

## An Analysis of Health Personnel based on Workload using the WISN Method in Hospital Melati Perbaungan

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### Abstract

*Problems that often occur in organizations are the lack of the number and types of personnel needed, lack of competence (knowledge, skills, attitudes and values) of nursing staff and limited funds from hospitals so that they cannot add and maintain the human resources (HR) they need. . This study aims to determine the need for health workers by calculating the ideal number of health workers (nurses and pharmacists) based on the workload at the Melati Perbaungan General Hospital. This research is a qualitative research using observation techniques, interview guidelines and document review. This study uses research informants where the informants used are the head of the nursing room and the nurse in the inpatient room. Data analysis is the process of systematically searching and compiling data obtained from the results of field observations (work sampling), in-depth interviews and document review. The results obtained: 1) The total use of time for nurses during observations is known that the use of time for direct nursing activities of implementing nurses in the inpatient room is 36.3%, indirect nursing activities is 40.6% and personal activities is 23.1 %. This shows that the activities that are mostly carried out by nurses are indirect nursing activities. This is because nursing activities do not directly have to be carried out and completed in accordance with nursing procedures.*

### Keywords

WISN; workload; nurse



## I. Introduction

In Law Number 44 of 2009 it is stated that one of the health facilities that organizes individual health service activities is a hospital. The hospital provides complete individual health services that provide inpatient, outpatient and emergency services.

Hospitals are public service institutions that are important and needed in an effort to fulfill health demands. Human resources are one of the important components in hospital services. Planning for nursing staff or staffing is an organic function of management which is the basis or starting point of certain implementation activities in an effort to achieve organizational goals (Arwani and Supriyatno, 2013). Problems that often occur in organizations are the lack of number and types of personnel needed, lack of competence (knowledge, skills, attitudes and values) of nursing staff and limited funds from hospitals so that they cannot add and maintain the human resources (HR) they need. (Ilyas, 2011).

Human Resources (HR) is the most important component in a company or organization to run the business it does. Organization must have a goal to be achieved by the organizational members (Niati et al., 2021). There are several aspects that need to be considered in improving the quality of hospital services today, one of which is the aspect of human resources. Human resources are the most important element for an organization. First, because human resources affect the efficiency and effectiveness of the organization, design and produce goods and services, allocate financial resources and determine all

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organizational goals and strategies. Both human resources are the main expenses of the organization in running a business (Rachmawati, 2014).

One of the obstacles to the realization of the professionalism of human resources in the organization is the mismatch between the capacity of the staff and their work. This discrepancy is caused by the composition of skills or staff skills that are not proportional or because the distribution of staff does not yet refer to the real needs or workload in the field. A high workload can certainly cause unwanted negative things (Prastyawati, 2013).

Similarly, through the Decree of the Minister of Health Number: 81/MENKES/SK/2004 has issued Guidelines for the Preparation of Health Human Resources Planning at the Provincial, Regency/City and Hospital Levels. In this guideline, the most appropriate method used in hospitals is the calculation of HR needs using the Workload Indicator Staff Need (WISN) method. The advantages of this method are easy to operate, easy to use, technically easy to implement, comprehensive and realistic. By using the WISN method, it is possible to know the work unit and its HR category, the available working time for each HR category, workload standards, allowance standards, quantity of main activities and finally the HR needs of the work unit can be determined (Depkes RI, 2004).

Sade's research (2012) at the North Mamuju Hospital showed that both the number and type of nursing staff when compared with the workload borne by each officer had not met the needs. The challenge faced by nurses is working without the preparation of adequate knowledge and skills to be able to critically analyze health problems and make the right decisions. This is exacerbated by an inadequate support system, unfavorable working conditions (limited numbers and increased workload). As a result of a high workload, there are often errors in carrying out duties among nurses, both in services, especially nursing services and in administrative tasks such as delays in recording, reporting and such as irregular shift times, so many main tasks.

## **II. Review of Literature**

### **2.1 Workload**

Based on Law Number 36 of 2009 concerning Health, it is stated that workload is the product of the number of jobs with time and the amount of work that must be hit by a position/organizational unit. Every worker can work without endangering himself and the community around him so that it is necessary to harmonize workload, work capacity and work environment to obtain optimal work productivity.

