



## EVALUATION OF NURSE WORKLOAD IN PATIENT UNITS

Dewanti Widya Astari\*, Kartikaningsih, Dede Setiawan

Cicendo Eye Hospital, Jl. Cicendo No.4, Babakan Ciamis, Bandung Well, Bandung, West Java 40117, Indonesia

\*[dewantiwidya@gmail.com](mailto:dewantiwidya@gmail.com)

### ABSTRACT

The inpatient room at a tertiary referral eye hospital includes eye surgery services and infection treatment for adult and pediatric patients. Nurse workload greatly influences the quality of service in the inpatient unit. However, data regarding the workload of nurses in inpatient units at tertiary referral eye hospitals is still limited. Objective: To determine the workload of nurses in the inpatient ward of a tertiary referral eye hospital. Method: This research is a quantitative descriptive study, which provides an overview of the workload of nurses in the inpatient ward of a tertiary referral eye hospital. The research was carried out from March to May 2023. The total sampling of research respondents was 25 nurses in inpatient treatment rooms for class 2 and 3 patients. Data collection used a workload questionnaire. Data analysis uses cross tabulation. The validity test was declared valid using the Pearson product moment correlation with results for the physical aspect of 0.396, the psychological aspect of 0.396 and the time aspect of 0.396 ( $0.396 > 0.312$ ). Reliability test using Cronbach's alpha with a coefficient of more than 0.6, it is declared reliable, where the physical aspect is 0.945, the psychological aspect is 0.903 and the time aspect is 0.906. This research has received ethical approval number: LB.02.01/2.3/5440/2023. Results: research shows that the workload of nurses on the physical aspect is high, namely 76%, and the workload of nurses on the psychological aspect is high, namely 96%. Discussion: Several factors causing the high workload of nurses include the large number of patients entering the inpatient room, the bed management system which is not yet optimal, and the limited treatment space but continuous use of beds. Conclusion: The high workload of nurses has an impact on the quality of nursing services.

Keywords: hospital services; nurse workload; service indicators

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## INTRODUCTION

The quality of service offered has a direct effect on the level of patient satisfaction. Patients, as users of hospital services, have the right to demand quality services not only in terms of healing from physical illnesses or improving their overall health status, but also in terms of satisfaction with the attitude of hospital staff, constant availability, adequate service. facilities and infrastructure. adequate, as well as a pleasant physical environment that can create feelings of comfort. Services include any and all efforts made by workers to meet their clients' needs in relation to the services to be provided. Patients are an indication of the quality of service and the level of patient satisfaction with service is one of the most important factors in attracting more patients and retaining existing patients (Alwy, 2022). Hospital inpatient indicator values such as BOR (Bed Occupancy Rate), ALOS (Average Long Of Stay), TOI (Turn Over Interval) and BTO (Bed Turn Over) can be calculated using statistics (Sugianto, Hariyati, Pujasari, & Novieastari, 2022).

Inpatient services are services for patients who are treated in hospital using beds for observation, diagnosis, therapy, medical rehabilitation and other medical support.(Ramadhan, Widiyanto, & Sunandar, 2022). The inpatient room has a capacity of 41 beds, with a total of 25 nursing staff. The 1st floor inpatient room provides eye surgery and infection care for adult and pediatric patients. Research and analysis of service conditions in the 1st floor inpatient room has never been carried out. Therefore, researchers conducted research entitled analysis of service efficiency and workload of nurses in referral hospitals. Health service facilities, especially hospitals, have an obligation to provide maximum health services in accordance with their function. One of the goals that can support optimal service quality according to various service indicators in hospitals(Suhartinah, Arief Rachman, Masyhur, & Rindha Wahyuningsih, 2020). Calculation of indicator values can be done every month, quarterly and also annually in accordance with predetermined policies. Calculating indicators requires accurate and complete data so that the information produced is correct. The information collected will be used as consideration for policy making to improve service quality.

## **METHOD**

The method used in this research is quantitative descriptive analysis using mean, median, mode, frequency. Analysis was carried out on factors that had an impact on the workload of nurses in tertiary referral hospitals. Sampling was carried out by total sampling, the population determined were nurses as trained health workers, namely 25 professional health workers who worked in inpatient rooms caring for class 2 and 3 patients at referral hospitals with the criteria of having STR, SIPP, working. Minimum 1 year, no leave. Data was taken using a nurse workload questionnaire consisting of 45 questions. The questionnaire is divided into aspects of nurse characteristics, physical aspects, psychological aspects, and time aspects. The variables used in this research are intended to determine the behavior and characteristics of the workload of health workers carried out in inpatient rooms. In addition, to determine the length of time health workers carry out activities in the hospital and the amount of workload carried out, a coding system based on structured performance criteria is used. This research has received ethical approval number: LB.02.01/2.3/5440/2023.

