



Analysis of Factors Influencing the Productivity of Inpatient Nurses at Mitra Medika Premiere Hospital

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<p>Track Record Article</p> <p>Accepted: 5 September 2024 Revised: 15 November 2024 Published: 30 December 2024</p> <p>How to cite : Nasution, A. F., Ginting, C. N., & Nasution, A. N. (2024). Analysis of Factors Influencing the Productivity of Inpatient Nurses at Mitra Medika Premiere Hospital. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 6(2), 1560–1573.</p>	<p style="text-align: center;">Abstract</p> <p><i>The productivity of nurses, being the frontline of healthcare services, is a crucial issue for maintaining and enhancing the quality of healthcare services. High productivity of nurses serves as a bridge to ensure the quality of healthcare services provided to both sick and healthy patients. This study aims to analyze the factors that influence the productivity of inpatient nurses at Mitra Medika Premiere Hospital. This research is an observational analytic study with a cross-sectional design. The study was conducted at Mitra Medika Premiere Hospital from November 2023 to March 2024. The population consists of all inpatient nurses at Mitra Medika Premiere Hospital, totaling 70 nurses, and the sample size is also 70 nurses. The sampling technique employed was total sampling. Data collection was done using primary data obtained from respondents through questionnaires. The data analysis consisted of three stages: univariate analysis using frequency, bivariate analysis using chi-square tests, and multivariate analysis using multiple logistic regression tests with a 95% significance level ($\alpha = 0.05$). The results of the study indicate that the factors influencing the productivity of inpatient nurses at Mitra Medika Premiere Hospital are gender (p-value=0.036; $ExpB=3.094$), working hours (p-value=0.001; $ExpB=17.832$), and workload (p-value=0.012; $ExpB=5.743$). Gender, working hours, and workload significantly contribute to the productivity of inpatient nurses at Mitra Medika Premiere Hospital. The most dominant factor influencing the productivity of inpatient nurses is working hours. Recommendations for Hospital include reducing working hours, as shorter working hours can enhance concentration and motivation, thereby increasing nurse productivity. Additionally, reducing tasks and responsibilities can alleviate the workload of nurses</i></p> <p>Keywords: Inpatient, Nurses, Productivity</p>
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INTRODUCTION

Hospitals are intricate healthcare facilities that serve a crucial function in the community. One of the key human resources in these institutions is the nursing staff, who ensure continuous patient care 24/7 (Peraturan Menteri Kesehatan Republik Indonesia, 2018). To deliver high-quality nursing care, nurses must maintain professionalism and follow established standards, prioritizing patient-centered and holistic services (Baek et al., 2023). Providing care with dedication requires nurses to exhibit attentiveness, expertise, technical proficiency, and strong interpersonal skills (Nasution, 2021).

Nurse competence plays a crucial role in ensuring high-quality services of healthcare, requiring nurses to consistently exhibit professionalism, agility, expertise, and readiness in patient care (Yulidar et al., 2019). As primary healthcare providers, nurse productivity is an essential factor that must be evaluated to maintain and improve service quality (Kasper et al., 2023; Opeyemi et al., 2024). Optimal nurse productivity serves as a key connector in upholding the quality of healthcare services for both sick and healthy patients (Oktaviani et al., 2019).

The quality of nursing care is largely influenced by nurse productivity in providing high-standard care to patients and their families (Alshammari et al., 2023). Nursing care is essential in improving overall healthcare service quality, with nurse productivity serving as a crucial indicator of its effectiveness in patient and family care (Wahyudi & G, 2019; Kurniawan et al., 2023).

Several factors can impact the quality of care and nurse productivity, including an imbalance between the nurses and patients number (Rony et al., 2023). This discrepancy may lead to a decrease in both care quality and nurse efficiency (Ashipala & Nghole, 2022). Similarly, excessive workloads can lower nurse productivity, adversely affecting healthcare services (Thapa et al., 2022). Nurse shortages and high workloads have emerged as significant challenges in hospitals, particularly in inpatient settings.

