



(RESEARCH ARTICLE)



Analysis of needs for nurses with the workload indicator staffing needs (WISN) approach to inpatient services in the Konawe islands regional public hospital, southeast Sulawesi Province, Indonesia 2024

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Abstract

Background: Nurses are health human resources who have a strategic role and make a major contribution to health services to patients in hospitals. The number of health workers on duty in a hospital greatly influences services. The number of inpatient nurses at Konawe Hospital is 13 people compared to the total population, which is still in the low category with a BOR above 80%, which shows that nurses have a high workload.

Objectives: This research aims to determine the analysis of nursing staff needs using the Workload Indicator Staffing Needs (WISN) approach in inpatient services at the Regional General Hospital of Konawe Islands Regency in 2023.

Method: The research carried out was a qualitative descriptive study using the work sampling method. The sample for this research was all 13 inpatient nursing staff at the Konawe Islands Regional Hospital.

Results: Based on the research results, it is known that the calculation of the need for nursing staff based on workload obtained 16.89 number of nursing staff with a WISN ratio of 0.7. The working days available for the HR category are multiplied by the nurses' working time so the total working time available is 1996.8. The ratio of nurses to the number of beds is 13:25 with the number of patients in 2022 being 683 patients. The workload consists of 16 types of activities, the largest of which is changing IV fluids and installing identification bracelets, namely 57048 times, while the smallest workload activities are wound care, changing dressings, nurses going around patient observation rooms, cleaning beds, taking/moving patients to another place, and received patients from other rooms, namely 11410 times.

Conclusion: The current amount of power is smaller than the amount of power needed to run the existing workload. There needs to be an additional 3 people from the existing 13 people to achieve a balanced situation. Therefore, it is necessary to manage nursing staff optimally to achieve quality nursing services, considering the workload of nurses as a reference in determining the need for nursing staff.

Keywords: Personnel needs; Workload; WISN; Inpatient care; Hospital

1. Introduction

According to Republic of Indonesia Law number 44 of 2009 concerning Hospitals, there are various forms of services provided by hospitals, consisting of Inpatient Units (1). A hospital is a place that has health service activities that have special characteristics, which are also influenced by advances in health science, technological developments, as well as social and economic factors in society (2). Hospital is a health service institution that provides complete individual health services providing inpatient, outpatient and emergency services (3).

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Nationally, Indonesia had a total of 2,831 hospitals in 2017 consisting of 2,267 general hospitals and 564 special hospitals. So that in 2023 the number of hospitals in Indonesia will total 3,078 hospitals (4). Health services are a health service subsystem whose main objective is preventive and improvement services targeting the community. Hospital services are currently one of the most important issues in increasing outpatient and inpatient visits to a hospital (5).

According to the Southeast Sulawesi Health Office, there will be 6,607 people working in Southeast Sulawesi Provincial hospitals in 2022 compared to only 4,578 people in 2021. The number of health workers serving in hospitals in 2022 will still be low, with the largest number still being nurses and midwives. Referring to Minister of Health Regulation Number 3 of 2020 concerning Classification and Licensing of Hospitals, in Southeast Sulawesi Province the types of personnel in hospitals are still relatively lacking as are the health personnel who must be present in public hospitals, including: medical personnel, clinical psychology personnel, nursing personnel; midwifery workers, pharmaceutical workers, public health workers, environmental health workers; nutritional staff, physical therapy staff, medical technician staff, biomedical engineering staff (6).

Class D General Hospitals must have medical service facilities and capabilities of at least 2 (two) Basic Specialist Medical Services. The criteria, facilities and capabilities of Class D General Hospitals as referred to in paragraph (1) include General Medical Services, Emergency Services, Basic Specialist Medical Services, Nursing and Midwifery Services, Clinical Support Services and Non-Clinical Support Services. The ratio of nursing staff to beds is 2:3 with the qualifications of nursing staff in accordance with the services at the hospital. Based on direct interviews with several nurses in the inpatient room, the number of patients admitted in 2021 was 443 and in 2022 there were 683. And the need for nurses in the inpatient room needed to be increased and even nurses from other rooms needed to be assisted. . The number of nursing staff in inpatient care is 13 nursing staff, there is no reduction or addition. Each shift consists of 3 nurses in 4 teams, morning shift 08.00-14.00, afternoon shift 14.00-21.00, and night shift 21.00-08.00 WIB (7). To improve the quality of hospital services, a qualified workforce is needed that meets workforce needs. The number of nurses is 13 people which is not comparable to the patients who visit, the work environment is uncomfortable, noisy and hot and the facilities are inadequate. Inpatient BOR reaches above 80% indicating a high workload.

