

Analyzing the Effect of Workload and Staffing Ratios on Nursing Performance, Stress Levels, and Quality of Patient Care Services

Dr. Surendar Aravindhan, School of Pharmacy, Saveetha University, Chennai, Tamil Nadu,
India. E-mail: surendarara@saveetha.com

Abstract: Effective management of patient care in contemporary healthcare systems necessitates consideration of the connection between staffing levels, nursing workload, and the quality of care provided. Long shifts, limited resources, and an overwhelming clinical workload are common characteristics of the nursing profession. When patient-to-nurse ratios are insufficient, the workload becomes more burdensome, leading to stress, fatigue, and diminished work effectiveness. This scenario not only harms the nursing workforce but also endangers and diminishes patient satisfaction. This research aims to assess the impact of workload and staffing ratios on nursing performance, stress, and the quality of care rendered. This study combines quantitative data from nurses' and hospital performance surveys with qualitative data from semi-structured interviews, employing a mixed-methods research design. Results show that high workload and poor staffing ratios contribute to increased stress, burnout, absenteeism, and errors in clinical practice. With adequate staffing ratios, decision-making and nurse-patient communication improved, and recovery outcomes were better. This study highlights the interdependency of organizational structure, workforce dynamics, and patient-centered care, underscoring that staffing sufficiency is a clinical and managerial requirement.

Based on the findings, healthcare facilities need to implement evidence-informed staffing systems, along with appropriate measures, to maintain the mental and physical well-being of nurses and enhance the quality of care provided to patients.

Keywords: Nursing Workload, Stress Level, Patient Care Quality, Workforce Management, Healthcare Results, Nurse Performance, Staffing Ratios.

1. Introduction

The delivery of healthcare services depends heavily on the effectiveness and enduring nature of nurses, who are the largest professional group in hospitals or clinical settings globally. In addition to providing clinical care, nurses are responsible for managing patients, administering medications, documenting patients' progress, and communicating with multidisciplinary team members. Furthermore, the growing complexity of medical services, increasing volume of patients, and limited resources are some of the most critical barriers to providing and sustaining efficiency and quality in nursing. Some of the dominant issues include rising workloads and poor staffing ratios, which contribute to stress, burnout, and a decline in the overall quality of services provided to patients.

In nursing, workload encompasses more than the number of patients per shift; it also includes tasks, the severity of the patient's illness, and any relevant administrative work. When workload escalates, nurses

tend to experience fatigue, decreased focus, and increased error rates, all of which pose immediate threats to patient safety. For instance, when patient care time is insufficient, vital care tasks are often missed, and continuous health evaluation is neglected. Similarly, the often-simplistic staffing ratios, measured as nurse-to-patient ratios, are used as surrogate indicators of sufficient staffing. It is a well-documented phenomenon that hospitals with higher patient-to-nurse ratios have worsened patient outcomes, including greater rates of nosocomial infections, prolonged recovery, and even increased mortality.

Just as crucial is the mental aspect of nursing. Increased ratios of patients to nurses and staffing levels result in greater workload, which escalates stress, fostering increased emotional exhaustion, decreased job satisfaction, and professional burnout. Stress not only impacts the nurses' mental well-being but also weakens their ability to provide the care necessary to maintain and enhance the therapeutic nurse-patient relationship, resulting in a decrease in the quality of care. These issues have enduring consequences, which will escalate turnover and resignations alongside healthcare system workforce and staffing shortages, while increasing the costs of recruiting and training.

According to this study, it is clear that a nurse's work performance, stress levels, and the quality of patient care are significantly influenced by workload and staffing ratios. This study aims to provide a more comprehensive answer by employing a mixed-methods strategy, gathering quantifiable performance metrics and nurses' perspectives through interviews. The results obtained are expected to help hospital and health system managers, policymakers, and planners recognize the significant gap caused by the lack of effective staffing frameworks and adaptive policies that protect nurses' health and the safety of patients.

2. Literature Review

The impact of workload, staffing ratios, and the quality of nursing care has been examined through the lens of health services research, revealing their significant influence on both the functioning and well-being of nurses, as well as patient outcomes. There is a growing concern that understaffing and overburdening of nurses are affecting both their health and performance.

