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Workload Indicator Staffing Need (WISN) as a Method for Analyzing Clinic Health Personnel Needs in Surakarta

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ABSTRACT

Introduction: Health Human Resources (HR) has an important role in providing health services to the community. HR management has a positive effect on organizational performance. Lack of health human resources is an important obstacle in achieving the highest level of health and as a result will limit opportunities to achieve comprehensive health goals. Health workforce planning is an important element in health service planning in building a responsive and efficient health service system. The use of workforce planning methods can contribute to the analysis and decision-making process for allocating the right number of professionals. WISN as a workload-based method can provide more accurate staff needs. This method has been used in various countries and has proven its significance in policy making regarding recruitment, distribution, training and reduction of human resources.

Objective: This research aims to analyze the need for health workers at the Surakarta City Clinic using the WISN method.

Method: This type of research is descriptive qualitative using interview methods with respondents and observation. The research was conducted at the 'Aisyiyah Medical Center Surakarta Clinic. The data was processed using qualitative data analysis and simple statistical techniques.

Result: The research results showed that the need for health workers at the AMC Clinic based on the WISN method was 1 Dentist, 2 General Practitioners, 2 Nurses, 2 Midwives and 1 Pharmacy Personnel, this shows that the Clinic has an excess number of General Practitioner health workers but a shortage of Nurses.

Conclusion: The workload of General Practitioners and Dentists is low, the workload of Midwives and Pharmacy Personnel is normal, and the workload of Nurses is high.

Keywords: Health Workers; Workload; WISN

INTRODUCTION

Lack of Human Resources in the health sector has become one of the major challenges faced globally by health systems. According to the International Labor Organization, there are an average of 34.5 health workers per 10,000 people and about a third of the world's population does not have access to health services due to a shortage of medical personnel (1).

Health human resources have an important role in providing health services to the community. Human Resource Management has a positive effect on organizational performance(2). Adequate numbers of trained health workers ensure good health system performance and the ability to provide quality health services(3). However, this requires the implementation of cost control measures to ensure public health to the greatest extent possible with available health resources (4).

Health workforce planning is an important element in health service planning in building a responsive and efficient health service system.(5). The use of workforce planning methods can contribute to the analysis and decision-making process for allocating the appropriate number of professionals to meet the health needs of a specific population(6).

The World Health Organization introduced the Workload Indicator Staffing Need (WISN) as a useful, simple and rapid approach to convey workforce planning principles based on workload calculations from industry to the health sector(3). Workloads that are too high can have a negative impact on the physical and psychological health of health workers(7).

The WISN method has several advantages, including being very easy to operate, easy to use, technically easy to implement, comprehensive and realistic based on real workloads(8). In contrast to many other workforce planning tools that only consider the number of workers available, the WISN method uses service data and actual work time (AWT) available from health workers to carry out health-related tasks and administrative tasks(9). The success of implementing the WISN method can depend on the availability of resources, financial and material(10).

LITERATURE REVIEW

A health worker is any person who dedicates themselves to the health sector and has knowledge and/or skills through education in the health sector, which for certain types requires authority to carry out health efforts (11). Health Human Resources Planning (HRK) is a process that systematically reviews the state of Human Resources to ensure that the right type, quantity and quality of skills will be available when they are needed(12).

The purpose of HRM or health workforce planning is to meet the organization's appropriate HR needs including type, number and qualifications based on appropriate planning methods in order to achieve health development goals(13).

The WISN method is a human resource management tool to determine how many specific health workers are needed to handle the workload problems of a particular health facility and assess the workload pressure of health workers in that facility(14).

The steps of the WISN method are determining the profession and type of health facility, estimating available working time, defining workload components, setting activity standards, determining standard workload, calculating allowance factors, determining staff needs, and analyzing and interpreting the calculation results(14).

METHOD

This research is a type of descriptive qualitative research. This research was carried out at the Pratama 'Aisyiyah Medical Center (AMC) Surakarta Clinic. The research time is December 2023. Secondary data was taken from December 2022 to November 2023.

