



## Factors Associated with Scabies in The Community in The Area of The Lubuk Begalung Public Health Center

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### ABSTRACT

Scabies was still a public health problem in Indonesia. Scabies was found in places with an unhealthy environment and poor personal hygiene. The purpose of this study was to determine the relationship between risk factors and the incidence of scabies at the Lubuk Begalung Health Center. This research was observational explanatory with a cross-sectional study design approach. The primary data source used a questionnaire containing data on respondent characteristics, personal hygiene and the environment, while secondary data obtained from the puskesmas and the Padang city health office was scabies disease data in 2020. The sample in this study amounted to 112 people using random sampling. The results of the research data were analyzed using the Chi-Square test and multiple logistic regression (multiple regression). The research sample was dominated by males (55.4%) and female (44.6%) and high school students. and above (SMA) (33.0%). The data also showed that 34.8% of respondents suffered from scabies. The results showed that there was a relationship between gender ( $p=0.026$ ) clothing cleanliness (0.000) skin hygiene (0.065) clean water (0.006) occupancy density (0.010) ventilation area (0.002) and the incidence of scabies. While the variables of hand and nail hygiene (0.593) towel cleanliness (0.986) cleanliness of bed linen (0.142) humidity (0.055) was not associated with the incidence of scabies. This study concludes that the variables that affect the incidence of scabies are cleanliness of clothes, cleanliness of bed linen and bed linen, occupancy density, ventilation area with  $p<0.05$ . It was hoped that the community will improve personal and environmental hygiene and increase awareness of scabies disease so that it can prevent scabies from spreading to other families.

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### Kata kunci:

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### ABSTRAK

Skabies masih menjadi masalah kesehatan masyarakat Indonesia. Kudis ditemukan di tempat-tempat dengan lingkungan yang tidak sehat dan kebersihan pribadi yang buruk. Tujuan penelitian ini adalah untuk mengetahui hubungan faktor risiko dengan kejadian skabies di Puskesmas Lubuk Begalung. Jenis penelitian ini adalah observasional explanatory dengan pendekatan desain studi cross sectional. Sumber data primer menggunakan kuesioner yang berisi data karakteristik responden, personal hygiene dan lingkungan, sedangkan data sekunder yang diperoleh dari puskesmas dan dinas kesehatan kota Padang adalah data penyakit scabies tahun 2020. Sampel dalam penelitian ini berjumlah 112 orang dengan menggunakan random contoh. Data hasil penelitian dianalisis menggunakan uji Chi Square dan regresi logistik berganda (multiple regression). Sampel penelitian didominasi oleh siswa laki-laki (55,4%) dan perempuan (44,6%) dan SMA. ke atas (SMA) (33,0%). Data tersebut juga menunjukkan bahwa 34,8% responden menderita skabies. Hasil penelitian menunjukkan bahwa ada hubungan antara jenis kelamin ( $p=0,026$ )

kebersihan pakaian (0,000) kebersihan kulit (0,065) air bersih (0,006) kepadatan hunian (0,010) luas ventilasi (0,002) dengan kejadian skabies. Sedangkan variabel kebersihan tangan dan kuku (0,593) kebersihan handuk (0,986) kebersihan spreng (0,142) kelembaban (0,055) tidak berhubungan dengan kejadian skabies. Penelitian ini menyimpulkan bahwa variabel yang mempengaruhi kejadian skabies adalah kebersihan pakaian, kebersihan spreng dan spreng, kepadatan hunian, luas ventilasi dengan  $p < 0,05$ . Diharapkan kepada masyarakat untuk meningkatkan kebersihan diri dan lingkungan serta meningkatkan kewaspadaan terhadap penyakit skabies sehingga dapat mencegah penyebaran penyakit skabies ke keluarga lain.



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## INTRODUCTION

Scabies is an environmental-based disease that can be transmitted by infection with the mite *Sarcoptes scabiei* var *hominis* (*Sarcoptes* sp.) (Notoatmodjo, 2012). Transmission of this disease is contaminated by scabies mites including using towels and sharing mattresses with patients at the same time. Scabies is often found in dense settlements (Griana, 2013).

Scabies is still a global health problem. In 2017 scabies was included as a neglected tropical disease even today. The incidence of scabies cases worldwide is estimated to reach more than 200 million cases each year, with details of 2.27% of 1000 men and 2.81% of 1000 women. There are nearly one million cases in the United States each year (WHO, 2014). According to the 2014 Scabies Control Alliance (IACS), the incidence of scabies varies between 0.3% - 46% (IACS, 2014).

Various risk factors for scabies are gender, age, education level, personal hygiene and environmental sanitation. The lack of knowledge related to the causes and dangers, distribution, and prevention of scabies causes an increase in the incidence of scabies (Triani et al., 2017). Environmental factors that can cause scabies disease. Such as the difficulty of obtaining adequate clean water facilities, causing various eye and skin diseases and as a breeding ground for bacteria in the mouth and eyes (Triani et al., 2017) (Harahap, 2013). Living with a group of people or in crowded housing also has the risk of being easily infected with diseases. Scabies (Nadiya et al., 2019).

