AG EDITOR

The Effects of Lighting, Lactic Acid Levels, and Occupational Factors on Performance of Nurses, With Work Fatigue at Latemmamala Regional Hospital

Efectos de la iluminación, los niveles de ácido láctico y los factores ocupacionales en el desempeño de enfermeras con fatiga laboral en el Hospital Regional Latemmamala

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ABSTRACT

Introduction: nurse performance can decline due to complaints of work fatigue. Fatigue can occur due to both internal and external factors.
Method: this study used a quantitative cross-sectional approach. The sampling technique used probability sampling resulted in 160 respondents.
Results: lighting (p = 0,002 < 0,05), Lactic Acid (p = 0,000 < 0,05), physical workload (p = 0,000 < 0,05), length of work (p = 0,020 < 0,05), subjective work fatigue (p = 0,000 < 0,05), and objective work fatigue (p = 0,000 < 0,05) had a significant effect on nurse performance, while work shift (p = 0,082 > 0,05) had no effect. In multivariate analysis, the indirect impact of physical workload on nurses' performance through objective work fatigue showed a significant influence.(p = 0,001 < 0,05) and length of work on nurse performance through objective work fatigue had a significant effect (p = 0,011 < 0,05).
Conclusions: physical workload and length of work have an indirect effect on nurse performance through work fatigue.

Keywords: Lighting; Lactic Acid; Job Factors; Work Fatigue; Performance.

RESUMEN

Introducción: el rendimiento de enfermería puede disminuir debido a quejas de fatiga laboral. La fatiga puede deberse tanto a factores internos como externos.
Método: este estudio utilizó un enfoque transversal cuantitativo. La técnica de muestreo utilizada fue probabilística, con un total de 160 participantes.
Resultados: la iluminación (p = 0,002 < 0,05), el ácido láctico (p = 0,000 < 0,05), la carga física de trabajo (p = 0,000 < 0,05), la duración del trabajo (p = 0,020 < 0,05), la fatiga laboral subjetiva (p = 0,000 < 0,05) y la fatiga laboral objetiva (p = 0,000 < 0,05) tuvieron un efecto significativo en el rendimiento de las enfermeras, mientras que el turno de trabajo (p = 0,082 > 0,05) no tuvo efecto. En el análisis multivariante, el impacto indirecto de la carga física de trabajo en el rendimiento de las enfermeras a través de la fatiga laboral objetiva mostró una influencia significativa (p = 0,001 < 0,05), y la duración del trabajo en el rendimiento de las enfermeras a través de la fatiga laboral objetiva tuvo un efecto significativo (p = 0,011 < 0,05).

Conclusiones: la carga física de trabajo y la duración del trabajo tienen un efecto indirecto en el rendimiento de las enfermeras a través de la fatiga laboral.

Palabras clave: Iluminación; Ácido Láctico; Factores Laborales; Fatiga Laboral; Rendimiento.

INTRODUCTION

Nurses are the most numerous profession in hospitals and play a crucial role in patient empowerment, particularly in the management of chronic diseases. Nurse performance encompasses optimal performance of duties, rights, and responsibilities, and is assessed based on quality, quantity, work time, and teamwork. However, performance can decline due to work fatigue. The WHO estimates that severe fatigue leading to depression is the second leading cause of death after heart disease. The ILO records two million worker deaths annually due to fatigue, with 32,8 % of the sample at risk. The National Cancer Center (NCC) also reports that 13 % of work injuries are fatigue-related, and 97 % of workers have at least one fatigue risk factor that increases the potential for workplace accidents.[1]

According to a 2020 survey conducted by the Indonesian National Nurses Association (PPNI), approximately 50,9 % of nurses in Indonesia experience work burnout, which also impacts their physical health. Many nurses frequently experience dizziness, neck pain, and fatigue due to lack of sleep due to heavy workloads and limited rest time. The main factors causing this work burnout include physical workload (44 %), social environment (14 %), violence, threats, and bullying (13 %), changes in the workplace (8 %), and other factors (20 %).[2] Data from the South Sulawesi Provincial Manpower and Transmigration Office shows that there were 807 cases in 2019, 900 cases in 2020, and 794 cases in January-November 2021.[3] The Indonesian Ministry of Manpower and Transmigration stated in 2021 that 27,8 % of workplace accidents were caused by fatigue.[4]