Multiple studies have identified various factors affecting nurse productivity. Research by Emulyani et al. (2021) emphasized that work experience plays a crucial role in determining productivity. Research by Qurrotu'aini et al. (2023) found that work stress, workload, and patient satisfaction influence productivity levels. Meanwhile, research by Kurniawan et al. (2023) reported that motivation, training, work environment, and salary are significant factors impacting nurse productivity.

Mitra Medika Premiere Hospital, a Class C private hospital in Medan City, operates under RSU Mitra Medika and employs 184 nurses across various departments. The nursing staff adheres to a three-shift schedule, with each shift lasting 8 hours per day. According to the head of nursing, there has been a decline in both nurse performance evaluations and the number of patient visits at Mitra Medika Premiere Hospital. This decline is linked to decreased nurse productivity, leading to less optimal service delivery. This study aims to analyze the factors affecting the productivity of inpatient nurses at Mitra Medika Premiere Hospital.

METHODS

This study employs an analytic of observational approach with a cross-sectional design, conducted at Mitra Medika Premiere Hospital from March to May 2024. The study population consists of all 70 inpatient nurses at the hospital, with a total sampling technique applied, resulting in a sample size of 70 nurses. Data collection was carried out through questionnaire-based interviews. The workload assessment questionnaire comprised 16 questions, while the performance productivity questionnaire included 11 questions.

The data analysis process was conducted in three stages: (1) univariate analysis using frequency distribution, (2) analysis of bivariate with the chi-square test, and (3) analysis of multivariate through multiple logistic regression with a 95% confidence level ($\alpha = 0.05$). Ethical approval for this study was granted by the Prima Indonesia University Health Research Ethics Committee (No:038/KEPK/UNPRI/II/2024). Additionally, permissions were obtained from academic administrators and relevant authorities before data collection, and informed consent was secured from all respondents prior to questionnaire distribution.

RESULTS

The characteristics of inpatient nurses at Mitra Medika Premiere Hospital include age, gender, education, working hours, and work duration. The distribution of these characteristics is shown in the following Table:

Table 1. Distribution of Characteristics of Inpatient Nurses at Mitra Medika Premiere Hospital

Characteristics of Nurses	n	%
Age		
< 35 years	58	82.9
≥ 35 years	12	17.1
Gender		
Male	14	20.0
Female	56	80.0
Education		
Not Bachelor's Degree	34	48.6
Bachelor's Degree	36	51.4
Working Hours		
< 7 hours	44	62.9
≥ 7 hours	26	37.1
Work Duration		
< 1 year	37	52.9
≥ 1 year	33	47.1

According to table 1, the majority of inpatient nurses at Mitra Medika Premiere Hospital are under 35 years old, totaling 58 nurses (82.9%), while the remaining 12 nurses (17.1%) are over 35 years old. Female nurses comprise 56 individuals (80.0%), and male nurses make up the remaining 14 individuals (20.0%). There are 36 nurses (51.4%) with a bachelor's degree, while 34 nurses (48.6%) have not attained a bachelor's degree. A total of 44 nurses

(62.9%) work less than 7 hours, whereas 26 nurses (37.1%) work more than 7 hours. Nurses with a work duration of less than 1 year total 37 individuals (52.9%), while those with a work duration of more than 1 year total 33 individuals (47.1%).

The distribution of inpatient nurses workload at Mitra Medika Premiere Hospital is shown in the following Table:

Table 2. Distribution of Inpatient Nurses Workload at Mitra Medika Premiere Hospital

Workload	n	%
Light	28	40.0
Heavy	42	60.0
Total	70	100.0

According to table 2, the majority of inpatient nurses at Mitra Medika Premiere Hospital have a heavy workload totaling 42 nurses (60.0%), while the remaining 28 nurses (40.0%) have a light workload. The distribution of the performance productivity of inpatient nurses at Mitra Medika Premiere Hospital is shown in the following Table:

Table 3. Distribution of Performance Productivity of Inpatient Nurses at Mitra Medika Premiere Hospital

