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Risk Factors for Leprosy at Baingkete Makbon District Sorong Regency

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ABSTRACT

Indonesia is the third highest contributor to leprosy cases in the world. In 2018, 640 new cases were found in West Papua with a prevalence of 17.6 / 10,000, in Sorong Regency there were 350 cases. There are 22 lepers in Baingkete Village. It is known that the physical condition of the house does not meet the requirements, and the average elementary and junior high school education is thought to be a risk factor for leprosy. The research objective was to determine the risk factors for leprosy in Baingkete Village. This type of research is analytic observation, case control design. The research was conducted in Baingkete Village, Makbon District, Sorong Regency in November 2020. The population was all residents of Baingkete Village and a sample of 66 people consisted of 22 cases and 44 controls. The instruments used were questionnaires and observation sheets. Data analysis was performed using the odds ratio. The results showed that knowledge OR = 1.379, the physical condition of the house OR = 0.476, personal hygiene OR = 1.537. The conclusion is knowledge and personal hygiene are risk factors for leprosy while the physical condition of the house is a protective factor for leprosy. Suggestions for Makbon Health Center staff to work together with the community through visiting activities in an effort to prevent leprosy transmission from an early age. It is for the community to reduce the risk of transmission of leprosy through improving living behavior and environmental conditions as well as carrying out early detection.

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INTRODUCTION

Leprosy is a skin disease caused by Mycobacterium Leprae. Leprosy is known as "The Great Imitator Disease" this disease is often not realized because it has symptoms that are almost similar to other skin diseases. The leprosy bacteria itself undergoes a fairly long division process, which is 2–3 weeks and has an incubation period of 2–5 years or even more (Tami 2019).

Based on data from the World Health Organization (WHO), the number of leprosy sufferers was 211,973 in 2015, increasing to 214,783 in 2016. Southeast Asia is the region with the highest

incidence of leprosy, namely 161,263 cases in 2016. Indonesia is the country with the 3rd highest incidence of leprosy in world, namely as many as 16,286 cases, after Brazil as many as (25,218 cases) and India as many as (145,485 cases), it is known that the prevalence of leprosy is 2.77/100,000 population in 150 countries around the world (World Health Organization 2018).

Data from the West Papua Health Service throughout 2018 found 640 new cases of leprosy, with the condition of leprosy in every 10.000 population found 18 people with leprosy, with a prevalence of 17.6 / 10,000 population spread across 13 districts/cities in West Papua. The highest cases occurred in three districts, namely Teluk Wondama with 56 lepers, Manokwari with 24 cases and Sorong Regency with 350 cases (Dinkes Papua Barat, 2018).

Limited knowledge about leprosy can trigger negative attitudes and end up discriminating against persons with leprosy. The definition of discrimination is any restriction, harassment, or exclusion that is directly or indirectly based on human differentiation on the basis of religion, ethnicity, race, ethnicity, group, class, social status, economic status, gender, language, and political beliefs(Sulidah 2016). Construction of houses and the environment that do not meet health requirements is a risk factor for the transmission of various types of diseases, especially diseases based on the environment. A house that is not big enough and too cramped results in a high incidence of disease for the occupants. The house should be able to meet the technical and hygiene requirements, namely not too densely populated, good ventilation (cross ventilation), sufficient lighting, humidity, the house meets the requirements with the provisions of the type of floor and walls of the house being waterproof and the roof of the house is in good condition so that no leaks occur (Kementerian Kesehatan RI 2019).

Prevention of leprosy can be done by increasing personal hygiene, including skin care, hair care, hand hygiene, clothing and bedding because leprosy transmission is strongly influenced by direct contact with sufferers (Wartonah 2015). Self-care or personal hygiene is self-care that is carried out to maintain health, both physically and psychologically. Fulfillment of self-care is influenced by cultural factors, social values in individuals, knowledge of self-care, and perceptions of self-care. Some personal hygiene care for leprosy clients includes skin care, foot and nail care, mouth and teeth care, hair care, eye, ear and nose care, because personal hygiene is a risk factor for leprosy (Marsanti & Ardiani 2020).