Suma'mur in Tarwaka (2015) defines workload as the burden borne by the workforce according to the type of work. Meshkati in Tarwaka (2015), workload can be defined as a difference between the capacity or ability of workers and the demands of the work that must be faced. Given that human work is mental and physical, each has a different level of loading. The level of loading that is too high allows the use of excessive energy and overstress occurs, on the contrary the intensity of the load that is too low allows boredom and saturation or understress. Therefore, it is necessary to strive for the optimum level of loading intensity that exists between the two extreme limits and of course differs from one individual to another.

Meanwhile, Manuaba (2013) defines workload as the ability of the worker's body to accept work. The physical and psychological abilities of workers must be appropriate and balanced for each workload that a person receives. Workload includes physical workload and psychological workload. Physical workload such as lifting and pushing, while psychological workload in the form of the extent to which the level of ability or expertise

and work performance possessed by individuals with other individuals. The opinion of Marquis and Huston (2010) states that the workload of nurses is all activities or activities in the nursing service unit carried out by a nurse.

Workload as an activity given to employees in an organization or institution has an important role to determine the need for employees needed in the smooth completion of a job where the calculation of the workload requires a certain method or technique to suit the wishes of the institution. Measurement of working time on company operations is called or not usually based on the length of time to make a product or carry out a service (service). This specific statement about the amount of time that should be used to carry out certain activities under normal working conditions is often called labor standard work. This workload analysis technique is the use of ratios or standard staffing guidelines to determine personnel needs.

## 2.2 Type of Workload

Munandar (2012) suggests that the workload includes 2 (two) types, namely:

1. Quantitative workload, including:
  - a. Must carry out participant observation strictly during working hours
  - b. The number of jobs and the variety of jobs to be done
  - c. Direct employee contact with participants continuously during working hours
  - d. Employee to participant ratio
2. Qualitative workload, including:
  - a. The knowledge and skills possessed by nurses are not able to compensate for the difficult work in hospitals.
  - b. High responsibility for nursing care of critically ill patients.
  - c. Hospital leadership expectations for quality services.
  - d. Patient's family demands on patient safety.
  - e. Every time we are faced with making the right decision.
  - f. The task of administering medication intensively.
  - g. Dealing with patients with characteristics of helplessness, coma and terminal condition.

## 2.3 Workload Measurement Technique

Ilyas (2013) suggests that in calculating the workload there are three ways that can be used, namely:

### a. Work Sampling

In 1980, Barnes stated that work sampling is used to measure employee activity by calculating the time used for work and time not used for work in their working hours, then presented as a percentage. According to Niebel (1982) in Suharyono (2005), work sampling is a technique to measure the proportion of each activity pattern from the total time of activities that have been carried out from a work group or work unit.

In work sampling, what is observed is what respondents do where the information needed by this research is the time and activities, not who. So the important thing is what the personnel do, where the activities are observed from a distance (Indriana, 2009).

Barnes (1980) states that there are three main uses of work sampling, including:

1. Activity and Delay Sampling, which is to measure the activity and activity delays of a worker. An example is to measure the percentage of someone working and the percentage of someone not working.

2. *Performance Sampling*, namely to measure the time used for work and time not used for work.
3. *Work Measurement*, To set the standard time of an activity

Things that can be observed with work sampling are:

1. What activities are employees doing during working hours?
2. Are employee activities related to their functions and duties during working hours?
3. Proportion of working time used for productive or unproductive activities
4. The pattern of employee workload is related to time, work schedule.

The work sampling procedure is:

1. Determine the type of employee to be investigated
2. Choose a sample as the subject to be studied if the number of employees is large. Create a list of employee activities that are classified, combined and adapted to the purpose
3. Train observers on how to observe work using *work sampling*, observers should have a background similar to the subject to be observed to facilitate training and implementation of observations. Each observer who observes 5-8 employees.
4. Observations of worker activities are carried out at intervals of every 2-15 minutes, depending on the characteristics of the work. The higher the level of busyness of the observed workers, the shorter the observation time. The shorter the observation time interval, the more samples of observations observed by the observer so that the accuracy of the observations becomes more accurate. Observations were made during operating hours. If the type of energy to be studied functions 24 hours, the observations are carried out throughout the day.

