Correlation between Knowledge and Attitude with Malaria Prevention Practices in the Working Area of the Kabawo Public Health Center

Arimaswati[1*], Ninis I. Octasari[2], Ashaeryanto[1], Indria Hafizah[1], Pranita Aritrina[1]

[1]Faculty of Medicine, Universitas Halu Oleo, Kendari, Indonesia
[2]Bachelor of Medicine, Faculty of Medicine, Universitas Halu Oleo, Kendari, Indonesia
Corresponding author e-mail: arimaswati82@gmail.com

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ABSTRACT

Background: *Malaria is still one of the public health problems in Southeast Sulawesi Province. Annual Parasite Incidence (API) in the work area of Kabawo Primary Health Center was 48.90‰ in 2016. Limited public knowledge is an essential determinant of the emergence of malaria and influences community participation in malaria prevention programs.* ***Purpose:*** *This research aims to determine the relationship between knowledge and behavior in malaria prevention practices in the work area of Kabawo Primary Health Center.* ***Methods:*** *This research was an observational analytic design using a cross-sectional approach. The dependent variable in this research was malaria prevention practice, and the independent variable was knowledge and behavior. The research location was in the Kabawo Primary Health Center's working area, with 56 respondents using the total sampling method. Data were obtained by filling out the knowledge questionnaires, behaviors and practices, and interviews. Data analysis used a spearman rank statistical test with a p-value <0.05 and contingency coefficient (r-value).* ***Result:*** *The result of this research of 56 respondents found 22 respondents (39.3%) had good knowledge, good behavior, and good prevention practices, as many as 12 respondents (21.4%) had good knowledge, good behavior, and less of prevention practices, as many as 22 respondents (39,3%) have less knowledge, less behavior and less of prevention practices. Based on the results of the Spearman rank statistical test analysis, it was found that the knowledge and behaviors with malaria prevention practices showed the p-value of 0,000 <0,05 with the value r = 0,647.* ***Conclusion:*** *This research concluded that there was a relationship between knowledge and behaviors to prevention practices in the work area of Kabawo Primary Health Center and had a strong correlation between variables with a positive correlation direction, meaning that the better knowledge and behaviors, the better prevention practices.*

Keywords: *attitude; knowledge; malaria; prevention practice*

INTRODUCTION

Malaria continues to be a threat to the public's health in the Southeast Sulawesi Province. The Basic Health Research (Riskesdas) findings showed that the prevalence of malaria in Southeast Sulawesi in 2007, which was 2.16 %, increased to 5.6 % in 2013. It represents a two-fold increase from 2007. This number is lower than the average for the whole country, which is 6%. Annual Parasite Incidence (API), which was 0.28 in 2008 and has since increased to 0.46 in 2016, has more than doubled. As a result of the lack of activities carried out in the context of finding sufferers, the Parasite Rate (PR) value is still relatively high at 6.68 %,

which means that Southeast Sulawesi is a region that falls under the High Prevalence Area (HPA) category. It is one of the challenges encountered in eradicating malaria (Kementerian Kesehatan Republik Indonesia, 2014; Provincial Health Office of Southeast Sulawesi, 2016).

Within Southeast Sulawesi Province, the Muna Regency is considered one area that falls into the moderate endemic category (Medium Case Incidence/MCI). In 2014, the API rate was reported to be 1.86, then it rose to 1.89 in 2015, then to 3.90 in 2016, with the distribution of cases spread across 19 out of 22 sub-districts in the Muna Regency. The Kabawo District had the most cases in 2016, comprising 611 reported incidents (Nurmaladewi, 2015; Muna District Health Office, 2016).

There is a high risk of contracting malaria in the area where the Kabawo Public Health Center works in the Muna District. The API numbers have been steadily climbing since 2013 when they reached a high of 9.3; in 2014, they reached a high of 21.27; and in 2016, they reached a high of 48.90. This figure represents the API's highest level in the past three years. The working area of the Kabawo Health Center is considered to be in an area with a High Case Incidence (HCI), which is determined by the API value (Nurmaladewi, 2015).

Malaria, like the vast majority of infectious diseases, has been on the verge of eradication for a very long time. This process began with eliminating the factors that caused the disease and continued with implementing preventative measures (Sumampouw, 2017). According to the Ministry of Health (2014), the degree to which the general public is aware of the dangers posed by malaria can affect the community's willingness to engage in preventative behavior to reduce the risk of becoming infected with malaria. The adoption of preventative measures, such as the practice of going out late at night, the performance of activities related to environmental sanitation, the utilization of mosquito nets, the utilization of household insecticides, the utilization of repellent, the utilization of closed clothing, and the installation of wire screens on doors and windows, are indicators of public awareness.