Performance Productivity	n	%
Good	35	50.0
Not good	35	50.0
Total	70	100.0

According to Table 3, the performance productivity of inpatient nurses at Mitra Medika Premiere Hospital is evenly distributed, with 35 nurses (50.0%) having good productivity and 35 nurses (50.0%) having not good productivity. The results of the relationship between nurse characteristics and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital can be seen in the following Table:

Table 4. Relationship Between Nurse Characteristics and Performance Productivity of Inpatient Nurses at Mitra Medika Premiere Hospital

Characteristics of Nurses	Performance Productivity of Nurses				Total		P value
	Good		Not Good		N	%	
	n	%	n	%			
Age							
< 35 years	31	44.3	27	38.6	58	82.9	0.341
≥ 35 years	4	5.7	8	11.4	12	17.1	
Gender							
Male	3	4.3	11	15.7	14	20.0	0.036
Female	32	45.7	24	34.3	56	80.0	
Education							
Not Bachelor's Degree	13	18.6	21	30.0	34	48.6	0.094
Bachelor's Degree	22	31.4	14	20.0	36	51.4	
Working Hours							
< 7 hours	28	40.0	16	22.9	44	62.9	0.007
≥ 7 hours	7	10.0	19	27.1	26	37.1	
Work Duration							
< 1 year	13	18.6	24	34.3	37	52.9	0.017
≥ 1 year	22	31.4	11	15.7	33	47.1	

According to Table 4, the relationship between age and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital shows that nurses under 35 years old have the highest proportion of good performance productivity at 44.3%, compared to nurses over 35 years old at 5.7%. The analysis of statistical yielded a p-value of 0.341 ($p\text{-value} > 0.05$), indicating no significant relationship between age and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital.

The relationship between gender and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital, female nurses have the highest proportion of good performance productivity at 45.7%, compared to male nurses at 4.3%. The analysis of statistical yielded a p-value of 0.036 ($p\text{-value} < 0.05$), indicating a significant relationship between gender and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital.

The relationship between education and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital, nurses with a bachelor's degree have the highest proportion of good performance productivity at 31.4%, compared to nurses without a bachelor's degree at 18.6%. The analysis of statistical yielded a p-value of 0.094 ($p\text{-value} > 0.05$), indicating no significant relationship between education and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital.

The relationship between working hours and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital shows that nurses working < 7 hours have the highest proportion of good performance productivity at 40.0%, compared to nurses working > 7 hours at 18.6%. The analysis of statistical yielded a p-value of 0.007 ($p\text{-value} < 0.05$), indicating a significant relationship between working hours and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital.

The relationship between work duration and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital, nurses with a work duration of > 1 year have the highest proportion of good performance productivity at 31.4%, compared to nurses with a work duration of < 1 year at 18.6%. The analysis of statistical yielded a p-value of 0.017 ($p\text{-value} < 0.05$), indicating a significant relationship between work duration and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital.

The results of the relationship between workload and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital can be seen in the following Table:

Table 5. Relationship Between Workload and Performance Productivity of Inpatient Nurses at Mitra Medika Premiere Hospital

Workload	Performance Productivity of Nurses				Total N	P value
	Good		Not Good			
	n	%	n	%		
Light	19	27,1	9	12,9	28	0,028
Heavy	16	22,9	26	37,1	42	

According to Table 5, the relationship between workload and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital shows that nurses with a light workload have the highest proportion of good performance productivity at 27.1%, compared to nurses with a heavy workload at 22.9%. The analysis of statistical yielded a p-value of 0.023 (p-value < 0.05), indicating a significant relationship between workload and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital.

