

Home Sanitation And Personal Hygiene Relation To Leprosy

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Abstract— Leprosy is a chronic infectious disease caused by the bacterium *Mycobacterium Leprae* which attacks the peripheral nerves, skin and other body parts except the central nerve. The number of leprosy is still a public health problem in Indonesia because of the high disability rate. From the data of the Health Office of Indragiri Hilir Regency in 2018, the number of lepers in the Kotabaru Siberida Health Center is 14. This study aims to determine the Relationship of House Sanitation (density of room occupants, humidity, type of floor) and Personal Hygiene with Leprosy in Kotabaru Siberida Village. This type of research is an analytic descriptive study with a cross-sectional design. The sampling technique in this study is a random sampling using inclusion criteria, namely: all family heads and family members who suffer from leprosy and head of family who are close to their home with lepers. The research shows that there is a relationship between dwelling density with leprosy ($p = 0.030 < 0.05$), there is a relationship between air humidity and leprosy ($p = 0.035 < 0.05$), there is a relationship between floor type and leprosy ($p = 0.029 < 0.05$) and there is a relationship of Personal Hygiene with leprosy ($p = 0.015 < 0.05$). Health workers can provide education to the public about leprosy, the characteristics of leprosy, how to prevent it. Conducting an early examination by health workers in the community, the supervisor to take medication. The community can apply clean and healthy living behavior in the family and community environment. To avoid leprosy.

Index Terms— House Sanitation, Personal Hygiene, Occurrence.

1 INTRODUCTION

Leprosy (often called Hansen's disease) is a chronic infection caused by the bacterium *mycobacterium leprae*. Mainly marked by damage to peripheral nerves and other organs except the central nerve. Leprosy is a chronic contagious disease that causes a very complex problem that is not only a problem in terms of medical but also economic, social, cultural and safety problems [1]. The prevalence rate of leprosy in the world is still high in 2017 as many as 192,713 cases and the discovery of new cases as many as 210,671 cases and the highest cases are in the Southeast Asia Region that is equal to 153,487 cases. The prevalence of leprosy at the end of 2017 is obtained at 0.6 per 10,000 population. Indonesia is ranked as the third country with the most leprosy endemics after India and Brazil [2]. The Health Profile data of the Republic of Indonesia records the number of new leprosy case findings in 2017 of 15,910 cases with a CDR of 6.07 / 100,000 population. Indonesia achieved leprosy elimination status in 2000 by reducing the prevalence of leprosy to <1 per 10,000 population. In 2017 there were still 10 Provinces whose prevalence was still above 1 per 10,000 population. The provinces are Central Sulawesi (1.10), South Sulawesi (1.28), Southeast Sulawesi (1.41), West Sulawesi (1.49), Gorontalo (1.81), North Sulawesi (2.04), Maluku (2.47), Papua (4.06), North Maluku (4.54), West Papua (11.48) [2].

Disease that befell a group of residents, originated from a disease agent removed from its source. Disease agents in the media or commonly known as environmental components, such as water, air or food, which contact with residents individually or together, at the same time or different. They enter the human body through 'vehicles' of transmission or vehicles, such as water media, air media, food media, animal disease media or commonly known as disease vectors, and use humans as transmission vehicles for transmission [3]. The density of the residents in one house will give an effect on the occupants. The area of the house which is not proportional to