The impact of workload on nursing performance: The scope of nursing workload encompasses the number of patients and their associated complexities, as well as the volume of paperwork and collaboration with other departments. (Maghsoud et al., 2022) depict nursing workload as a multidimensional construct that impacts several variables, such as decisions, errors, and time on patient care. With high workloads, the likelihood of omitting essential tasks, delayed responses, and inadequate monitoring increases globally. Research has shown that these conditions increase the likelihood of adverse outcomes such as medication errors and infections contracted in the hospital (Aiken et al., 2021). In addition to these, the burdens placed on nurses force them to focus on urgent tasks through clinical triage and on time-sensitive clinical tasks, thereby neglecting less urgent but equally vital components of care, such as patient education and emotional support, which are crucial for holistic healing.

Staffing ratios and associated patient outcomes: Nurse-patient ratios directly impact the quality of patient care. Safe staffing thresholds, as indicated by (Aiken et al., 2021), are critically important since the risk of mortality increases with the number of patients assigned to a nurse. Hospitals with adequate staffing ratios are more likely to report lower readmission rates, lower complication rates, and shorter lengths of stay (Jalali & Shaemi, 2015). This study suggests that inadequate staffing levels are associated with unattended vital sign monitoring, which often precedes patient deterioration. These findings underscore the importance of workforce planning and the adverse consequences of understaffing on patient safety (Banumathy et al., 2023).

Burnout and stress, particularly in nursing practice, are influenced by the psychological effects of workload and the nursing staff's chronic understaffing, which negatively impact the emotional well-being of nurses. Utilizing the classic work of (Carayon & Gurses, 2008; Duffield et al., 2011), one can understand burnout as a biopsychosocial syndrome characterized by emotional fatigue, depersonalization, and reduction of feelings of accomplishment (Mhsnhasan et al., 2025). A nurse facing chronic stress will have burnout and, therefore, will have poor empathy and poor quality of nurse-patient relations. Supporting this theory, (Shanafelt et al., 2019) argues that chronic stress contributes to burnout and a decline in job satisfaction, which in turn further increases absenteeism and turnover. Stress, poor staffing ratios, and chronic understaffing perpetuate a vicious cycle that leads to work overload, increasing burnout, and decreasing the nurse pool. Stress is a self-reinforcing cycle (Delgosha et al., 2017; Qureshi et al., 2019).

Policy implications and workforce resilience: Considerable attention has been devoted to developing staffing policies that incorporate evidence-based practices, given the persistent issue of inefficient workforce utilization. (Zhang et al., 2020) It is worth noting that, although fundamental research on staffing reform has been conducted, many healthcare systems continue to view staffing as an expense. Additionally, the WHO highlights the urgent need for countries to prioritize expanding and educating their nursing workforce, as well as developing nursing leadership, to foster resilience within health systems (Ramachandran, 2023; Alghamdi, 2016). Policies designed to support the well-being of nursing personnel are no longer seen as optional, but rather as indispensable to the enduring sustainability of healthcare systems (Boopathy et al., 2024; Gurses et al., 2009).

Integrative perspective: The literature highlights the interrelation of workload, staffing ratios, stress, and their cumulative impact on nursing performance and the quality of patient care. An overwhelming workload, combined with insufficient staffing, increases anxiety and burnout, which in turn increases the likelihood of errors and diminishes the quality of care delivered (Moreau & Sinclair, 2024; Chang et al., 2019). On the other hand, balanced staffing enhances engagement, facilitates more effective patient-nurse interactions, and contributes to safer clinical outcomes. The literature confirms the need to address workload and staffing issues from multiple angles, as organizational policy, psychological factors, and comprehensive workforce planning must be integrated (Menaka et al., 2022).

The study on optimally managing staffing ratios and workload demonstrates that these elements are crucial to maintaining nurse wellness and enhancing the quality of patient care. A lack of action still exists in utilizing this evidence to inform policy. This study aims to contribute to the literature by investigating the impact of workload and staffing ratios on stress and performance in modern hospital environments, which in turn informs the conversation on the development of a sustainable nursing workforce.

