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Water Sources and Personal Hygiene with Dermatitis

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A B S T R A C T

Skin diseases are closely related to personal hygiene such as dermatitis. Water sources are one of the causes of dermatitis. This study aims to analyze the relationship between water sources and personal hygiene with the incidence of dermatitis. This research is a survey with a case-control design approach. This study involved 50 respondents in each case and control group. Data were collected using a questionnaire and analyzed using chi-square and multiple logistic regression. The results found that there was a significant relationship between water sources, bathing behavior, hand washing behavior, and changing habits with the incidence of dermatitis p-value < 0.001; <0.001; 0.001; < 0.001, while there is no relationship between nail-cutting habits and dermatitis with a p-value of 0.091. Changing clothing habits variable is the most influential variable in this study with an Exp. B=68,714. It is recommended that to improve health education and cooperation with the Munten sub-district government, Karo Regency assisted by village Kader or one of them environmental health workers to overcome and prevent environmental-based diseases.

Kata kunci:

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A B S T R A K

Penyakit kulit erat hubungannya dengan kebersihan pribadi seperti dermatitis. sumber air salah satu penyebab kejadian dermatitis. Penelitian ini bertujuan untuk untuk menganalisis hubungan sumber air dan personal hygiene dengan kejadian dermatitis. Penelitian ini adalah surevei dengan pendekatan rancangan kasus kontrol. Penelitian ini melibatkan 50 respondent tiap kelompok kasus dan kontrol. Data dikumpulkan dengan menggunakan kuesioner dan dianalisis menggunakan chi-square dan multiple logistic regression. Hasil ditemukan bahwa ada hubungan yang signifikan antara sumber air, perilaku mandi, perilaku cuci tangan, dan kebiasaan ganti baju dengan kejadian dermatitis p-value < 0,001; <0,001; 0,001; < 0,001, sedangkan tidak ada hubungan antara kebiasaan memotong kuku dengan dermatitis dengan p-value 0,091. Changing clothing habits variable is the most influential variable in this study with an Exp. B=68,714. Disarankan bahwa untuk meningkatkan pendidikan kesehatan dan kerjasama dengan pemerintah kecamatan Munten Kabupaten Karo dibantu oleh kader desa atau salah satunya petugas kesehatan penyehatan lingkungan untuk mengatasi dan mencegah penyakit berbasis lingkungan

INTRODUCTION

Skin disease is an inflammation of the skin in the epidermis and dermis layers in response to allergic, bacterial, or fungal factors. Common skin problems include dry skin, rough texture, scaly patches on the hands, feet, or face, skin rashes, contact dermatitis or skin inflammation, and abrasion or loss of the epidermis. The emergence of skin diseases can

be influenced by a person's behavior with certain factors such as attitudes and knowledge about personal hygiene that are still lacking (Patmawati & Sumardi, 2020). Surveillance research in America states that 80 occupational skin diseases are contact dermatitis. Among contact dermatitis, irritant contact dermatitis ranks first at 80% and allergic contact dermatitis ranks second at 14% -20% (Ruttina et al., 2018)

Dermatitis is one of the most common diseases in outpatients at General Hospitals in Indonesia, in 2009 the number of cases of skin and other subcutaneous tissue diseases was found to be 147,953 cases in women (Sholeha et al., 2021). Most people with dermatitis were in the 45-64-year-old group, female gender, housewife occupation, the most common location for the feet, the most common causes of detergent and rubber, and the most frequent administration of therapy was antihistamines and corticosteroids (Sunaryo et al., 2014). In 2020 there were 122,076 cases including 48,576 cases in men and 73,500 cases in women (Sholeha et al., 2021).

According to a study by the Indonesia Sanitation Sector Development Program, 47% of the population still defecates in rivers, rice fields, ponds, gardens, and open areas. Based on (Susanti, Ashar, & Dharma, 2016), there is a relationship between river water quality and dermatitis. Water quality that does not meet the requirements is considered to have a major impact on the occurrence of skin health complaints, especially dermatitis in the community using river water.

