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Relationship of knowledge and patient activity with malaria incidence

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ABSTRACT

Malaria is a life-threatening disease and can cause death. Attitudes and behaviors of respondents related to risk factors for malaria transmission and also respondents' habits in carrying out malaria prevention and treatment efforts. The purpose of this study is to determine the relationship between knowledge and patient activity with the incidence of Malaria. This research was conducted at Lukas Enembe Kabupaten Regional General Hospital Mamberamo Tengah. The research design used a cross sectional design with a sampling technique, namely total sampling with a sample of 35 respondents. The study was conducted in November 2022. The data analysis used is a chi square test with a significance value of p < (0.05). The results showed that most respondents had good knowledge about malaria (80%) and most respondents had daily activities in the good category (54.3%). Knowledge and behavior of respondents' activities related to risk factors for malaria transmission and also respondents' habits in carrying out malaria prevention and treatment efforts.

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INTRODUCTION

Malaria has become a global health problem and is endemic in 105 countries, including Indonesia. Morbidity and mortality rates are still high, especially in areas outside Java and Bali, especially in transmigration areas there is often an explosion of cases or outbreaks that cause many deaths (Maslachah, 2022; Utami et al, 2022) . Malaria is one of the infectious diseases that is still a world health problem. Almost in all tropical or sub-tropical countries malaria cases are still found, one of which is in Indonesia, which is one of the malaria endemic countries in Southeast Asia (Annisa et al., 2019; Siwal et al, 2018) . Indonesia is an area with a tropical climate that allows the breeding of mosquitoes both anopeles, armigeres, Aedes eegyti and Aedes albopictus as well as other mosquito species (Timah, 2019; Mareta, 2018) .

The five provinces with an incidence of malaria morbidity rate of 1,000 population are Papua (39.93%). West Papua (10.20%), East Nusa Tenggara (5.17%), Maluku (3.83%), and North Maluku (2.44%). The morbidity rate of malaria from year to year has decreased, this can be seen from 2013 the morbidity rate of malaria was 1.30% then in 2014 it became 0.69% then in 2015 it

decreased to 0.49% and finally in 2016 it decreased to 0.25%. This achievement makes Papua the first place in Indonesia. Based on data, the overall number of malaria cases in 2019 in Indonesia was 250,644 cases. The highest case, 86%, occurred in Papua Province with 216,380 cases (Jarona, 2022) .

Based on data from the 2020 Papua Provincial Health Office Profile, the number of malaria suspects in Papua is 1,256,858 people, laboratory confirmed 773,899 people, 216,380 people positive for malaria, who underwent treatment 176,691 people, who died 27 people. Data from the Central Mamberamo District Health Office 2018 shows that malaria cases rank 10th in the top 10 diseases, namely 1.9% or 103 people, at Lukas Enembe Hospital malaria cases have increased dramatically from January 2022 to September 2022 where malaria cases have reached 356 people.

Malaria is a life-threatening disease and can cause death. This disease is caused by protozoan parasites of the genus Plasmodiumwhich are transmitted to humans through the bite of a female Anopheles mosquito (Province, 2020). Complications of malaria can cause death including cerebral malaria with symptoms of impaired consciousness, namely coma, severe anemia, kidney failure in children and adults, pulmonary edema that causes Acute Respiratory Distress, and circulatory failure or shock and spontaneous bleeding from the nose, gums and digestive organs. Malaria with complications is the cause of high mortality rates in pregnant women, the occurrence of stillbirth, miscarriage and perinatal death, and the birth of babies with low body weight (Muhajir et al., 2022; Luzolo, & Ngoyi, 2019) .

Respondents' attitudes and behaviors related to risk factors for malaria transmission and also respondents' habits in carrying out malaria prevention and treatment efforts include, namely the installation of wire gauze on ventilation will cause smaller contact of mosquitoes outside the house with residents of the house, where mosquitoes cannot enter the house (Harya, 2021; Rosita, Yustina, & Marsaulina, 2017) .

