International Journal of Computer Information Systems and Industrial Management Applications
ISSN 2150-7988 Volume 18(16s) 2026 pp. 405-413
https://doi.org/10.70917/ijcisim-2026-4590
Article

Nursing Workload and Staffing Adequacy as Healthcare Workforce Management Factors Associated with Missed Nursing Care among Registered Nurses in Chennai

M. Meghalakshmi[1], M. Radhikaashree[2]

[1]Faculty of Management Studies, Dr. M.G.R. Educational and Research Institute (Deemed to be University), Chennai, Tamil Nadu, India.
Email: Meghalakshmi99@gmail.com
[2]Faculty of Management Studies, Dr. M.G.R. Educational and Research Institute (Deemed to be University), Chennai, Tamil Nadu, India.
Email: Radhikaashree.mba@drmgrdu.ac.in

Abstract: Missed nursing care is an important concern in healthcare because omissions or delays in essential nursing activities may affect patient safety and quality of care. Regarding nursing workload and nurses' ability to perform required care activities, it is known that nursing workload is an important factor that may affect their ability to perform nursing care, but research findings have been inconsistent on the relationship between nursing workload and missed nursing care. This study set out to determine if the staffing level for nurses and the amount of work they have is predictive of missed nursing care by registered nurses. The research design used was quantitative, cross sectional, predictive correlational. Structured online questionnaire with Google forms was used for data collection and snowball sampling technique was used. The National Aeronautics and Space Administration Task Load Index (NASA-TLX), an eight-item Staffing Adequacy Scale and a 22-item MISSCARE Survey were used to assess the nursing workload, staffing adequacy and missed nursing care, respectively. One hundred and one responses were received, and 100 of these were complete responses that were analyzed. Data is analyzed by descriptive statistics, Pearson correlation and multiple linear regression software package IBM SPSS Statistics version 16.0. The results indicated that neither nursing workload nor staffing adequacy were significantly associated with the missed nursing care ($\beta = 0.105$, $p = 0.275$; $\beta = 0.377$, $p < 0.001$). The positive regression coefficient meant that reduced perceived staffing adequacy was related to increase missed nursing care given that higher scores on the Staffing Adequacy Scale represented poorer perceived staffing adequacy. Goodness of fit of the regression model was revealed by $R^2 = 0.143$ ($p = 0.001$), explaining 14.3% of the variance in missed nursing care. The results indicate the need for sufficient staffing in order to provide the necessary nursing care in a timely manner and that staffing conditions may contribute more than just the perception of workload. Improving staffing levels and planning for staffing needs may also help to enhance the quality of nursing care and safety of patients.

Keywords: Nursing workload, Staffing adequacy, Missed nursing care, Registered nurses, Patient safety, Nursing care quality.

1. INTRODUCTION

In health care, missed nursing care is a very important problem when nurses are not able to carry out the demands of patient care, then important aspects of nursing care can be delayed, partially completed or completely missing. Delayed or missed care can impact the quality and safety of nursing care, and can influence patient outcomes. The following factors have been previously identified as being associated with missed nursing care: nursing workload, staffing conditions, patient acuity, communication, teamwork and work environment.

One of the important factors which may influence the provision of nursing care is the workload of the nurse. Nurses have to perform multiple tasks, which include direct care, medication administration, patient surveillance, documentation, patient education, communication with patients and other health care providers and coordination of treatment. The demands may exceed the time and resources available to nurses and some care activities may be delayed or not performed. But some studies have found that nursing workload is not connected with missed nursing care. Others have identified significant relationships between workload and missed nursing care, while others have reported no relationship between workload and missed nursing care, and that organizational or psychological factors may affect the relationship.

More staffing is another factor that can influence the delivery of nursing care in an organization. Staffing enables nurses to make suitable assignments, to address the varying needs of patients, to seek the assistance necessary and to undertake basic nursing activities. But poorly staffed units may result in higher time pressures and lower capacity to deliver comprehensive nursing care. Past studies as well as studies conducted in the Indian context and other health care settings have identified a lack of staff, higher patient volume, patient acuity, and inadequate support staff as significant contributors to poor nursing care.