3. Methodology

The research study focused on registered nurses employed in tertiary care hospitals because these hospitals often experience acute staff shortages and overwork their employees. There are intensive care units, emergency wards, surgical units, and general medical wards (Almenyan et al., 2021). Quantitative data were collected from 200 nurses, while 20 participants were specifically chosen from the primary data collection participants for the qualitative interviews to explore their experiences regarding the workload and organizational constraints in greater depth. The intent of the study, by combining both phases, was to triangulate the statistical findings and incorporate experiential evidence to strengthen validity and reliability.

As illustrated in figure 1 (Ferramosca et al., 2023), this study employs a mixed-methods approach, conceptually outlining how the work context influences the organization of tasks nurses undertake, thereby impacting their physical, mental, and emotional workload. The model highlights the relationship between staffing adequacy, peer collaboration, patient complexity, documentation, unscheduled workflow activities, and the cumulative nurse workload. These workload dimensions impact stress, performance, and the quality of patient care. Framing the research in this way enables quantitative measurement and qualitative exploration of the mechanisms through which workload and staffing ratios drive nursing outcomes.

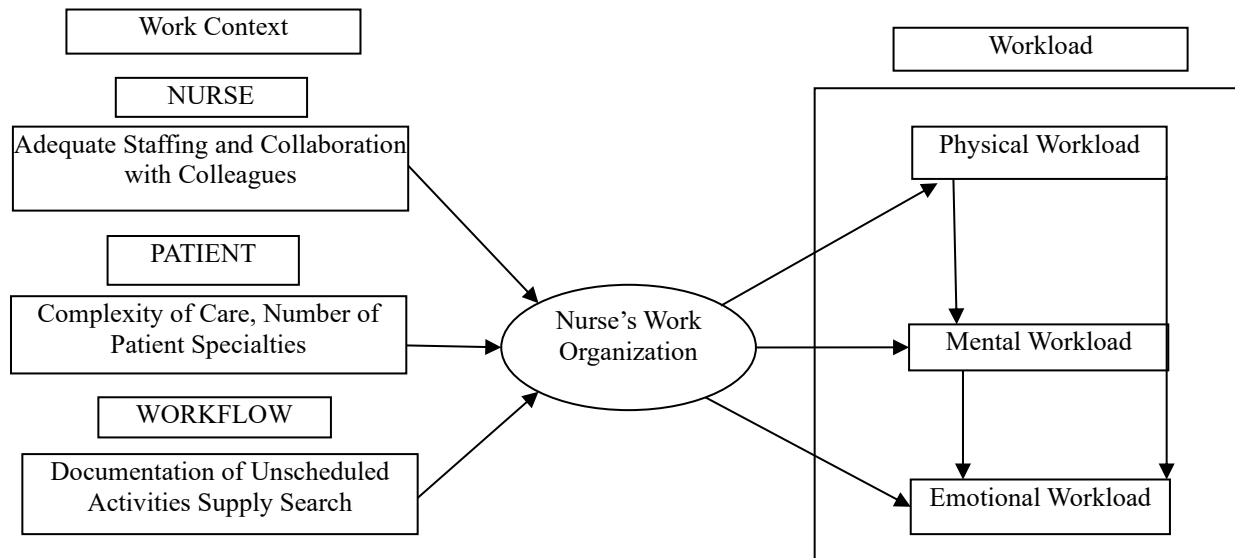


Figure 1: Nurse's Work Organization

Data collection was done according to the dimensions in the conceptual model. As part of the quantitative element, a survey was administered, which included items from the Nursing Work Index

concerning staffing levels and collaboration adequacy, the NASA Task Load Index for evaluating the work's physical, mental, and emotional load, and the Nursing Stress Index. Objective data concerning staffing ratios, patient handover frequency, medical error rates, and recovery indicators were also obtained and analyzed. For the qualitative element, patients were interviewed in two steps guided by the conceptual model, and the loaded questions were based on the model and included its main components (Unruh, 2008). It was inquired how patient complexity, workflow interruptions, resource insufficiencies, and other factors affected the perceived workload and stress, and how these interactions, in turn, influenced the perception of the quality of care provided.