2. Material and Method

The research carried out was descriptive research with qualitative data analysis. The method used in observations to obtain the amount of time used for each personnel activity pattern in the Inpatient Installation of the Regional General Hospital of Konawe Islands Regency is to use the work sampling method, where the activities of the respondents being observed will be examined every ten minutes for six working days. Next, the productive time obtained is used to calculate energy needs using the WISN method.

The research location is the internal room of the Konawe Islands Regency Hospital inpatient installation West Wawonii District. The population of this study were all nurses who worked in the internal ward of the Konawe Islands Regency Regional Hospital. Nurses on duty in inpatient installations are on duty 24 hours, so observations are carried out on all respondents each shift. Primary data collection was carried out using the work sampling method, namely momentary and periodic observations of respondents carrying out activities in the internal room of the Konawe Islands District Hospital's Inpatient Installation. Meanwhile, secondary data collection was obtained from the results of activity reports in the internal room of the Konawe Islands District Hospital's Inpatient Installation, staffing data, as well as the profile of the Konawe Islands Regency Hospital. The data collection instruments used in this research consisted of form 01, namely data on respondent characteristics, form 02, namely work sampling observation sheets, digital clocks and stopwatches. Analysis of the calculation of energy requirements is carried out by calculating the proportion of productive activities (8).

3. Result and Discussion

3.1. Determine the available working time

Table 1 Available working hours for Executive Nurses

Code	Factor	HR/Nursing Category	Information
A	Time work	281	day/year
B	Annual leave	0	day/year
C	education and training	0,4	day/year
D	National holiday	0	day/year
E	Absence from Work	31	day/year
F	Working time	8	Jam/Hari
	Working Days Available	249,6	WorkingDays/Year
	Working Hours Available	1996,8	Hours/Year
		119.808	Minutes/Hours

Source: Primary Data, 2023

The calculation description is as follows:

Working days available for Human Resources category:

$$\begin{aligned} \text{Nurse} &= \{281 - (0 + 0,4 + 31)\} \\ &= \{281 - 31,4\} \\ &= 249,6 \text{ Working days/year} \end{aligned}$$

Working hours are available for the Human Resources category:

$$\begin{aligned} \text{Nurse} &= (249,6 \text{ day/year}) \times 8 \text{ (hour/day)} \\ &= 1996,8 \text{ working hours/year} \end{aligned}$$

Based on the table above, it can be seen that the working time available for executive nurses in the Inpatient Room at Konawe Islands Regional Hospital is 1996.8 hours/year. We can see from the results above that 249.6 is the result of calculating working days minus annual leave, education and training, and work absences. After that, to determine the available working time for HR, the result of the available working days for the HR category is multiplied by the nurses' working time so the total available working time is 1996.8.

3.2. Determine Work Units and HR Categories

Determining work units and HR categories, the aim is to obtain work units and HR categories that are responsible for carrying out individual health service activities for patients, families and the community inside and outside the hospital. Hospital organizational structure, personnel data, professional standards, service standards and standard operating procedures (SOP) really help the process of determining work units and HR categories in hospitals.

Table 2 Work Units, sub-units and energy categories

Work unit	Work Sub Unit	Power Category
Konawe Islands Hospital Inpatient Installation	Class I, II, III inpatient rooms at Konawe Islands Regional Hospital	Nurse

Source: Primary Data, 2023

Based on table 2, the Inpatient Room at Konawe Islands Regional Hospital has a ratio of the number of nurses to the number of beds of 13:25 with the number of patients in 2022 being 683 patients.