Personal hygiene is self-care that is carried out to maintain both physical and psychological health. Personal hygiene includes bathing behavior, handwashing behavior, changing clothes habits, and cutting nails habits. According to the 2006 Basic Human Services study in Indonesia, people's behavior in washing their hands is 12% after defecating, after cleaning the feces of infants and toddlers 9%, before eating 14%, before feeding babies 7%, and before preparing food 6%. Another BHS study on the behavior of household drinking water management shows that 99.20% boil water to get drinking water, but 47.50% of the water still contains Escherichia coli (Purwaningsih, 2021).

Previous studies have shown that personal hygiene has a relationship with dermatitis. Related factors include low hair hygiene, skin hygiene, and hand, foot, and nail hygiene (Ansela et al., 2020; Sucicha et al., 2017). Many factors that influence skin diseases such as environment, behavior, and habits carried out by (Kasiadi et al., 2019) stated that there was a relationship between the use of river water and dermatitis symptoms. Based on (Sucicha et al., 2017) there is a significant relationship between clean water availability and dermatitis incidence. This study aimed to analyze the relationship between water sources and personal hygiene with the incidence of dermatitis.

METHODS

Participant characteristics and research design

Inclusion criteria in the case group: 1) dermatitis patients based on the diagnosis of health workers; 2) living and staying more than one year in the working area of the Munte District, Karo Regency; and 3) using river water or borehole water for daily activities. While Inclusion criteria in the control group: 1) neighbors with and not suffering from dermatitis; 2) age and gender are adjusted to the patient; and 3) live and stay for more than one year in the working area of the Munte District, Karo Regency. The exclusion criteria in this study consisted of 1) suffering from dermatitis but not being diagnosed by health workers in the working area of the Puskesmas Munte District, Karo Regency in 2020-2021; and 2) not staying for more than one year in the working area of the Munte District Health Center, Karo Regency. The study was a survey with a case-control research design.

Sampling procedures

The case samples were all dermatitis sufferers who were in the working area of the Munte District Health Center, Karo Regency, which were stated by a certificate by medical personnel and supported by the results of laboratory examinations. The control sample was a neighbor of the patient who did not suffer from dermatitis and whose home was close to the case by matching based on gender and age. The study was carried out in the working area of the Munte District Health Center, Karo Regency, and was conducted from May to June 2022

Sample size

The sample of this study is part of the population obtained by using the (Dahlan, 2013) formula. By using this formula the number of samples to be studied is a minimum of 50 for each group.

Measures and covariates

Water Source is water used for daily needs for residents of Munte District, Karo Regency: 1) river or 2) borehole. Bathing, handwashing, the habit of changing clothes, and nail-cutting habits behavior: 1) good if the score >75%; 2) moderate if the score is 40-75%, and 3) poor if the score <40%. Dermatitis disease: yes if score >60%; and not if score <60%.

Data analysis

To determine the relationship between water sources, personal hygiene, and the incidence of dermatitis, a chi-square was performed with a significance level of 5% ($p < 0.05$). While to determine the influence of each of the most dominant variables in this study, multiple logistic regression was performed.

RESULTS AND DISCUSSION

Based on table 1, from 100 respondents, it was found that the majority of respondents were aged 25-29 years (32%), the gender of the majority were men (52%), the majority had senior high school education (62%), the majority of private employees were 45%.

Based on table 2, from 100 respondents it was found that the water sources used were borehole (53.8%), the majority of respondents' bathing behavior was good (63%), the majority was handwashing respondents in the moderate category 55%, the majority of the habit of changing clothes in the good category 56%, the majority of respondents cutting nails in the moderate category 50%. Respondents who suffered from dermatitis were 41%, while those who did not were 59%.