Data analysis uses cross tabulation. The validity test was declared valid using the Pearson product moment correlation with results for the physical aspect of 0.396, the psychological aspect of 0.396 and the time aspect of 0.396 ( $0.396 > 0.312$ ). Reliability test using Cronbach's alpha with more coefficients of 0.6, it is declared reliable, where the physical aspect is 0.945, the psychological aspect is 0.903 and the time aspect is 0.906. The validity test is carried out by correlating the answer score for each question item with the total variable score. The number used as a comparison to see whether an item is valid or not is 0.396 (r table for sample 25). Meanwhile, reliability testing is used to see the stability or consistency of measurement results. A measuring instrument is said to be reliable if it is used repeatedly on one object to produce the same results. The reliability technique used is consistency reliability between items, the author uses the Cronbach's alpha test. Where it is said to be reliable if the Cronbach's alpha coefficient value is greater than 0.6(Chairun, 2021).

The conclusion from the results of the physical aspect workload analysis is that if the average value ranges between 1 – 2.5 then it is included in the low (not heavy) workload category and if it is more than 2.5 then it is included in the high (heavy) workload category. The conclusion from the results of the psychological aspect of workload analysis is that if the average value ranges between 1 – 2.5 then it is included in the low (not heavy) workload category and if it is more than 2.5 then it is included in the high (heavy) workload category. The conclusion from the results of the time aspect workload analysis is that if the average value ranges between 1 –

2.5 then it is included in the low (not heavy) workload category and if it is more than 2.5 then it is included in the high (heavy) category.

## RESULTS

### Nurse Characteristics Data

Nurse characteristic data consists of gender, age, marital status, highest level of education, length of service, distance from residence to hospital and blood type. The following are the results of the data recapitulation of nurse characteristics based on the data that has been obtained.

Table 1.  
Frequency Distribution of Nurse Characteristic Data (n=25)

Characteristics	f	%
Gender		
Man	4	16.0
Woman	21	84.0
Age		
15-25 Years	3	12.0
26-35 Years	13	52.0
36-45 Years	8	32.0
46-55 Years	1	4.0
Marital status		
Not married yet	6	24.0
Marry	19	76.0
last education		
D3 Nursing	7	28.0
Nursing Profession Nurse	16	64.0
Bachelor's Degree in Nursing	2	8.0
Years of service		
1-10 Years	21	84.0
11-20 Years	3	12.0
21-20 Years	1	4.0
Distance from residence to hospital		
<5km	1	4.0
6-10 km	10	40.0
11-15 km	7	28.0
16-20km	2	8.0
>20 km	5	20.0
Blood group		
A	6	24.0
B	7	28.0
HI	9	36.0
AB	3	12.0

Based on table 1, it can be seen that more than 80% of nurses are women, while only around 16% are male nurses. If we look at the age range, the majority are between 26-35 years old, namely 13 people or around 52.0%. The marital status of most is married with a percentage of 76.0%. The majority of nurses have final professional nursing education with a working period of between 1-10 years. The distance from home to hospital is between 6-10 km and the most common blood type is blood type O with a percentage of around 36.0.

### Physical Aspects of Workload

To assess workload on the physical aspect, high and low workload categorization was carried out based on the number of statements in the questionnaire submitted to nurses. The total

number of statements submitted was 15 statement items. The following are the results of the recapitulation of nurses' answers to statement items regarding physical aspects of workload.