Work environment factors can cause fatigue in hospital nurses. Environmental factors that can influence fatigue include physical work environment factors such as noise, lighting, work climate, and others. Lighting is one of the physical environmental factors directly perceived by hospital nurses. A brighter environment has the potential to reduce sleepiness in nurses.[5] Exposure to bright light is considered as one of the measures that helps the sleep management process in shift nurses.[6] Nurses who work rotating shifts often suffer from insomnia or similar disorders because exposure to indoor light at night inhibits melatonin secretion, thus disrupting the circadian rhythm.[7] Inadequate shift work schedule management is one of the factors that causes shift workers to be unable to cope with the workload, resulting in sleep disorders and fatigue.[8]

Occupational fatigue is caused by the buildup of lactic acid due to prolonged muscle contractions. Heavy workloads can reduce the performance and quality of healthcare services and increase the risk of medical errors. Workload arises from the interaction of task demands, the environment, and worker perceptions. high workload of nurses leads to fatigue and exhaustion.[9] Long working hours are a major factor causing fatigue, reducing efficiency, effectiveness, and productivity. Ideally, the optimal work duration is 6–8 hours per day; exceeding this limit can lead to fatigue, health problems, workplace accidents, and dissatisfaction.[10] Fatigue is a condition resulting from physical, mental, and emotional exertion that reduces a person's ability to perform tasks. Fatigue is multidimensional, consisting of physical fatigue—which affects muscle strength, and mental fatigue—which is associated with feelings of tiredness or lack of energy. Both can occur simultaneously depending on the workload. Fatigue not only impacts worker performance and well-being, but also affects personal relationships, life satisfaction, and places an economic burden on healthcare organizations.[11]

The results of the initial survey showed that long working hours were implemented with a three-shift system, namely morning shift, afternoon shift, and night shift. The morning shift runs from 7:30 AM to 3:00 PM, the afternoon shift from 3:00 PM to 8:00 PM, and the night shift from 8:00 PM to 7:30 AM. Excessive work hours on the night shift can cause work fatigue that impacts nurse performance. Therefore, a study is needed to examine the effects of lighting, lactic acid levels, work patterns, physical load, and work duration on nurse performance, with fatigue as an intermediary variable at La Temmamala Regional Hospital, Soppeng Regency.

METHOD

This study uses quantitative research with a cross-sectional approach. Sampling was carried out by probability sampling with a simple random sampling method. The number of samples was 160 respondents. This study was conducted in April - May 2025. Data collection used measuring instruments and questionnaires. The lighting measuring instrument was a lux meter, lactic acid using Accutrend Lactat Plus, physical workload using an oximeter, objective work fatigue using a reaction timer application and length of work, work shifts, subjective work fatigue and performance using a questionnaire. The collected data were analyzed using SPSS and AMOS applications to identify the effect of lighting, lactic acid, work shifts, physical workload, length of work on nurse performance through work fatigue. This research uses the code of ethics issued by the Faculty of Public

Health with ethics number 427/UN4.14.1/TP.01.02/2025 and protocol number 25225062042.

RESULTS
Bivariate Analysis

Bivariate analysis was conducted to analyze the relationship between independent and dependent variables as follows.

Table 1. Relationship between lighting and nurse performance						
Lighting	Nurse Performance				Total	P-Value
	Poor Performance		Good Performance			
	n	%	n	%	n	%	
Not Up to Standard	63	39,3	19	11,9	82	51,2	0,002*
According to Standards	42	26,3	36	22,5	78	48,8	
Total	55	65,6	105	34,4	160	100	

The table above shows that. There is a significant relationship between lighting and nurse performance, where the p-value is 0,002 < 0,05.