### **b. Time and Motion Study**

In a time and motion study, observers observe and follow closely about the activities carried out by the personnel being observed. In this technique the result is not only the workload of the personnel, but what is more important is knowing well the quality of the work of the personnel.

Research using time and motion study can be used to evaluate the quality level of an education or training certified expertise. In this method, observations are carried out continuously until the work is completed and until the work hours are completed on that day. This activity is repeated the next day. This technique is a difficult job to do, heavy and expensive so it is very rarely done. The possibility of bias can be minimized by increasing the length of observation time so that it can be said that the data obtained are accurate. It can happen because someone will behave better when observed closely by other people. But in the following days people tend to work in a normal rhythm.

### **c. Daily Log**

*Daily log* is a simple form of work sampling, where the person being studied writes down the activities and time spent on the research. The use of this technique is very dependent on the cooperation and honesty of the personnel being studied.

In this method, the researcher usually creates guidelines and forms that can be studied and filled out by the informants themselves. Prior to conducting research, it is necessary to provide an explanation of the purpose and method of filling out the form to the subject of the personnel being studied. It should be emphasized that what matters is the activity, the time, and the duration of the activity. Meanwhile, information about personnel will not be included in the research report.

The analysis results from the daily log can be used to see workload patterns such as when is the workload the highest? What types of work take a lot of time? This method really requires the cooperation of the employees under study so that the results obtained are accurate, meaning that honesty is demanded from the respondents.

The same thing was also stated by Swanburg (1999) (in Aditama, 2010) that there are 4 (four) techniques for calculating the workload of nurses, namely:

1. *Time and task frequency*

This method is carried out with the aim of knowing the quality of work carried out by nurses and the time needed to complete a nursing action properly and correctly. Then the time set is accumulated and the average/score is sought. The steps to calculate are:

- a) Determine the number of nurse samples taken
- b) Make an activity form that will be used to observe and there is a column to write the time.
- c) Determine the observer who can identify the quality of the work to be observed.
- d) Each observer will observe one nurse while working according to *the shift*.

2. *Work sampling*

This method is done by observing what activities the nurse will do. The information obtained with this method is the time and type of activities that nurses are able to do in certain predetermined intervals. Observers must observe from a distance or as if not observing so that nurses work according to their original or habitual behavior so far.

3. *Continuous sampling*

The continuous sampling method is almost the same as work sampling with the difference in the way in which each nurse's activities are continuously observed and recorded in detail and the length of time to carry out these activities is calculated. Recording is done from the time the nurse arrives/starts working until she leaves. Observations can be made to one or more nurses simultaneously.

4. *Self reporting* (variation between time study and task frequency)

The observer will check the list of activities set by the researcher so that it remains only to fill in which activities have been carried out. Daily task form records are made for a certain period of time containing the assigned work. The results of this daily task form can be calculated data about the type of activity, the time and duration of the activity.

### III. Research Method

This research is a qualitative research using observation techniques, interview guidelines and document review. The technique used to obtain the amount of time spent on each activity pattern of the implementing nurse in the inpatient installation of the Melati Perbaungan General Hospital is to use work sampling technique, where the activities of the implementing nurse are carried out. observed will be examined every five minutes for 2 working days. Furthermore, the use of productive time obtained is used to calculate the need for personnel using the WISN method which is then analyzed on the results of the workload and the energy requirements that have been obtained to determine strategies to meet the needs of nurses.

The location of the research was carried out at the Melati Perbaungan General Hospital, The time of the research was carried out in June 2019 to September 2019.

This study uses research informants where the informants used are the head of the nursing room and inpatient room nurses who work at the Melati Perbaungan General Hospital.

Sample criteria are:

1. The inclusion criteria were nurses who served in the inpatient room and were willing to be research informants.
2. The exclusion criteria were nurses who were not on duty in the inpatient room and were not willing to become research informants.

The type of data in this study consists of 3 (three) parts, namely:

1. Primary data is the data obtained in the form of the characteristics of the respondents.
2. Secondary data, namely data obtained from the object of research is the number of health workers at the Melati Perbaungan General Hospital.
3. Tertiary data is data obtained from various very valid references such as journals and others.

