quality of nursing work life among hospital nurses in Saudi Arabia: A cross-sectional study. *J. Nurs. Manag.* 2019;27:1722–1730. doi: 10.1111/jonm.12863.
- Sadi M.A., Al-Buraey M.A. A framework of the implementation process: The case of Saudization. *Int. Manag. Rev.* 2009;5:70–84.
- Alboliteeh M., Magarey J., Wiechula R. The profile of Saudi nursing workforce: A cross-sectional study. *Nurs. Res. Pract.* 2017 doi: 10.1155/2017/1710686.
- Miller-Rosser K., Chapman Y., Francis K. Historical, cultural, and contemporary influences on the status of women in nursing in Saudi Arabia. *Online J. Issues Nurs.* 2006;11:1–15.
- Al Hosis K., Plummer V., O'Connor M. Nursing management in Saudi Arabia: Evaluating strategies for succession planning. *Asia Pac. J. Health Manag.* 2012;7:19–27.
- Alluhidan M., Tashkandi N., Albowi F., Omer T., Alghaith T., Alghodaier H., Alazemi N., Tulenko K., Herbst C.H., Hamza M.M., et al. Challenges and policy opportunities in nursing in Saudi Arabia. *Hum. Resour. Health.* 2020;18:98. doi: 10.1186/s12960-020-00535-2.
- Almalki M., Fitzgerald G., Clark M. Health care system in Saudi Arabia: An overview. *East. Mediterr. Health J.* 2011;17:784–793. doi: 10.26719/2011.17.10.784.
- Ministry of Health. Health Statistical Year Book. Kingdom of Saudi Arabia; Riyadh, Saudi Arabia: 2016.
- United Nations World Population Prospects the 2012 Revision. 2013.
- Falatah R., Conway E. Linking rational coordination to nurses' job satisfaction, effective commitment and turnover intention in Saudi Arabia. *J. Nurs. Manag.* 2019;27:715–721. doi: 10.1111/jonm.12735.
- Ministry of Health. Health Statistical Year Book. Kingdom of Saudi Arabia; Riyadh, Saudi Arabia: 2018.
- Almutairi A.F., McCarthy A., Gardner G.E. Understanding Cultural Competence in a Multicultural Nursing Workforce: Registered Nurses' Experience in Saudi Arabia. *J. Transcult. Nurs.* 2015;26:16–23. doi: 10.1177/1043659614523992.
- Liu, W., Zhao, S., Shi, L., Zhang, Z., Liu, X., Li, L., ... Ni, X. (2018). Workplace violence, job satisfaction, burnout, perceived organisational support and their effects on turnover intention among chinese nurses in tertiary hospitals: A cross-sectional study. *BMJ Open*, 8(6), e019525. doi: 10.1136/bmjopen-2017-019525.

- Kakemam, E., Racissi, P., Raoofi, S., Soltani, A., Sokhanvar, M., Visentin, D. C., & Cleary, M. (2019). Occupational stress and associated risk factors among nurses: A cross-sectional study. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 55(2–3), 237–249. doi: 10.1080/10376178.2019.1647791.
- LeVasseur, S., & Qureshi, K. (2019). European Society of Endodontology: Abstracts from the Biennial Congress 2019, 11-14 September 2019, Austria Center Vienna, Austria. *International Endodontic Journal*, 52(S1), 3–41. doi: 10.1111/iej.13172.
- Marć, M., Bartosiewicz, A., Burzyńska, J., Chmiel, Z., & Januszewicz, P. (2019). A nursing shortage – A prospect of global and local policies. *International Nursing Review*, 66(1), 9–16. doi: 10.1111/inr.12473.
- Otto, A., Bischoff, L. L., & Wollesen, B. (2019). Work-related burdens and requirements for health promotion programs for nursing staff in different care settings: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 16(19), 3586. doi: 10.3390/ijerph16193586.
- Mehdaova, E. (2017). Strategies to overcome the nursing shortage. ProQuest One Academic Eastern Edition.
- Jarrar, M., Rahman, H. A., Minai, M. S., AbuMadini, M. S., & Larbi, M. (2018). The function of patient-centered care in mitigating the effect of nursing shortage on the outcomes of care. *The International Journal of Health Planning and Management*, 33(2), e464–e473. doi: 10.1002/hpm.2491.
- Park, H., & Yu, S. (2019). Effective policies for eliminating nursing workforce shortages: A systematic review. *Health Policy and Technology*, 8(3), 296–303. doi: 10.1016/j.hlpt.2019.08.003.
- Sirisub, P., Suwannapong, N., Tipayamongkhogul, M., Howteerakul, N., & Noree, T. (2019). Intention to extend working life among thai registered nurses in ministry of public health: A national survey. *Nursing Research and Practice*, 2019, 7919404. doi: 10.1155/2019/7919404.
- Nantsupawat, A., Kunaviktikul, W., Nantsupawat, R., Wichaikhum, O., Thienthong, H., & Poghosyan, L. (2017). Effects of nurse work environment on job dissatisfaction, burnout, intention to leave. *International Nursing Review*, 64(1), 91–98. doi: 10.1111/inr.12342.