When working from a healthcare management viewpoint, the issue of staffing needs and workload comes into play with regard to human resource management and workforce planning. The role of hospital management, nursing administration, and human resource management is important in determining the needs for staffing, distributing nursing staff based on patient-care needs, distributing workloads appropriately, and effective utilization of available human resources. The right staffing and workload management can enable nurses to handle the demands of patient care more effectively, and minimize risk of delayed or missed care activities. Knowing the relationship between workload, staffing level and the amount of missed nursing care can be useful information for healthcare organizations to enhance workforce planning and staff allocation, and quality management.

Thus, more research is required to explore the impact of nursing workload, staffing levels and missed nursing care. The workload reflects the demands placed on the nurse and staffing adequacy reflects the availability of adequate nursing staff and resources to meet the demands. Together, these two factors may offer a more complete picture of the organizational factors linked to missed nursing care than workload.

Although, few international studies have been conducted to explore this phenomenon of missed nursing care, limited evidence study done in the Indian context on the combined predictive role of nursing workload and staffing adequacy. Previous studies have yielded inconsistent results on the direct link between workload and missed nursing care, too. The gaps indicated that further research is warranted in the Indian nursing environment to identify the factors contributing to the missed nursing care and for evidence-based nursing workforce planning, staff allocation, and nursing resource management.

It is essential for the nursing administrator and hospital manager to be aware of these relationships to take steps to reduce missed nursing care, quality of nursing care, and patient safety. The results could also help hospital management and human resource staff to make evidence-based decisions about allocation of resources, workload distribution and workforce planning. Therefore, the present study was designed to find out the relationship between the variables nursing workload, staffing adequacy and missed nursing care among the registered nurses working in Chennai.

2. OBJECTIVES

General objective:

- To assess whether there is a relationship between the nursing workload and staffing adequacy with the occurrence of missed nursing care among the registered nurses in the Chennai city.

Specific objective

- To assess the levels of nursing workload, staffing adequacy, and missed nursing care among registered nurses.
- To examine the relationships between nursing workload, staffing adequacy, and missed nursing care among registered nurses.
- To determine whether nursing workload and staffing adequacy significantly predict missed

nursing care among registered nurses.

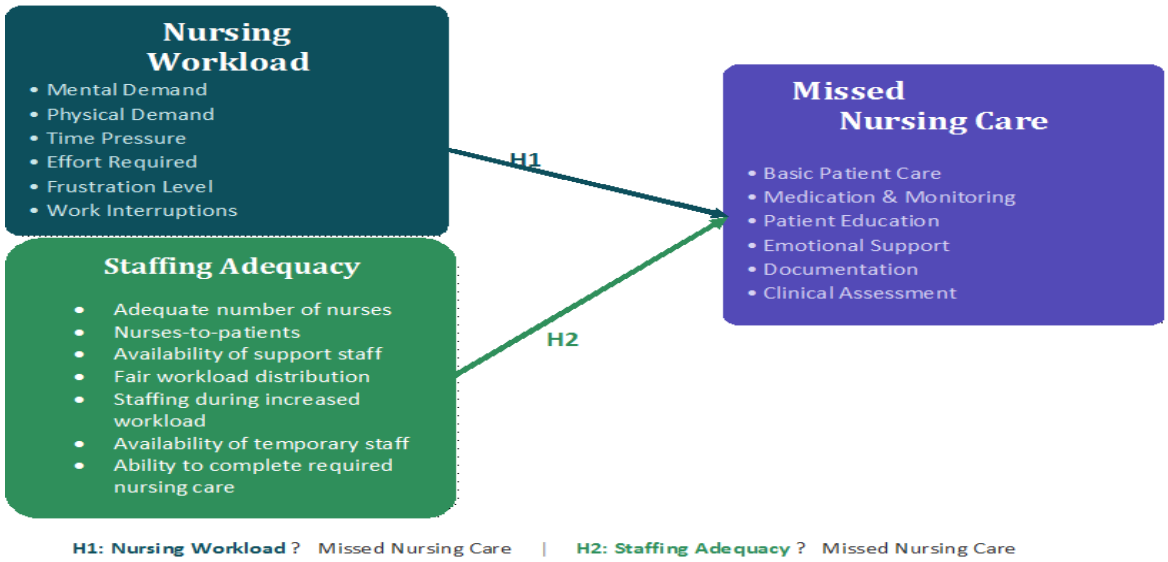
HYPOTHESIS

H1: Nursing workload significantly predicts missed nursing care among registered nurses.

H2: Staffing adequacy significantly predicts missed nursing care among registered nurses

3. CONCEPTUAL FRAMEWORK

The conceptual framework proposes that nursing workload and staffing adequacy are independent variables that directly predict missed nursing care, the dependent variable.



