

Nursing Workflow Optimization Plan for Improving Efficiency and Staff Well-Being in Inpatient Settings

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ABSTRACT

Nursing workflow efficiency and staff well-being were critical factors in ensuring safe and effective inpatient care delivery. However, nurses in hospital settings frequently faced heavy workloads, disorganized processes, and staffing shortages, which compromised both patient outcomes and nurse job satisfaction. This study examined the relationships among demographic characteristics, perceived workload, and workflow efficiency of nurses in inpatient units to develop a structured workflow optimization plan. Guided by the Maslach Burnout Theory and utilizing a quantitative, descriptive-correlational design, the research was conducted at Al Salama Hospital in Jeddah, Saudi Arabia. A stratified random sample of 51 nurses completed a validated, self-structured questionnaire that measured nurses' demographics, workload perceptions, and workflow efficiency. Findings revealed that nurses reported a very high level of perceived workload, characterized by emotional exhaustion, chronic fatigue, and increased stress, while also rating workflow efficiency as generally high, particularly in task completion and documentation processes. Statistical analysis revealed significant relationships between years of experience, shift schedules, and nurse-to-patient ratios with workload perceptions, and between years of experience and shift schedules with workflow efficiency. These results highlighted the need for targeted interventions addressing workload distribution, staffing ratios, and scheduling systems to improve nurse well-being and care quality. Based on these findings, a Nursing Workflow Optimization Plan: NURSE OPT was proposed, integrating Lean Management strategies and the Job Demands-Resources model to streamline processes, reduce staff overload, and foster a supportive work environment. The plan provided a framework for healthcare institutions to enhance efficiency, safeguard patient safety, and strengthen nurse resilience.

Keywords: Nurses, Optimization Plan, Staff Well-Being, Workflow Efficiency, Workload

INTRODUCTION AND BACKGROUND OF THE STUDY

Inpatient healthcare settings were often tasked with striking a balance between increasing nurse efficiency and decreasing the burden on staff, both of which had profound implications for the quality of patient care as well as nurses' well-being. Nurses were pressured due to inadequate funding, which resulted in workforce shortages and a lack of human resource planning in an aging global population, overwhelming health systems ([Zubrinic et al., 2023]). These systemic obstacles threatened healthcare sustainability, particularly for inpatient environments with high-acuity patients experiencing multi-morbidity and repeated new-onset conditions.

The COVID-19 pandemic brought to the forefront the importance of adequate staffing and resource allocation in healthcare systems. Nurse managers were immediately forced to adapt operations by obtaining personal protective equipment, implementing new safety protocols, and disseminating new clinical protocols, all the while securing safe, quality care in an unusual environment (Weston, 2022). These experiences exposed

vulnerabilities in the existing nursing system and highlighted the demand for a resilient and adaptive nursing workforce.

On top of this, there was a significant increase in labor productivity in healthcare, primarily due to severe workforce shortages. Therefore, organizations were forced to look for creative efficiency enhancement tools that maximized the use of current staff and resources ([Kesti et al., 2023]). In this regard, nurses, who represented the most numerous professional category in hospitals, contributed not only to direct patient care but also to improving the efficiency of hospital management and organization ([Mensing et al., 2021]). Engagement in the optimization of work conditions, including staffing and the practice environment, was necessary for retaining nurses and delivering safe, high-quality care. Research carried out during the pandemic tended to point out the necessity of adopting flexible business strategies and responding promptly in terms of patient care policy in healthcare facilities ([Alkathlan et al., 2023]). These shifts highlighted the need for evidence-based, systematically implemented changes in nursing processes.