The incidence of leprosy can be related to education, income, contact history and housing sanitation (Ratnawati 2016). Whereas (Zuhdan et al. 2017), found that the level of education was low, contact duration ≥ 1year, poor nutritional status, low-income family economic conditions and poor personal hygiene. Other studies say that the level of knowledge; personal hygiene; type of work and there is no relationship between education level, length of contact, bedroom temperature, distance from home and gender with the incidence of leprosy (Yuniarasari 2014).

Based on the results of data collection at the Makbon Health Center, the number of leprosy sufferers in Baingkete Village in 2019 was 22 people. Baingkete Village consists of 150 people consisting of 70 men and 80 women. There is still a physical condition of the house which is made of wooden walls, dirt floors, the roof of the house does not use a ceiling, around the house there are still standing water. This situation shows that knowledge about cleanliness and leprosy is very low. because of that lack of cleanliness can be a nest of skin diseases and leprosy. This is due to the low level of education in Kampung Baingkete, namely the average elementary and junior high schools. Based on this background, it is necessary to conduct research on the risk factors for leprosy in Baingkete Village, Makbon District, Sorong Regency

RESEARCH METHOD

This type of research is analytic observation, with a case control design. This research was conducted in Baingkete Village, Makbon District, Sorong Regency in November 2020. The population for this research was all people registered in Baingkete Village, Makbon District, namely 150 people. The research sample was all leprosy sufferers in Baingkete Village, Makbon

District, totaling 22 people (case group) and 44 people who did not suffer from leprosy (control group). The total sample was 66 people. The sampling technique in the case group used total sampling, namely 22 respondents and the control group used a purposive sampling technique, namely 44 respondents. The comparison ratio in this study was 1:2. The research instruments used were questionnaires and observation. For the questionnaire regarding knowledge adopted from Sugiono (2020) with an Alpha Cronbach value of 0.786, the physical questionnaire for the house was tested for validity and reliability with an Alpha Cronbach value of 0.627, and a questionnaire about personal hygiene with an Alpha Cronbach value of 0.572. The collected data were analyzed using the odds ratio (OR) test at a confidence level of 0.05.

RESULTS AND DISCUSSIONS

Characteristics of respondents this study include: age, gender, education and work can be seen in table 1.

Tabel 1. Characteristics of respondent at Baingkete Village District Makbon Sorong Regency year 2020

No	Characteristics	Case		Control	
		f	%	f	%
1	Age				
	17-25 years	6	27.3	11	25.0
	26-35 years	9	40.9	8	18.2
	36-45 years	4	18.2	14	31.8
	46-55 years	2	9.1	9	20.5
	56-65 years	1	4.5	2	4.5
	Amount	**22**	**100**	**44**	**100**
2	**gender**				
	Man	11	50.0	18	40.9
	Women	11	50.0	26	59.1
	Amount	**22**	**100**	**44**	**100**
3	**Last Education**				
	Primery	4	18.2	17	38.6
	High School	6	27.3	12	27.3
	Senior High School	11	50.0	12	27.3
	College	1	4.5	3	6.8
	Amount	**22**	**100**	**44**	**100**
4	**Work**				
	Enterpreuner	2	9.1	6	13.6
	Fisherman	2	9.1	2	4.5
	Farmer	9	40.9	13	29.5
	Wifehouse/ Not work	9	409	24	52.3
	Amount	**22**	**100**	**44**	**100**

Based on the table above, it can be seen that in the case group based on age the most respondents were aged 26-35 years, namely 9 people (40.9%) and the least were aged 56-65 years, 1 person (4.5%). male and female gender have the same number, namely 11 people (50%), the most high school education, namely 11 people (50%) and the least is university, namely 1 person (4.5%), based on mother's work households and farmers are the most numerous, namely 9 people each (40.9%) and the least are entrepreneurs and fishermen, each with 2 (9.1%). Whereas in the control group, based on the age of the respondents, the most were 36-45 years old, namely 14 people (31.8%) and the least were 56-65 years old, 2 people (4.5%), female sex was more is 26 people (59.1%), the most elementary education is 17 people (38.6%) and the least is tertiary education namely 3 people (6.8%), based on the work of housewives the most is 24 people (52.3%) and the least were fishermen, namely 2 (4.5%).