the number of inhabitants will cause overcrowded. This is unhealthy because besides causing a lack of oxygen consumption, also if one family member is infected with an infectious disease, especially leprosy will be easily transmitted to other family members, where an average sufferer can transmit 2-3 people in his house, on average house area of at least 10 m² / person, bedroom area of at least 8 m² is inhabited by no more than 2 people, except children under 5 years old. Density is a pre-requisite for the disease transmission process, the denser the movement of the disease will be easier and faster. Therefore, the density of occupancy in residential homes is a variable that plays a role in the incidence of leprosy [4]. The occurrence of leprosy due to sources of transmission and sources of contact, both from patients and from the environment. Untreated leprosy patients can be a source of transmission to others, especially multibacillary type sufferers associated with the number of germs on the lesion and also due to poor personal hygiene [2]. Also, personal hygiene is also an action to maintain the cleanliness and health of a person for physical and psychological well-being to avoid the occurrence of leprosy. The purpose of personal hygiene is to improve one's health status, maintain one's personal hygiene, improve personal hygiene, prevent illness, increase one's confidence, create beauty. The lack of personal hygiene, for example the frequency of the bath once a day can cause leprosy [5]. While the Health Office of Indragiri Hilir Regency discovered 122 new leprosy cases from 2016 to 2017. And the district with the highest number of leprosy sufferers in Indragiri Hilir Regency is in the Keritang District [6]. Based on the results of the initial survey researchers did in the District of Keritang precisely Kotabaru Siberida, where the data obtained from observations while the authors do where the village environment which is a watershed of large rivers, small rivers, ditches, marshes with peat soils, brackish forests that influenced by tides. Besides, the types of work of the average community are farmers, fishermen and laborers. Most people live in houses on stilts with a plank floor where the plank floor can absorb water so that if the floor is constantly wet the floor will become moist and will facilitate the development of the *Mycobacterium Leprae* bacteria.

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2 LITERATUR REVIEW

2.1 House Sanitation

Home sanitation is a public health effort that focuses on monitoring the physical structure in which people use it for shelter which affects the degree of human health. The house is also one of the residential buildings that must-have comfort, safety, and health criteria to support its residents to work productively. House sanitation in this study was seen from three factors, namely humidity, type of floor, density of earth. According to the Decree of the Minister of Health No. 829 / menkesSK / VII / 1999 regarding Housing Health Requirements, the humidity that meets the health requirements in the home is 40-70% [7]. High humidity can cause nasal mucous membranes to become dry making it less effective in blocking microorganisms. Pneumococcal bacteria like other bacteria will thrive in high humidity environments because water forms > 80% of the volume of bacterial cells and is essential for the growth and survival of bacterial cells [3]. A good floor must always dry, the height of the floor must be adjusted to local conditions, the floor must be higher than the ground level. Tile or cement is good. An important requirement here is not dusty in the dry season and not wet in the rainy season, to prevent transmission of the disease to its inhabitants [4] [8]

2.2 Personal Hygiene

Personal hygiene comes from Greek which means personal, which means individual and hygienic means healthy. Personal hygiene is an action to maintain the cleanliness and health of a person for physical and psychological well-being [9]. Self-care is one of the basic abilities of humans in meeting their needs to maintain their lives, health and well-being according to their health conditions, the client is otherwise disrupted by his nursing if he is unable to conduct himself [10].

2.3 Leprosy Incident

Leprosy is a disease caused by Mycobacterium leprae, which attacks the skin and peripheral nerve tissue as well as the eyes and membranes lining the inside of the nose. The main symptom of leprosy, which is the discoloration of the spots become whiter and lump-shaped skin lesions that do not disappear after a few weeks or more. Kuit lesions are also accompanied by symptoms of numbness in these parts and muscle weakness [11].

3 METHOD

This type of research is quantitative using a cross-sectional research design which was carried out starting in April 2016 at the Final Disposal Site (FDS) of Rumbai Coastal District of Pekanbaru. The number of samples in this study were 59 respondents. The type of data collected is primary data that is all of the independent variables with data collection conducted in structured interviews and using questionnaire sheets, observation, and laboratory examinations. Bivariate analysis was performed using the Chi-Square test.

4 RESULT AND DISCUSSION

Bivariate test results on 4 variables that have a significant relationship with helminthiasis namely wearing footwear (p-value = 0.020 and OR = 6.955), wearing gloves (p-value = 0.019 and OR = 5.074), washing hands (p-value = 0.013 and OR = 7.690) and nail cutting (p-value = 0.031 and OR = 6.283). Based on the highest OR, there was a handwashing,

that is, respondents did not wash their hands 7,690 times the risk of worm infestation than respondents who washed their hands (95% CI 1.566-37.756). For more details, see Table 1.