Illustrated figure: 1 conceptual framework of the study source: own

4. LITERATURE REVIEW

Previous studies have reported inconsistent findings regarding the relationship between nursing workload and missed nursing care. Safdari et al. (2025) reported a non-significant positive correlation between workload and missed nursing care for intensive care nurses while Tubbs-Cooley et al. (2025) reported a significant positive correlation between subjective workload and missed nursing care for neonatal intensive care nurses. Wang et al. (2025) also determined that the perceived workload did not directly impact missed nursing care, but may have influenced it via psychological factors. However, Esmaeili et al. (2026) found a very strong correlation between workload and missing nursing care among emergency department nurses and work interruption was a part of this correlation. These results suggest that the relationship of workload to missed nursing care may differ by setting and other organizational factors.

Another factor identified as related to nursing care missed was staffing levels. A higher staffing ratio was associated with fewer missed nursing care incidents in ICUs, Caillet et al. (2025) found. In India, Mandal and Seethalakshmi (2023) found that a lack of sufficient staffing during periods of heavy workload was an important factor responsible for the omission of nursing care. A systematic review conducted by Monalisa et al. (2023) showed that staffing inadequacy was one of the most common factors related to missed nursing care, and Al-Sawad et al. (2026) revealed that labour resource inadequacy was a significant factor for the increase in missed nursing care.

Overall the literature indicates that staffing levels are highly associated with the provision of nursing care that is not performed, and studies of the direct impact of nursing workload vary. There is inadequate evidence from India, especially from the South Indian states and Tamil Nadu. The present study therefore investigates the nursing workload and nursing staffing ratio as a combined predictor for the occurrence of missed nursing care amongst registered nurses.

5. RESEARCH METHODOLOGY

Research Design: A quantitative, cross sectional and predictive correlation research design was used to investigate the relationship between nursing workload and staffing adequacy with the occurrence of missed nursing care among registered nurses.

Study Setting: The study was conducted among registered nurses working in government and private hospitals in Chennai, India. Data were collected from June 2026 to August 2026.

Study Population: The study population included Registered Nurses who involved in direct patient care in hospital settings at Chennai city.

Sample Size: The sample size calculated was 153 registered nurses. 100 complete answers were received from a total of 101 responses.

Sampling Technique: Registered nurses were recruited using a snowball sampling technique. Nurses were approached first through a hospital where institutional permission was obtained, and then the participating nurses referred other eligible nurses via their networks.

Inclusion Criteria

- A Registered Nurse having GNM, B.Sc. Nursing, Post Basic B.Sc. Nursing or M.Sc. Nursing.
- Existing nurses who are directly caring for patients.
- Nurses who will participate voluntarily and give informed consent

. **Exclusion Criteria**

- Nursing students and interns.
- Nurses who work only as nurses in administration or management.
- Nurses on long-term leave.

Study Variables: Independent variables are: Nursing workload and Staffing adequacy. The outcome variable is Missed nursing care.

Data Collection Instrument: The questionnaire was conducted online using Google Forms and comprised four parts: Demographic information (6 items); NASA Task Load Index (NASA-TLX) for nursing workload (6 items: Mental Demand, Physical Demand, Temporal Demand, Performance, Effort, Frustration); Self-developed Staffing Adequacy Scale (8 items); and the Missed Nursing Care Survey (MISSCARE Survey) (22 items) developed by Kalisch & Williams (2009). The study instruments used Likert-type response scales to measure nursing workload, staffing adequacy, and missed nursing care.

Ethical Considerations: Prior to the data collection, permission to conduct the study was taken from the Department of Management Studies, Dr. M.G.R. Educational and Research Institute, Chennai. There was no compulsion to participate and informed consent was obtained electronically from all participants. All responses were anonymous and confidential and no data was collected that could identify any individual.

Statistical Analysis: The data has been analyzed by IBM SPSS Statistics version 16.0. Cronbach's alpha, Descriptive statistics, Pearson's correlation and multiple linear regression analysis were used. The statistical significance of the p-value was set at < 0.05.