Research subjects were employees of the 'Aisyiyah Medical Center Surakarta Clinic. Meanwhile, the research object is Available Working Time (AWT), work units and activities, workload standards, allowance standards and health worker needs. The population in this study were employees of the 'Aisyiyah Medical Center Surakarta Clinic with a sample of 1 person in charge of the clinic.

This research used interview guide instruments and Clinical Accountability Report documents for December 2022 to November 2023. Interview data was analyzed using qualitative content analysis techniques, while secondary data was analyzed using simple statistical analysis techniques.

RESULTS

Available Working Time (AWT)

Available Working Time (AWT) is the time available for a health worker in 1 year to carry out his work taking into account official and unofficial absences. Data was obtained through interviews with the person in charge of the Pratama Clinic 'Aisyiyah Medical Center (AMC) Surakarta.

Table 1. Available Working Days for AMC Clinic Employees

Code	Information	Amount
A	Number of working days available in 1 year	312 days
B	Amount of Annual Leave	12 days
C	Number of Days of Education and Training in 1 year	6 days
D	Number of National Holidays in 1 year	24 days
E	Number of Permission Days Outside Annual Leave	12 days
F	Working Time Per Day	
	- General Practitioner, Dentist, Pharmacist	8 hours/day
	- Midwives and Nurses	7 hours/day

To calculate AWT use the following formula:

AWT= (A-(B+C+D+E)) x F

From the formula above we can calculate the AWT for employees with 8 working hours and employees with 7 working hours.

AWT 8 working hours = (A-(B+C+D+E)) x F
= (312-(12+6+24+12)) x 8 hours
= 2064 hours/year
= 123840 minutes/year

AWT 7 working hours = (A-(B+C+D+E)) x F
= (312-(12+6+24+12)) x 7 hours
= 1806 hours/year
= 108360 minutes/year

So it can be concluded that the AWT of employees with 8 hours of work is 123,840 minutes/year and employees with 7 hours of work is 108,360 minutes/year.

Work Units and Activity Standards

Work units are sub-sections of services within the Clinic, while standard activities are health service activities in the Clinic. The work unit was obtained from interviews with the person in charge of the clinic, while for activity standards and the average time required to carry out activity standards, researchers conducted observations on service activities and each employee at the clinic.

From the results of the interview, it was found that there were 2 work units at the 'Aisyiyah Medical Center Surakarta Clinic, namely AMC 1 and AMC 2. Based on the results of observations, there are several standards for clinical service activities which are differentiated based on the type of profession/human resource category, main activities based on activity standards and the average time for carrying out these main activities. General Practitioners carry out standard service activities with a duration of 5-15 minutes, Dentists 10-40 minutes, Nurses 7-15 minutes, Midwives 5-20 minutes, and Pharmacy Personnel 15 minutes. Standard observation results of activities can be seen in table 2.

Table 2. AMC Clinical Activity Standards

HR Category	Activity Standards	Main Activities
General practitioners	Anamnesis Physical examination Conduct consultations Recipe Writing Writing medical notes	Patient Consultation
	Carrying out medical procedures	Medical treatment
	Anamnesis Physical examination Write the results of the health examination	Medical examination
Dentist	Anamnesis Physical examination Conduct consultations Recipe Writing Writing medical notes	Patient Consultation

HR Category	Activity Standards	Main Activities
Nurse	Prepare tools Carrying out medical procedures tidy up the tools washing and sterilizing tools	Medical treatment
	TTV examination Nursing interventions Writing nursing care	Nursing Services
	Prepare tools Carrying out medical procedures Clean up tools Washing and sterilizing tools	Medical treatment
Midwife	Anamnesis TTV examination Consultation Writing Midwifery care	ANC Services
	Prepare tools Perform implants/IUDs Clean up tools Washing and sterilizing tools	Implant/IUD contraceptive procedures
	Prepare tools Perform injectable contraceptive Clean up tools	Injectable contraceptive procedures
Pharmaceutical Personnel	Prescription review Dispensing Drug information service Calculation of the price of prescription drugs Counseling Monitoring drug therapy Monitor drug side effects	Clinical Pharmacy Services

Workload Standards

The workload standard is the amount of work in the health service workload component that can be carried out by the Clinic within 1 year. The workload standard is obtained by dividing the Available Working Time by the average activity time.

