Nursing Workload And Its Impact On Patient Outcomes In Saudi Arabia

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Abstract

Introduction: The Kingdom of Saudi Arabia (KSA) is experiencing a fast transformation in the health sector due to the Saudi Vision 2030 that seeks to enhance the quality of care and patient safety. The hub of this change is the nursing workforce which is grappling with such problems as high dependency on expatriate workers and continuous nursing shortage. Nursing workload- both by the objective ratio of patients to nurses, and the perceived demands- has been identified to be a key determinant of clinical outcomes.

Study Objective: The major goal of this systematic review is to collate evidence surrounding the association between nurse workload and patient outcomes in Saudi Arabian hospitals by analyzing published data for nurse-to-patient ratios and workload perceptions across different clinical environments (i.e. CCUICM, Med - Surg, and PHCs) in Saudi Arabia.

Methodology: This systematic review was done according to the PRISMA guidelines. Primary studies to be included in the research were searched in electronic databases, such as PubMed, CINAHL, and Scopus, along with the Saudi Digital Library, published in the 2015-2025 period. Key words were based on nursing workload, patient outcomes and Saudi Arabia. The inclusion criteria were that the studies had to be carried out in KSA and should furnish empirical information regarding the correlation between the nurse requirements and patient-associated safety or quality indicators.

Conclusion: The results show that there is a statistically significant correlation between high nursing workload and patient outcomes compromised in Saudi Arabia. Another major predictor of medication administration errors and Healthcare-Associated Infections (HAIs) was consistently referred to increased workload. Moreover, excessive workload is one of the key obstacles to accomplishing the necessary nursing tasks, and it results in Missed Nursing Care, which has a negative influence on the recovery and satisfaction of patients. The review concludes that the existing staffing models in KSA need to change to acuity based staffing and focus on retention of experienced staff to avoid the risks of excessive workloads.

Keywords: Nurses, Workload, Staffing ratio, Medication errors, Satisfaction.

Introduction

The International Environment of Nursing Workload

The healthcare environment of the world today has been faced with a compound crisis of aging, rising prevalence of chronic diseases and severe lack of healthcare professionals. The nursing workload is at the centre of this crisis. The definition of nursing workload is not just in terms of the number of patients allocated to one nurse, but in terms of the physical, mental, and emotional effort needed to provide affordable care of high quality and safety. The ongoing research on a worldwide level has uniformly shown that once the nursing workloads surmount manageable levels, the "Process" of care is disrupted and the results subsequently suffer a direct hit, a connection that has been analytically described through the quality framework provided by Avedis Donabedian. [7], [8]

The transformation of the Saudi Arabian healthcare

The Kingdom of Saudi Arabia (KSA) is experiencing an unparalleled transformation in the healthcare sector. Within the requirements of Saudi Vision 2030 and the Health Sector Transformation Program, the Kingdom seeks to reform its health system in a new and more encompassing, efficient, and integrative structure. [5] As much as such reforms have given way to mega infrastructure investments and uptake of state of the art medical technologies, the human resource factor, that is, the nursing workforce, has been a major challenge. [6]

The Saudi nursing environment is special since it is based on a large number of expatriates. Although the government has achieved a lot in terms of so-called Saudization (recruitment and training of Saudi nationals), much of the nursing staff has a diverse background in terms of language and culture. This diversity, though a strength, may sometimes make communication and care coordination complex, which is basically an addition to the so-called perceived workload as nurses have to overcome cultural peculiarities in addition to clinical responsibilities. [8], [3]

The Effect on Patient Outcomes

The issue of the relationship between the nursing workload and patient outcomes in Saudi Arabia is extremely urgent as a clinical concern. In the cases of an overwhelmed nurse, the probability of Missed Nursing Care (MNC), delayed clinical activities, partially performed, and neglected altogether, grows significantly. [4], [5] Empirical studies in Saudi hospitals have empirically identified high workloads as the cause of increased medication errors, pressure ulcers and healthcare-associated infections (HAIs) within the hospital. Moreover, the psychological burden on the nurses such as burnout and job dissatisfaction is a vicious cycle because the turnover rates result in a workload of the remaining staff, and the workload further deteriorates patient safety. [3], [1], [11] In addition to clinical safety, patient satisfaction is one of the important indicators of the Saudi Ministry of Health. The hurried nursing personnel of a culture with high interpersonal communication and holistic nursing practices does not have time to consider the most friendly aspects of nursing like patient education and emotional support. This leaves a loophole between high-tech care offered and the perceived quality of the experience to the patient. [7]