Table 2. Relationship between lactic acid and nurse performance						
Lactic Acid	Nurse Performance				Total	P-Value
	Poor Performance		Good Performance			
	n	%	n	%	n	%	
Tall	57	35,6	4	2,5	61	38,1	
Currently	28	17,5	24	15,0	52	32,5	0,000*
Normal	20	12,5	27	16,9	47	29,4	
Total	55	65,6	105	34,4	160	100	

The correlation test using the chi-square test concluded that there was a significant correlation between lactic acid and nurse performance, where the p-value was 0,000 < 0,05 meaning H1 was accepted.

Table 3. Relationship between work shifts and nurse performance						
Work Shift	Nurse Performance				Total	P-Value
	Poor Performance		Good Performance			
	n	%	n	%	n	%	
Evening	41	25,6	13	8,1	54	33,7	
Afternoon	31	19,4	20	12,5	51	31,9	0,082*
Morning	33	20,6	22	13,8	55	34,4	
Total	55	65,6	105	34,4	160	100	

Based on the results of the relationship test using the chi-square test in the table above conclude that there is no significant relationship between work shifts and nurse performance, where the p-value is 0,082 > 0,05 meaning H0 is accepted and H1 is rejected.

Table 4. Relationship between physical workload and nurse performance						
Physical Workload	Nurse Performance				Total	P-Value
	Poor Performance		Good Performance			
	n	%	n	%	n	%	
Heavy	62	38,8	4	2,5	66	41,3	
Light	43	26,8	51	31,9	94	58,7	0,000*
Total	55	65,6	105	34,4	160	100	

On the table above shows a significant relationship between physical workload and nurse performance, where the p-value is 0,000 < 0,05.

Table 5. Relationship between length of service and nurse performance							
Length of working	Nurse Performance				Total		P-Value
	Poor Performance		Good Performance				
	n	%	n	%	n	%	
Abnormal	41	25,6	12	7,5	53	33,1	
Normal	64	40,0	43	26,9	107	66,9	0,020*
Total	55	56,6	105	34,4	160	100	

The results of the relationship test using the chi-square test concluded that there was a significant relationship between length of service and nurse performance, where the p-value was 0,020 < 0,05, meaning H1 was accepted.

Table 6. Relationship between subjective work fatigue and nurse performance							
Subjective Work Fatigue	Nurse Performance				Total		P-Value
	Poor Performance		Good Performance				
	n	%	n	%	n	%	
Tired	81	50,6	7	4,4	88	55	
Not Tired	24	15,0	48	30,0	72	45	0,000*
Total	55	65,6	105	34,4	160	100	

Based on the table above, the results show that subjective fatigue has a significant effect on nurse performance with a p-value of 0,000 < 0,05.

Table 7. Relationship between objective work fatigue and nurse performance							
Objective Work Fatigue	Nurse Performance				Total		P-Value
	Poor Performance		Good Performance				
	n	%	n	%	n	%	
Tired	88	55,0	9	5,6	97	60,6	
Not Tired	17	10,6	46	28,7	63	39,4	0,000*
Total	55	65,6	105	34,3	160	100	

The results of the relationship test using the chi-square test concluded that there was a significant relationship between objective work fatigue and nurse performance, where the p-value was 0,000 < 0,05.
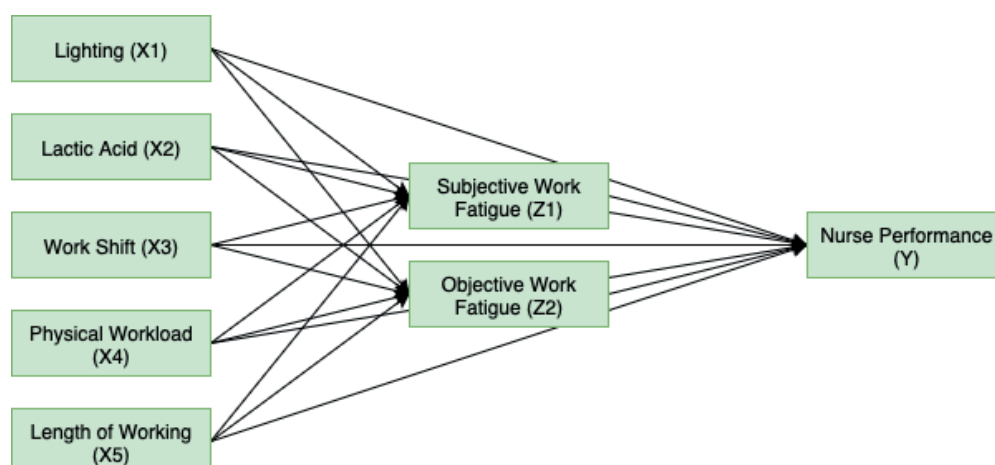
Analysis Multivariate

