

# Analysis Of Nurse Needs Using Workload Indicator Staff Need (WISN) Method

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## ABSTRACT

Human resource planning is the first step that must be taken by management to ensure the availability of the right workforce following their work. There needs to be a match between the needs of officers and the number of tasks they must perform so that health services can run well. This study aimed to determine the needs of nurses at the eye clinic of Adi Husada Undaan Wetan Hospital to improve the quality of its services. This quantitative descriptive research is conducted through interviews, direct observation, and reviewing hospital documents. The subject in this study was an optical refractionist who had additional duties as a nurse at an eye clinic. The calculation of nurse needs is carried out using the WISN (*Workload Indicator Staff Need*) method. The analysis results of the nurses' needs at the eye clinic of Adi Husada Undaan Wetan Hospital are two nurses and one optical refractionist. So, at the eye clinic of Adi Husada Undaan Wetan Hospital, there is a shortage of 2 nurses. The management of Adi Husada Undaan Wetan Hospital needs to consider adding nurses to the eye clinic.

**Keywords:** workload; nurse; WISN; optical refractionist

## ABSTRAK

*Perencanaan sumber daya manusia merupakan langkah pertama yang harus dilakukan oleh manajemen untuk menjamin tersedianya tenaga kerja yang tepat sesuai dengan pekerjaannya. Perlu adanya kesesuaian antara kebutuhan petugas dengan jumlah tugas yang harus dikerjakannya supaya pelayanan kesehatan dapat berjalan dengan baik. Tujuan dalam penelitian ini adalah untuk mengetahui kebutuhan perawat di klinik mata Rumah Sakit Adi Husada Undaan Wetan dalam upaya peningkatan kualitas pelayanannya. Penelitian ini merupakan penelitian deskriptif kuantitatif dengan melakukan*

wawancara, observasi langsung dan telaah dokumen rumah sakit. Subjek dalam penelitian ini adalah seorang refraksionis optisen yang memiliki tugas tambahan sebagai perawat di klinik mata. Perhitungan kebutuhan tenaga perawat ini dilakukan dengan metode WISN (Workload Indicator Staff Need). Hasil analisis kebutuhan tenaga perawat di klinik mata RS Adi Husada Undaan Wetan adalah 2 orang perawat dan 1 orang refraksionis optisen. Jadi di klinik mata RS Adi Husada Undaan Wetan kekurangan tenaga 2 orang perawat. Manajemen RS Adi Husada Undaan Wetan perlu mempertimbangkan untuk menambah tenaga perawat di klinik mata.

**Kata kunci:** beban kerja; perawat; WISN; refraksionis optisen

## INTRODUCTION

A hospital delivers comprehensive medical care to individuals and has inpatient, outpatient, and emergency services (Kemenkes RI, 2020). The role of human resources in the hospital is crucial in efforts to achieve the hospital's goals and other resources owned by the hospital. This human resource management process has three main functions: planning, providing, and developing human resources. Human resource planning is the first step that must be taken by management to ensure the availability of the right workforce following their work. The availability of these human resources must be appropriately managed so that health services can run well. The number of tasks performed by health workers can affect the results of their services. There must be a match between the number of officers and the workload or functions that must be done. Many difficulties confront healthcare systems today. Health Care Systems face numerous urgent issues related to a lack of resources, including health workers, costs, and financing (Goetz, Schmidt, Broch Alvarez, Blackaby, & Seksenbaeva, 2022). Company performance management (PM) is common. The health system struggles to balance primary health care (PHC) supply and demand. Planning methods may help human resources organizations make decisions (Al-Qudah, Obeidat, Shrouf, & Abusweilem, 2020; Bonfim, Mafra, da Costa Palacio, & Rewa, 2022).