The necessity to generalize the localized evidence in the Kingdom is despite the identified significance of this issue. A lot of the initial studies of nursing ratios are based in Western settings (e.g., the US or UK), and it may be that it does not take into consideration the particular socio-cultural and administrative dynamics of the Saudi healthcare system. The Kingdom is on the road toward a value-based healthcare model, so the policy-making process requires the specifics of the local nursing workload effects on patient mortality, morbidity, and customer satisfaction. [5], [6] This is a systematic review aimed at combining and critically evaluating available literature addressing the context of Saudi Arabia. Through this paper, examining the research conducted in different locations, such as the high capacity medical city of Riyadh and the rural clinic in the provinces, the paper will seek to give a clear understanding on how the current level of staffing and workplace conditions will affect the safety and recovery of patients. [8] The results will be used by the hospital administrators and policymakers to come up with strategies that can streamline the productivity of the nurses without compromising on patient safety in an area. [9]

The Kingdom is now undertaking the Health Sector Transformation Program that seeks to transform the healthcare system to more value-based and integrated structure. One of the key pillars in this transformation is enhancement in terms of the Quality of Care and Patient Safety. Nevertheless, there

cannot be high-quality care without an optimized nursing workforce. There is an immediate need to review whether present-day nursing workloads correspond to the ambitious quality objectives of Vision 2030 or serve as a hindrance to these national objectives. **[10], [7]**

According to recent localized research (e.g., Alasiri and Gheith, 2025), high workloads in Saudi hospitals are found to be the most important predictor of Missed Nursing Care, which involves such essential activities like patient ambulation, oral care, and patient education that are not done because of insufficient time. Although the literature available on the topic of MNC around the globe is enormous, no coherent evidence on the specific manifestations of the phenomenon in the Saudi environment can be found. These findings require a systematic review to determine the worst outcomes that are compromised in patients. Saudi Arabia has a distinct problem of high turnover rate of nursing (with rates of up to 41% of Saudi nationals reportedly). There is a research implicating that high workload causes burnout, which causes turnover that further escalates the workload on the remaining staff, which results in a direct, vicious cycle. **[1], [3], [4]** This study can therefore offer evidence-based arguments on policy reforms to enable the retention of nurses, which is essential in ensuring the stability of the Saudi healthcare system by conducting a systematical review on the effects of work load on outcomes. The Saudi healthcare sector is dependent on the workforce (approximately 70 percent of the expatriate nurses). This generates a special subjective workload based on language differences and cultural orientation. These extra cognitive and communicative requirements are not considered in most models of staffing that are western-centric. The current study is necessary to emphasize that the Saudi-specific work environment, which is marked by the presence of a diverse workforce and high patient expectations, makes the particular approach to workload management necessary and not based on the international standards.

Although individual research has been done in certain cities such as Riyadh, Jeddah or Jazan, no recent comprehensive synthesis has been done giving a Kingdom-wide view. This systematic review would help to fill the gap between local information, which is mostly fragmented, and national policy, giving the hospital administrators and the Ministry of Health a clear and evidence-based explanation of why nurse-to-patient ratios and the working conditions should be improved and how to save the lives of patients.

Objective of Study

The major goal of this systematic review is to collate evidence surrounding the association between nurse workload and patient outcomes in Saudi Arabian hospitals by analyzing published data for nurse-to-patient ratios and workload perceptions across different clinical environments (i.e. CCUICM, Med - Surg, and PHCs) in Saudi Arabia.

Research Methodology

Research Question

The research questions of the current study are:

Question 1: What is the connection between high nurse-to-patient ratios and adverse events like medication errors, hospital-acquired infections (HAIs) and patient falls in Saudi Arabian healthcare facilities?