High cases of malaria can have impacts in the form of anemia, abortion, fetal death, prematurity, low birth weight, and quite high economic losses. Therefore, to reduce morbidity and mortality, malaria eradication efforts are all aimed at breaking the chain of malaria transmission between host, agent, and environment. Breaking the chain of transmission must be aimed at the right target, namely, vector eradication and vector control (Mahmudi et al., 2015; Kementerian Kesehatan Republik Indonesia, 2011; Ridwan, 2017).

The movement to prevent malaria has not successfully eliminated the disease, particularly in regions where it is endemic. In addition, there is always the possibility of getting sick because the problem of preventing the transmission of the illness has not been solved to the point where it is completely eradicated. Inadequate levels of public education are a significant factor in the development of malaria and influences community participation in programs designed to prevent the disease (Akay et al., 2015).

Given the facts presented above, the authors have stated a desire to do research on the relationship between knowledge and attitudes toward malaria prevention activities in the Kabawo Public Health Center's work area.

METHODS

This examination is an observational study using a cross-sectional data collection design. This study's sample consisted of malaria patients who visited the Kabawo Health Center; up to 56 persons completed the survey. The sampling method used is called complete sampling.

The information used in the study comes from both primary and secondary sources. The results of interviews and questionnaires filled out by respondents make up the primary data that was gathered for this study. The medical records of respondents who took part in the study were used to compile secondary data at the Kabawo Health Center. After collecting the necessary data, a statistical test called the Spearman rank correlation is carried out.

RESULTS

Characteristics of Respondents

According to table 1, there were 33 male respondents (representing 58.9 % of the total) and 23 female respondents (41.1 %). The age group with the most respondents was 26-35 years old, with 18 people (32.1 %), and the age group with the fewest respondents was over 65 years old, with at least two people (3.6%). The respondents' most recent educational accomplishments included graduation from tertiary and high schools, each with 16 people (28.6 %), while the respondents' most minor recent educational accomplishments included graduation from elementary schools, and five people (8.9 %) did not attend school. Most respondents are farmers, with 26 people (46.4 %), while the fewest are students or students, with six people. Farmers make up the most significant proportion of respondents (10.7 %). Thirty-seven of the respondents, or 66.1 %, had experienced malaria at some point in their lives, and 19 of the respondents, or 33.9 %, had been sickened by malaria in the past. There were as many as 15 people infected with malaria in Laimpi Village, located in the Kabawo District. It represents 26.8 % of the total population of the village. Tanjung Batu Village and Kasaka Village each had just one case of the disease (1.8 %).

Table 2 demonstrates that 22 respondents (39.3%) had good knowledge and preventative practices. In addition, 22 responders (39.3%) do not have adequate understanding or prevention practices.

Table 3 shows that 22 respondents (39.3 %) had good attitude and performed good prevention practices, 22 persons (39.3 %) had not enough attitudes and practiced ineffective prevention.

According to the Spearman rank correlation analysis results, the *p* value was 0.000. Hence, it is feasible to conclude that the variables of knowledge and attitudes toward prevention practices are significantly connected.

DISCUSSION

Relationship of Knowledge to Preventive Practices

The majority of respondents who possessed strong knowledge and good prevention were male (77.3%), between the ages of 26 and 35 (40.9%), and had completed their greatest degree of education (university) in recent years (50%). Respondents had malaria, and nearly half were unemployed (59.1%). The features of these respondents show that the percentage of respondents by gender is higher for males than for women, indicating that the distribution of respondents is not uniform. Furthermore, no research explains why men and women have different degrees of knowledge. Furthermore, persons aged 26 to 35 have a good degree of knowledge because this is a productive age with the maximum amount of knowledge or cognitive aptitude, allowing them to learn or comprehend something more easily. It is evidenced by the fact that respondents correctly answered the questions, with 94.64% having heard of malaria, 91.07% being aware that malaria can be avoided, and 85.71% being aware that mosquito bites transmit malaria.

The majority of respondents' education level implies that this college promotes good respondent knowledge and that this degree of education will impact someone's decision. The majority of survey participants (64.3%) took precautions against mosquito bites by wearing mosquito repellent at night, not hanging their clothes behind the door, and visiting the doctor for prescriptions. Laimpi Subdistrict was the Kabawo District's capital and was closer to the Kabawo Health Center than the other villages, therefore the majority of responders had adequate knowledge and prevention. The outcomes of this study are similar with Markus' (2016) research, which discovered a link between knowledge and malaria-prevention activities. The results of this research are also supported by research by Pratamawati et al. (2015) and Noerjoedianto (2017), which found that there is a relationship between knowledge and behavior where knowledge influences respondents' behavior in dealing with malaria.