The factors affecting the performance productivity of inpatient nurses at Mitra Medika Premiere Hospital were analyzed using multivariate analysis with multiple logistic regression. The final set of variables considered in the multivariate model is presented in the following Table:

Table 6. Factors Influencing the Performance Productivity of Inpatient Nurses at Mitra Medika Premiere Hospital

	Variable	B	Exp.B	95% CI for Exp B		Pvalue
				Lower	Upper	
Step 1	Gender	1,098	4,123	1,021	20,717	0,020
	Education	-0,660	0,517	0,122	2,180	0,369
	Working Hours	3,114	22,519	4,013	126,376	0,001
	Work Duration	-0,261	0,770	0,215	2,760	0,689
	Workload	1,681	5,370	1,337	21,571	0,018
Step 2	Gender	2,183	3,113	1,020	21,625	0,013
	Education	-0,670	0,511	0,121	2,170	0,363
	Working Hours	3,153	23,400	4,109	133,255	0,001
	Workload	1,749	5,749	1,466	22,539	0,012
Step 3	Gender	1,365	3,094	1,017	21,512	0,006
	Working Hours	2,881	17,832	3,692	86,131	0,001
	Workload	1,748	5,743	1,467	22,483	0,012

According to Table 6, the analysis identified two variables with p-values greater than 0.05: education and work duration, with work duration having the higher p-value. Consequently, both work duration and education were excluded from further modeling. After removing the work duration variable, the changes in Exp.B values for gender, working hours, and workload were less than 10%, leading to the exclusion of these variables as well.

The final multivariate analysis revealed that four independent variables significantly predict and influence the performance productivity of inpatient nurses at Mitra Medika Premiere Hospital: age, gender, working hours, and workload. Among these, the most

dominant factor impacting nurse productivity is working hours, which demonstrates an 18-fold effect on performance productivity.

DISCUSSION

The productivity of healthcare professionals, particularly nurses, is crucial in healthcare organizations, ensuring that job performance aligns with expected goals (Krijgsheld et al., 2022). Therefore, effective healthcare organizations, including well-managed hospitals, consistently evaluate work productivity to assess service effectiveness (Bahari et al., 2022; Zehir & Zehir, 2023).

This study indicates that the productivity of inpatient nurses at Mitra Medika Premiere Hospital remains below optimal levels, as reflected in self-assessments, where 50% of nurses rated their productivity as poor. The overall performance of Mitra Medika Premiere Hospital can be analyzed through various service dimensions, including nursing care delivery. Performance evaluation acts as a supervisory tool that compares actual performance against established standards, helping to shape employee behavior, enhance service quality, and maintain high standards of care.

These results align with the findings of Nurchalisa & Agustina (2023), who reported that non-productive nurses accounted for 75%, whereas only 25% were classified as productive. Similarly, a study by Manein et al. (2023) found that the productivity of inpatient nurses at RSUD Talaud was below standard, as their time management did not meet the expected productivity benchmarks for nurses.

The relationship between age and performance productivity among inpatient nurses at Mitra Medika Premiere Hospital showed a p-value of 0.341, indicating no significant correlation between age and performance productivity. This suggests that there is no notable difference in the productivity levels between younger and older nurses.

The absence of a significant relationship between age and nurse productivity may be due to the fact that older nurses generally have more experience and refined patient care skills, which improve over time and enhance efficiency (Hermansyah et al., 2022). On the other hand, younger nurses often bring enthusiasm and physical endurance to their roles (Kim & Chang, 2022). Different age groups also exhibit varying abilities in adapting to new technologies (Safrudin & Milkhatun, 2019). However, with proper training, this gap can be minimized, ensuring that all nurses, regardless of age, can effectively utilize the latest technologies (Yami et al., 2023).

These findings align with the research of Alkorashy & Alanazi (2023), which similarly found no significant association between nurse age and performance productivity in inpatient settings, indicating that productivity levels do not substantially differ between younger and older nurses.

At Mitra Medika Premiere Hospital, older inpatient nurses can sustain high productivity by maintaining physical fitness and a healthy lifestyle. Meanwhile, although younger nurses may have high energy levels, ineffective time management and insufficient skills can negatively impact their productivity. Work engagement plays a crucial role in performance productivity, regardless of age. Nurses who take responsibility for their patients and strive to provide quality care tend to exhibit high productivity, a principle that applies equally to both younger and older nurses.