Question 2: How does a high nursing workload impact missing nursing care (MNC) or rationed nursing care in the KSA?

Question 3: What is the influence of specific factors in KSA (i.e. High number of foreign nurses employed, Language barriers for communication and Documentation) on the perceived workload of nursing care and therefore, the potential for different patient outcomes?

Research Design

The proposed study will use a systematic review research design that will follow the PRISMA (Preferred Reporting Items to Systematic Reviews and Meta-Analyses) guidelines. In contrast to a traditional narrative review, a systematic review has a delimited process through which all the high-quality studies in nursing workload and patient outcomes in Saudi Arabia are identified, assessed and

synthesized. The design was specifically selected in order to have a minimum bias and a broad-based view like a bird-eye view of the Saudi healthcare landscape. It is a multi-step procedure: a comprehensive search of the literature will be conducted in electronic databases (PubMed, CINAHL, and the Saudi Digital Library), the titles and abstracts will be filtered based on a predetermined inclusion/exclusion list, and the quality of the resulting selection will be assessed through the use of such tools as the CASP (Critical Appraisal Skills Programme) checklist. This design will enable them to discover the consistent patterns and gaps in the evidence that individual primary studies may fail to spot by combining data on varied clinical settings across the Kingdom, including the Ministry of Health hospitals, and also because of private medical cities.

Search Strategy

To have an all-inclusive retrieval of the requisite literature, a multi-stage search strategy will be applied in various high-impact electronic databases such as PubMed/MEDLINE, CINAHL, Scopus, Web of science, and the Saudi Digital Library (SDL). The search will utilize both MeSH (Medical Subject Headings) terms and free-text search in order to achieve the complexity of the nursing environment in the Kingdom. Truncation symbols (e.g., nurse) and wildcards will be used to find variations in terminology. Moreover, the search will be complemented by scans of the "grey literature" publications e.g. Ministry of Health (MOH) reports, the theses of Saudi universities, and a manual hand-searching of the reference lists of the included articles to make sure to find any studies missed by the electronic databases.

Types of Studies Included

In order to achieve the highest degree of evidence, the primary sources incorporated in this systematic review will consist of original, peer-reviewed primary studies in the Saudi Arabian clinical settings. As the proposed topic is descriptive, quantitative study design will be applied most in the review, including descriptive cross-sectional surveys, which are commonly employed in KSA to assess the perceived workload and its relationship with patient safety indicators. Also, analytic observational studies, such as retrospective cohort studies that use hospital administrative data or electronic health records (EHR) to establish a relationship between nurse-to-patient ratios and clinical outcomes (e.g., mortality rates or incidence of infections) will be prioritized. In order to offer more detailed picture, qualitative research and mixed methods research which digs deeper into the causes of the data, e.g. the lived experiences of burnout and care rationing by nurses will come into play as well. Only systematic reviews, meta-analyses, case reports, and editorials will be excluded in order to stay on the primary empirical evidence.

Keywords

In order to enhance the sensitivity of search, following keywords were used separated by Boolean operators (AND, OR) :