Figure 1. Construction of the path analysis model

The following is an illustration of the path analysis model construction. In this model, the variables of subjective work fatigue and objective work fatigue serve as intervening variables in modelling the effects of lighting, lactic acid, and work factors on nurse performance.

There are 17 hypotheses that can be investigated on direct influence, the following are the results of direct testing of the hypotheses.

Table 8 shows that lactic acid (p = 0,039 < 0,05), length of work (p = 0,005 < 0,05), and physical workload (p = 0,000 < 0,05) strongly influences the level of fatigue.Lactic acid (p = 0,009 < 0,05), objective work fatigue (p = 0,000 < 0,05) and subjective work fatigue (p = 0,006 < 0,05) significantly influenced nurse performance.

| Table 8. Parameters and testing of the direct influence hypothesis				
Influence	**Estimate**	**SE**	**CR**	**P-value**
Lactic Acid → Subjective work fatigue	2,369	1,146	2,066	0,039
Length of working → Objective work fatigue	14,619	5,261	2,779	0,005
Lighting → Objective work fatigue	-0,040	0,241	-0,165	0,869
Length of working → Subjective work fatigue	0,008	0,575	0,014	0,989
Physical Workload → Objective work fatigue	4,339	1,121	3,869	0,000
Work Shift → Objective work fatigue	-26,214	16,677	-1,572	0,116
Lactic Acid → Objective work fatigue	7,634	10,490	0,728	0,467
Physical Workload → Subjective work fatigue	0,143	0,123	1,168	0,243
Lighting → Subjective work fatigue	-0,051	0,026	-1,928	0,054
Work Shift → Subjective work fatigue	-1,275	1,823	-0,699	0,484
Lighting → Nurse Performance	0,032	0,020	1,568	0,117
Lactic Acid → Nurse Performance	-2,337	0,890	-2,626	0,009
Length of working → Nurse Performance	-0,155	0,454	-0,340	0,734
Physical Workload → Nurse Performance	-0,010	0,098	-0,100	0,920
Objective work fatigue → Nurse Performance	-0,050	0,008	-6,690	0,000
Subjective work fatigue → Nurse Performance	-0,191	0,069	-2,772	0,006
Work Shift → Nurse Performance	1,235	1,407	0,877	0,380
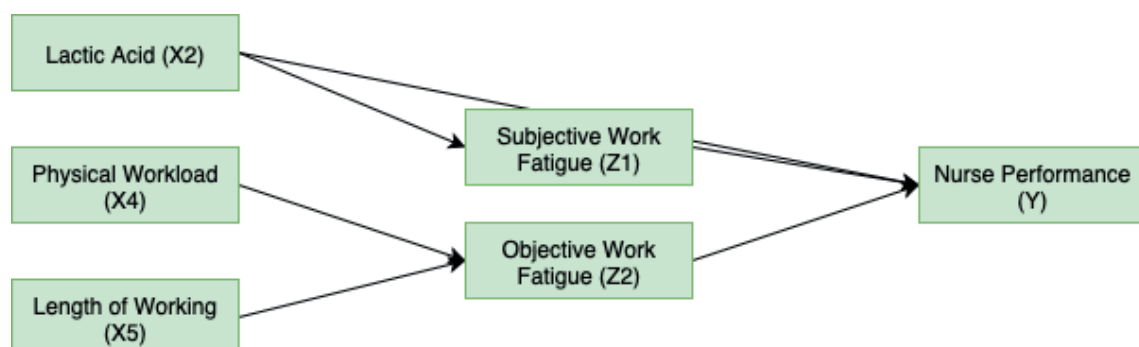
Figure 2. Construction of a new path analysis model