The environment and habits of the community are one of the important factors in the incidence of malaria (Perdana, 2021) . The environment has a role in enabling vectors that mediate malaria vectors. Malaria is an infectious disease caused by Plasmodium, which is a one-celled living thing belonging to the protozoan group, malaria is transmitted through the bite of a female Anopheles mosquito that contains plasmodium in it (Govella, Chaki, & Killeen, 2013) . The spread of malaria is caused by physical and biological environmental factors and behaviors that can support the occurrence of malaria (Siregar, & Saragih, 2021; Melati, & Susilawati, 2022) . This study aimed to determine the relationship between knowledge and activity of patients with the incidence of malaria. With this in mind, it is hoped that definite steps can be taken to reduce the burden of malaria and improve the quality of life of the people concerned. Increasing awareness, health education, appropriate interventions, and improvements in health policies can help reduce the incidence and negative impact of this disease.

RESEARCH METHOD

This research was conducted at Lukas Enembe Regional General Hospital, Central Mamberamo Regency, which was carried out in November 2022. This study used a cross sectional design design using total sampling, namely the total of all patients diagnosed with malaria in the past month who came for treatment at Lukas Enembe Regional General Hospital, Central Mamberamo Regency with a total of 35 respondents. The instrument used is a questionnaire directly given to respondents. The statistical test used in this study was the chi square test with a significance value of $p < (0.05)$.

RESULTS AND DISCUSSIONS

Results

Characteristics of Respondents

This research was conducted by distributing questionnaires to 35 respondents. The sample in this study was divided into four characteristics based on age, gender, educational background and work. The explanation of the respondents based on the characteristics is detailed in Table 1 below:

Table 1. Characteristics of respondents

No.	Characteristics of respondents	n	%
1	Age Group (years)	Frequency	Persentage
	21-30	9	25.7
	31-40	10	28.6
	41-50	10	28.6
	51-60	5	14.3
	> 60	1	2.9
	Total	35	100
2	Gender	Frequency	Persentage
	Man	20	57.1
	Woman	15	42.9
	Total	35	100
3	Last education	Frequency	Persentage
	Elementary school	1	2.9
	Junior high school	9	25.7
	Senior high school	22	62.9
	Diploma	2	5.7
	Bachelor	1	2.9
	Total	35	100
4	Work	Frequency	Persentage
	Private employees	5	14.3
	Self employed	2	5.7
	Farmer	15	42.9
	IRT	9	25.7
	Religious figures	1	2.9
	Student	1	2.9
	Labourer/handyman	2	5.7
	Total	35	100

Table 1 showed that most respondents are aged 21 – 30 years and 31 – 40 years (28.6%), are male (57.1%), have a recent high school education (62.9%) and make a living as farmers (42.9%).

The Relationship of Knowledge of Malaria with the Incidence of Malaria in Hospitals

Respondents' responses to the knowledge dimension consisted of two indicators as described in Table 2 below:

Table 2. The Relationship of knowledge about malaria with the incidence of malaria

Knowledge	Incidence of malaria reinfection				Total		P value
	Reinfection		First case				
	n	%	n	%	n	%	
Good	17	65.4	9	34.6	26	74,3	0.04
Less	9	100	0	0	9	25,7	
	Total				35	100	

Table 2 of the 26 respondents who had good knowledge about malaria, 65.4% of them had malaria reinfection. While of the 9 respondents who had less knowledge about malarian, 100% experienced malaria reinfection. The results of the chi square test obtained a p value of 0.04 (<

0.05), which means that there is a relationship between knowledge about malaria and the incidence of malaria at Lukas Enembe Regional General Hospital.

Activity Relationship with Malaria Incidence

Respondents' responses to the activity dimensions consisted of two indicators as described in Table 3 below:

Table 3. Activity relationship with malaria incidence

Daily activities	Incidence of malaria reinfection				Total		P value
	Reinfection		First case				
	N	%	n	%	n	%	
Good	10	52.6	9	47,4	19	54,3	0.001
Less	16	100	0	0	16	45,7	
Total					35	100	

Table 3 showed that of the 10 respondents who had daily activities in the good category, 52.6% of them had malaria reinfection. Meanwhile, of the 16 respondents who had daily activities in the less category, 100% experienced malaria reinfection. The results of the *chi square* test obtained a p value of 0.001 (< 0.05), which means that there is a relationship between daily activity and the incidence of malaria at Lukas Enembe Regional General Hospital.

Discussion

The results showed that there was a relationship between knowledge about malaria and the incidence of malaria The results also showed that most respondents had good knowledge about malaria (80%). Knowledge is one of the factors that encourage the occurrence of diseases including malaria, knowledge is a very important domain for the formation of one's behavior, including among behaviors in efforts to prevent and treat malaria (Supranelfy &; Oktarina, 2021) . Knowledge about the threat of a disease affects malaria attitudes and prevention measures (Sahiddin et al, 2019) .