Additionally, the nurses' workload was assessed using a standardized workload assessment scale, which classified the workload as heavy, medium, or light. Stress levels were measured with the Nursing Stress Inventory (NSI), which classified responses as low, medium, or serious. Through self-administered questionnaires, data were gathered from 64 staff nurses in an inpatient ward, and descriptive statistics, including frequency and percentage distributions, were employed in the analysis (Febrianti et al., 2024).

The framework of the investigation was based on the premise that workload impacts various aspects of nursing performance. Specifically, workload was found to influence the stress threshold, emotional fatigue, and overall satisfaction with work, all of which affect the quality of care provided to patients. This understanding guided the selection of quantitative instruments, such as the Nursing Stress Index and the NASA Task Load Index, as well as the qualitative analysis of nurses' interviews (MacPhee et al., 2017). This approach aimed to balance the comprehensive impact of workload and staffing ratios on nursing performance and patient care, as well as their mediating effects (Maghsoud et al., 2022).

Analysis was conducted in two stages. In the first stage, quantitative data were subject to descriptive statistical analysis to summarize staffing ratios, the components of workload, and stress levels. Regression analyses followed this to determine the relationships between staffing sufficiency, workload, and patient care outcomes. Additionally, mediation analyses were performed to determine if stress levels mediated the effect of workload on nurse performance. Qualitative data were analyzed using thematic analysis and NVivo software. The software was used to code the transcripts inductively, capturing emergent themes in relation to the overarching framework. This process enabled the improvement of the preset model and the recognition of contextual elements that were absent in the survey data (Van Bogaert et al., 2013).

Ethical issues shaped every aspect of the methodology. Approval was secured from the review board of the partnering hospitals, and informed consent was secured from all participants. Participants were guaranteed anonymity and confidentiality; all identifying information was purged from transcripts and survey responses. There were no repercussions for withdrawal, and the nurses were free to change their minds at any point during the research (Myny et al., 2011).

The combination of evidence and conceptual evidence of the work setting, workload, stress, and patient care outcomes illustrates how the methodology functions. The framework serves not only to organize the

research but also to guide the interpretation of study findings, ensuring that both systemic and individual dimensions of the impact of workload and staffing ratios on nursing practice are captured (Alrayes, 2024).

4. Result and Discussion

This study examines the interrelationship between workload and staffing ratios, exploring how they impact nursing performance, nurse stress levels, and the quality of patient care services provided. From the quantitative survey, it was evident that staffing adequacy continues to be a problem in most departments, as close to 65% of participants indicated that they frequently had to roster fewer nurses than were necessary. The regression analysis revealed a notable staffing ratio and a negative correlation with performance scores ($p < 0.01$). Understaffed units had higher records of medical errors, overdue patient documentation, and lower compliance with clinical guidelines. Additionally, important patient care metrics, including the timeliness of responses to requests and the precision of medication delivery, suffered in the absence of sufficient staffing. These findings are consistent with earlier studies that strongly support the importance of enough staffing in maintaining patient safety and quality of care.

Table 1: The Workload of Staff Nurses in the Hospital in Indonesia

Nurse workload	Number of Nurses (N)	Percentage (%)
Heavy	18	28,1
Medium	28	43,8
Light	18	28,1
Overall	64	100,0