Table 9. Sobel test of indirect effect			
Indirect Influence	**T-Count**	**T-Table**	**P-Value**
Nurse Performance → Subjective Work Fatigue → Lighting	1,600	1,96	0,110
Nurse Performance → Subjective Work Fatigue → Lactic Acid	-1,656	1,96	0,098
Nurse Performance → Subjective Work Fatigue → Work Shift	0,678	1,96	0,450

Nurse Performance → Subjective Work Fatigue → Physical Workload	-1,072	1,96	0,284
Nurse Performance → Subjective Work Fatigue → Length of working	-0,013	1,96	0,989
Nurse Performance → Objective Work Fatigue → Lighting	0,166	1,96	0,868
Nurse Performance → Objective Work Fatigue → Lactic Acid	-0,723	1,96	0,470
Nurse Performance → Objective Work Fatigue → Work Shift	1,524	1,96	0,127
Nurse Performance → Objective Work Fatigue → Physical Workload	-3,291	1,96	0,001
Nurse Performance → Objective Work Fatigue → Length of working	-2,539	1,96	0,011

The table above shows that indirect impact of physical work on nurse performance through objective fatigue, it is known that there is an indirect effect of physical workload on nurse performance through objective work fatigue with a p-value of 0,001 <0,05. The magnitude of the indirect effect is -3,291 > 1,96 or negative, meaning that if the physical workload increases, then indirectly the nurse's performance decreases through the objective work fatigue variable. For the indirect effect of length of work on nurse performance through objective work fatigue, it is known that there is an indirect effect of length of work on nurse performance through objective work fatigue with a p-value of 0,011 <0,05. The magnitude of the indirect effect is -2,539 > 1,96 or negative, meaning that if the length of work increases, then indirectly the nurse's performance decreases through the objective work fatigue variable.

DISCUSSION
The effect of lighting on nurse performance through work fatigue in nurses
Based on the multivariate analysis of lighting on subjective work fatigue does not show a significant effect on subjective work fatigue. Effect of lighting on nurse performance through subjective work fatigue as a mediator also did not show significant results which means that the higher the nurse's lighting, the nurse's performance will also indirectly increase through subjective fatigue as a mediator. Similarly, the multivariate analysis of lighting on objective work fatigue, indicating that lighting did not significantly influence objective work fatigue. The multivariate analysis of the indirect effect of lighting on nurse performance through subjective work fatigue as a mediator also showed no significant results. This research is in line with research conducted by [12] that there is no significant relationship between lighting intensity and work fatigue with a p value of 0,061 > 0,05, which means that there is no significant relationship between light intensity and work fatigue. Similar research was conducted by [13] that there is no relationship between lighting and work fatigue with a p-value of 0,937 > 0,05, due to the irregular work rhythm when performing work so that the level of lighting required when performing work varies. This research is inversely proportional to the research [14] with a p-value of 0,006 < 0,05, which means there is a significant relationship between lighting and work fatigue. In this study, lighting intensity had no relationship to subjective work fatigue. However, it is necessary to prevent inadequate lighting, which can affect nurse performance, such as by providing lighting with sufficient light intensity for nurses to carry out their activities. One important aspect of lighting is the even distribution of light across the entire work area in the room. This can help reduce shadows and excessive light reflections, resulting in clearer vision and preventing eye fatigue. In the workplace context, adequate lighting is crucial for creating a safe, comfortable, and productive work environment.