According to Minister of Health Regulations number 3 of 2020, the number and qualifications of human resource needs are adjusted to analyze hospital services' workload, conditions, and capabilities (Kemenkes RI, 2020). The number of nurses that do not match the number of health service needs for patients can cause an increase in nurse workload (Simamora, 2022). The accuracy of the amount of energy required is an essential condition that must be considered to balance physical and mental aspects in completing their work (Wardanis, 2018). A high workload can cause a decrease in the quality of service to patients, causing dissatisfaction with patients. The problem of shortage of medical personnel must be appropriately considered, whether it requires additional human resources due to excessive workloads, which will affect the quality provided, or the amount of unproductive time spent by HR while on duty (Fajri, Yusni, Usman, Syahputra, & Nurjannah, 2020). The availability of human health resources in hospitals must be a concern, especially in appropriately planning human resource needs and following the service functions of each unit, section, and hospital installation (Akbar, Ali, & Ratnawati, 2020).

Adi Husada Undaan Wetan Hospital is a type B private hospital located in the downtown area of Surabaya, which is equipped with an Emergency Department (IGD), Outpatient Unit, Inpatient Unit, and Operating Room Unit and is supported by Medical Support Facilities. The Outpatient Unit at Adi Husada Undaan Wetan 2022 has 29 specialist clinics, with an average number of visits of 144 patients daily. The eye clinic is one of the clinics in the specialty poly with an average number of visits in 2022 of 10 patients per day. The eye clinic has only an optical refractionist and no nurse assistant. This optical refractionist task is different from that of the nurse, so the optical refractionist also performs the nurse's job. An enterprise's core resources are human resources, and demand forecasting is crucial to their allocation and optimization (Yuan, Qi, Dai, & Liang, 2022). Therefore, proper distribution is needed to place nurses at Adi Husada Undaan Wetan Hospital.

One approach for determining the best number of nurses on staff at the Adi Husada Undaan Wetan Hospital's eye clinic is the WISN (Workload Indicator Staff Need) method. This method is based on the workload performed by the optical refractionist and his other responsibilities as an eye nurse at the Adi Husada Undaan Wetan Hospital's eye clinic. This WISN approach has the advantages of being simple to use, operate, apply, comprehensive, and realistic compared to other methods (Nursalam, 2017). The WISN method, developed in the health sector in the late 1990s and based on a health worker's workload, has been field-tested and put into use in several nations (Silva & Dal Poz, 2022). The Regulation of the Minister of Health of the Republic of Indonesia Number 33 of 2015 about Guidelines for Planning Health Human Resource Needs mentions the WISN technique of estimating human health resources (Permenkes Nomor 33 Tahun 2015, 2015). The Workload Indicator Staff Need (WISN) is a tool that counts the number of staff members required at healthcare institutions based on workload, making it more straightforward and more logical to relocate or change locations (Wahyuningsih, Hakam, & Asriati, 2020). WISN was employed in this investigation.

## **METHODS**

This quantitative descriptive research is conducted through interviews, direct observation, and reviewing hospital documents. The subject in this study was an optical refractionist who had additional duties as a nurse at an eye clinic.

Data collection was carried out at the eye clinic of Adi Husada Undaan Wetan Hospital in May – June 2023. The study's primary data were obtained through interviews and direct observation of the optical refractionists on the activities carried out by the optical refractionists during working hours for two weeks; secondary data were obtained from hospital documents such as available working time, number of visits, and several actions performed.

The research stage uses the WISN stage. The calculation of nurse needs is carried out by entering primary data obtained from observing the time needed in each nurse's work activity during working hours and secondary data into the WISN (*Workload Indicator Staff Need*) formula. The steps taken in calculating WISN include 5: determining available working time, determining work units and HR categories, compiling workload standards, compiling allowance standards, and computing power needs.