Description of knowledge, environment conditions, and personal hygiene of respondent can be seen in the table 2.

Table 2. Knowledge, environment conditions, and personal hygiene of respondent at Baingkete Village Makbon District Sorong Regency year 2020

Variable	Case		Control	
	f	%	f	%
Knowledge				
Good	16	72.7	29	65.9
Poor	6	27.3	15	34.1
Amount	**22**	**100**	**44**	**100**
Environment of house conditions				
Good	15	68.3	4	9.1
Poor	7	31.7	40	90.9
Amount	**22**	**100**	**44**	**100**
Personal hygiene				
Good	10	44.5	3	6.8
Poor	12	54.5	41	93.2
Amount	**22**	**100**	**44**	**100**

Based on the table above, it is known that in the case group the most knowledge is good, namely as many as 16 people (72.7%), the most environmental of house conditions are good, namely as many as 15 people (68.3%), and the most personal hygiene is lacking, namely as many as 12 people (54.5%). Whereas in the control group the most knowledge was good, namely as many as 29 people (65.9%), the most environmental of house conditions were lacking, namely as many as 40 people (90.1%) and the most personal hygiene was lacking, namely as many as 41 people (93, 2%). The risk of knowledge of the incidence of leprosy at Baingkete Village Makbon District Sorong Regency can be seen in table 3.

Tabel 3. The risk of knowledge of the incidence of leprosy at Baingkete Village Makbon District Sorong Regency year 2020

Knowledge	**Case**		**Control**		**Amount**	
		%	**F**	**%**	**f**	**%**
Good	16	72.7	29	65.9	45	68.18
Poor	6	27.3	15	34.1	21	31.81
Amount	22	100.0	44	100.0	66	100.0
OR =1.379			95% CI = 0.447-4.255			

Based on the table above, it can be seen that in the case group most of the knowledge was good, namely 16 people (72.7%) and in the control group, most of them had good knowledge of 29 people (65.9%). OR = 1.379 calculation results with lower limit (LL) = 0.447 and upper limit (UL) = 4.255. it can be concluded that knowledge is a risk factor, which means that people with less knowledge have a 1.379 times greater risk of developing leprosy than good knowledge.

The risk of environment of house conditions of the incidence of leprosy at Baingkete Village Makbon District Sorong Regency can be seen in table 4.

Tabel 4. The risk of environment of house conditions of the incidence of leprosy at Baingkete Village Makbon District Sorong Regency year 2020

Environment of house conditions	**Case**		**Control**		**Amount**	
	f	**%**	**f**	**%**	**f**	**%**
Good	1	1.51	4	6.06	45	68.18
Poor	21	31.81	40	60.60	21	31.82
Amount	22	33.32	44	66.68	66	100.0
OR = 0.476	95% CI = 0.50-4.536					

Based on the table above, it can be seen that in the case group most of them lack the physical condition of the house, namely 21 people (31.81%) and in the control group, most of them have the physical condition of the house, namely 44 people (66.68%). Calculation results OR = 0.476 with lower Limit (LL) = 0.50 and Upper Limit (UL) = 4.536. Because the lower and upper limit values exceed number 1 then it is declared meaningless or the physical condition of the house is a protective factor meaning that the physical condition of the house does not have great risk to the incidence of leprosy.

The risk of personal hygiene of the incidence of leprosy at Baingkete Village Makbon District Sorong Regency can be seen in table 5.