The effect of lactic acid on nurse performance through work fatigue in nurses
The buildup of lactic acid resulting from incomplete glucose breakdown negatively impacts bodily activity, leading to fatigue. High lactic acid levels are caused by heavy workloads, due to the inability of the aerobic energy supply system, resulting in the predominance of energy from anaerobic energy sources.[15] When lactic acid levels rise, it indicates that the body is operating in an oxygen-deprived state, where the muscles are not receiving enough oxygen to carry out their proper metabolism. This increase in lactic acid can result in feelings of fatigue, muscle pain, and decreased physical ability, which can affect the work efficiency and health of workers.[16] The indirect effect of lactic acid on performance through subjective and objective work fatigue does not have a significant relationship, which means that the higher the lactic acid, the nurse's performance indirectly decreases through subjective and objective work fatigue variables. Research conducted by [17] that the results of the correlation test obtained a p value = 0,000 (p < 0,005) and an r value = 0,607 which shows that there is a strong correlation between lactic acid levels and work fatigue, there is a significant positive relationship, where the higher the lactic acid rate, the higher the level of work fatigue. Where the higher the lactic acid levels, the greater the level of work fatigue felt by respondents. This positive relationship suggests that the accumulation of lactic acid, which is often a sign of muscle fatigue as well as work rate, is closely

related to the level of fatigue perceived by workers.

The effect of work shifts on nurse performance through work fatigue in nurses

The results of the multivariate test on the indirect effect of work shifts on performance through subjective work fatigue did not have a significant relationship, which means that the higher the work shift, the nurse's performance indirectly increases through the subjective work fatigue variable. While the indirect effect of work shifts on performance through objective work fatigue did not have a significant relationship, which means that the higher the work shift, the nurse's performance indirectly increases through the objective work fatigue variable. Different results from research conducted by [18] shows a p-value of 0,000 which indicates that H0 is rejected, which means there is a difference or impact between work schedule and fatigue level. Because the p-value is smaller thanα (p<0,05), this means that there is an important or significant impact between work schedules and fatigue in the workplace. Rotational work systems can pose various health challenges. Shift work can disrupt circadian rhythms (biological clocks) and social interactions, impacting health and increasing the risk of workplace accidents. Workers who work night shifts outside of regular working hours at night are particularly at odds with the body's natural biological rhythms. Previous research conducted [19] in England that nurses who work 12 hour shifts show levels of fatigue and burnout are higher in those who work long schedules. A changing shift schedule can also lead to fatigue due to the constant rotation and limited rest periods between shifts, which may exacerbate fatigue. Long working hours contribute to increased anxiety, stress, and fatigue, which in turn can lead to health problems due to increased workload and inadequate rest periods.

The effect of physical workload on nurse performance through work fatigue in nurses

Nurses experience a heavy physical workload due to the numerous demands of their duties and the amount of physical activity they perform every day. These include performing nursing care, taking and picking up patients, preparing equipment and cleaning, and managing nursing services. Factors that can cause physical workload include the condition and characteristics of the patient, the nursing procedures performed, and the state of the work environment. In addition, there are other factors such as the magnitude of responsibilities, demands or requests that come simultaneously, disturbances due to interruptions, and inadequate lighting in the workplace. The results of the multivariate analysis showed a significant relationship between physical workload and nurse performance through work fatigue, which means that the higher the nurse's physical workload, the indirectly lower nurse performance through the work fatigue variable. This research is in line with research [20] that Physical workload has a direct impact on productivity levels, with work fatigue being a connecting factor, according to the table showing the direct influence in the relationship between physical workload and work productivity through work fatigue. In addition, the relationship between physical workload and work performance productivity through work fatigue, based on the indirect impact table, indicating that physical workload acts as an intervening variable indirect influence on work productivity through work fatigue. The excessive workload can cause both physical and mental fatigue and emotional reactions such as headaches, indigestion, and irritability.[21] Previous research conducted [22] showed a p-value of 0,04 < 0,05, which means there is a relationship between physical workload and work fatigue. Similar research was conducted [23] p value = 0,009 and α = 0,05, which means p value < α means there is a relationship between physical workload and feelings of work fatigue in nurses. Workload also influences and impacts physical and psychological conditions, which can cause fatigue and disrupt worker performance because it can affect the results of the work done.

The influence of length of work on nurse performance through work fatigue in nurses

Field observations indicate that nurses' working hours are regulated in accordance with applicable regulations and there is a weekly work rotation. Working hours at La Temmamala Regional Hospital, Soppeng Regency depend on the work shift. In this study, there were 3 work shifts: morning shift from 07:00 - 14:00, afternoon shift from 14:00 - 20:00, and night shift from 20:00 - 07:00. Night shifts have longer working hours. Fatigue is more common in nurses who have working hours of more than 8 hours per day. Symptoms experienced include yawning, drowsiness, heavy eyes, fatigue throughout the body, reluctance to talk, headaches, and thirst. In the multivariate analysis, work duration has a significant relationship with objective work fatigue. The indirect effect of length of work on performance through objective work fatigue has a significant relationship with negative correlation, which means that the longer a nurse works, the nurse's performance indirectly decreases through the objective work fatigue variable.