Table 2.  
Frequency Distribution of Nurses' Responses Regarding Physical Aspects of Workload

Statement	SS	S	T.S	STS	Average
A1. In my work I carry out my duties in accordance with my main duties as a nurse	14	10	1	0	3.52
A2. I'm so tired of working in the bedroom	1	13	11	0	2.6
A3. The physical environment in which I work feels comfortable	1	18	6	0	2.8
A4. Apart from carrying out nursing duties, I also often carry out duties outside of nursing	4	10	11	0	2.72
A5. The number of nurses on duty on each shift is sufficient to carry out the task of caring for patients	0	6	16	3	2.12
A6. The tasks I do take up a lot of my energy	3	13	9	0	2.76
A7. The number of patients I care for is so large that I often feel tired.	2	14	8	0	2.75
A8. My type of work in the room is very complex so it is very difficult.	1	10	14	0	2.48
A9. My job is in accordance with my basic education	4	20	1	0	3.12
A10. Many of the work facilities in that room were damaged, which hampered my work	5	10	10	0	2.8
A11. I am often confused because the volume of my work is large	2	12	11	0	2.64
A12. When I work, I collaborate with other friends to get the work done quickly	8	17	0	0	3.32
A13. I often take jobs that should be other friends' jobs.	1	13	11	0	2.6
A14. Indoor work requires me to work hard	4	15	6	0	2.92
A15. When working indoors I am required to do a lot of physical activity	2	17	6	0	2.84

After the nurses' answers have been calculated, the next step is to summarize the workload categories in the psychological aspect by creating a range of high and low workload categories with the following calculations.

1. Highest score: 4
2. Lowest score: 1
3. Interval Distance:  $(4 - 1) / 2 = 1.5$

So if the average value ranges between 1 – 2.5 then it is in the low workload category (not heavy) and if it is more than 2.5 then it is in the high workload category (heavy). The following is a recapitulation of the results of the physical aspect workload description. In table 3, it can be seen that there were 19 nurses (76.0%) included in the high (heavy) physical workload category and 6 (24.0%) nurses included in the low (not heavy) physical workload category. Then, to see the physical aspect of the workload based on the characteristics of nurses, you can see the following table.

Table 3.  
Frequency Distribution of Workload on Physical Aspects

Physical Workload	f	%
Height Weight)	19	76.0
Low (Not Heavy)	6	24.0

In table 3, it can be seen that there were 19 nurses (76.0%) included in the high (heavy) physical workload category and 6 (24.0%) nurses included in the low (not heavy) physical

workload category. Then, to see the physical aspect of the workload based on the characteristics of nurses, you can see the following table

Table 4.  
Frequency Distribution of Workload Physical Aspects Based on Nurse Characteristics

Characteristics	Physical Workload		Number (n=25)
	Height (n=19)	Low (n=6)	
Gender			
Man	4 (21.1%)	0 (0.0%)	4 (16.0%)
Woman	15 (78.9%)	6 (100.0%)	21 (84.0%)
Age			
15-25 Years	1 (5.3%)	2 (33.3%)	3 (12.0%)
26-35 Years	10 (52.6%)	3 (50.0%)	13 (52.0%)
36-45 Years	8 (42.1%)	0 (0.0%)	8 (32.0%)
46-55 Years	0 (0.0%)	1 (16.7%)	1 (4.0%)
Marital status			
Not married yet	3 (15.8%)	3 (50.0%)	6 (24.0%)
Marry	16 (84.2%)	3 (50.0%)	19 (76.0%)
last education			
D3 Nursing	4 (21.1%)	3 (50.0%)	7 (28.0%)
Nursing Profession Nurse	13 (68.4%)	3 (50.0%)	16 (64.0%)
Bachelor's Degree in Nursing	2 (10.5%)	0 (0.0%)	2 (8.0%)
Years of service			
1-10 Years	17 (89.5%)	4 (66.7%)	21 (84.0%)
11-20 Years	2 (10.5%)	1 (16.7%)	3 (12.0%)
21-20 Years	0 (0.0%)	1 (16.7%)	1 (4.0%)
Distance from residence to hospital			
<5km	0 (0.0%)	1 (16.7%)	1 (4.0%)
6-10 km	6 (31.6%)	4 (66.7%)	10 (40.0%)
11-15 km	7 (36.8%)	0 (0.0%)	7 (28.0%)
16-20km	2 (10.5%)	0 (0.0%)	2 (8.0%)
>20 km	4 (21.1%)	1 (16.7%)	5 (20.0%)
Blood group			
A	4 (21.1%)	2 (33.3%)	6 (24.0%)
B	4 (21.1%)	3 (50.0%)	7 (28.0%)
HI	8 (42.1%)	1 (16.7%)	9 (36.0%)
AB	3 (15.8%)	0 (0.0%)	3 (12.0%)

Based on this table, it can be seen that women are between 26-35 years old, married, work as nurses, have worked between 1-10 years, are between 6-10 km from home and have blood. Type O has a heavy workload category. compared to other categories.