Tabel 5. The risk of personal hygiene of the incidence of leprosy at Baingkete Village Makbon District Sorong Regency year 2020

Personal hygiene	Case		control		Amount	
	f	%	f	%	f	%
Good	0	0	3	4.54	3	4.54
Poor	22	33.33	41	62.12	63	95.46
Amount	22	33.33	44	66.66	66	100.0
OR = 1.537		95% CI = 1.282-1.841				

Based on the table above, it can be seen that in the case group most of them had personal hygiene that did not meet the requirements of 22 people (33.33%) and in the control group most of them had personal hygiene that did not meet the requirements of 41 people (62.12%). Based on table 4.6 above, it shows that the results of the calculation of OR = 1.537 with lower Limit (LL) = 1.282 and Upper Limit (UL) = 1.84 concluded that personal hygiene is a risk factor meaning that people with less personal hygiene have a greater risk of developing leprosy 1.537 times bigger than good personal hygiene.

Based on the crosstab results above, it shows that having less knowledge can increase the risk of leprosy with an Odd Ratio value (OR = 1.379) at Confidence Inferval CI 95% = Lower Limit (LL) = 0.447 and Upper Limit (UL) = 4.255 It is concluded that knowledge is a risk factor for leprosy, which means that respondents with less knowledge will have a 1.379 times greater risk than those with good knowledge.

Knowledge is the result of knowing and this happens after people have sensed a certain object. Sensing of objects occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most of human knowledge is obtained through the eyes and ears. Knowledge or cognitive is a very important domain in shaping one's actions (Soekidjo Notoatmodjo 2018). The level of knowledge is based on the factor of formal education received by a person, the higher a person's education, the wider the knowledge, especially knowledge about leprosy. This knowledge will underlie a person's efforts to prevent transmission of leprosy (Koli Yogliaditia et al. 2021).

Poor knowledge of leprosy sufferers, especially prevention, will result in an increase in leprosy rates in sufferers. Prevention of leprosy in patients with leprosy needs to be done so that leprosy does not have an impact, such as in the mode of transmission of leprosy, sufferers do not know that leprosy germs can be transmitted from person to person, that densely populated houses can transmit leprosy, and unsanitary water sources are sources of leprosy germs. The results of this study were supported by (Masrizal et al. 2020) who said that knowledge has a risk of 9.0 for the incidence of leprosy in Padang Pariaman. It is supported by(Urgesa et al. 2020) that knowledge has a significant relationship with the incidence of leprosy, with an OR of 1.68.

The researcher's assumption is that the incidence of leprosy in the community can occur due to a lack of knowledge. Knowledge is an important factor in increasing the number of leprosy cases. Lack of knowledge can lead to behavior or actions that are not good in efforts to prevent disease transmission and efforts to treat leprosy. Lack of knowledge about leprosy so that a person does not behave in a preventive manner such as not keeping a safe distance, not having self-

examination and not maintaining personal hygiene and the home environment. If this situation occurs continuously, the leprosy bacteria can multiply in these human organs.

The results of the crosstab test show that there is a significant risk between the physical condition of the house and the incidence of leprosy with an Odd Ratio value of OR = 0.47 and a 95% CI, Lower Limit (LL) 0.05 and Upper Limit (UL) 4.36. living at home with unfavorable housing conditions has a 0.47 times greater risk of leprosy than people living at homes with good housing conditions. The conditions of this house include the type of floor, ventilation area, and occupancy density. According to WHO, a house that is too narrow can cause disease for the residents. The house should be able to meet the technical requirements and not be too crowded with occupants, good ventilation conditions, good floor types, and house humidity that meets the requirements.

Based on the results of the researchers' observations, it can be concluded that the physical condition of the houses of the respondents still did not meet the requirements. large permanent ventilation so that it cannot be opened, high humidity, especially in beds, is a response to high occupancy density in one house. So that the physical condition of the house that is not good can be a breeding ground for disease-causing bacteria. Environmental risk factors include residential density, house floors, ventilation, lighting, humidity, temperature, and altitude (Nurcahyati et al. 2016).