The relationship between gender and the performance productivity of inpatient nurses at Mitra Medika Premiere Hospital showed a p-value of 0.036, indicating a significant association between gender and productivity. It is clear that gender influences the performance productivity of inpatient nurses at this hospital (p-value = 0.036; Exp.B = 3.094).

Gender is frequently considered a factor that may influence nurses' productivity (Durand et al., 2022). Male nurses tend to show higher productivity in completing clinical tasks and collaborating within teams, while female nurses excel in communication, empathy toward patients, and time management. Male nurses typically focus on technical tasks and efficiency, whereas female nurses are often stronger in interpersonal skills and patient care (Barnes & Boohene, 2024). Gender can also affect task allocation, with male nurses more likely to be assigned technical procedures, while female nurses are often engaged in patient care that requires empathy and communication (Masibo et al., 2024).

This study is consistent with the findings of Zeng et al. (2022), which indicate that gender influences nurse performance productivity, with female nurses reporting heavier workloads and higher job-related stress compared to their male counterparts.

While it is commonly believed that male nurses are better suited for physically demanding tasks such as lifting or transferring patients, many female nurses possess the physical strength to handle the same workload. However, gender is not the primary factor determining nursing competence; instead, cultural associations with traits like empathy, care, and warmth are more influential. Female inpatient nurses at Mitra Medika Premiere Hospital are generally perceived as more empathetic, caring, and warm than their male colleagues.

The relationship between education and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital revealed a p-value of 0.094, suggesting no significant

association between education and performance productivity. While formal education is important, continuous training and professional development have a greater impact on improving productivity.

Nurses with different educational backgrounds exhibit similar productivity levels in terms of both service quantity and quality. While education is often seen as a key factor that influences productivity, with higher educational attainment believed to lead to greater productivity (Zhafarina & Hutahaeon, 2023), recent studies suggest that education does not always directly correlate with nurse performance. Ongoing training has proven to be more effective in improving nurse productivity than merely increasing formal education levels. Some hospitals have implemented professional development programs focusing on practical training and stress management, which have been shown to enhance overall nurse productivity (Jumrana et al., 2022).

These findings align with the research by Hermansyah et al. (2022), which found no significant relationship between education and nurse performance productivity. Their study showed that education levels, whether a diploma or a bachelor's degree, did not significantly impact performance productivity in inpatient hospital settings.

However, this study differs from the findings of Tiranita et al. (2023), who identified a link between education and nurse performance productivity. Their research indicated that higher levels of education positively affect skill development, as nurses with advanced education are better equipped to enhance their nursing knowledge and apply it in patient care and community service.

While education provides a solid knowledge base for nurses, their productivity is primarily influenced by the practical skills gained through hands-on experience. Inpatient nurses at Mitra Medika Premiere Hospital with higher educational qualifications are not necessarily more productive than those with lower education levels, especially if the latter have substantial experience in managing inpatient care.

The relationship between work hours and the performance productivity of inpatient nurses at Mitra Medika Premiere Hospital revealed a p-value of 0.007, indicating a significant correlation between work hours and productivity. It is evident that work hours impact the performance productivity of inpatient nurses (p-value = 0.001; Exp.B = 17.832).

Nurses who work long and excessive hours often experience physical and mental fatigue, resulting in reduced focus, an increased risk of mistakes, and a decline in the quality of patient care (Knap et al., 2022). Prolonged working hours can disrupt the balance between a nurse's professional and personal life, leading to stress, depression, and other health problems

that ultimately decrease productivity. Excessive work hours negatively impact the performance and productivity of hospital inpatient nurses (Adella et al., 2024).

Conversely, shorter working hours allow nurses to remain alert and focused during their shifts, which can enhance patient safety and the quality of care provided (Knap et al., 2022). Nurses working fewer hours typically experience greater job satisfaction, which in turn boosts their productivity and retention rates (Kristianingsih et al., 2022).

This study supports the findings of Rony et al. (2023), which emphasize that while long work hours may be necessary to meet healthcare demands, it is crucial to maintain a balance to avoid fatigue and excessive workloads. Hospitals should limit overtime, improve nurse-to-patient ratios, foster supportive work environments, and involve nurses in decision-making to improve their productivity and ensure patient safety.