### Psychological Aspects of Workload

To assess workload on the psychological aspect, high and low workload categorization was carried out based on the number of statements in the questionnaire submitted to nurses. The total number of statements submitted was 15 statement items. The following are the results of the recapitulation of nurses' answers to statement items regarding psychological aspects of workload.

Table 5.  
Frequency Distribution of Nurses' Responses Regarding Workload on Psychological Aspects

Statement	SS	S	T.S	STS	Average
B1. My working relationship with all my nurse friends is good	4	19	2	0	3.08
B2. I feel working under pressure	1	5	19	0	2.28
B3. My working relationship with the head of the room is fine	11	14	0	0	3.44
B4. The patients I treat really appreciate me	4	21	0	0	3.16
B5. In carrying out nursing services, I work well with other friends	6	18	1	0	3.20
B6. My boss does not provide enough direction regarding the implementation of my duties, which makes me uncomfortable	0	0	24	1	1.96
B7. I feel comfortable with the situation where I work	1	19	5	0	2.84
B8. Harmonious relationships with friends and superiors make me enthusiastic at work	3	22	0	0	3.12
B9. Every time I go to work and enter the room I feel bored	0	4	21	0	2.16
B10. I felt it was time to take time off because I was bored with the routine in the room	1	14	10	0	2.64
B11. I often experience conflicts with colleagues	0	0	22	3	1.88
B12. My boss only knows certain nurses	0	1	24	0	2.04
B13. My type of work is relatively low-level so it makes me uncomfortable	0	0	21	4	1.84
B14. When I had difficulty doing assignments in the room, my friends in the room helped me	4	21	0	0	3.16
B15. Conflicts between nurses in the room rarely occur	1	21	3	0	2.92

After the nurses' answers have been calculated, the next step is to summarize the workload categories in the psychological aspect by creating a range of high and low workload categories with the following calculations.

1. The highest score : 4
2. Lowest value : 1
3. Interval Distance :  $(4 - 1) / 2 = 1.5$

So if the average value ranges between 1 – 2.5 then it is included in the low workload category (not heavy) and if it is more than 2.5 then it is included in the high workload category (heavy). The following is a recapitulation of the results of the psychological aspect of workload description.

Table 6.  
Frequency Distribution of Workload Based on Psychological Aspects

Psychological Workload	f	%
Height Weight)	24	96.0
Low (Not Heavy)	1	4.0

In the table, it can be seen that 24 people (96.0%) of nurses fall into the high (heavy) psychological workload category and only 1 person (4.0%) falls into the low (not heavy) psychological workload category. Then, to see the psychological aspect of workload based on nurse characteristics, you can see the following table.

Table 7.  
Frequency Distribution of Psychological Aspects of Workload Based on Nurse Characteristics

Characteristics	Psychological Workload		Number (n=25)
	Height (n=24)	Low (n=1)	
Gender			
Man	4 (16.7%)	0(0.0%)	4 (16.0%)
Woman	20 (83.3%)	1 (100.0%)	21 (84.0%)
Age			
15-25 Years	3 (12.5%)	0 (0.0%)	3 (12.0%)
26-35 Years	12 (50.0%)	1 (100.0%)	13 (52.0%)
36-45 Years	8 (33.3%)	0 (0.0%)	8 (32.0%)
46-55 Years	1 (4.2%)	0 (0.0%)	1 (4.0%)
Marital status			
Not married yet	5 (20.8%)	1 (100.0%)	6 (24.0%)
Marry	19 (79.2%)	0 (0.0%)	19 (76.0%)
last education			
D3 Nursing	6 (25.0%)	1 (100.0%)	7 (28.0%)
Nursing Profession Nurse	16 (66.7%)	0 (0.0%)	16 (64.0%)
Bachelor's Degree in Nursing	2 (8.3%)	0 (0.0%)	2(8.0%)
Years of service			
1-10 Years	20 (83.3%)	1 (100.0%)	21 (84.0%)
11-20 Years	3 (12.5%)	0 (0.0%)	3 (12.0%)
21-20 Years	1 (4.2%)	0 (0.0%)	1 (4.0%)
Distance from residence to hospital			
<5km	0 (0.0%)	1 (100.0%)	1 (4.0%)
6-10 km	10 (41.7%)	0 (0.0%)	10(40.0%)
11-15 km	7 (29.2%)	0 (0.0%)	7 (28.0%)
16-20km	2 (8.3%)	0 (0.0%)	2 (8.0%)
>20 km	5 (20.8%)	0 (0.0%)	5 (20.0%)
Blood group			
A	6 (25.0%)	0 (0.0%)	6 (24.0%)
B	6 (25.0%)	1 (100.0%)	7 (28.0%)
HI	9 (37.5%)	0 (0.0%)	9 (36.0%)
AB	3 (12.5%)	0 (0.0%)	3 (12.0%)