This research is in line with research conducted by (Aprizal et al. 2017), who said that the home environment has a relationship with the incidence of leprosy with an estimated risk of 2.8 which is supported by (Siswanti 2018), with the results of the research showing that the physical home environment is a risk factor for leprosy.

The researcher's assumption is that the physical environment such as windows has a very important function to maintain air circulation in the house so that the air is always fresh and it is also suggested to respondents to always open windows every day so that humidity in the house is maintained and sunlight can enter the house according to conditions. ventilation, namely ventilation area ≥10% floor area, made of materials that are easy to clean. Then it is suggested to the respondent to clean the ventilation at least once a day. If the respondent's house has no ventilation, it is better to always open the door to facilitate air circulation. The physical environment of the house consisting of inadequate occupancy density, lighting, humidity and ventilation can cause leprosy (Wahyuni et al. 2021).

The statistical test results show that there is a significant risk between personal hygiene and the incidence of leprosy with an Odd Ratio (OR) = 1.537 and a 95% Confidence Interval (CI), Lower Limit (LL) 1.282 and Upper Limit (UL) 1.841. Homes with poor personal hygiene have a risk of 1.537 times greater than people who have good personal hygiene. This personal hygiene includes bathing habits and the habit of borrowing towels from other family members. Poor bathing habits, less than 2x a day, can pose a risk of contracting leprosy. The habit of borrowing towels between families also greatly triggers the spread of leprosy. It can be seen that the habit of borrowing towels alternately can transmit several diseases, one of which is leprosy.

Personal hygiene is an effort made by a person through actions in the form of self-responsibility in improving health and preventing the spread of infectious diseases, both from oneself to others and from others to oneself, especially those that occur directly (Marsanti & Ardiani 2020).

This research is in line with research conducted by (Lisa E Emerson et al. 2020), who concluded that poor hygiene can be a cause of leprosy. Because this lack of personal hygiene is the entry point for bacteria to enter the body. Supported by (Aisah et al. 2019), the research results show that there is a relationship between personal hygiene and the incidence of leprosy, which means that people who have poor personal hygiene are at risk of developing leprosy.

According to the researcher's assumption, wearing clothes alternately, taking bath towels, sleeping together with the patient, and not changing bed sheets can also trigger the transmission of various diseases that do not rule out leprosy and this behavior is indeed owned by the community.

Therefore, people are expected to maintain personal hygiene by bathing at least 2 time in a day and using towels that do not alternate with other family members so that they do not trigger the emergence of a disease due to lack of personal hygiene and it is better for the community to improve their clean and healthy lifestyles.

CONCLUSION

Knowledge and personal hygiene are risk factors for leprosy in Baingkete Village, Makbon District, Sorong Regency, while the physical condition of the house is a protective factor for leprosy in Baingkete Village, Makbon District, Sorong Regency. It is recommended for puskesmas managers to work together with the community to actively identify patients through patient visits and contact checks and increase education about leprosy to the community in order to increase knowledge so that the community can increase their efforts to prevent transmission of leprosy from an early age. For the community to reduce the risk of transmission of leprosy by wearing long clothes, avoiding sharing towels, and bathing at least 2 times a day, carrying out early detection and treatment of MDT (Multi Drug Therapy) if diagnosed with leprosy, reducing the risk of transmission of leprosy, it should be done Improving the condition of the home environment by cleaning the floor of the house, opening windows every day and improving personal hygiene by not sharing towels and bathing at least 2x a day using clean water to reduce the potential for the growth of bacteria that cause leprosy. And for future researchers to develop research in other places to analyze more deeply about leprosy and other factors that can cause leprosy. As it is known that leprosy can be cut off the chain of transmission with appropriate interventions.

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