In research conducted by [24] that long working hours can significantly impair nurses' physical health and impair their ability to perform their duties effectively, which is crucial for maintaining patient safety and improving outcomes. Long shifts can lead to fatigue, which is associated with decreased alertness, impaired concentration, and impaired physical performance among nurses. This research is in line with research [25] which result obtained was p = 0,002 with α = 0,05. This means there is a relationship between working hours and nurses' work fatigue. Similar research was conducted by [26] Based on the results of the Chi Square statistical

test, the length of work (p value 0,001) was obtained, so it can be concluded that there is an influence of length of work on the level of work fatigue.

Research conducted [27] in one of the Japanese hospitals that The negative impacts on health due to long working hours are very diverse. Working long hours can lead to problems such as depression, anxiety, difficulty sleeping, and heart disease. This study showed that excessive working hours are associated with personal problems as well as organizational factors, such as being in the mid-career stage, having managerial responsibilities, frequently staying up late, and working shifts. Nurses who work more than 12 hours a day are at higher risk of burnout. To reduce working hours, the study suggests using structured clinical knowledge to speed up the nursing record-keeping process, overtime hours can be reduced significantly by up to 50 %. In the study [28] Nurses who are most prone to drowsiness are those who work 12-hour shifts and night shifts. They spend less time socializing and socializing. Nurses who work long night shifts experience short rest periods and often complain of excessive fatigue.

The effect of work fatigue on nurse performance

Based on the multivariate analysis of subjective and objective work fatigue with nurse performance, it was found that the significant value and negative influence coefficient which means that based on the multivariate test, the lower the subjective and objective work fatigue, the higher the nurse performance. The higher the level of fatigue experienced by nurses, the lower their performance, such as decreased accuracy and concentration when carrying out tasks, decreased motivation and work enthusiasm, and increased absenteeism or tardiness. This research is in line with research conducted [29] It was found that nurses' work fatigue was in the not tired category for 34 (77,5 %) respondents. The performance of the majority was included in the good category, namely 40 (90,9 %) respondents, with a p value of 0,021 <α = 0,05. There is a relationship between work fatigue and nurse performance. Nursing staff has the highest rank in terms of the number of human resources in the Hospital. Nurses have more time meeting patients compared to other health professions. It is very important for Health Institutions to maintain nurse performance. Factors that can be considered in nurse performance are workloads that can cause fatigue. Based on the results of field observations, it was shown that the symptoms most frequently experienced by nurses were yawning, feeling tired all over, headaches, feeling heavy in the eyes, feeling stiff, difficulty concentrating and thirst. The symptoms experienced by nurses are caused by the workload they experience and the continuous work they do, which increases burnout. These include substandard lighting and monotonous, repetitive work. These symptoms require preventive and mitigating measures, including improving lighting intensity in each nursing unit, providing clean and comfortable restrooms, and providing innovations to prevent workers from feeling bored.

CONCLUSIONS

Based on the analysis, it can be concluded that factors such as physical workload and lactic acid significantly influence nurse performance, both directly and indirectly. Although variables such as lighting, work shift, and length of work did not show a significant effect, these findings indicate that managing physical workload and physical conditions related to work fatigue is crucial to supporting nurse performance. Therefore, it is recommended that hospital management focus on improving nurses' physical well-being, such as reducing excessive physical workload and managing environmental factors that influence fatigue. Further research is also needed to explore other factors that may influence nurse performance and how they interact with each other within the context of the work environment. The implication of these findings is that by addressing these factors, hospitals can improve productivity and the quality of healthcare services provided, as well as reduce fatigue levels that can impact nurses' long-term performance.

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The authors declare that there is no conflict of interest.

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