Nursing personnel workload was heavily influenced by documentation, admission, and medication therapy, which required more time ([Almenyan et al., 2021]; [Schlak et al., 2022]). In addition, indirect care duties took up 30–50% of nurses' time (Sharma & Rani, 2020). The struggles within these tasks, including the highly stressful environment of intensive care units, often resulted in cognitive overload, issues in concentration, interpretation of information, and decision-making (Javadi-[Pashaki et al., 2020]). This required re-evaluating nursing practices to identify inefficiencies and implement solutions to make procedures more efficient and to better use resources. The main goal of this discussion was to examine the various aspects of improving nursing workflows in inpatient environments, focusing specifically on methods to boost efficiency and reduce staff burden. Therefore, this paper described an organized and detailed approach to nursing workflow improvement based on an extensive review of studies, practical experiences, and successful methods, and concentrated on critical areas such as evaluating workloads, redesigning processes, technology implementation, and teamwork. Application of the recommendations enabled healthcare organizations to develop a supportive work environment, optimize the efficiency of nurses, achieve better patient outcomes, enhance job satisfaction among nurses, and improve patient care ([Lenssen et al., 2025]).

Inpatient healthcare environments frequently grappled with the intertwined challenges of maximizing nursing efficiency while simultaneously mitigating staff overload, a precarious balance that exerted a direct influence on the caliber of patient care delivered and the overall welfare of the nursing personnel ([Ivziku et al., 2021]). The escalating demands placed on nurses, stemming from factors such as insufficient healthcare funding and failures in human resources planning amidst an aging population, culminated in a healthcare crisis, significantly impacting nursing working conditions (Scott-Marshall, 2024). The nursing staff's pivotal role in ensuring access to quality health services and promoting favorable patient outcomes underscored the urgency of addressing these challenges ([Galiano et al., 2023]).

Through firsthand professional experience, the researcher observed that disorganized workflows in a hospital's inpatient environment greatly impacted the morale and efficiency of nursing staff. Issues such as poor task delegation, unnecessary paperwork, and lack of coordination between departments frequently led to delays in patient care and heightened emotional fatigue among nurses. These experiences showed a clear lack of organized workflow protocols, emphasizing the need for specific enhancements. The researcher's observations pointed out a significant disparity between existing practices and ideal workflow management, highlighting the importance of evidence-based solutions that addressed the actual challenges nurses encountered.

This study aimed to address the multifaceted challenges confronting nurses, including staff shortages, increased workloads, and the imperative to optimize patient care amidst evolving healthcare landscapes. It emphasized the development and implementation of structured nursing workflow improvement plans as a

pragmatic approach to enhance efficiency, alleviate staff overload, and ultimately foster a more supportive and productive work environment within inpatient settings. Exploring the issues that nurses faced during their professional practice supported the development of protocols and plans to improve their preparedness (Thobaity & Alshammari, 2020).

METHODOLOGY

The study employed a descriptive-correlational design within a quantitative framework. The descriptive aspect systematically profiled nurses in terms of age, years of experience, unit assignment, shift schedule, nurse-to-patient ratio, and their perceived workload and workflow efficiency, without manipulating variables ([Gray et al., 2021]). Complementing this, the correlational aspect examined how demographic factors related to workload and efficiency, and whether significant relationships existed between the two. This approach, widely used in nursing research, allowed for the identification of associations and potential predictors without inferring causation (Polit & Beck, 2021). The design was particularly appropriate for uncovering patterns that could inform staffing, scheduling, and workflow interventions, while also supporting Maslach's burnout model, which links occupational stressors to measurable psychological outcomes. It was conducted at Al Salama Hospital in Jeddah, Saudi Arabia, a multidisciplinary inpatient healthcare institution providing services across various clinical departments. The target population included all registered nurses assigned to inpatient care units such as the intensive care unit (ICU), medical-surgical wards, and pediatric units during the first semester of Academic Year 2024–2025. As frontline providers directly involved in patient care delivery, these nurses were considered appropriate respondents for assessing perceptions of workload and workflow efficiency. To ensure proportional representation of participants across different inpatient units, a stratified random sampling technique was employed.