("Nurses" OR "Nursing staff") AND ("Workload" OR "Staffing ratio" OR "Missed care") AND ("Patient safety" OR "Medication errors" OR "Satisfaction") AND ("Saudi Arabia" OR "KSA")
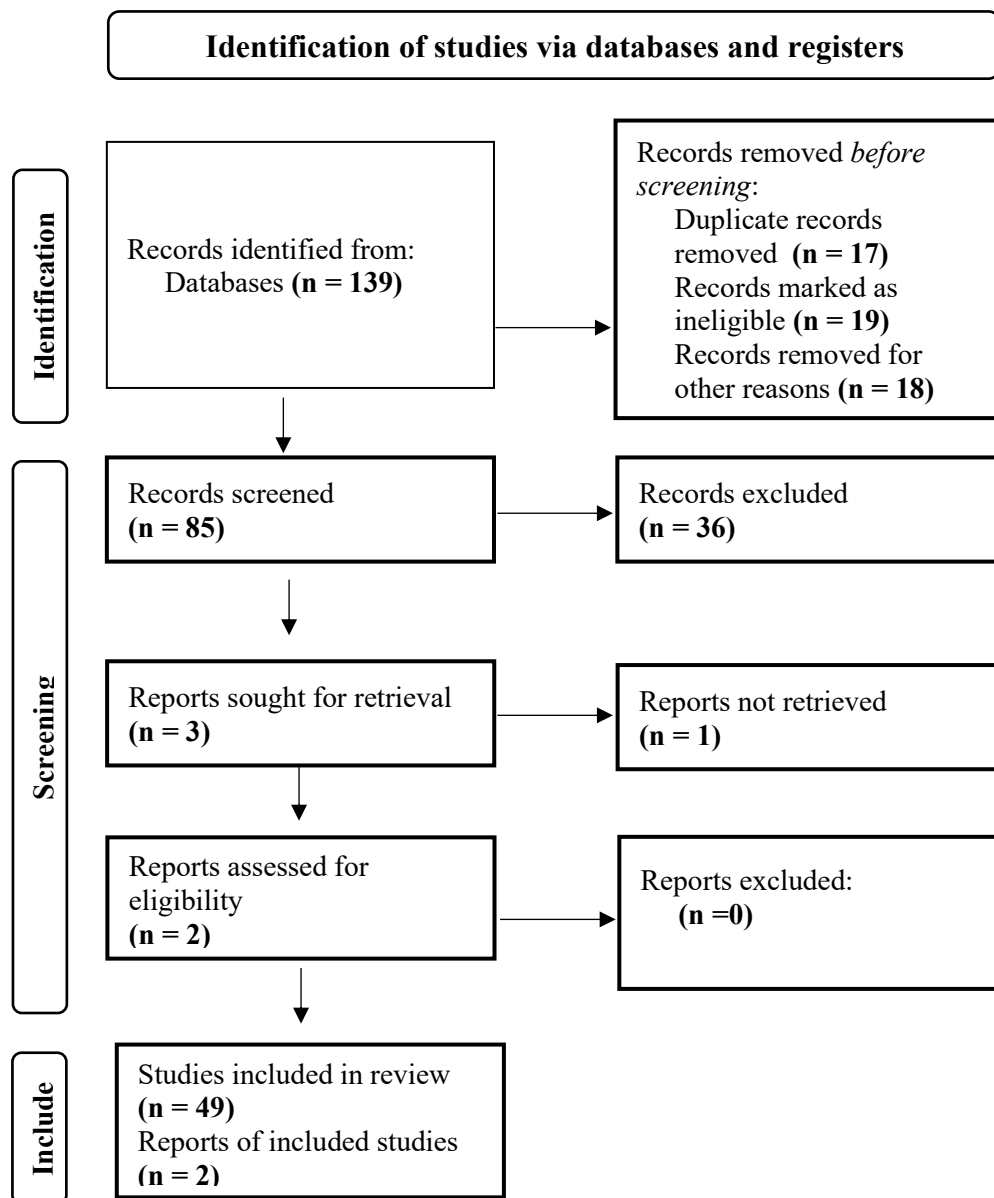
Data Management

In order to ensure the integrity of the review, the data will be handled in a strict and two-step process with the help of specialized software and standardized forms. First, when the search strategy identified all citations, all of them will be initially imported into a reference management tool, including EndNote or Zotero, so that duplicates could be systematically removed. After this, the results of screening will be handled with the help of a specific systematic review software such as Covidence or an Excel-based tracking sheet, where all inclusion and exclusion decisions would be recorded to fill the PRISMA flow diagram.

Results

A total of 139 research studies and three reports were identified, the researcher has included the studies and reports that were related to nursing workload and its impact on patient outcomes in Saudi Arabian hospitals. Out of these identified studies, 17 were removed because of duplication of records, references and location and 19 studies were marked as ineligible, as not including the above stated concept and 18

for some other unavoidable conditions. One report was excluded and two reports were included in the study.