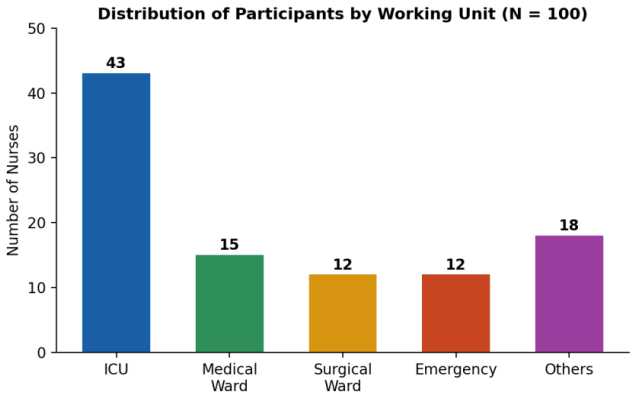
6. DATA ANALYSIS AND INTERPRETATION

Demographic Characteristics

Table 1. Demographic Characteristics of Respondents (N = 100)

Characteristic	Category	n (%)
Age (years)	18–25	53 (53%)
	26–35	44 (44%)

	36–45	3 (3%)
Gender	Male	10 (10%)
	Female	88 (88%)
	Prefer not to say	2 (2%)
Qualification	GNM	20 (20%)
	B.Sc. Nursing	68 (68%)
	Post Basic B.Sc.	3 (3%)
	M.Sc. Nursing	4 (4%)
	Other	5 (5%)
Experience	<1 year	21 (21%)
	1–5 years	65 (65%)
	6–10 years	12 (12%)
	>10 years	2 (2%)
Hospital Type	Government	7 (7%)
	Private	93 (93%)
Working Unit	ICU	43 (43%)
	Medical	15 (15%)
	Surgical	12 (12%)
	Emergency	12 (12%)
	Others	18 (18%)
Position	Staff Nurse	66 (66%)
	Senior Staff Nurse	25 (25%)
	Other	9 (9%)



Illustrated Figure 2. Distribution of participants by working unit

Most respondents were young female nurses (18-35 years) who have completed a B.Sc. Nursing qualification with 1–5 years of clinical experience. The majority worked in private hospitals, with the highest number of staff in the ICU, with the majority being Staff Nurses.

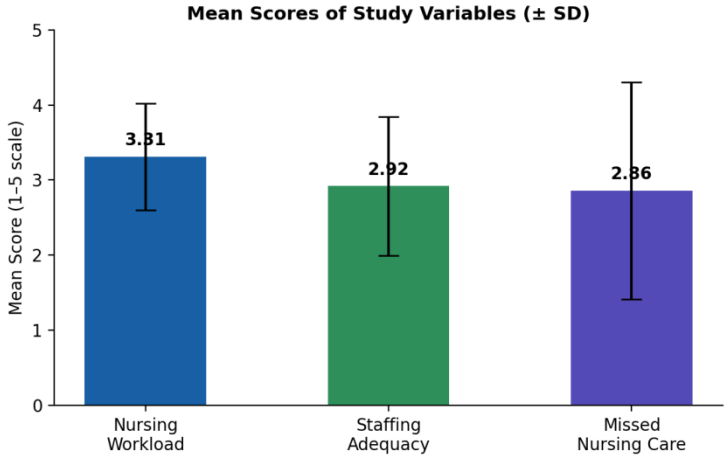
Reliability of the Study Instruments

Variable	Cronbach's α
Nursing Workload	0.862
Staffing Adequacy	0.934
Missed Nursing Care	0.991

Internal consistency for all three instruments was good to excellent.

Descriptive Statistics

Variable	N	Mean	SD	Min	Max
Nursing Workload	100	3.31	0.712	1.33	5.00
Staffing Adequacy	99	2.92	0.922	1.25	5.00
Missed Nursing Care	100	2.86	1.445	1.00	5.00



Illustrated figure 3. Mean Scores Of Study Variables (± Sd)

Correlation Analysis

Variable	Nursing Workload	Staffing Adequacy
Missed Nursing Care	r = .065, p = .522	r = .363, p < .001**
Staffing Adequacy	r = -.133, p = .190	—

There was no significant association between nursing workload and missed nursing care. A significant positive correlation was found with staffing adequacy and missed nursing care.

Multiple Linear Regression Analysis

Predictor	β	t	p
Nursing Workload	0.105	1.097	0.275
Staffing Adequacy	0.377	3.956	<0.001

The regression model was statistically significant and explained 14.3% of the variance in missed nursing care ($R^2 = 0.143$, $p = 0.001$). Staffing adequacy significantly predicted missed nursing care, whereas nursing workload was not a significant predictor.