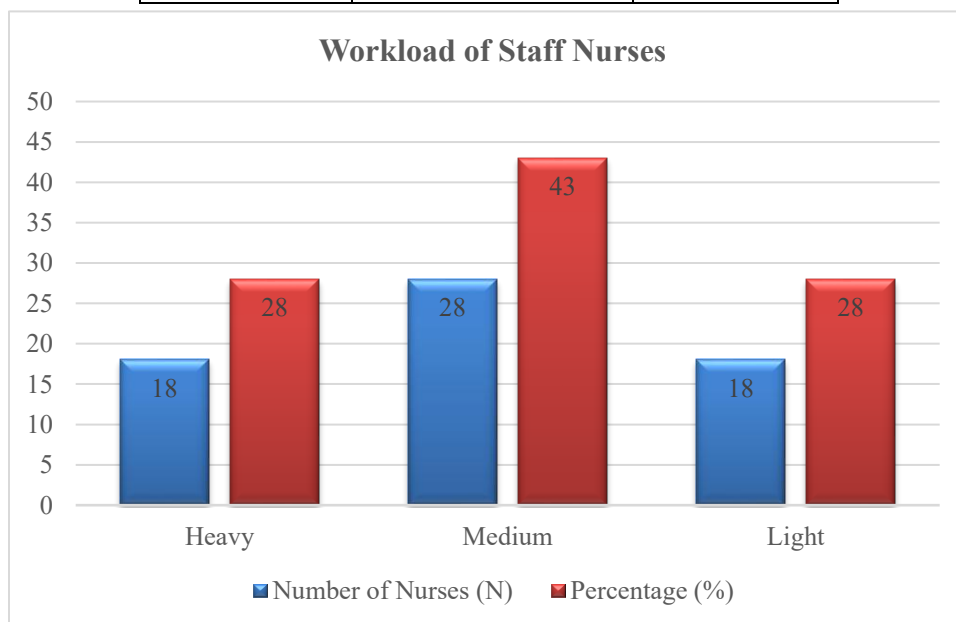


Figure 2: Graphical Representation of Workload of Staff Nurses

This study also provides an analysis of the workload and stress level of nurses in an inpatient ward in a hospital in Indonesia. According to table 1 and figure 2 (Febrianti et al., 2024), of the respondents experiencing a heavy workload, 18 nurses (28.1%) were involved, whereas 28 nurses (43.8%) experienced

a moderate workload, and only 18 nurses (28.1%) had a low workload. Productivity improves with a properly calibrated workload. An unequal workload, whether excessive or insufficient, can cause several problems at work. Workload is defined as the gap between the worker's capability or capacity and the work that needs to be done. Any work performed by humans is a combination of mental and physical effort; therefore, every task is accomplished to a different extent.

Table 2: The Stress Level of Staff Nurses in the Hospital in Indonesia

Stress Level	Number of Nurses (N)	Percentage (%)
Serious	21	32,8
Medium	23	35,9
Low	20	31,3
Total	64	31,3

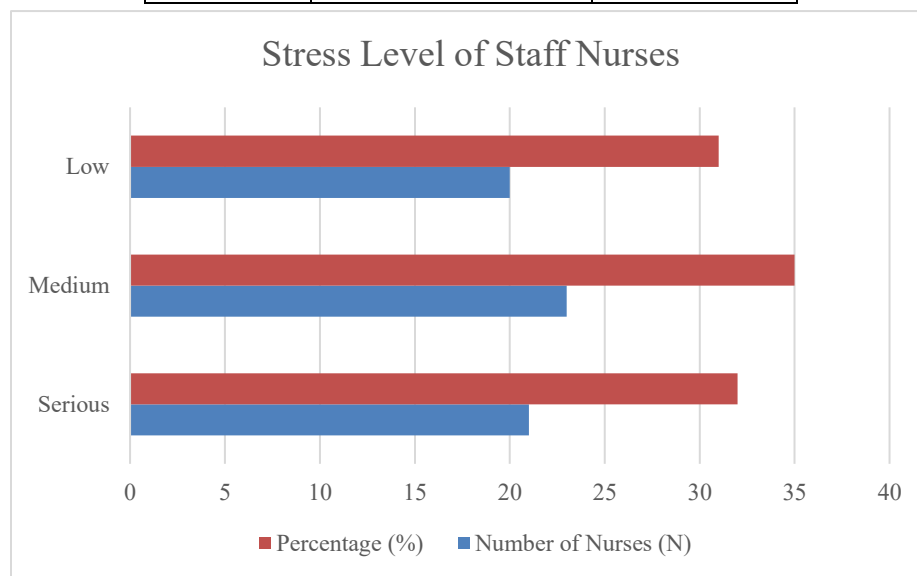


Figure 3: Graphical Representation of the Stress Level of Staff Nurses

As per table 2 and figure 3, the respondents with the highest level of stress among the participants were 21 nurses, accounting for 32.8%. Stress can be defined as the psychological reaction to a specific demand, mainly in a workplace, that requires some level of adjustment. Some studies describe stress as a response to changes in one's surrounding environment, which are perceived as upsetting and harmful. This means that stress is a response duly noted and registered in human beings. Elevated demands in the workplace, for example, the working needs of nurses, often lead to stress. The efficiency, decisiveness, and speed in providing nursing services to patients heighten nurses' workload, thus increasing their stress levels. Therefore, to enable nurses to perform their essential activities proficiently, job-related stress factors and their consequences must be addressed and managed promptly.