Table 1
Characteristics of Respondents

Variable	f	%
Age (year)		
18-24	18	18
25-29	32	32
30-34	26	26
35-39	10	10
40-44	4	4
45-49	4	4
50-54	6	6
Total	**100**	**100**
Gander		
Male	52	52
Female	48	48
Total	**100**	**100**
Education		
Primary school	8	8
Junior high school	18	18
Senior high school	62	62
Collage	12	12
Total	**100**	**100**
Employment		
Civil officer	14	14
Private employees	45	45
Housewife	31	31
Student	10	10
Total	**100**	**100**

Table 2
Frequency Distribution of Water Sources, Bathing Behavior, Handwashing Behavior, Changing Clothing Habits, Nail Cutting Habits, and The Incidence of Dermatitis

Variable	F	%
Water source		
River	38	38
Borehole	62	62
Total	**100**	**100**
Bathing behavior		
Good	63	63
Moderate	37	37
Total	**100**	**100**
Handwashing behavior		
Good	39	39
Moderate	55	55
Poor	6	6
Total	**100**	**100**
Changing clothing habits		
Good	56	56
Moderate	44	44
Total	**52**	**100**
Nial cutting habits		
Good	47	47
Moderate	50	50
Poor	3	3
Total	**100**	**100**
Dermatitis		
Yes	41	41
No	59	59
Total	**100**	**100**

Table 3
Relationship between Water Sources and Personal Hygiene with Dermatitis Incidence

Variabel	Dermatitis				Total		*p-value*
	Yes		No		n	%	
	n	%	n	%			
Sumber Air							
River	28	68,3	10	16,9	38	38	<0,001
Borehole	13	31,7	49	83,1	62	62	
Bathing behavior							
Good	13	31,7	50	84,7	63	63	<0,001
Moderate	28	68,3	9	15,3	37	37	
Handwashing behavior							
Good	7	17,1	32	54,2	39	39	0,001
Moderate	31	75,6	24	40,7	55	55	
Poor	3	7,3	3	5,1	6	6	
Nail cutting habits							
Good	17	41,5	30	50,8	47	47	0,091
Moderate	21	51,2	29	49,2	50	50	
Poor	3	7,3	0	0	3	3	
Changing clothing habits							
Good	4	9,8	52	88,1	56	56	
Moderate	37	90,2	7	11,9	44	44	<0,001
Poor	0	0	0	0	0	0	

Based on the table 3, it was known that the results of the analysis had a relationship among water sources, bathing behavior, handwashing behavior, and changing clothes habits with dermatitis with p-value <0.001; <0.001; 0.001; <0.001, while there was not a relationship between nail cutting habits and dermatitis with p-value 0.091.

In the fourth stage, it is known that the variable analyzed is the Changing Habits variable where it can be seen that the Changing Habits variable has a value of p=<0.001 (p<0.05) so that the Changing Habits variable is the most influential variable in this study with an Exp. B=68,714.

Water source comes from boreholes (38%). The results of the analysis of the relationship between water sources and dermatitis with p-value <0.001 means that there was a relationship between water sources and dermatitis. This study is in line with (Fitria & Hayani, 2019) research that water sources have a relationship with dermatitis in Darul Takzim Hamlet, East Bantan Village, Bantan District, Bengkalis Regency. According to (Slamet, 2013) the provision

Table 4
Logistics Regression Multivariate Analysis Results

Step	Variabel	Koefisien (B)	*p-value*	Exp (B)	95%CI	
					Lower Limit	*Upper Limit*
1	Water sources	-1,108	0,131	0,330	,078	1,390
	Bathing behavior	1,306	0,797	3,691	,774	17,603
	Handwashing behavior	-,442	0,544	0,643	,155	2,672
	Changing clothing habits	3,700	0,000	40,441	9, 416	173,684
	Constant	-5,309	,014	,005		
2	Water sources	-1,054	0,148	,348	,084	1,453
	Bathing behavior	1,138	0,121	3,120	,741	131,136
	Changing clothing habits	3,570	0,000	35,520	9,111	138,472
	Constant	-5,692	,007	,003		
3	Bathing behavior	1,484	0,030	4,410	1,156	16,821
	Changing clothing habits	3,778	,000	43,730	11,478	166,609
	Constant	-8,180	,000	,000		
4	Changing clothing habits	4,230	,000	68,714	18,750	251,827
	Constant	-6,795	,000	,001		

of clean water must meet requirements, one of which is physical, chemical, and biological requirements, lack of clean water, especially to maintain personal hygiene, can cause various skin and eye diseases. Water is one of the environmental elements that make up life in meeting vital needs for living things so that there is no life if there is no water on earth, so the water used must be water that meets health requirements, namely water that is colorless, tasteless, and does not smell like water. According to (Ernyasih, Juju Permata Sari, Munaya Fauziah, Andriyani, Nurmalia Lusida, 2021) , quality water must meet physical requirements, namely color, tasteless and odorless.