Hypothesis Testing

Hypothesis	Result
H1: Nursing workload predicts missed nursing care	Not supported
H2: Staffing adequacy predicts missed nursing care	Supported

7. FINDINGS AND SUGGESTIONS:

Major Findings:

The present study revealed that nursing workload in registered nurses was perceived as moderately high (Mean score 3.31, SD 0.712), and staffing adequacy in registered nurses was perceived as moderately low (Mean score 2.92, SD 0.922) with disparity in perceptions of staffing adequacy in different individuals of the same job category.

Nursing workload was not a statistically significant predictor of missed nursing care ($\beta = 0.105$, $p = 0.275$), suggesting that being overworked is not a reason for missed nursing care in this sample. Poorer perceived staffing adequacy, on the other hand, significantly predicted higher levels of missed nursing care ($\beta = 0.377$, $p < 0.001$), suggesting that staffing is a more influential factor of the two examined. Nursing workload combined with staffing explained 14.3% of the variance in missed nursing care ($R^2 = 0.143$, $p = 0.001$), indicating that some aspects of missed care are not captured by this model. Based on this, H1 was not supported, H2 was supported.

Suggestion:

Hospital leaders, nursing managers, and human resource managers need to focus on managing staffing needs through regular assessment of nursing workload, which was identified as an important factor, independent of nursing workload. Workforce planning should be consistent with the needs of patients in care to make sure the right number of nursing staff is in place in each unit, not just to redistribute workload.

The nurse to patient ratio and staff distribution should be reviewed periodically to ensure fair and equitable distribution of nursing resources in the hospital units. Proper planning of the workforce and deployment of appropriate staff can aid management in determining staffing shortages and staffing appropriate to patient care needs.

The management of missed nursing care should be a routine indicator of care quality improvement by the nursing administration and hospital administration. Staffing allocation and nursing resource management gap can be identified through regular monitoring and corrective measures can be taken in advance to mitigate the negative impact it would have on care and safety for patients.

Lastly, results should be considered with caution due to the small, non-probability sample and the unexplained variance in missed nursing care. Further investigation is warranted with larger, probability-based samples as well as

the investigation of other HR and organizational concerns such as staff experience, unit type, organizational support, workforce planning, and staff allocation. It is also suggested that the self-developed Staffing Adequacy Scale be further validated in other health care settings.

8. CONCLUSION

In the present study, staffing adequacy was found to be one of the important factors associated with missed nursing care among registered nurses; however, the study did not find that nursing workload alone was predictive of the missed nursing care. The results show that the nursing staff can be an important factor in providing appropriate and timely nursing care when there are sufficient nursing staff and appropriate distribution of patient care responsibilities.

The study highlights the need for continuous workforce planning and staffing according to patient needs, patient acuity and the changing service demands. Nurse managers, human resource managers, and hospital administrators all have a crucial role to play in staff allocation, nurse to patient assignment, workload distribution, and in effective utilization of nursing resources. Enough attention to nursing care and ongoing review of nursing care provided can help improve the quality and safety of nursing care.

While workload is a significant part of nursing activities, the results indicate that workload is not the only factor to be taken into consideration in relation to missed nursing care. Staffing resources, workforce planning, staff allocation, team working, communication, leadership and the organizational nursing practice environment can also affect the delivery of care. An integrated approach to healthcare workforce management, therefore, may be needed to facilitate effective nursing care.

In general, by managing staffing, allocating staff members and utilizing nursing resources effectively, we can reduce missed nursing care and improve the quality of patient care. Further research should study more factors related to the human resources and organizational factors that were found to be linked with missed nursing care, as well as validate the Staffing Adequacy Scale in other health care settings using larger and more representative samples.