To gather the required data, a self-structured questionnaire was developed as the primary research instrument. The tool was designed to measure nurses' perceived workload and workflow efficiency in inpatient settings and consisted of five parts: demographic profile (age, years of experience, unit assignment, shift schedule, and nurse-to-patient ratio), perceived workload (adapted from the emotional exhaustion dimension of the Maslach Burnout Inventory), perceived workflow efficiency (task management, transitions, timeliness of care), interplay between workload and workflow (staffing, burnout, effectiveness), and strategies for improvement. Sections two through four employed a five-point Likert scale ranging from "strongly disagree" to "strongly agree" to facilitate standardized quantitative analysis. Developed from relevant literature and validated by experts, the instrument ensured clarity, appropriateness, and suitability for descriptive and correlational analysis that could guide nursing management strategies and policies.

The data gathering procedure was carefully structured to maintain rigor and address ethical considerations. Ethical approval was obtained from the appropriate institutional review board before data collection commenced, and informed consent was secured from all participants. Questionnaires were then distributed to selected inpatient units, either through email or as paper-based forms, and were designed to assess essential domains such as work pressure, job satisfaction, perceived stress, and patient outcomes. To protect privacy, all data were anonymized, safeguarded, and stored securely throughout the research process.

The statistical treatment of the data combined descriptive and inferential analyses. Demographic characteristics such as age, years of experience, unit assignment, shift schedule, and nurse-to-patient ratio were summarized using frequencies, percentages, means, and standard deviations. Perceived workload and workflow efficiency were similarly analyzed through mean scores and standard deviations. Inferential methods were applied to test relationships among variables: Pearson's correlation examined associations between workload and workflow efficiency, as well as with continuous demographics, while one-way ANOVA and independent t-tests compared categorical groups. For cases where normality assumptions were not met, non-parametric alternatives such as

Spearman's rank correlation were employed to ensure validity. A significance level of $p < 0.05$ was used as the basis for interpretation.

Finally, the study adhered strictly to ethical standards to ensure participant safety and data integrity. It was conducted in accordance with the Declaration of Helsinki, the Philippine Data Privacy Act of 2012 (R.A. 10173), and the Implementing Rules and Regulations of the National Privacy Commission. Ethical approval was granted by the Institutional Research Ethics Committee of Al Salama Hospital in coordination with the researcher's academic institution. Participants were fully informed about the study's purpose, procedures, risks, and benefits, and written informed consent was obtained prior to their participation. Data confidentiality was safeguarded through password-protected electronic files and securely locked storage for physical records, which will be retained for five years before disposal.

RESULTS AND DISCUSSION

The results of this study highlighted several important patterns in the demographic composition and work experiences of nurses in the inpatient settings. Most respondents were mid-career professionals aged 30-39, a stage associated with consolidated clinical skills, adaptability, and receptiveness to workflow innovations such as electronic health records and telehealth integration ([Sanches et al., 2024]; [Tiase et al., 2023]; [Vilendrer et al., 2022]). Younger nurses contributed enthusiasm, digital fluency, and openness to change but required structured mentorship and guided exposure to complex cases to ensure safe practice (Waterfield & Barnason, 2022; [Ivziku et al., 2021]). In contrast, senior nurses, though fewer, provided invaluable expertise, institutional knowledge, and mentorship that helped stabilize workflows and integrate theory with practice ([Rababa et al., 2022]; [Soodmand et al., 2022]). This workforce profile suggested strong potential for adaptability but also highlighted the need for intentional mentorship and knowledge transfer from experienced nurse practitioners.

Work experience further shaped nursing practice. The majority of the nurses in inpatient settings had more than a decade of professional practice, enabling them to provide stability, leadership, and support for less experienced colleagues. Mid-career nurses showed both competence and adaptability, positioning them as effective contributors to workflow improvement initiatives ([Sanches et al., 2024]). Early-career nurses, on the other hand, required stronger supervision, workload regulation, and role modeling to develop competence and confidence ([Ivziku et al., 2021]). Together, the age and work experience profiles of the nursing workforce revealed a strong capacity for innovation and quality care, provided mentorship and workload equity were sustained.