Bathing behavior had good hair hygiene (63%). The results of the analysis of the relationship between bathing behavior and dermatitis with p-value <0.001 means that there was a relationship between bathing behavior and dermatitis. This study is in line with (Siregar & Ariga, 2020) research that there is a relationship between skin disease and dermatitis. Most of the respondents have carried out good skin hygiene, one of the efforts in maintaining skin cleanliness to protect the body surface and avoid various skin diseases caused by fungi, germs, viruses, and parasites. According to researchers, keeping the skin clean is very important to maintain body image, increase self-confidence, and provide comfort. According to (Fitria & Hayani, 2019) there is no relationship between personal hygiene and dermatitis in Darul Takzim Hamlet, East Bantan Village, Bantan District, Bengkalis Regency. The statistical test results showed the POR value at 95% CI, namely 0.585 (POR value < 1.00) which means that personal hygiene is not a risk factor for dermatitis in the community in Darul Takzim Hamlet, East Bantan Village, Bantan District, Bengkalis Regency.

Handwashing behavior is a moderate category (55%). The analysis results of the relationship between handwashing behavior and dermatitis is a p-value of 0.001, meaning there was a relationship between handwashing behavior and dermatitis. This study is in line with (Siregar & Ariga, 2020) of 96 respondents washing their hands after cleaning the bed 48 respondents, not 48 respondents. Handwashing after cleaning the bathroom is 90 respondents, not 6 respondents. Cutting nails once a week is 72 respondents, not 24 respondents. Handwashing with soap after defecating or urinating is 85 respondents, not 11 respondents. Handwashing after scratching is 55 respondents, not 41 respondents.

Changing clothing habits is a moderate category (44%). The analysis results of the relationship between changing clothing habits and dermatitis are p-value <0.001, which means that there was a relationship between changing clothing habits and dermatitis. This study is in line with (Apriliani, Suherman, Ernyasih, Romdhona, & Fauziah, 2022) where the results of statistical tests using Chi-square with the Continuity Correction test showed a p-value of 0.000, which means that there was a significant relationship between clothing hygiene and irritant contact dermatitis in scavengers.

Keeping clothes clean is one of the efforts to prevent irritant contact dermatitis. Clothing absorbs a lot of sweat and dirt released by the body. Clothes come into direct contact with the skin so that if the clothes are wet with sweat and dirty they will become a breeding ground for bacteria on the skin. The cleanliness of clothing plays an important role in the process of spreading dermatitis. This is influenced by when there is physical contact with a dirty environment, especially contact with people with dermatitis, the bacteria that cause dermatitis will settle and multiply on the clothes, therefore cleanliness of clothes is very important to be maintained to avoid irritant contact dermatitis (Megantari, 2020)

CONCLUSIONS AND SUGGESTIONS

The majority of respondents are aged 25-29 years, the majority gender is male (52%), the majority have high school education (62%), and the majority work as private employees (45%). There is a significant relationship between water sources, bathing behavior, handwashing behavior, and changing clothes habits on dermatitis in the working area of the Munte District Health Center, Karo Regency. Changing clothes is the most dominant factor influencing dermatitis with Exp.B=68.714, which means that the habit of changing clothes affects 68 times the incidence of Dermatitis. It is recommended that to improve health education and cooperation with the Munten sub-district government, Karo Regency assisted by village Kader or one of the environmental health workers to overcome and prevent environmental-based diseases.

ETHICAL CONSIDERATIONS

This study was approved by The Research Ethics Committee, Universitas Imelda Medan No. 315/LPPM-UIM//IV/2022.

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Conflict of Interest Statement

The author declares that there is no potential conflict of interest concerning the authorship and publication of this article.

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