## RESULTS AND DISCUSSION

A resource management tool called WISN evaluates staffing requirements based on the workload for a particular staff category, the facility, and the kind of healthcare institution. This tool can be used in health facilities, nationally and regionally. It helps the identification of differences in the human resource requirements among various types of health services, such as health centers and hospitals. It is straightforward to use on a technical, comprehensive, and practical level (Yulliswandi, Megawati, & Nuraini, 2022). Workload analysis attempts to determine how long officers take to accomplish a task to decide how many officers are needed in a work unit. Workload analysis must regularly determine an agency's units' workloads (Ramadhani, Farlinda, & Deharja, 2020). Human resources for health (HRH) are essential to successful health systems (Nair, Jawale, Dubey, Dharmadhikari, & Zadey, 2022). Using the WISN, health managers could analyze nurse workloads, determine staffing requirements, and effectively contribute to workforce planning (Nguyen, Phung, & Bui, 2022). The WISN approach can assist hospital management in tracking the workforce of healthcare providers, especially nurses. To accommodate growing hospital needs, the WISN technique should be incorporated into hospital human resource planning and recruitment efforts (Jing et al., 2022).

According to Nursalam (2017), the first step in the WISN (*Workload Indicator Staff Need*) method is to establish available working time and sufficient working time for one year at the eye clinic of Adi Husada Undaan Wetan Hospital. Adequate working time is obtained by subtracting the number of working days in a year with national holidays, leave, and the number of days absent from work, then the result of the reduction (days/year) multiplied by working time (hours/days). The calculation of adequate working time can be seen in Table 1.

Table 1.

### Setting Available Working Time in 2023

Code	Factor	Total	Description
A	Working days	302	Day/Year
B	Annual Leave	12	Day/Year

C	Public Holidays	14	Day/Year
D	Structured education	5	Day/Year
E	Absence of work	6	Day/Year
F	Working Time	6.67	Hours/Day
Total Working Days = {A-(B+C+D+E)}		265	Day/Year
Working Time Available = {A-(B+C+D+E)} x F		1.768	Hours/Year
Working Time Available in minutes/year		106.053	Minutes/Year

Source: Data from Human Resources Unit of RS Adi Husada Undaan Wetan.

Based on Table 1, we find effective working days for 265 days a year, or 1,768 hours/person/year or equal to 106,053 minutes/person/year.

The second step is determining the work unit and HR category to obtain work units and human resources responsible for providing services. Human resources are placed in the eye clinic according to their competence or education to ensure the quality of service, efficiency, and accountability of service implementation at the eye clinic.

Based on the research results through observation of services according to SOP (Standard Operating Procedure) and interviews with optical refractionists, the main activities of ophthalmologists and optical refractionists were obtained. The main activities of eye nurses are preparing tools, history, and patient education, physician assistants, completing administration, performing tonometry, mydriasis, fluorescence, chemical irrigation, color blindness tests, and schimmer tests. The main activities of optical refractionists are conducting vision examinations, conducting biometrics, and completing administration. Working time at the eye clinic of RS Adi Husada Undaan Wetan starts from 07.00 to 14.00 on Monday to Friday and from 07.00 to 12.00 on Saturday. Determine the available working time following the guidelines for preparing health human resource planning at the provincial, district/city, and hospital levels with a working time of 8 hours/day (Aulia, Gabril, & Luxiarti, 2019).

The third step is to standardize the workload. What is meant by workload standard is the quantity of workload for a year, arranged based on the average time needed to complete an activity and the time available per year. The standard calculation of nurse workload can be seen in Table 2.

Table 2.

#### Standard Workload of Nurses at Eye Clinic RS Adi Husada Undaan Wetan

No	Main activities	Average Time (Minutes)	Workload Standard (minutes/year)
1	Preparing the tool	30	3.535
2	Patient screening and education	10	10.605
3	Perform tonometry	5	21.211
4	Performing mydriasis measures	120	884
5	Performing biometrics	20	5.303
6	Performing Fluorescent	10	10.605
7	Irrigating chemical substances	60	1.768

8	Preparation of the medical assisting	25	4.242
9	Complete administration	30	3.535
10	Perform a schimmer test	10	10.605
11	Perform a color blindness test	15	7.070

Based on Table 2, it can be seen that there are 11 types of actions that nurses in eye clinics should do. Mydriasis is the procedure that takes the longest time. For standard workloads, the most is performing tonometry actions. Optical refractionists have different core activities from nurses. The action for vision examination is a unique principal activity of optical refractionists. Table 3 can be seen as the main activities of optical refractionists.