At Mitra Medika Premiere Hospital, inpatient nurses working beyond regular hours are more likely to make errors, as extended shifts reduce their concentration and ability to provide effective care. This ultimately affects the quality of healthcare services. Nurses who work extended hours without adequate rest are at risk of physical and mental exhaustion, leading to decreased productivity.

The relationship between work duration and performance productivity of inpatient nurses at Mitra Medika Premiere Hospital resulted in a p-value of 0.017, indicating a significant association between work duration and performance productivity. However, it appears that work duration does not significantly influence the performance productivity of inpatient nurses (p-value = 0.689; Exp.B = 0.770).

The length of a nurse's tenure at a hospital can impact their work performance productivity (Dewanti et al., 2022). Nurses with longer tenures typically have more experience and refined skills in patient care, allowing them to manage workloads more effectively and meet the demands of the inpatient hospital setting (Kristianingsih et al., 2022).

This study aligns with the findings of Hermansyah et al. (2022), which identified a connection between tenure and hospital performance productivity. Nurses with longer tenures tend to show higher performance productivity than those with shorter tenures. Specifically, nurses with more than 10 years of experience exhibit significantly higher productivity levels compared to those with less than 5 years of experience.

Inpatient nurses at Mitra Medika Premiere Hospital who have longer tenures often possess more experience, enabling them to manage patient care more efficiently and effectively. Nurses with extended tenures are usually more skilled in medical procedures,

patient communication, and collaborating with interdisciplinary teams. However, while longer tenure can enhance productivity due to accumulated experience, there is also the potential for burnout among nurses who have worked in inpatient units for extended periods. Burnout can lead to decreased productivity, as nurses may experience fatigue, reduced motivation, and difficulty concentrating.

The relationship between workload and the performance productivity of inpatient nurses at Mitra Medika Premiere Hospital revealed a p-value of 0.023, indicating a significant correlation between workload and performance productivity. It is evident that workload influences the performance of inpatient nurses (p-value = 0.012; Exp.B = 5.743).

Excessive workloads can cause both physical and mental fatigue in nurses, which reduces their concentration, responsiveness, and ability to make decisions (Winvi et al., 2022). Nurses with heavy workloads are more prone to making errors in patient care, increasing the risk to patient safety (Kwini & Atmawinata, 2024). A well-balanced workload allows nurses to maintain focus and concentration, ensuring the delivery of high-quality care. Nurses with manageable workloads tend to experience greater job satisfaction, which can enhance productivity and retention. Additionally, a balanced workload helps reduce nurse fatigue, allowing them to provide safe and effective care (Nasution, 2021).

This study aligns with research by Atmalia et al (2023), which suggest that workload directly influences nurse performance. When nurses face workloads that exceed their capacity or require them to meet multiple demands at once, their concentration decreases, which negatively affects their performance. This is consistent with research by Qurrotu'aini et al. (2023), which shows that high workloads can lead to stress and discomfort, and if prolonged, it reduces motivation and performance.

Nurses with excessively high workloads may experience significant physical fatigue, which ultimately impacts their productivity. A heavy workload not only reduces the number of tasks completed but also affects the quality of care provided. Studies show that nurses at Mitra Medika Premiere Hospital who are responsible for too many patients or excessive tasks struggle to give each patient the attention they need, leading to a decline in care quality.

CONCLUSIONS

The performance productivity of inpatient nurses at Mitra Medika Premiere Hospital is influenced by several factors, including gender, working hours, and workload. These factors significantly contribute to the overall productivity of the nurses. Among these, the most dominant factor impacting their performance is the working hours.

To improve nurse productivity, it is recommended that Mitra Medika Premiere Hospital reduce working hours. Shortening long working hours can improve nurse concentration and morale, which in turn can enhance performance productivity. Additionally, alleviating the workload burden by reducing tasks and responsibilities can further help in optimizing nurse performance.

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