Respondents who had less knowledge and less prevention were predominantly male (63.6 %), in the age range of 36-45 years (31.8 %), had graduated from junior high school as their last level of education (40.9 %), and had the majority of the respondents' jobs as Farmers (81.8 %). Most of those who responded had previously been diagnosed with malaria (77.3 %). Late adulthood, which occurs when a person's productive ability decreases with increasing age, is why the age range of 36 to 45 years old has less knowledge. In addition, the fact that the majority of respondents had completed junior high school as their highest level of education lends credence to the findings of this study, which found that individuals with lower levels of education also tend to have less knowledge. In addition, the fact that the respondent works as a farmer increases their likelihood of contracting malaria because farmers are more frequently exposed to the natural environment. Because Bente Village and Wantiworo Village were the closest villages to the rice fields and swamps

that are the habitat of Anopheles mosquitoes, the majority of the respondents who had less knowledge and less prevention lived there. It is because rice fields and swamps are the habitats of Anopheles mosquitoes. Research conducted by Rooroh (2013) in Kema District, North Minahasa Regency, North Sulawesi Province regarding the relationship between knowledge and malaria, namely that someone with poor knowledge is at greater risk of contracting malaria compared to someone with good knowledge. This research is also in line with Farihatun et al (2016) that there is a relationship between knowledge and behavior to prevent malaria.

Respondents who had good knowledge but lacked prevention were primarily women (83.3%), aged between 26 and 35 (33.3%), had completed tertiary education (33.3%) as their most recent level of education and worked as farmers (33.3%). Most of those who responded had previously been diagnosed with malaria (58.3 %). The education level of university respondents is also a factor that contributes to sound knowledge, which in turn makes the knowledge better; however, good knowledge does not necessarily lead to good practice. People are less likely to take measures to protect themselves against mosquito bites because they are unaware of the risks associated with malaria, resulting in fewer people engaging in malaria prevention practices. This is evidenced by the respondent's lack of prevention practices, such as installing wire netting on house ventilation (5.35 %), which allows Anopheles mosquitoes to freely enter and leave the respondent's house; using anti-mosquito before going to bed (35.71 %), because many respondents forget or are lazy to hold mosquito coils; using mosquito nets (35.71 %), because some respondents feel hot when sleeping with mosquito nets; and frequently staying overnight in gardens or other outdoor spaces. Additionally, as a result of this work, respondents frequently participate in activities outside the house at night (37.5 %).

Relationship of attitudes towards prevention practices

The majority of the respondents who had positive attitudes and were practicing effective prevention were male (77.3 %), the majority of the respondents were in the age range of 26-35 years old (40.9%), and the respondents' most recent level of education was a university degree (50 %). Respondents do not work (45.5 %). When a person is older, they have naturally had more life experiences because of the natural progression of their maturation process. Because of this, there is a tendency that the older the respondent is, the more positive their attitude will be toward malaria. The learning process the respondent goes through as a result of this experience will be a stimulus for the respondent in determining his attitude. It can be seen from the attitudes of the respondents precisely how many of them had the attitude to prevent malaria by keeping the environment clean (85.71%), the attitude to clean the house (85.71 %), and the attitude to drain stagnant water (78.57 %). These responses indicate that the attitude of respondents in the work

area of the Kabawo Health Center is positive due to good knowledge and information as well as experience with malaria. It is because they have been exposed to the disease in the past, which has made the community have a positive attitude and support malaria prevention. According to a study conducted by Yahya et al. (2005), it was discovered that as people get older, they tend to have a positive or good attitude toward malaria. This finding is in agreement with those findings.

Respondents who had fewer attitudes and less prevention were predominantly male (59.1 %), in the age range of 36-45 years (31.8%), had graduated from junior high school as their last level of education (40.9%), and the majority of respondents were farmers (81.8 %). Most of those who responded had previously been diagnosed with malaria (77.3 %). Because a person's positive or negative attitude was determined by knowledge, and a lack of prevention knowledge would make it difficult for someone to determine an attitude, the respondent's most recent education, which was graduation from junior high school, influenced the respondent's attitude.