Data collection techniques in this study consisted of 3 (three) parts, namely:

1. Primary data is data that has been obtained directly from respondents and collected through filling out questionnaires, questionnaires, interviews and observations.
2. Secondary data is data that has been collected and documented by the Melati Perbaungan General Hospital.
3. Tertiary data is research data that has been officially published such as journals or research reports.

## **IV. Results and Discussion**

### **4.1 Research Site Overview**

This hospital was founded by Mr. Suhardi around 1995, under the name of the hospital "Bunda", which later changed hands to Mr. Hanafi, the parent of Doctor Tondy, who is the doctor on duty as well as the leader at RSU Bunda. Then with the change of the owner of this hospital, it changed its name to RSU MELATI, and already has a Notary Deed with No. C - 199 - HT. 03. 01 - Th. 1992 dated December 15, 1997. Which then continued to experience improvements in the field of services and human resources as well as equipment.

The Perbaungan Melati General Hospital was established on the basis of creating health service facilities that prioritize service, quality and pay serious attention to patient needs, as well as assisting the Government in efforts to improve public health.

Melati General Hospital is located on Jl. Deli 105 - 115 Perbaungan, was established in 1995 with 80 rooms and a capacity of  $\pm$  125 Bet pasien. Likewise, medical and non-medical equipment has been updated to keep up with medical technology. Melati General Hospital in addition to serving the general public also serves Jamkesmas participants and other health insurance. We hope for moral assistance and blessing for the performance of RSU Melati Perbaungan so that it can play an active role and become an adequate health service center according to government recommendations and community expectations.

### **4.2 Analysis of the Workload of Implementing Nurses in the Inpatient Room**

This study describes the activities and time used by the implementing nurse during observations with a work sampling form. The activities carried out are divided into four types, namely direct nursing activities, indirect nursing activities, personal activities and non-productive activities.

**Table 1.** Distribution of Number of Nurses and Number of Patients in Inpatient Rooms

No.	Date and time	Shift					
		Morning		Afternoon		Evening	
		Nurse	Patient	Nurse	Patient	Nurse	Patient
1.	Monday, 16-09-2019	6	32	6	33	6	32
2.	Tuesday, 17-09-2019	6	32	6	33	6	32
Average		6	32	6	33	6	32

Table 1 illustrates that the average number of nurses from each shift is the same, namely six people. The average number of patients in the inpatient room is 32 people.

#### a. Number of Live Nursing Activities

The total time for nursing activities was carried out for two days starting from September 16, 2019 to September 17, 2019 in the inpatient room and getting the results of the amount of time for implementing nurse activities. The amount of time can describe the workload of implementing nurses in the inpatient room for two working days for 24 hours. The following table shows the amount of time for direct nursing activities:

**Table 2.** Overview of the Amount of Time for Implementing Nurse Activities in Direct Nursing Activities for Two Working Days

Live Nursing Activities	Shift					
	Morning (Minute)	%	Afternoon (Minute)	%	Evening (Minute)	%
Measure temperature, pulse and blood pressure	15	10.6	18	12.7	15	10.8
Changing infusion fluids	20	14.2	22	15.5	22	15.8
Installing Infusion	32	22.7	31	21.8	31	22.3
Infusion control	26	18.4	25	17.6	25	18.0
Making the bed	33	23.4	30	21.1	30	21.6
Giving medicine	15	10.6	16	11.3	16	11.5
Amount	141	100	142	100	139	100

In table 2 it is found that the use of time for direct nursing activities for implementing nurses for two days is mostly in the afternoon shift with a total activity time of 142 minutes with the most activity being installing an infusion of 31 minutes (21.8%). The second most time used in the morning shift was 141 minutes with the most activity being nurses cleaning the bed for 33 minutes (23.4%). The third highest use of time was on the night shift, which was 139 minutes with the most activity being nurses putting infusions for 31 minutes (21.8%).

#### b. Amount of Indirect Nursing Activities

The total time for nursing activities was carried out for two days starting from September 16, 2019 to September 17, 2019 in the inpatient room and getting the results of the amount of time for indirect nursing activities.