Reference

1. Monalisa, Syukri, M., Yellyanda, & Bettywati Eliezer, T. (2023). Factors involved in missed nursing care: A systematic review. Journal of Client-Centered Nursing Care, 9(2), 89–102. https://doi.org/10.32598/JCCNC.9.2.418
2. Kalisch, B. J., & Williams, R. A. (2009). Development and psychometric testing of a tool to measure missed nursing care. Journal of Nursing Administration, 39(5), 211–219.
3. Donabedian, A. (1988). The quality of care: How can it be assessed? JAMA, 260(12), 1743–1748. https://doi.org/10.1001/jama.1988.03410120089033
4. Gong, F., Mei, Y., Wu, M., & Tang, C. (2025). Global reasons for missed nursing care: A systematic review and meta-analysis. International Nursing Review. Advance online publication. https://doi.org/10.1111/inr.13096
5. Heng, L. M. T., Rajasegeran, D. D., See, A. M. T., Kannusamy, P., Lim, S. H., Aloweni, F. B. A. B., & Ang, S. Y. (2023). Nurse-reported missed care and its association with staff demographics and the work environment. AJN, American Journal of Nursing, 123(9), 28–36. https://doi.org/10.1097/01.NAJ.0000978144.33445.5b
6. Imam, A., Obiesie, S., Gathara, D., Aluvaala, J., Maina, M., & English, M. (2023). Missed nursing care in acute care hospital settings in low-income and middle-income countries: A systematic review. Human Resources for Health, 21(19). https://doi.org/10.1186/s12960-023-00807-7
7. He, W., Yuan, H., Luo, W., Hou, M., Liu, M., Xue, H., & Zhang, X. (2025). The relationship between different missed care activities and patient outcomes: A systematic review. International Journal of Nursing Studies, 171, 105183. https://doi.org/10.1016/j.ijnurstu.2025.105183
8. Nantsupawat, A., Poghosyan, L., Wichaikhum, O.-A., Kunaviktikul, W., Fang, Y., Kueakomoldej, S., Thienthong, H., & Turale, S. (2022). Nurse staffing, missed care, quality of care and adverse events: A cross-sectional study. Journal of Nursing Management, 30(2), 447–454. https://doi.org/10.1111/jonm.13501
9. Tubbs-Cooley, H. L., Carle, A. C., Mark, B. A., et al. (2025). Nurse workload and missed nursing care in neonatal intensive care units. JAMA Pediatrics, 179(12), 1335–1342. https://doi.org/10.1001/jamapediatrics.2025.3647
10. Caillet, A., Dauvergne, J. E., Poiroux, L., Blanchard, P. Y., & Bruyneel, A. (2025). Analysis of the prevalence of missed nursing care using three workload assessment methods: A nationwide cross-sectional study among intensive care nurses. Nursing in Critical Care, 30, e70055. https://doi.org/10.1111/nicc.70055
11. Wang, L., Huang, Q., Zhang, Y., Liu, J., & Chen, C. (2025). The impact of perceived workload on nurse presenteeism and missed nursing care: The mediating role of emotional intelligence and occupational stress. BMC Nursing, 24, 863. https://doi.org/10.1186/s12912-025-03533-8
12. Zeleníková, R., Jarošová, D., Mynaříková, E., Janíková, E., & Plevová, I. (2023). Inadequate number of staff and other reasons for implicit rationing of nursing care across hospital types and units. Nursing Open, 10, 5589–5596. https://doi.org/10.1002/nop2.1802

13. Travis, A., & Fitzpatrick, J. J. (2025). Examining the relationship between hospital nurses' structural empowerment, missed nursing care and quality of care: A cross-sectional study. Journal of Clinical Nursing. Advance online publication. https://doi.org/10.1111/jocn.17816
14. Cartaxo, A., Mayer, H., Eberl, I., & Bergmann, J. M. (2024). Missing nurses cause missed care: Is that it? Non-trivial configurations of reasons associated with missed care in Austrian hospitals — A qualitative comparative analysis. BMC Nursing, 23, 282. https://doi.org/10.1186/s12912-024-01923-y
15. Dursun Ergezen, F., Çiftçi, B., Yalın, H., Geçkil, E., Korkmaz Doğdu, A., İlter, S. M., Terzi, B., Kol, E., Kaşıkçı, M., & Ecevit Alpar, Ş. (2023). Missed nursing care: A cross-sectional and multi-centric study from Turkey. International Journal of Nursing Practice, 29(6), Article e13187. https://doi.org/10.1111/ijn.13187
16. Babaii, A., Rooholamin, M., Khoramirad, A., Mohammadbeigi, A., & Abbasinia, M. (2025). The association of nursing workload and patient safety competency of nurses with missed nursing care in emergency department: A cross-sectional analytical study. Heliyon, 11(16), e44077. https://doi.org/10.1016/j.heliyon.2025.e44077
17. Mandal, L., & Seethalakshmi, A. (2023). Experience of missed nursing care: A mixed method study. Worldviews on Evidence-Based Nursing, 20(4), 270–279. https://doi.org/10.1111/wvn.12653