In addition, in terms of work assignments, most nurses were concentrated in high-demand and high-acuity units such as the Emergency Department, Medical-Surgical Ward, Pediatrics, and Intensive Care Units. These environments required rapid decision-making, constant coordination, and resilience in managing unpredictable workloads, which contributed to elevated stress and burnout risks ([Gao et al., 2020]; [Ivziku et al., 2021]). Specialized units, although fewer in staff, required highly specific skills and precise adherence to structured workflows, further illustrating the diversity of demands across inpatient settings (Nuamah & Mehta, 2020). This indicated the necessity of tailoring workflow strategies and staffing policies to the unique demands of each clinical environment.

Scheduling practices also influenced nursing experiences. The majority worked rotational shifts, which provided 24-hour coverage but disrupted circadian rhythms, decreased continuity of care, and compromised workflow stability (Silva & Gáspár, 2024; [Gao et al., 2020]). Day shifts tended to be the busiest, with scheduled procedures and greater administrative demands, while night shifts were associated with reduced staffing, sustained monitoring, and heightened fatigue ([Ivziku et al., 2021]; [Boeck et al., 2020]). These results

suggested that shift variability compounded workload intensity, reinforcing the need for evidence-based scheduling systems and adequate rest periods.

Workload was further shaped by nurse-to-patient ratios. The most common ratio of one nurse to four patients aligned with general ward standards but became burdensome when patient acuity was high ([Gharbi et al., 2024]). Higher ratios were linked to burnout and decreased care quality (Silva & Gáspár, 2024), while lower ratios in intensive care improved patient safety but demanded advanced skills and sustained vigilance, which could also contribute to fatigue ([Rababa et al., 2022]). These findings underscored the importance of aligning staffing ratios with patient acuity rather than fixed numerical targets.

Despite these pressures, nurses in the inpatient settings generally perceived their workflow efficiency as high. Organized routines, minimized redundancies, and structured documentation supported timely care delivery ([Vilendrer et al., 2022]; [Tiase et al., 2023]). However, handover and task transitions remained points of vulnerability, consistent with earlier studies emphasizing the risks of miscommunication during care transitions ([Leary et al., 2023]). The coexistence of very high workload and high workflow efficiency suggested that nurses sustained productivity under pressure but at the cost of increased strain, highlighting the need for targeted process refinements.

Statistical analyses confirmed that workload and workflow efficiency were significantly shaped by years of experience, shift scheduling, and patient load, while age and unit assignments showed limited influence. This suggested that organizational structures, rather than demographic characteristics, were the strongest determinants of nursing efficiency. Most notably, a moderate negative correlation demonstrated that higher workload directly reduced workflow efficiency, affirming that the two dimensions are closely interlinked. Efforts to improve one without addressing the other would likely have limited effects, underscoring the importance of integrated workforce policies (Silva & Gáspár, 2024; [Arruum et al., 2024]).

The proposed Workflow Optimization Program offered a holistic response by combining structural measures, such as communication protocols, role clarification, and technology training, with psychosocial supports, including wellness workshops, peer support, and resilience-building activities. Its phased approach, from standardizing communication to promoting continuous improvement, ensured that interventions were comprehensive, sustainable, and nurse-centered ([Chowdhury et al., 2024]). By aligning operational efficiency with staff well-being, the program demonstrated how integrated strategies could reduce errors, prevent burnout, and safeguard patient safety in inpatient care.

In conclusion, since workload was generally influenced by work experience, shift schedules, and patient load, balancing staffing and optimizing schedules are essential to sustaining nurse well-being and patient safety. To address these challenges, the Workflow Optimization Program (NURSE-OPT) is recommended, emphasizing routine workflow assessments, balanced staffing ratios, interdisciplinary collaboration, and active nurse participation in identifying bottlenecks. Nursing education and training should also integrate workflow management, while healthcare leaders and policymakers must support the program through adequate resources, policy development, and continued evaluation, ensuring long-term improvements in efficiency and care quality.

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