Based on this table, it can be seen that women are between 26-35 years old, married, work as nurses, have worked between 1-10 years, are between 6-10 km from home and have blood. Type O has a heavy workload category. compared to other categories.

### Time Aspect Workload

To assess workload from the time aspect, high and low workload was categorized based on the number of statements in the questionnaire submitted to nurses. The total number of statements submitted was 15 statement items. The following are the results of the recapitulation of nurses' answers to statement items regarding the time aspect of workload.

Table 8.  
Frequency Distribution of Nurses' Responses Regarding Time Aspects of Workload

Statement	SS	S	T.S	STS	Average
C1. The nursing service schedule is in line with my expectations	0	17	8	0	2.68
C2. I work according to working hours for each shift	3	20	2	0	3.04
C3. Every shift change, friends arrive on time	0	19	6	0	2.76

Statement	SS	S	T.S	STS	Average
C4. I think the working hours per shift are too burdensome	0	3	22	0	2.12
C5. I often had to spend extra time in the room to complete nursing tasks	2	10	13	0	2.56
C6. I have no difficulty in arranging my work schedule if the need arises	0	22	3	0	2.88
C7. In my daily work, I can finish on time for every shift	4	14	6	1	2.84
C8. Often the shift change is delayed so I come home late	4	13	8	0	2.84
C9. The volume of my work in the room is too much so it requires extra time	2	12	11	0	2.64
C10. Often I am asked to go to work outside the official schedule	0	0	23	2	1.92
C11. I often don't have enough time to rest	0	9	16	0	2.36
C12. I often go to work outside my official schedule	0	0	24	1	1.96
C13. I often have difficulty managing my office schedule indoors	0	1	24	0	2.04
C14. When I need a vacation it is very difficult for me to get one	0	4	21	0	2.16
Chapter 15. I feel comfortable arranging the service schedule in the room	0	23	2	0	2.92

After the nurses' answers have been calculated, the next step is to summarize the workload categories in the psychological aspect by creating a range of high and low workload categories with the following calculations.

1. The highest score : 4
2. Lowest value : 1
3. Interval Distance :  $(4 - 1) / 2 = 1.5$

So if the average value ranges between 1 – 2.5 then it is in the low workload category (not heavy) and if it is more than 2.5 then it is in the high workload category (heavy). The following is the recapitulation of the time aspect workload description.

Table 9.  
Workload Frequency Distribution Based on Time Aspect

Time Workload	f	%
Height Weight)	15	60.0
Low (Not Heavy)	10	40.0

In the table, it can be seen that 15 people (60.0%) of nurses fall into the high time aspect workload category (heavy) and 10 people (40.0%) fall into the low time aspect workload category (not heavy). Then, to see the time aspect of workload based on nurse characteristics, you can see the following table.

Table 10.  
Frequency Distribution of Time Aspect Workload Based on Nurse Characteristics

Characteristics	Time Workload		Number (n-25)
	Height (n=15)	Low (n=10)	
Gender			
Man	2 (13.3%)	2 (20.0%)	4 (16.0%)
Woman	13 (86.7%)	8 (80.0%)	21 (84.0%)
Age			
15-25 Years	1 (6.7%)	2 (20.0%)	3 (12.0%)
26-35 Years	8 (53.3%)	5 (50.0%)	13 (52.0%)
36-45 Years	6 (40.0%)	2 (20.0%)	8 (32.0%)
46-55 Years	0 (0.0%)	1 (10.0%)	1 (4.0%)
Marital status			