Public knowledge about malaria affects the process of spreading malaria because people will not care about malaria. Increased knowledge does not always lead to behavioral changes. Knowledge is indeed an important factor but does not underlie changes in health behavior, although people know about malaria they do not necessarily want to carry it out in the form of prevention and eradication efforts (Rogerson et al, 2020) .

This is also supported by the theory according to (Go et al, 2018) which states knowledge is the result of knowing, and it occurs after people sense a certain object. Sensing occurs through the five senses of man, the senses of sight, hearing, smell, taste and touch. Most human knowledge is acquired through the eyes and ears. Knowledge or cognitive is a risk factor for malaria events, because the knowledge a person has can be a motivation driver to behave and do for that person so that if someone has good knowledge about things related to malaria will be motivated to behave and act against malaria.

The results also showed that there was a relationship between daily activity and the incidence of malaria in patients at Lukas Enembe Regional General Hospital. The results showed that most respondents had daily activities in the good category (54.3%). This is in line with research that states that there is a relationship between attitudes and behaviors with the degree of infection in patients with new falsiparum malaria (Oktafiani et al, 2022) .

The respondent's action in carrying out 3M (draining, burying, closing) towards malaria prevention based on the theory of Snehandu B. Kar in Notoatmodjo, states that the health behavior of a person or community is determined by people's intentions towards health objects whether or not there is support from the surrounding community, the presence or absence of health information, the freedom of individuals to make decisions or act in situations that allow to behave or act or not behaving inaction, so it can be concluded that in carrying out an action the intention

is also very important, even though he has good knowledge about malaria prevention if it is not based on intention, then doing an action or preventive action for malaria will not be carried out properly (Fitriana, 2019) .

In accordance with geographical conditions, most people have farming and gardening jobs, so when working in gardens / forests, you should wear protective clothing such as pants and long-sleeved clothes, which can cover all limbs from mosquito bites, to avoid the entry of mosquitoes into the house, it is necessary to install wire gauze on the ventilation of the house properly (Annisa et al, 2019) . Another example of malaria prevention measures is to install insecticide-treated mosquito nets. This is in accordance with research that states that there is a relationship between the installation of insecticide-treated mosquito nets and the incidence of malaria (Supranelfy &; Oktarina, 2021) .

Knowledge and behavior of respondents related to risk factors for malaria transmission and also respondents' habits in carrying out malaria prevention and treatment efforts including, namely the installation of wire gauze on ventilation will cause smaller contact of mosquitoes outside the house with residents of the house, where mosquitoes cannot enter the house (Marpaung & Ayomi, 2022) . The habit of going out at night is also an activity that is at risk of causing malaria transmission (Christy, Tanumihardja, & Handayani, 2019) . The spread of malaria is caused by physical and biological environmental factors and behaviors that can support the occurrence of malaria (Sinka eta al, 2020; Sato, 2021) . Some factors in terms of community behavior are considered to contribute to the onset of malaria, namely the behavior of people who move outside the home at night. Several factors in terms of community behavior are considered to contribute to the onset of malaria, namely the behavior of people who do not use insecticide-treated mosquito nets, the habit of using mosquito coils, using repellents (Septira & Susilawati, 2022) .

CONCLUSION

Knowledge and behavior of respondents' activities related to risk factors for malaria transmission and also respondents' habits in carrying out malaria prevention and treatment efforts Assistance in the implementation of malaria prevention not only provides counseling in order to increase knowledge. The community can be given understanding and encouragement to carry out malaria prevention efforts such as using mosquito nets and using mosquito repellent at night.

Research on the Relationship between Patient Knowledge and Activities and Malaria Incidence has important implications for the health sector such as increasing public awareness, where this research can help increase public awareness about the importance of knowledge about malaria and activities related to the prevention and control of this disease. With a better understanding of the risk factors and modes of transmission of malaria, people will be more inclined to take appropriate preventive measures. In addition, the results of this study can be the basis for designing more effective and targeted health education programs. Health education efforts targeted at knowledge about malaria and appropriate preventive measures can help reduce the incidence and spread of this disease. Lastly, this research can also provide insight to health workers about the importance of digging up information about the knowledge and behavior of patients related to malaria.

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