Table 3. Workload Standards

HR Category	Main Activities	Average Time (minutes)	AWT	Workload Standards
General practitioners	Patient Consultation	7	123840	17691
	Medical treatment	15		8256
	Medical examination	5		24768
Dentist	Patient Consultation	10		12384
	Medical treatment	40		3096
Nurse	Nursing Services	7	108360	17691
	Medical treatment	15		8256
Midwife	ANC Services	10		12384
	Implant/IUD contraceptive procedures	20		6192
	Injectable contraceptive procedure	5		24768
Pharmaceutical Personnel	Clinical Pharmacy Services	15	123840	8256

Based on table 3, the main activities that have the highest workload standards are health checks carried out by General Practitioners and birth control injections carried out by Midwives, namely 24768. Meanwhile, the lowest standard workload is medical procedures carried out by Dentists, namely 3096.

Allowance Standards

Allowance standards are the types of activities and time required by health workers to complete activities that are not directly related to patients. To obtain leniency standards, leniency factors must first be determined through interviews with the person in charge of the clinic.

After knowing the allowance factor, the allowance standard can be calculated by dividing the Available Working Time by the Allowance Factor Duration. The calculation result of the allowance standard for Clinic Employees with an AWT of 8 working hours (General Practitioners, Dentists and Pharmacy Personnel) is 0.26. Meanwhile, the standard allowance for Clinic Employees with an AWT of 7 hours (Midwives and Nurses) is 0.30.

Table 4. Standards of Allowance for Employees with an AWT of 8 Working Hours

HR Criteria	No	Allowance Factor	Frequency	Duration (minutes)	AWT (8 working hours)	Allowance Standards
General Practitioners, Dentists, Pharmacy Personnel	1	Coordination meetings	3 hours/month	2160	123840	0.02
	2	Contraceptive Safari	3 hours/month	2160	123840	0.02
	3	Break Time	1 hour/day	18720	123840	0.15
	4	Recitation/Tadarus	1 hour/week	2880	123840	0.02
	5	Exercise	1 hour/week	2880	123840	0.02
	6	Millad University	6 hours/year	360	123840	0.003
	7	Baitul Arqam/Rihlah	2 days/year	2880	123840	0.02
			TOTAL			0.26

Table 5 Standards of Allowance for Employees with an AWT of 7 Working Hours

HR Criteria	No	Allowance Factor	Frequency	Duration (minutes)	AWT (7 working hours)	Allowance Standards
Midwives, Nurses	1	Coordination meetings	3 hours/month	2160	108360	0.02
	2	Contraceptive Safari	3 hours/month	2160	108360	0.02
	3	Break Time	1 hour/day	18720	108360	0.17
	4	Recitation/Tadarus	1 hour/week	2880	108360	0.03
	5	Exercise	1 hour/week	2880	108360	0.03
	6	Millad University	6 hours/year	360	108360	0.003
	7	Baitul Arqam/Rihlah	2 days/year	2880	108360	0.03
			TOTAL			0.30

Need for Health Workers

The need for health workers can be calculated using the following formula:

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

Activity Quantity is the standard number of activities carried out in 1 year. The quantity of activities in this research was obtained from secondary data in the form of Clinical Accountability Reports for December 2022-November 2023.