Table 1. Relationship between Scavengers Personal Hygiene and Competition Events

No	Variable	Worm Infection				Total		OR (95% CI)	p-value
		Positive		Negative		n	%		
		n	%	n	%				
1	Using Footwear								
	No	17	43,6	22	56,4	39	100	6,955	0,020
	Yes	2	10,0	18	90,0	20	100	(1,415-34,174)	
2	Wear gloves								
	No	15	46,9	17	53,1	32	100	5,074	0,019
	Yes	4	14,8	23	85,2	27	100	(1,427-18,042)	
3	Washing hands								
	No	17	44,7	21	55,3	38	100	7,690	0,013
	Yes	2	9,5	19	90,5	21	100	(1,566-37,756)	
4	Cutting Nails								
	No	17	42,5	23	57,5	40	100	6,283	0,031
	Yes	2	10,5	17	89,5	19	100	(1,277-30,921)	

4.1. The Relationship of Wearing Footwear with Worm Infection

The results of the study note that, respondents who do not wear footwear more suffer from helminthiasis compared to respondents who wear footwear. Based on the results of a bivariate analysis using the Chi-square statistical test at alpha = 0.05, it is obtained that P-value = 0.020 < 0.05, this shows the relationship between wearing footwear with the occurrence of helminthiasis. The results of statistical tests also show that respondents who do not wear footwear have an opportunity of 6.955 times causing worm infections compared with respondents who wear footwear, with 95% CI = 6.955 (1,415 - 34,174). In the respondent's answer about wearing footwear, the answer the highest is in the question of using footwear each work that is 45 respondents (76.3%), but to protect the feet is not enough to use footwear only, the footwear used must be closed footwear to protect the feet, because the pores of the feet large enough so that the worm larvae can enter and multiply into the intestine so that they are infected with intestinal worms. Good soil for larval growth is loose soil (sand, humus) with an optimum temperature of 28-32.0C, to avoid infection, one of them is wearing shoes [12]. Climatic factors greatly affect the waste landfill located in Rumbai, which has a moderate climate, the average temperature of the rainy season is 25-350C and in the summer the temperature is 31-350C where this condition is one of the supporting factors in the development of worms due to soil conditions in conditions moist. The results of the study [8] [13] stated that worm infections in addition to the hands are also more easily transmitted through the feet. This is because the pores of the legs are large enough so that the worm larvae can enter and multiply into the intestine so that they are infected with intestinal worms (p-value = 0,000 and OR = 0.037). Safety shoes are generally designed to protect feet from falling hard objects, tripping and stepping on sharp or pointy objects. For work-related to chemicals or muddy workplaces, workers are given rubber-type safety shoes [14].

4.2. The Relationship of Wearing Gloves to Worming

The results of the study note that, respondents who do not wear gloves more suffer from helminthiasis compared to respondents who use gloves. Based on the results of the bivariate analysis using the Chi-square statistical test at alpha = 0.05, it was obtained p-value = 0.019 < 0.05, this shows the

relationship between washing hands with the occurrence of helminthiasis. The results of statistical tests also showed that, respondents who did not wear gloves at 5.074 times the chance of helminthiasis compared with respondents who wore gloves, with 95% CI = 5,074 (1,427-18,042). In the respondent's answer about wearing gloves, it can be concluded that respondents who said they did not wear gloves made of rubber 32 respondents (54.2%), which to protect hands from direct contact with soil and rubbish should use gloves made of rubber material. The results of this study are in line with individual personal hygiene studies with the incidence of intestinal worms in scavengers at Gunung Tugel landfill Banyumas Regency which states that there is a significant relationship wearing gloves with helminthiasis, where unattended hands will be more prone to helminthiasis because the hands always make direct contact with work. Gloves are used as hand coatings and are used to protect the hands to keep hygiene (clean) and avoid accidents or occupational diseases [14] [15].