3.3. Workload Standards

The workload standard is the volume/quantity of workload for 1 year per HR category. Workload standards for a main activity are prepared based on the time required to complete (average time) and the time available per year for each category of personnel. The workload for each HR category in each hospital work unit includes:

$$\text{Workload Standards} = \frac{\text{Working hours available}}{\text{Average activity time}}$$

Based on the results of observations of nursing activities, the following workload standards were obtained:

Table 3 Calculation of standard workload

Direct Nursing Activities	Average time (minutes)	Workload Standards
Measure temperature, pulse and blood pressure	5	23961
Injury cure	10	11980
Changing IV fluids	2	59904
Changing Dressings	10	11980
Installing an Infusion	4	29952
Check blood sugar	3	39936
Administer oral and injectable medications	5	23962
Installation of identification bracelet	2	59904
Taking blood	6	19968
The nurse goes around the patient observation room	10	11980
Control infusion	3	39936
Making the bed	10	11980
Take/move the patient to another place	10	11980
Receive patients from other rooms	10	11980
Health education	5	23961
Inserting a urinary catheter, observation	5	23961

Source: Primary Data, 2023

Table 3 shows that the standard workload in the Konawe Islands Regency Regional Hospital's inpatient installation is based on measurements of direct nursing activities which consist of 16 types of activities, the largest of which is changing IV fluids and installing identification bracelets, namely 57048 times, while the smallest workload activity is wound care, changing dressings, nurses going around patient observation rooms, cleaning beds, taking/moving patients to other places, and receiving patients from other rooms, namely 11410 times.

3.4. Standar Kelonggaran

Table 4 shows that the biggest slack factor at the Konawe Islands District General Hospital is maternity and sick leave which is 65 days (1560 hours a year), while the smallest slack factor is room meetings (8 hours a year). Documented in the Nursing Section and Personnel Sub-Section, based on calculations it was found that the standard allowance for nurses was 0.83.

Table 4 Main activities and average working time

No	Allowance Factor	Average time	Number	Standard Looseness
Category Allowance Standards (related to indirect productive activities)				
1	Room meeting (3 month)	2 hours/ 3 month	8 hours/year	0.004
Standar Kelonggaran Individu				
1	Education and Training	4 hours/ 2 month	24 hours/year	0.013
2	Maternity and sick leave	65 days/year	1560 hours/year	0.82
Total Allowance Factor				0.83

Source: Primary data, 2023

3.5. Calculation of the number of Human Resources needs

Table 5 Quantity of main activities in inpatient installations

Code	Inpatient Data	Treatment Room
		Inpatient Room
A	Number of bed	25
B	The patient is admitted stays/year	683
C	Average patient per day	3
D	Average length of stay/ LOS-(C x 365)/B	2
E	Hospitalization days per year -(D x B)	1.395
F	Average TT used (DRILL)---E / (A x 365)	20
G	New patients per year --- B	683
H	Older patients per year ----- (E - B)	712

Source: Primary data, 2023

Table 5. The results of calculating the need for nursing staff based on the Workload Indicator Staff Need (WISN) method show that the number of nursing staff needed for the inpatient installation at Konawe Islands Regional Hospital is 29 people. Meanwhile, the number of nurses currently is 13 people, this shows that the care installation

3.6. Calculation of work unit requirements

$$\text{Human Resources Needs} = \frac{\text{Quantity of Main Activities} + \text{Allowance Standards}}{\text{Workload Standards}}$$

With a quantity of main activities of 4,408 a year, the following is a calculation of the need for inpatient nurses at the Konawe Islands Regional Hospital:

Table 6. Calculation of work unit requirements

Name of activity	Workload Standards	Human Resource Needs
Measure temperature, pulse and blood pressure	23961	1.01
Injury cure	11980	1.19
Changing IV fluids	59904	0.90
Changing Dressings	11980	1.19

Installing an Infusion	29952	0.97
Check blood sugar	39956	0.94
Administer oral and injectable medications	23962	1.01
Installation of identification bracelet	59904	0.90
Taking blood	19968	1.05
The nurse goes around the patient observation room	11980	1.20
Control infusion	39936	0.94
Making the bed	11980	1.19
Take/move the patient to another place	11980	1.19
Receive patients from other rooms	11980	1.19
Health education	23961	1.01
Inserting a urinary catheter, observation	23961	1.01
Total		16,89

Source: Primary data, 2023

From the table above, based on the calculation of staff requirements using WISN, it is found that the total need for nursing staff in the Inpatient Installation is 29.42 people.