As shown in the evaluation using the NASA Task Load Index, nurses consistently exhibit a high mental workload, surpassing both physical and emotional workload segments. Mental workload was more evident in critical and emergency care units due to the high patient acuity and the constant need for rapid decision-making. Emotional workload was also significant, particularly in oncology and palliative care

wards, where nurses had to integrate clinical care with the emotional support component for patients and their families. Mediation analysis demonstrated that stress level significantly mediated the relationship between workload and performance ($\beta = 0.42, p < 0.05$). This means that high workload does not blunt performance directly, but works through stress, which impacts efficiency, decision-making capability, and clinical precision.

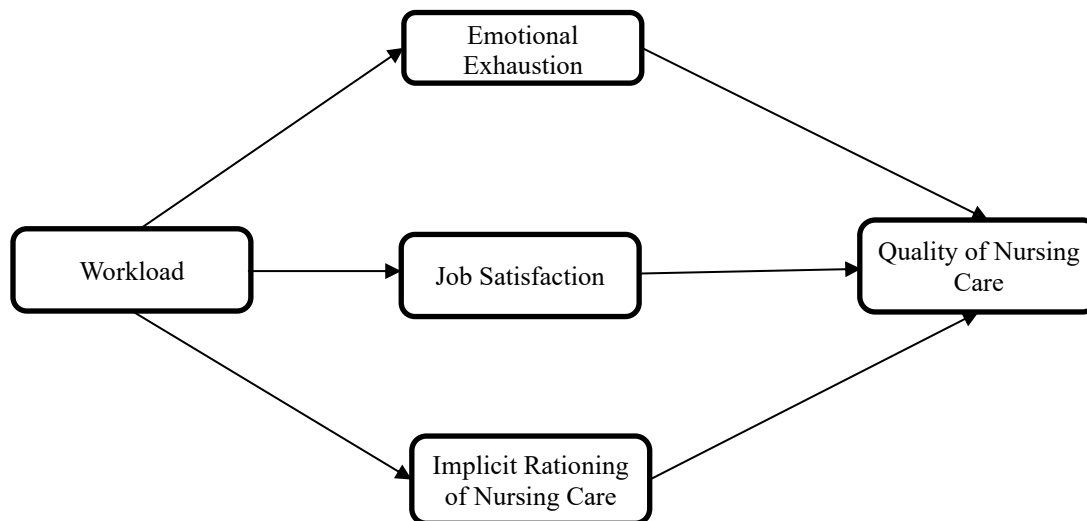


Figure 4: Workload Impact on Nursing Care Quality

Figure 4 (Maghsoud et al., 2022) illustrates the pathway model of the impact of workload on nursing care quality. This model demonstrates the relationship between the workload of health services and the quality of nursing services provided. It illustrates how workload has a direct impact on emotional burnout, job satisfaction, and implicit rationing of nursing care, which are considered mediating factors. Burnout and diminished empathy are symptoms of emotional exhaustion, which occurs when there is a disparity between excessive demands and the ability to cope. Job satisfaction is a measurement of the motivation, retention, and performance that is directly associated with a manageable workload, reasonable staffing levels, and a favorable emotional climate. Implicit rationing of nursing care refers to a situation in which urgent nursing tasks are prioritized while pedagogical and psychosocial care are neglected. All mediating factors, both quantitatively and qualitatively, directly influence the quality of nursing care. This model highlights that workload and staffing ratios have a significant impact on nurses' well-being and patients' safety and care outcomes. This study confirms the conceptual pathway depicted in figure 4, which highlights how workload leads to emotional exhaustion, a reduction in job satisfaction, and implicit rationing of care, ultimately affecting the nursing services rendered (Babapour et al., 2022).