Characteristics	Time Workload		Number (n=25)
	Height (n=15)	Low (n=10)	
Not married yet	4 (26.7%)	2 (20.0%)	6 (24.0%)
Marry	11 (73.3%)	8 (80.0%)	19 (76.0%)
last education			
D3 Nursing	5 (33.3%)	2 (20.0%)	7 (28.0%)
Nursing Profession Nurse	9 (60.0%)	7 (70.0%)	16 (64.0%)
Bachelor's Degree in Nursing	1 (6.7%)	1 (10.0%)	2 (8.0%)
Years of service			
1-10 Years	13 (86.7%)	8 (80.0%)	21 (84.0%)
11-20 Years	2 (13.3%)	1 (10.0%)	3 (12.0%)
21-20 Years	0 (0.0%)	1 (10.0%)	1 (4.0%)
Distance from residence to hospital			
<5km	1 (6.7%)	0(0.0%)	1 (4.0%)
6-10 km	6 (40.0%)	4 (40.0%)	10 (40.0%)
11-15 km	5 (33.3%)	2 (20.0%)	7 (28.0%)
16-20km	1 (6.7%)	1 (10.0%)	2 (8.0%)
>20 km	2 (13.3%)	3 (30.0%)	5 (20.0%)
Blood group			
A	4 (26.7%)	2 (20.0%)	6 (24.0%)
B	2 (13.3%)	5 (50.0%)	7 (28.0%)
HI	7 (46.7%)	2 (20.0%)	9 (36.0%)
AB	2 (13.3%)	1 (10.0%)	3 (12.0%)

Based on this table, it can be seen that women are between 26-35 years old, married, have professional nursing education, have worked between 1-10 years, have a distance between 6-10 km from home and have a blood history. Type O has a heavy workload category. compared to other categories.

### Calculation of Inpatient Indicators BOR, ALOS, TOI and BTO

To assess the efficiency of services in the inpatient wards of tertiary referral hospitals, BOR, ALOS, TOI and BTO were calculated. The calculation results are listed in the table below:

Table 11.  
Distribution of Service Indicator Values in inpatient rooms at tertiary referral hospitals

Month	Service Indicator			
	BOR (%)	BTO (Time)	TOI (Day)	LOS (Days)
February	90.40%	9.41	0.31	1.98
Line up	98.81%	10.53	0.034	1.90
April	82.71%	8,605	0.602	1,883
Average	90.64%	9,515	0.315	1,921

Average 90.64% 9,515 0.315 1,921 Based on this table, the highest BOR was obtained in March, namely 98.81%. The average BOR is 90.64%, the average BTO is 9.515 times, the average TOI is 0.315 days and the average LOS is 1.921 days.

### DISCUSSION

If we look at the age range, the majority are in the 26-35 year age range, 13 people or around 52.0% are in their productive working years. The majority of nurses of working age show that their physical abilities and work productivity are at the peak of their lives. The marital status of most is married with a percentage of 76.0%. The majority of nurses have final professional nursing education with a working period of between 1-10 years. Older nurses have more work experience. This experience can provide a better understanding of clinical situations and job demands, which can strengthen performance(Chairun, 2021). Education shows the level of intelligence which is related to a person's thinking power. The higher a person's level of education, the broader their knowledge(Sesrianty, 2018). Education is one of the determining

factors in acquiring knowledge. Education is the process of developing a person's personality which is carried out consciously and responsibly to improve knowledge, skills and values so that they are able to adapt to their environment. The distance between 6-10 km from home to hospital is still within reach (Haqq, 2018). Long distances from home can increase employees' travel time to work. If travel time is longer, employees may experience fatigue, stress, or lack of time to rest which can affect concentration and productivity.

A safe and comfortable inpatient room layout is the main factor that can influence the patient's healing process. The design of an inpatient room with an accommodative size is expected to be in accordance with the needs of supporting a healthy, safe and comfortable inpatient room for patients and medical service units. With a hierarchy of different care classes, there are opportunities for efficiency, especially regarding room size, layout configuration, and supporting facilities related to inpatient care (Wahyuningrum & Wardhani, 2020). Hospital occupancy indicators help to understand variables such as turnover, working time, and work effectiveness. This allows more precise planning of all processes. In the coronavirus pandemic, for example, hospital administrators can take steps to avoid a shortage of beds in institutions by analyzing this indicator. COVID-19 is a disease that requires long stays in the ICU, thereby increasing hospital occupancy rates in intensive care units. Thus, it is possible to plan the expansion of the structure and the purchase of equipment to welcome patients. Monitoring hospital occupancy levels is very important for solid and adequate hospital management. Management indicators contribute to an adequate understanding of the reality of the institution, helping to take decisions as needed. This contributes to structural improvements so that employees carry out their duties in the best condition. The inpatient nursing unit is one of the most important parts of a hospital building. That is where the treatment and healing of patients occurs. Increasing the efficiency of nursing unit design can reduce patient waiting times, reduce medication errors and increase patient satisfaction, thereby increasing the efficiency of health services provided in hospitals. Lack of knowledge about design factors that can influence the functional performance of nursing units in hospital buildings (Ibrahim, Sherif, & Serag Eldin, 2022). Research conducted in several hospitals in Taiwan stated that nurses' workload is closely related to patient safety. There is an imbalance between salary or salary and the workload of nurses. The results of the study showed that the bed occupancy rate (BOR), and direct care hours as a calculation were statistically significantly correlated with mortality rates, there was a positive correlation between higher occupancy rates and patient severity and mortality. (Chang, Yu, & Chao, 2019).