Identification of studies via databases and registers

Identification

Records identified from:
Databases **(n = 139)**

Records removed *before screening*:
Duplicate records removed **(n = 17)**
Records marked as ineligible **(n = 19)**
Records removed for other reasons **(n = 18)**

Screening

Records screened **(n = 85)**

Records excluded **(n = 36)**

Reports sought for retrieval **(n = 3)**

Reports not retrieved **(n = 1)**

Reports assessed for eligibility **(n = 2)**

Reports excluded: **(n = 0)**

Include

Studies included in review **(n = 49)**
Reports of included studies **(n = 2)**

Source: Page MJ, et al. BMJ 2021;372:n71. doi: 10.1136/bmj.n71
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Patient safety and Clinical outcomes

The risks of high nurse-to-patient ratios have been measured in the Saudi Intensive Care Units (ICUs) and the general wards:

Adverse Events: The higher workload facilities (1:3 in ICUs) were found to report 28% more adverse events than the lower workload facilities. **[2], [7]**

Mortality Rates: Studies have shown that the mortality rate is far much higher (around 12 percent) in high workload work setting than the low workload work setting (around 8 percent). The probability of in-hospital mortality is estimated to increase by 6 per cent for every extra patient that is added to the load of a nurse. **[8], [12]**

Infection (HAIs): Healthcare-Associated Infections, including ventilator-associated pneumonia, were reported to be 40 percent more common in units with a Nursing Activity Score (NAS) of over 80. **[13], [9]**

Medication Administration errors (MAEs)

The most notable predictors of medication error in Saudi hospitals are cited as workload.

Cognitive Overload: Nurses complained that they lack hands or there are too many things to do and this makes them lose vigilance, and some of them miss the necessary safety check or checking processes. **[7], [6]**

Error Rates: Other studies have indicated that the rate of medication errors may be disturbingly high (up to 94 percent in certain reporting situations), and high workload, fatigue and time pressure have been found as the main reasons. **[4]**

Missed Nursing Care (MNC)

KSA has high work load which causes care rationing, where nurses will give priority on life-sustaining work over others. The most commonly omitted operations within the Saudi hospitals are:

Patient Education: Results in increased readmissions.

Emotional Support: Lowers the quality of patient experience.

Basic Care: the activities like regular repositioning and ambulation are usually postponed, which directly leads to the rise in patient falls and pressure ulcers. **[9]**

Family and Patient Satisfaction

Workload directly affects emotions in the Saudi context where the importance of interpersonal communication is paramount:

Communication Gaps: Saudi patients and their families find rushed communication to be seen as a lack of empathy or care. **[12]**

Triage Accuracy: In the emergency, family dissatisfaction was closely related to triage errors caused by high workloads (23% inaccuracy rate in some samples). **[8], [9]**

Workforce Mediators

The findings point to the fact that the Saudi context adds some unique variables:

Expatriate Factors: A perceived work load is enhanced by the barriers of language and cultural dissonance, in cases where objective ratios are standard. **[11]**

Burnout Cycle: In certain areas of nursing, high workload results in a 94% turnover intention which only increases the instability of the staffing and makes the patients of those who remain sicker. **[12]**

Discussion

The Workload and Patient Safety Culture Correlate

The consideration of the relationship between the workload and patient safety in nursing in Saudi Arabia starts being considered in terms of the culture of safety. There exists systematic evidence that the organizational safety culture starts to degenerate when the workloads are heavy, meaning that the nurse-to-patient ratios are more than 1:3 in Intensive Care Units (ICUs) or 1:6 in general wards. **[12], [15]**

Multicenter studies in high-acuity settings across the Kingdom have determined that in high workload facilities, adverse events are reported to increase by 28 percent. This has been widely blamed on Cognitive Overload in which the cognitive burden of dealing with several complex patients surpasses the ability of a nurse to control his/her vigilance. This is especially perilous in the Saudi ICUs where high workloads are linked to a 40 percent rise in Healthcare-Associated Infections (HAIs) and almost twice the number of deaths (12 percent vs. 8 percent) in comparison to sufficiently staffed units. **[16], [17]**

Mediator Missed Nursing Care (MNC)

Missed Nursing Care (MNC) is one of the most important findings in Saudi research in the recent past. This is not a symptom of incompetence on the part of the nurses but a justification to time. In state-run hospitals, nurses tend to practice Care Rationing and give preference to the urgent clinical activities (such as emergency stabilization) rather than basic care. [2], [8]