Table 3.

### Optical Refractionist Workload Standard at Eye Clinic RS Adi Husada Undaan Wetan

No	Main activities	Average Time (Minutes)	Workload Standard (minutes/year)
1	Performing Visus	30	3.535
2	Complete administration	15	7.070
3	Performing biometrics	20	5.303

Based on Table 3. It can be seen that the primary duties of optical refractionists are not as many as those of assistant nurses in eye clinics. Optical refractionists and nurses can perform biometric procedures and complete administration.

The fourth step is to draw up a standard of leniency. The goal is to get the leeway factor from the eye clinic nurse. According to Yulaika and Dzykryanka (2018) in Risti Anggraeni et al. (2020), the relaxation factor is the type of activity and the time needed to complete essential training.

Table 4.

### Calculating Allowance Standards at Eye Clinic RS Adi Husada Undaan Wetan

No	Allowance Factor	Frequency	Time	Allowance (hour/year)	Factor	Standard Allowance
1	Meeting	Four times/month	1.5 hours/times	72		0.04
2	Refresher training	20 hours/year	20 hours/year	20		0.01
3	Committee	Seven days/year	3 hours/day	21		0.01
Standard Allowance						0.06

Table 4 shows that the proportion of meeting factors is 0.04, training and refresher is 0.01, and the committee is 0.01, so the total standard allowance in the eye clinic is 0.06.

The last step is the calculation of energy needs. The goal is to get the number and type of human resources for the eye clinic according to the workload for a year.

Table 5.

**The Need for Optical Refractionists at the Eye Clinic of RS Adi Husada Undaan Wetan**

No	Name of Activity at Eye Clinic	Quantity of Basic Needs (A)	Workload Standard (minutes/year) (B)	Manpower Requirements = (A/B) + Standart Allowance
1	Performing Visus	3281	3.535	0.99
2	Complete administration	300	7.070	0.11
3	Performing biometrics	125	5.303	0.09
Total				1.19
Number of Optical Refractionist Needs at Eye Clinic				1

Based on Table 5. Optical Refractionist Personnel at the Eye Clinic of Adi Husada Undaan Wetan Hospital is calculated to need one optical refractionist worker.

Table 6.

**The Need for Nurses at the Eye Clinic of Adi Husada Undaan Wetan Hospital**

No	Name of Activity at Eye Clinic	Quantity of Basic Needs (A)	Workload Standard (minutes/year) (B)	Manpower Requirements = (A/B) + Standart Allowance
1	Preparing the tool	300	3.535	0.15
2	Patient screening and education	3281	10.605	0.37
3	Perform tonometry	305	21.211	0.08
4	Performing mydriasis measures	210	884	0.30
5	Performing biometrics	0	5.303	0.06
6	Performing Fluorescent	14	10.605	0.07
7	Irrigating chemical substances	2	1.768	0.07
8	Preparation of the medical assisting	300	4.242	0.13
9	Complete administration	300	3.535	0.15
10	Perform a schimmer test	6	10.605	0.06
11	Perform a color blindness test	23	7.070	0.07
Total				1.51
Number of Nurse Needs at Eye Clinic				2