**Table 3.** Overview of the Amount of Time Implementing Nurse Activities in Activities Indirect Nursing For Two Working Days

Indirect Nursing Activities	Shift					
	Morning (Minute)	%	Afternoon (Minute)	%	Evening (Minute)	%
Check patient status	43	21.9	48	28.7	32	29.4
Create a task report	62	31.6	26	15.6	12	11.0
Receiving office calls	16	8.2	20	12.0	11	10.1
Communicating with the doctor	24	12.2	14	8.4	14	12.8
Shift report	16	8.2	4	2.4	14	12.8
Writing doctor's instructions	11	5.6	6	3.6	5	4.6
Doctor's visit	24	12.2	49	29.3	21	19.3
Amount	196	100	167	100	109	100

In table 3, it is found that the use of time for indirect nursing activities for implementing nurses in the inpatient room for two days is mostly in the morning shift with a total activity time of 196 minutes with the most activity being making task reports of 62 minutes or 31.6%.

The second most time use is in the afternoon shift with a total activity time of 109 minutes with the most activity being doctor visits by 49 minutes or 29.3%. The third highest use of time is on the night shift with a total activity time of 109 minutes with the most activity being checking the patient's status by 32 minutes or 29.4%.

### c. Total Personal Activity Time

The total time for nursing activities was carried out for two days from September 16, 2019 to September 17, 2019. The results of personal activities can be seen in the following table:

**Table 4.** Overview of the Amount of Time for the Personal Activities of the Implementing Nurse RSU Melati Perbaungan for two working days

Indirect Nursing Activities	Shift					
	Morning (Minute)	%	Afternoon (Minute)	%	Evening (Minute)	%
Eat	20	23.5	45	36.0	0	0
Drink	3	3.5	2	1.6	2	3.4
Rest	0	0	5	4.0	0	0
Worship	0	0	15	12.0	0	0
Sitting at the Nurse Station	41	48.2	43	34.4	40	69.0
To toilet	21	24.7	15	12.0	16	27.6
Amount	85	100	125	100	58	100

In table 4, it is known that the use of time for personal activities for implementing nurses for two days is mostly in the afternoon shift with a total activity time of 125 minutes with the most activity being sitting at the nurse station by 43 minutes or 34.4%.



The second highest use of time was in the morning shift with a total time of 85 minutes with the most activity being sitting at the nurse station of 41 minutes or 48.2%. The third highest use of time is on the night shift with a total activity time of 58 minutes with the most activity being sitting at the nurse station for 40 minutes or 69%.

Furthermore, the total working time of the implementing nurses in the inpatient room at RSU Melati Perbaungan can be seen in the following table:

**Table 5.** The Total Use of Working Time for Implementing Nurses Using the Work Sampling Method in the Inpatient Room of RSU Melati Perbaungan Year 2019

Implementing Nurse Activities	Morning		Afternoon		Evening		Total	
	Minute	%	Minute	%	Minute	%	Minute	%
Live nursing activities	141	33.4	142	32.7	139	45.4	422	36.3
Indirect nursing activities	196	46.5	167	38.5	109	35.6	472	40.6
Personal Activities	85	20.1	125	28.8	58	19.0	268	23.1
<b>Amount</b>	<b>422</b>	<b>100</b>	<b>434</b>	<b>100</b>	<b>306</b>	<b>100</b>	<b>1162</b>	<b>100</b>

The total use of time for nurses during observations was known that the use of time for direct nursing activities of implementing nurses in the inpatient room was 36.3%, indirect nursing activities was 40.6% and personal activities was 23.1%. This shows that the activities that are mostly carried out by nurses are indirect nursing activities. This is because nursing activities do not directly have to be carried out and completed in accordance with nursing procedures.

## V. Conclusion

Based on the results of the study it can be concluded as follows:

1. The total use of time for nurses during observations was known that the use of time for direct nursing activities of implementing nurses in the inpatient room was 36.3%, indirect nursing activities was 40.6% and personal activities was 23.1%. This shows that the activities that are mostly carried out by nurses are indirect nursing activities. This is because nursing activities do not directly have to be carried out and completed in accordance with nursing procedures.
2. The number of personnel needed based on workload using the WISN method in the Melati 1 inpatient room at the Perbaungan Melati General Hospital is 12 while there are only 9.

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