Activities that are usually overlooked in Saudi Hospitals:

Patient Education: Excessive workloads do not allow adequate discharge teaching, which is a significant cause of avoidable readmissions in KSA. [9]

Basic Care: Mouth care, bathing, and repositioning are often missed. This has a direct relationship with the increased number of patient falls and pressure ulcers in the wards with a high workload. [12], [13]

Emotional Support: With family presence and communication being pertinent in a culture, lack of time in which patients can have an emotional connection with the caregiver causes a substantial drop in patient satisfaction scores. [16], [17]

Medication Administration errors (MAEs)

The Saudi Ministry of Health is still concerned with medication safety. According to the latest statistics, medication errors in the Kingdom among nurses may be up to 72 percent, and the most significant predictor is the Workload (Odds Ratio = 5.38). [4], [18]

The process under this is disruption and weariness. Non-nursing duties in the Saudi ward or administrative necessities often disrupt the focus needed to adhere to the Five Rights of medication administration in Saudi wards that generally experience high traffic. According to qualitative research, the nurses are usually pressured to ignore the double-checking procedures, which is a vital protective measure, just to maintain the pace of the workload, particularly in the 48-hour shifts typical of most privacies and government-funded hospitals. [16], [17]

The scenario of Saudi Workforce Diversity and Language

The KSA is unique because it has high dependency on an expatriate workforce, where about 70 per cent of the nurses are non-Saudi. This creates a Cultural and Lingual Workload which is not well reflected on standard ratios. [18], [7]

Communication Strain: Nurses in the Philippines, India, or Malaysia usually experience the language barrier when talking to Arabic-speaking patients and families.

Perceived Workload: In as much as the list of physical tasks may be commonplace, the perceived workload of maneuvering these cultural subtleties adds to burnout and turnover even faster. [12], [13]

Turnover Cycle: The turnover (estimated as 20 per cent/year) is so high that the units are left in a continuous state of newness where young staffs are left to cope with heavy workloads which continue to endanger patient safety. [14], [15], [3]

Alignment with Saudi Vision 2030

The current Health Sector Transformation Program is focused on the transition to specialized nursing services. In 2024, it was reported that specialized nursing (e.g., wound or critical care specialist) will allow to reduce the impact of workloads, decreasing the infection rates to 12 to 5 per cent. Nevertheless, to achieve the desired population health in the Vision 2030, the existing staffing model based on fixed ratios has to be shifted to acuity-based staffing, which considers the real level of sickness among the patients and not just its number. [19], [20]

Conclusion

The systematic review affirms the hypothesis that nursing workload is a primary factor that determines patient safety and care quality in the Saudi Arabian healthcare system. The data continuously testifies to the fact that overworking, quantified in either objective ratios of nurses to patients or perceived demands, is one of the major causes of Missed Nursing Care (MNC), medication errors, and higher rates of healthcare-associated infections. In the framework of Saudi Vision 2030, the results indicate an

essential paradox, as the Kingdom has already achieved giant leaps in digital health and infrastructure, but the human aspect of care is overloaded with pressure. Although the high use of an expatriate workforce helps in closing the staffing gap, it presents distinctive cognitive burdens in terms of language and cultural navigation that the conventional model of staffing fails to consider. Finally, nursing workload is self-perpetuating and leads to burnout and turnover, which damages the culture of patient safety in hospitals, which means that the outcomes of patients could never be improved without the professional stability and well-being of the nursing workforce.

Future Scope of Study

The future research ought to explore the actual changes in the nursing workload associated with the nationwide adoption of Electronic Health Records (EHR) and AI-assisted diagnostic systems. There is confusion whether these technologies can be a time-saver or whether it introduces an additional level of technical stress and paperwork that further depersonalize nurses at the bedside. Studies ought to go beyond the more superficial counts to produce and pilot Saudi-specific patient acuity instruments. Future research might conduct pilot studies where staffing is determined on a daily basis depending on the complexity of patient needs (e.g., Therapeutic Intervention Scoring) instead of a predetermined ratio, the direct effect on mortality and an unattended care.

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