Qualitative findings both reinforced and expanded these quantitative results. Nurses reported that inadequate staffing routinely compelled them to multitask to the point that there was little opportunity for meaningful patient interaction. Many described a profound sense of emotional drain; one person remarked that “after a double shift, I’m not just physically exhausted, I’m mentally so numb that I struggle to provide empathetic care.” Unplanned work, excessive paperwork, inadequate supplies, and interruptions to regular workflows were some of the recurring patterns that intensified the stress. On a positive note, collaboration

with others was seen as a protective factor. Nurses with positive perceptions of their work teams reported that strong cohesion and shared responsibilities acted as a buffer to workload strain and even enhanced morale, despite the intense demands (West et al., 2009).

From both quantitative metrics and interview narratives, it is clear that care quality deterioration occurs where workload exceeds manageable thresholds. Patients on understaffed units reported waiting longer to receive help, experiencing greater discomfort due to medication delays, and lower overall satisfaction with the care received. Nurses reported feeling guilty and frustrated due to the emotionally demanding workload, which contributed to an increased risk of burnout. The study's central finding, and the model conceptually applied, revealed a cyclical nature where workload creates stress, stress diminishes performance, and reduced performance leads to a further decline in the quality of care provided.

This study has a profound impact on healthcare policy and practice. Improving staffing ratios should not be viewed as a logistical improvement, but rather as a fundamental prerequisite for delivering safe and effective care. The efficiency of the workflow should be addressed by eliminating unnecessary tasks, optimizing supply chain management, and automating documentation with the use of digital systems designed to handle routine tasks. From a psychological perspective, the impact of working in high-workload environments can be mitigated by structured stress management programs and peer support programs.

This study further reinforces the relationships identified in previous literature between performance and workload, and also emphasizes the multifaceted nature of nursing workload. Earlier research focused on the physical component of nursing workload; the current study adds the realization that the mental and emotional components also significantly influence performance outcomes. Furthermore, the qualitative data furthers understanding by illustrating how supply or staffing shortages, bureaucracy, and other systemic problems that add stress and strain to the nursing environment cannot be fully appreciated through statistical measures.

5. Conclusion

This study clearly demonstrates how nursing performance, the stress experienced, and the quality of patient care services provided are all significantly affected by workload and staffing ratios. The findings revealed that a significant number of nurses experienced a moderate to heavy workload, accompanied by stress levels that were at least moderate to severe. These findings suggest that when staffing and patient care needs are misaligned, the productivity and mental health of nurses are significantly compromised. In reality, this hinges on increased fatigue and burnout, leading to an inability to provide safe and effective care.

Along with this, the findings support the argument that a nurse's workload is not simply a matter of business efficiency and productivity, but a critical factor of patient safety. Increased workload and stress are risk factors for a range of clinical errors, communicative errors, and an overall reduction in responsiveness. The quality of healthcare provided is greatly affected by all of these factors. On the other

hand, with a good nurse-to-patient ratio, productivity and the quality of care provided by the nurses also increase. Their clinical and decision-making abilities, as well as patient-centered care, improve significantly.

For healthcare administrators and policymakers, the impact is substantial. It is necessary to formulate and adopt policies based on evidence to ensure an optimal nurse-to-patient ratio. Additionally, hospitals should consider implementing stress management programs, career advancement opportunities, pre-assignment scheduling, and proper scheduling that facilitate a balance between work and personal life. Solving these problems will not only increase nurse job satisfaction and retention but also enhance the resilience and sustainability of healthcare systems.

In conclusion, workload management and staffing ratios must be primary considerations in hospital administration. Shielding nurses from excessive workload and unmanaged stress is crucial to maintaining exemplary patient care and achieving the enduring objectives of healthcare quality and safety. The results corroborate the assertion that workload and staffing ratios have a critical impact on nursing performance and the quality of patient care. The discussion highlights that the solution necessitates a system-wide restructuring that incorporates, at a minimum, targeted staffing and workflow structural adjustments, and reinforces this through psychosocial measures that support nurses' mental and emotional well-being.

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