Table 6. AMC Surakarta Clinic Health Personnel Needs

Types of Health Workers	Work unit	Main Activities	Activity Quantity	Workload Standards	Allowance Standards	HR needs	Total HR Needs	WISN ratio
Dentist	AMC 1	Medical treatment	14	3096	0.26	0.26	0.27	3.7
		TOTAL				**0.26**		

Types of Health Workers	Work unit	Main Activities	Activity Quantity	Workload Standards	Allowance Standards	HR needs	Total HR Needs	WISN ratio
General practitioners	AMC 1	Patient Consultation	2542	17691	0.26	0.40	1.84	1.6
		Medical treatment	418	8256	0.26	0.31		
		Medical examination	156	24768	0.26	0.27		
		TOTAL				**0.98**		
	AMC 2	Patient Examination	1504	17691	0.26	0.34		
		Medical treatment	51	8256	0.26	0.26		
		Medical examination	21	24768	0.26	0.26		
		TOTAL				**0.87**		
Nurse	AMC 1	Nursing Services	3116	17691	0.30	0.47	1.50	0.6
		Medical treatment	418	8256	0.30	0.35		
		TOTAL				**0.82**		
	AMC 2	Nursing Services	1525	17691	0.30	0.38		
		Medical treatment	51	8256	0.30	0.30		
		TOTAL				**0.68**		
Midwife	AMC 1	ANC Services	7	12384	0.30	0.30	1.79	1.1
		Implant/IUD contraceptive	62	6192	0.30	0.31		
		Injectable contraceptive	33	24768	0.30	0.30		
		TOTAL				**0.90**		
	AMC 2	ANC Services	0	12384	0.30	0.30		
		Implant/IUD contraceptive	0	6192	0.30	0.30		
		Injectable contraceptive	11	24768	0.30	0.30		
		TOTAL				**0.89**		
Pharmaceutical Personnel	AMC 1	Clinical Pharmacy Services	2888	8256	0.26	0.61	1.05	0.9
		TOTAL				**0.61**		
	AMC 2	Clinical Pharmacy Services	1482	8256	0.26	0.44		
		TOTAL				**0.44**		

The results of the above calculations are then rounded up to obtain the results of the need for health workers at the AMC Clinic based on the WISN method, namely 1 Dentist, 2 General Practitioners, 2 Nurses, 2 Midwives and 1 Pharmacy Personnel.

The WISN ratio is calculated to determine the workload of health workers at the clinic. The WISN ratio is calculated by dividing the number of existing human resources by the number of human resources based on the

WISN method. The results of the WISN ratio calculation are categorized into several workload levels, namely low >1.2; normal 0.90 – 1.19; quite high 0.70 – 0.89; high 0.50 – 0.69; very high 0.30 – 0.49; very, very high 0.10 – 0.29(1).

Based on these categories, it is known that Dentists have a WISN ratio of 3.7 (low workload), General Practitioners have a WISN ratio of 1.6 (low workload), Nurses have a WISN ratio of 0.6 (high workload), Midwives have a WISN ratio of 1 .1 (normal workload), and Pharmacists have a WISN ratio of 0.9 (normal workload).

DISCUSSION

Available Working Time (AWT) for AMC Clinic health workers who work 8 hours/day (General Practitioners, Dentists and Pharmacy Personnel) is 123840 minutes/year, while for health workers who work 7 hours/day (Midwives and Nurses) is 108360 minutes/year. These results are different from other similar studies due to several factors such as the number of days of permission other than annual leave and the number of days of training provided by the AMC Clinic to its employees which is different compared to other clinics or hospitals.

There are 2 work units at the AMC Clinic, namely AMC 1 which serves academic community and general patients, and AMC 2 which only serves academic community patients. The standard activities at the AMC Clinic focus on health services, namely patient consultations, medical procedures, health examinations, nursing services, ANC, implant/IUD installation, birth control injections and pharmaceutical services. This activity is carried out for a duration of 5-40 minutes depending on the type of activity.

The highest workload standard is a medical examination carried out by a General Practitioner and birth control injections carried out by a Midwife, which is 24768. Meanwhile, the lowest standard burden is a medical procedure carried out by a Dentist, namely 3096. It is important to know the workload as a basis for knowing capacity. work of health workers and to achieve a balance between the number of health workers and workload(8).

The allowance standard for General Practitioners, Dentists and Pharmaceutical Personnel is 0.26. This means that each General Practitioner, Dentist and Pharmaceutical Personnel has a slack factor of 26% of the total available working time. Meanwhile, the slack standard for Midwives and Nurses is 0.30, which means that Midwives and Nurses have a slack factor of 30% of the total available working time.