Respondents who had positive attitudes but did not take preventative measures were predominantly women (40.9%), aged between 26 and 35 (54.5%), had completed their highest level of education (high school and college; 33.3%) and worked as farmers (41.7 %). Most of those who responded had previously been diagnosed with malaria (58.3 %). The characteristics of these respondents suggested that a positive or encouraging attitude is not necessarily followed by effective behavior in all cases. There were 58.3% of respondents who had previously had malaria but did not take the appropriate precautions. According to the research findings, the perspectives of the people who participated in the survey are consistent with the knowledge that is already beneficial and encouraging; however, the preventative measures have not been carried out effectively. The habit of people not wearing closed clothes when outside the house and not closing doors and windows starting at dusk is caused by environmental conditions on the coast so that the air temperature feels hot. In contrast, the habit of frequently being outside the house at night is because most of the respondents work as farmers, so they are exposed to the outside environment, staying in gardens or forests, or the habit of people going out to tell stories. Both of these habits are caused by the air temperature feeling hot environmental conditions on the. The findings of this study are supported by the findings of Nurdin's research (2011), which demonstrates a significant relationship between the attitudes and actions of family members and the occurrence of malaria.

Research conducted by Rianse (2013) on the factors that influence the incidence of malaria at the Kabawo Community Health Center in 2012 found that the habit of the Kabawo community is always being outside the house at night, not using mosquito nets, and wearing uncovered clothing.

Research from Mufara, et al (2023), Supranelfy et al (2021) regarding the 2010–2018 riskesdas analysis concluded

that the behavior of using mosquito nets, using repellent, using mosquito netting, and using mosquito repellent can prevent the transmission of malaria. This is also in line with findings from a literature study by Fakhriyatiningrum (2022) that public awareness is needed, namely by maintaining environmental cleanliness and using mosquito nets. using insecticides, limiting the habit of leaving the house at night, using mosquito repellent, and taking an active role health workers in malaria prevention efforts. This research is in line with research by Lumolo et al. (2015), which found that there is a significant relationship between behavioral factors and the incidence of malaria at the Mayumba Health Center.

Prayatna et al. (2023) reported the results of a literature review analysis regarding factors that influence the incidence of malaria in coastal areas based on the HL.BLUM theory. Of the 10 articles reviewed, 2 (20.2%) stated that there was no relationship between the level of malaria. education with malaria prevention behavior, 1 (10%) article stated that there was none. relationship between respondents' attitudes and malaria prevention behavior.

CONCLUSION

The results of this research conclude that there were strong correlation between knowledge and attitudes toward malaria prevention practices in the Kabawo Health Center working area.

SUGGESTION

Counseling is required to raise public knowledge and concern in the Kabawo Public Health Center's working area about malaria prevention methods and health issues in general. Further research is required to broaden the sample coverage and other characteristics associated with malaria control strategies. Furthermore, more study should be conducted by widening the sample coverage.

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Table 1. Distribution of Respondent Characteristics based on Gender, Age, Education, Occupation, and Place of Residence

Respondent Characteristics	Distribution		Total
	N	%	
Gender			
Male	33	58.9	56 (100%)
Female	23	41.1	
Age			
≤ 18 years	7	12.5	
19-25 years	9	16.1	
26-35 years	18	32.1	
36-45 years	9	16.1	56 (100%)
46-55 years	7	12.5	
56-65 years	4	7.1	
> 65 years	2	3.6	
Education			
No School	5	8.9	
Primary school	5	8.9	
Junior high school	14	25.0	56 (100%)
Senior High School	16	28.6	
College	16	28.6	
Occupation			
Civil Servant	7	12.5	
Peasant	26	46.4	56 (100%)
Does not work	17	30.4	
Student	6	10.7	
History of Malaria			
Yes	37	66.1	56 (100%)
No	19	33.9	
Residence			
Laimpi Village	15	26.8	
Wantiworo Village	10	17.9	
Lamaeo Village	2	3.6	
Kasaka Village	1	1.8	56 (100%)
Kontumere Village	8	14.3	
Bea Village	8	14.3	
Bente Village	11	19.6	
Tanjung Batu Village	1	1.8	

Table 2. Correlation between Knowledge with malaria prevention practices

Knowledge	Prevention Practices				Total		P Value	R-Value
	Good		Not Enough					
	n	%	n	%	n	%		
Good	22	39.3	12	21.4	34	60.7	0.000	0.647
Not Enough	0	0	22	39.3	22	39.3		
Total	**22**	**39.3**	**34**	**60.7**	**56**	**100**		

Spearman Rank Test

Table 3. Correlation between Attitudes with Malaria Prevention Practices

Attitude	Prevention Practical				Total		P Value	r Value
	Good		Not Enough					
	n	%	n	%	n	%		
Good	22	39.3	12	21.4	34	60.7	0.000	0.647
Not Enough	0	0	22	39.3	22	39.3		
Total	**22**	**39.3**	**34**	**60.7**	**56**	**100**		

Spearman Rank Test