4.3. The Relationship between Handwashing Habits and Worm Infection

The results of the study note that, more respondents who did not wash their hands suffered from helminthiasis compared to respondents who washed their hands. Based on the results of the bivariate analysis using the Chi-square statistical test at $\alpha = 0.05$, it is obtained that $P\text{-value} = 0.013 < 0.05$, this shows the relationship between washing hands with the occurrence of helminthiasis. The results of statistical tests also showed that respondents who did not wash their hands had a chance of 7,690 times causing worm infections compared with respondents who washed their hands, with 95% CI = 7,690 (1,566 - 37,756). If seen from the results of respondents' answers are very varied or have different opinions which can be seen in the question after defecating (BAB) not washing hands using soap as many as 35 respondents (59.3%), as is known after CHAPTER the stools could have been attached to the hands, especially on the nails to cause risk factors for helminthiasis. Supported again by the clean water facilities in the landfill is very far from where they work so that respondents do not care about personal hygiene when working. The results of this research are in line with research on the relationship of personal hygiene to the presence of worm eggs in nail dung in State Elementary School students 002 of the elephant in the Mandau Duri sub-district which states that worms disease is most often affected because usually their fingers are inserted into the mouth or eat rice without washing their hands. ($p\text{-value} = 0,000$ and $OR = 54.44$) [16] [4]. Washing hands before eating using soap and water has an important role with the prevention of helminthiasis because washing hands with water and soap can more effectively remove dirt, dust and worm eggs attached to the surface of the skin and nails on both hands [17].

4.4. Relationship of Cut Nails with Worm Infection

The results of the study note that, respondents who did not cut nails more suffer from worms compared to respondents who cut their nails. Based on the results of bivariate analysis using the Chi-square statistical test at $\alpha = 0.05$ obtained $p\text{-value} = 0.031 < 0.05$, this shows the relationship between cutting nails with the occurrence of helminthiasis. From the results of statistical tests also showed that respondents who did not cut

their nails had 6.283 times the chance of worming compared to respondents who cut their nails, with 95% CI = 6.283 (1,277 - 30,921). If seen from the respondent's answer about the question of cutting nails that is the condition of unclean nails and rarely cutting nails where it is not often cut nails will be more easily infected with worms, unclean nails where parasites breed, one of which is worm eggs. Transmission of worm eggs including through dirty hands. Dirty fingernails that are likely tucked into the worm eggs will be swallowed when eating, this is aggravated again if you are not accustomed to washing your hands with soap before eating. The results of this study are in line with research on the relationship between personal hygiene practices and personal hygiene with the occurrence of stomach worms in scavengers at Gunung Tugel landfill in Banyumas Regency which states that respondents who do not cut their nails will be more easily infected with intestinal worms because unconsciously, dirty and long fingernails ($p\text{-value} = 0.018$ and $R_p = 1,960$) [18] [7]. Nail growth in adults ranges from 0.1-1 mm every day, nail growth will slow down with age. The growth of fingernails in one week on average 0.5-1.5 mm, four times faster than the growth of toenails. Nail growth is also influenced by body heat. Manicured and clean nails are a reflection of one's personality. Long and untreated nails will become a place to attach various impurities that contain various materials and microorganisms including worm eggs. Transmission of worm eggs including through dirty hands. Dirty fingernails that are likely tucked into the worm eggs will be swallowed when eating, this is aggravated again if you are not accustomed to washing using soap before eating [19].

5 CONCLUSION

The Relationship of Scavenger Personal Hygiene to Worm Occurrence was dominant in the handwashing variable with an OR value of 95% = 7,690 (1,566 - 37,756), which means that respondents who did not wash their hands had a risk factor of 7,690 times greater than those of worm infected. washing hands. And external factors, namely behavior, and habits are very supportive of helminthiasis.

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