- Hung, M. S. Y., & Lam, S. K. K. (2020). Antecedents and contextual factors affecting occupational turnover among registered nurses in public hospitals in Hong Kong: A qualitative descriptive study. *The International Journal of Environmental Health Research in Public Health*, 17, 3834. doi: 10.3390/ijerph17113834.
- Masenyan, O. M., Tebogo, M. M., Rabelani, N. M., & Mokgadi, M. (2018). The effect of absenteeism on nurses remaining on duty at a tertiary hospital of Limpopo Province. *Research Online. Curationis*, 41(1), a1924. doi: 10.4102/curationis.v41i1.1924.
- Al-Dossary R.N. The Saudi Arabian 2030 vision and the nursing profession: The way forward. *Int. Counc. Nurses*. 2018;65:484–490. doi: 10.1111/inr.12458.
- Le M., Sy D.L. Government officials representation of nurses and migration in the Philippines. *Health Policy Plan*. 2013;28:90–99. doi: 10.1093/heapol/czs028.
- Mensik D.N., Nickitas J. Exploring nurse staffing through excellence: A data driven model. *Nurse Leader*. 2015;13:40–47. doi: 10.1016/j.mnl.2014.11.005.
- Albagawi B.S., Jones L.K. Quantitative exploration of the barriers and facilitators to nurse-patient communication in Saudi Arabia. *J. Hosp. Adm.* 2017;6:16. doi: 10.5430/jha.v6n1p16.
- Takase M., Maude P., Manias E. Impact of the perceived public image of nursing on nurses’ work behaviour. *J. Adv. Nurs*. 2006;53:333–343. doi: 10.1111/j.1365-2648.2006.03729.x.
- Currie L., Watterson L. Investigating the role and impact of expert nurses. *Br. J. Nurs*. 2009;18 doi: 10.12968/bjon.2009.18.13.43218.
- Falatah R., Salem O.A. Nurse turnover in the Kingdom of Saudi Arabia: An integrative review. *J. Nurs. Manag.* 2018;26:630–638. doi: 10.1111/jonm.12603.
- AboulEnein F.H., Ahmed F. How language barriers impact patient care; a commentary. *J.*

- Rawabi Theeb Awad Alruwaili, Mohammed Fahad W Alkhatami, Hanan Alari Mater Alanazi, Ghazi Eid Saud Alenazi, Hanan Wanis Nayir Alanazi, Huda Theeb Awad Alruwaili, Maha Dhib Awwad Alruwaili, Hadoud Afi Alshukry Alroyly, Amal Hadi M Alernezi, Walaa Gasab Matar Alenezi, Nawaf Khezaiem Motlaq Alenazi *Cult. Divers.* 2006;13:168–169.
- Al-Dossary R., Vail J., Macfarlane F. Job satisfaction of nurses in a Saudi Arabian university teaching hospital: A cross-sectional study. *Int. Nurs. Rev.* 2012;59:424–430. doi: 10.1111/j.1466-7657.2012.00978.x.
- Penoyer D.A. Nurse staffing and patient outcomes in critical care: A concise review. *Crit. Care Med.* 2010;38:1521–1528. doi: 10.1097/CCM.0b013e3181e47888.
- Alsufyani A.M., Almalki K.E., Alsufyani Y.M., Aljuaid S.M., Almutairi A.M., Alsufyani B.O., Alshahrani A.S., Baker O.G., Aboshaiqah A. Impact of work environment perceptions and communication satisfaction on the intention to quit: An empirical analysis of nurses in Saudi Arabia. *PeerJ.* 2021;9:e10949. doi: 10.7717/peerj.10949.
- Mebrouk J. Perception of nursing care: Views of Saudi Arabian female nurses. *Contemp. Nurse J. Aust. Nurs. Prof.* 2008;28:149–161. doi: 10.5172/conu.673.28.1-2.149.
- Aldossary A., While A., Barriball L. Health care and nursing in Saudi Arabia. *Int. Nurs. Rev.* 2008;55:125–128. doi: 10.1111/j.1466-7657.2007.00596.x.
- Lamadah S.M., Sayed H.Y. Challenges facing nursing profession in Saudi Arabia. *J. Biol. Agric. Healthc.* 2014;4:20–25.
- Duffield C., Diers D., O'Brien-Pallas L., Aisbett C., Roche M., King M., Aisbett K. Nursing staffing, nursing workload, the work environment and patient outcomes. *Appl. Nurs. Res.* 2011;24:244–255. doi: 10.1016/j.apnr.2009.12.004.
- Alshareef A.G., Wraith D., Dingle K., Mays J. Identifying the factors influencing Saudi Arabian nurses' turnover. *J. Nurs. Manag.* 2019;28:2030–2040. doi: 10.1111/jonm.13028.
- Aboul-Enein F.H. Personal contemporary observations of nursing care in Saudi Arabia. *Int. J. Nurs. Pract.* 2002;8:228–230. doi: 10.1046/j.1440-172X.2002.00370.x.