The number of AMC Clinic General Practitioners exceeds the required number. The results of calculations using the WISN method show that the number of General Practitioners needed is only 2 people, while the current number of General Practitioners is 3 people. The WISN ratio also shows a low level of workload due to an excess number of workers. This is in line with research Arifuddin, Sakka and Saptaputra (2016) which shows that the Muna Regency Regional Hospital has an excess number of General Practitioner health workers. This could be because all the General Practitioners who work at the AMC Clinic also work in other places, so no one can work at the AMC Clinic fully 6 days a week, so the need for Doctors becomes excessive to cover the need for service time. Apart from that, if one of the General Practitioners is unable to attend, another Doctor can take his place.

The number of midwives at the AMC Clinic is sufficient, namely 2 people. Each midwife is allocated to work in AMC 1 and AMC 2 work units alternately. The WISN ratio shows that the workload of Midwives at the AMC Clinic is normal. Midwives and nurses at the AMC Clinic work in 2 alternating shifts, namely the morning shift (07.00-14.00 WIB) and the afternoon shift (09.00-16.00 WIB). Meanwhile, other health workers work only in 1 shift (08.00-16.00 WIB). These different work shift conditions can be one of the factors in the differences in workload received between health workers(7).

The number of Dentists and Pharmacy Personnel in the Clinic is also sufficient for the Clinic's needs, namely 1 Dentist and 1 Pharmacy Personnel. The WISN ratio shows a low workload for Dentists and a normal workload for Pharmacy Personnel. The pharmaceutical staff at the clinic are pharmacists. These Dentists and Pharmacists are only allocated to the AMC 1 work unit, because AMC 2 does not accept general patients, so the number of patients at AMC 2 is also less than AMC 1. Therefore, academics who wish to have dental examinations are usually advised to go to AMC 1.

The number of nurses at the AMC Clinic is not sufficient. Based on WISN calculations, the need for nurses is 2 people, while the current number of nurses is only 1 person. The results of this study are in line with research Ekawati (2018) which shows that Hospital X in Yogyakarta is experiencing a shortage of nursing health workers. The WISN ratio also shows that the workload of nurses at the AMC Clinic is high. High workload pressure can trigger fatigue so that service quality is disrupted(1). This is due to a lack of the number of nurses needed. Labor shortages can reduce productivity, which can trigger work stress and can have an impact on patient safety(8).

In managing the high workload of nurses, clinics can make efforts to recruit health care workers. Apart from that, clinics can also implement a clear work system, avoid providing work beyond the capacity and abilities of employees, and can provide assistance to work units that are felt to have excessive service density(7).

CONCLUSION

The need for health workers at the AMC Clinic based on calculations using the WISN method is 1 Dentist, 2 General Practitioners, 2 Nurses, 2 Midwives and 1 Pharmacy Personnel. Meanwhile, the current number of health workers is 3 General Practitioners, 1 Dentist, 1 Nurse, 2 Midwives and 1 Pharmacist. It can be concluded that the AMC Clinic has a number of General Practitioners that exceeds needs, but the Clinic also lacks the number of Nurses.

The WISN ratio results in a low workload for General Practitioners and Dentists, a normal workload for Midwives and Pharmacy Personnel and a high workload for Nurses.

SUGGESTION

It would be better if the 'Aisyiyah Medical Center Surakarta Clinic recruits nursing health workers to reduce the high workload of nurses.

It would be better for the 'Aisyiyah Medical Center Surakarta Clinic to manage human resources better, so as to achieve employee satisfaction and have an impact on good health services.

Other researchers are advised to research the needs for human resources or health workers in other health facilities, especially those that have never applied the WISN method as a method for analyzing workforce needs based on workload.

ETHICS COMMISSION

This research has received approval from the Health Research Ethics Commission (KEPK) Faculty of Medicine, Muhammadiyah University of Surakarta No. 5144/B.2/KEPK-FKUMS/XI/2023.

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