3.7. Analysis of gaps in nursing staff

The gap between the required number of nursing staff based on WISN and the number of nursing staff currently available

Table 7 Calculation of work unit requirements

Existing energy (a)	Energy requirements (b)	More or less (a-b)	WISN Ratio a/b	Energy problems
13	16,89	-3,89	0,7	Lack of Staff

3.7.1. WISN RATIO

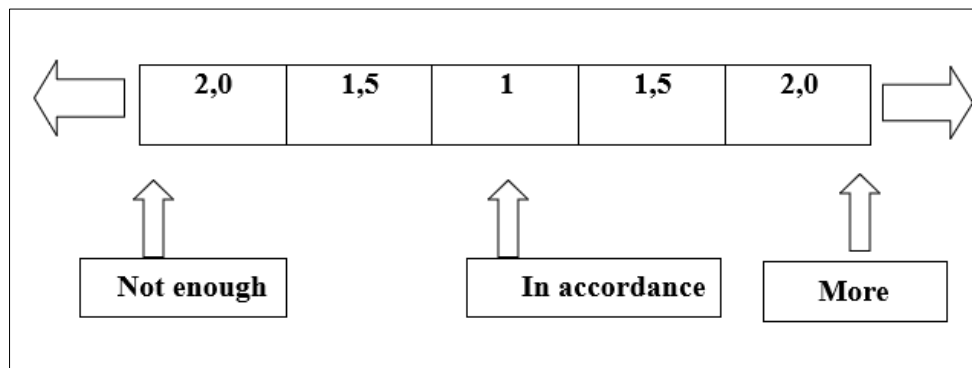


Figure 1 Calculation of work unit requirements

When the WISN Ratio shows -3.89, it can be said to be insufficient. This is also supported by the description of the efficiency level of bed use in the Barber Johnson Diagram which shows that the use of beds during that period was not efficient. What needs to be done is to optimize the performance of the nursing staff available in each unit.

If you look at the results of calculating the need for nursing staff based on the Workload Indicator Staff Need (WISN) method. And this can have a negative impact on hospital services because a lack of staff with a large workload can result in work stress which has a negative impact on patient safety. Inpatient care requires an additional 16 nursing staff.

Research conducted by Harahap, et al in 2021. The results of research based on WISN method calculations show that the need for nursing staff in the Inpatient Room at RSUDdr. R.M. Djoelham Binjai still lacks 3 nursing staff. The conclusion is that there is an influence between working time, nursing staff activity, workload standards (9).

Research conducted by Wahyuni early. The results of Work Sampling observations showed that the two nurses had worked well because their average productive time was 93%. The results of calculations using the Workload Indicator Staff Need (WISN) method show that the need for nurses is 2 people, while the results of the analysis show the need for an additional 1 nurse (10).

If this is allowed to happen continuously, it will also have an impact on nurses, such as decreasing work motivation which in turn will have an effect on nurses' work productivity. The results of this research are not in line with the research of Kusumawardani, et al (2023). The results of the analysis using the Workload Indicator Staff Need (WISN) method show that the workforce needs in the Jenggala surgical inpatient room are appropriate (11). The results of research by Siful, et al (2022) showed that the workload of nurses in the inpatient services at Undata Palu Hospital was very high, namely in the morning 208.21%, in the afternoon 172.57% and at night 106.76% and required an additional 5 nursing staff. people with a WISN ratio who have high workload pressure are room roses with a ratio of 0.8. The jasmine room has a ratio of 0.9 and the aster room has a ratio of 0.9(12).

By using the workload indicator staff need (WISN) method, hospitals can know the exact number of nursing staff needed because it is based on the real workload of nurses. Therefore, it is hoped that the Konawe Islands Regional Hospital can adopt this method in determining the ideal number of nursing staff needed.

4. Conclusion

The available working time for nurses at the Konawe Islands Regional General Hospital Inpatient Installation in 1 year is 250 days or 1997 hours or 119,820 minutes. Determining that the HR category work unit that was examined had a ratio between the number of nurses and the number of beds of 13:25 with the highest number of patients in 2022 being 683 patients. Workload standards are calculated based on the time used for direct nursing activities as the nurse's main activity. The standard allowance for nurses in inpatient installations is 0.83 staff. The total need for nursing staff in Inpatient Installations based on WISN is 16.89 staff with a WISN ratio of 0.7. From the WISN ratio it can be concluded that the current amount of power is smaller than the amount of power needed to run the existing workload. There needs to be an additional 3 people from the existing 13 people to achieve a balanced situation.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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