The BOR value in inpatient rooms at tertiary referral hospitals shows an average of 90.64%, meaning that the use of beds during that period was less efficient. The higher the BOR value means that more beds are used to treat patients compared to the beds that have been provided. In other words, a large number of patients can increase the hospital's economic income. This is supported by research conducted by Laia in the UK which shows that low bed occupancy rates may be a sign that beds are underutilized. However, high bed occupancy rates can also cause problems, including a health system that is not optimal and under pressure, inappropriate practices and care resulting in early discharge of patients, overcrowded facilities, pressure on staff workload, and ultimately poor service quality (Bosque-Mercader & Siciliani, 2023). The BTO value in the inpatient room shows an average of 9.515 days. The higher the BTO number means that each available bed is used by more patients in turn. This certainly benefits the hospital, but the burden becomes high and the beds do not have time to be sterilized because patients continue to use them alternately. This condition easily causes patient dissatisfaction, threatens patient safety, reduces service quality performance, and can increase the incidence of nosocomial infections because beds are not cleaned or sterilized. (Hanry Siahainenia et al., 2020). It is necessary to evaluate the use of beds by looking at each ward or class. Classes or sub-

districts with a low need for beds can be relocated to sub-districts or classes with a high need for beds. Low BTO will also have an impact on BOR and TOI. The cause of the low BTO is due to poor hospital organizational management so that beds are rarely filled with patients. The TOI value in the inpatient room shows an average of 0.315 days. This value shows that the TOI value is very low and very efficient when compared to the predetermined standard, namely 1-3 days. The smaller the TOI number means the faster the bed will be used by the patient. This condition can benefit hospital management because it generates a lot of income. However, apart from that, a smaller TOI value means that the provision of beds is not being carried out properly. As a result, the incidence of nosocomial infections can increase, the workload of the medical team increases so that patient satisfaction and safety can be threatened (May et al., 2023).

Incoming LOS value in the inpatient room on the 1st floor showed an average of 1,921 days. However, this value has not yet reached the efficiency area. From a medical aspect, the lower the LOS number, the better the medical quality performance because patients are treated in a shorter time. From an economic aspect, the smaller the LOS value means the lower the costs the patient must pay to the hospital. There needs to be a balance between medical and economic perspectives to determine the ideal LOS value (Handayani, Tan Suyono, Sri Lestari Nasution, & Girsang, 2022). So, in an effort to maintain patient length of stay (LOS) values according to ideal standards, it is necessary to have a policy from hospital management. Hospitals need to demonstrate the expertise and skills of medical personnel in accordance with standards. Hospitals are advised to improve the quality of service. Service ineffectiveness can result in high workloads, limited work space but continuous use of beds, improving the quality of patients in getting the right service and extending the patient's recovery period. (Sudra, 2010). The decline in performance is greatly influenced by the workload of nurses. Nurse workload is all activities carried out through productive and non-productive activities while on duty providing services to patients. The cause of the decline in performance is the decline in the quality of nursing services.

## **CONCLUSION**

The research results showed that the physical aspect of nurses' workload was high at 76%, the psychological aspect workload was high at 96%, and the time aspect workload was high at 60%. The results of the four parameters, namely BOR, AvLOS, TOI, and BTO at tertiary referral hospitals are still outside the efficient area. The service indicator standard is 75% - 85%, so the BOR trend figure for tertiary referral hospitals does not meet the efficiency standard, namely 90.64%. Several factors that cause the efficiency of inpatient services to not be optimal include the large number of patients admitted to the inpatient ward, the bed management system that is not yet optimal, and limited treatment space but continuous use of beds.

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