They are based on Table 6. The need for nurses at the Eye Clinic of Adi Husada Undaan Wetan Hospital was calculated to need two nurses. The working time available by nurses at the eye

clinic of RS Adi Husada Undaan Wetan in a year is 265 days, or 1,768 hours or equal to 106,053 minutes. The calculation of available working time is obtained from the total number of working days in a year minus the number of holidays, annual leave, education and training, and average work absence in a year. In determining work units and HR categories, the goal is to obtain work units and human resources that match their competence to provide services: guaranteed service quality, efficiency, and accountability of service implementation at the Eye Clinic. By calculating the work time divided by the average time of the main activities carried out by nurses at the eye clinic of Adi Husada Undaan Hospital, the expected results of the nurse's workload at the eye clinic will be obtained. If the workload is high, it will harm patients through poor service and negative impacts on nurses in the form of fatigue, work stress, and emotions, so job satisfaction is also low (Ross, Rogers, & King, 2019). Staffing of health services ought to consider the workload experienced to maximize efficiency (Namaganda, Whitright, & Maniple, 2022). This is in line with previous research, which states that the WISN method can be used in calculating the number of nursing personnel needed to improve service quality and community and nurse satisfaction. Still, some things must be considered in implementing calculations, which are precise in identifying the completeness of workload data (Soesanto & Ersyad, 2019).

Non-productive time can be interpreted as the time needed to carry out other activities that are not directly related to the main activities but are still beneficial to employees (Subekti & Ekowati, 2022). The following calculation is the standard meeting allowance, refresher training, and committees. What relaxation time means is work time spent doing other tasks that have nothing to do with the main job. The standard allowance in eye clinics is 0.06. The calculation of nurse needs at the eye clinic of Adi Husada Undaan Wetan Hospital using the Workload Indicator Staff Need (WISN) method shows that eye clinic nurses are two people, and optical refractionists are one person. There is currently only one optical refractionist in the eye clinic, requiring two additional nurses. WISN results can help managers make decisions such as a change of health facility status from a health center to a district hospital (Dimiri et al., 2022). WISN is a simple, easy-to-use method that can help decision-makers and policymakers prioritize health workers' recruitment and equitable allocation (Stankovic & Santric Milicevic, 2022). India and South Africa had unique experiences integrating WISN into their health system; none of the countries has yet benefited from implementing WISN due to financial, infrastructure, and technical challenges. Since the methodology developed by the Peruvian Ministry of Health is context-specific, its performance has been promising for health workforce planning (Mabunda et al., 2021). Health managers should plan using WISN. Health workforce decisions should be examined frequently and modified accordingly. To meet health workers' service needs, staffing policies should consider work processes, activity standards, and



workload pressure (Joarder et al., 2020; Tripković et al., 2022). Once health services mapping and human resources for health profiles for each governorate are completed, other parameters (e.g. planned new services; local illness profile; change in health policy) may be included to re-adjust the computation process (Mohamed, Al-Qasmi, Al-Lamki, Bayoumi, & Al-Hinai, 2018).

## **CONCLUSIONS AND SUGGESTIONS**

The results of the analysis of nurses need to be based on WISN (*Workload Indicator Staff Need*) at the eye clinic of Adi Husada Undaan Wetan Hospital are two nurses and one optical refractionist. At the same time, the number of nurses at the eye clinic of Adi Husada Undaan Wetan Hospital is currently only one optical refractionist whose job is also as a nurse at the eye clinic. This shows a shortage of 2 nurses for the eye clinic at Adi Husada Undaan Wetan Hospital. The findings of this study are anticipated to encourage the use of the WISN tool in additional hospitals and healthcare facilities throughout the health system. The results of this study can help the management of Adi Husada Undaan Wetan Hospital as a consideration in taking policies to increase nurses at eye clinics so as not to burden the duties of optical refractionists. Furthermore, the management of Adi Husada Undaan Wetan Hospital can research the calculation of energy needs for clinics and other work units so that the number of personnel following their needs can be obtained.

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### **ETHICAL CONSIDERATIONS**

The research has received ethical approval from the Health Research Ethics Commission, Adi Husada Undaan Wetan Hospital, based on ethical certificate 134 A/RSAH/V/2023. During the research, the researcher pays attention to the ethical principles of information to consent, respect for human rights, beneficence and non-maleficence.

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### **Conflict of Interest Statement**

There is no conflict of interest

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