Research conducted by Sari in 2015 at the Lubuk Buaya Health Center, Padang city, found that informants who had poor personal hygiene ( $p = 0.022$ , OR = 5) were more at risk of suffering from scabies disease than respondents who had good personal hygiene, because scabies mites easily infect hygiene individuals bad self (Sari, 2018). Lubis' research in 2015 in flats showed that there was an interaction of meeting the need for clean water with scabies disease, respondents (34%) used water that did not meet the standards and were at risk of experiencing scabies compared to respondents who had water that met the standards (Lubis, 2015). 2014 in Wombo Village, Tanantovea Subdistrict, Donggala Regency, it was found that there was an interaction of water quality with scabies disease (Budiman, Hamidah, 2015).

From the initial survey conducted by researchers in February 2021, it can be seen from the data that there has been an increase in scabies disease from 2019 with 116 cases (16.5%) and 172 people (24.5%) in 2020. Based on the results of interviews, complaints of scabies disease are in the form

of itching at night, the appearance of redness and bumps on the skin surface. The triggers that mostly affect the incidence of scabies in Lubuk Begalung sub-district are age, gender, poor personal hygiene, use of towels, bathing equipment simultaneously in one house and poor environmental sanitation such as clean water. 3%, bore wells 8.9%, and PDAM 43.9%. This study aims to determine the interaction of risk factors on the incidence of scabies in the work area of the Lubuk Begalung Health Center, Padang city.

## METHOD

This research has obtained an ethical license or code of ethics from the Health Research Ethics Commission, Faculty of Public Health, Diponegoro University with number 256/EA/KEPK-FKM/2021. This type of research is quantitative with a cross-sectional study design that aims to analyze the relationship between risk factors and the incidence of scabies. The number of samples in this study was 112.

$$n_i = \frac{N_i}{N} \times n$$

Keterangan :

- $n_i$  = Number of samples needed per village
- $N_i$  = total population of each village
- $N$  = Total population of all villages
- $n$  = Total number of samples

**Tabel 1**  
**Proportion of the number of samples in each village**

Kelurahan	Populasi	Sampel
Parak Laweh Pulau Aie	10394	17
Banuaran	10149	16
Koto Baru	8591	14
Tanjung Aua	2300	4
Gurun Laweh	7483	12
Lubuk Begalung	6349	10
Tj Saba Piai	6349	10
Tanah sirah piai	6403	10
Cengkeh	5137	9
Kampung Baru	6079	10
Jumlah		112

The sampling technique in this study used the slovin formula and proportional sampling. The proportional sampling technique was used because each kelurahan has a different population in the working area of the Lubuk Begalung Health Center.

Collecting data using a questionnaire consisting of questions using a Likert scale on personal hygiene variables. Each questionnaire is a series of statements regarding the cleanliness of the clothes used, the cleanliness of the sheets, and the bed. Towel cleanliness, skin hygiene, hand and nail hygiene. Furthermore, the total score on each questionnaire was grouped into several categories to facilitate cross tabulation. This category includes very often, often, rarely, never. To meet the objectives of this study, IBM SPSS version 21 was used and the statistical tests used consisted of univariate analysis (to describe the characteristics of respondents and research variables), bivariate analysis (used to analyze the relationship between environmental factors or independent variables with the incidence of scabies or the dependent variable), and multivariate analysis (used to analyze the variables or environmental factors that most influence the incidence of scabies).

## RESULTS AND DISCUSSION

Based on table.2 respondents who had poor (49.1%) and good (50.9) clothing hygiene, poor (38.4%) and good skin hygiene (61.6%), poor hand and nail hygiene (41.9) and good (50.9%), towel cleanliness is bad (43.8%) and good (56.3%), bed linen and bed hygiene is bad (48.2%) and good (51.8%), clean water bad (40.2%) and good (59.8%) , poor occupancy density (40.2%) and good (59.8%), ventilation that does not meet the standard (49.3%) humidity (42.9%) , qualified humidity (57.1%).

Bivariate analysis to analyze the effect of independent variables with dependent variables, including gender, physical environmental sanitation and personal hygiene on the incidence of scabies in the Lubuk Begalung Health Center area. In Table 2 explains the interaction between gender and the incidence of scabies  $p = 0.026$  ( $p < 0.05$ ), personal hygiene factors to maintain the cleanliness of clothes proved to have a significant relationship with the incidence of scabies  $p = 0.000$  ( $p < 0.05$ ). Variables that have no interaction with the incidence of scabies include skin hygiene, towel cleanliness, bed linen and bed hygiene where  $p > 0.05$ .

**Tabel 2.**  
**Frequency distribution of respondent**

Variable	F	%
<b>Age</b>		
Child <15	47	42.0
Adult 16-49	50	44.6
Old >50	15	13.4
<b>Gender</b>		
Man	62	54.6
Woman	50	44.6
<b>Education</b>		
Not school yet	10	8.9
SD	35	31.3
junior high school	18	16.1
senior High School	37	33.0
College	12	10.7
<b>Scabies</b>		
Scabies	39	34.8
No scabies	73	65.2
<b>Sarcoptes scabiei mite</b>		
There is	55	49.1
There is not any	84	75.0
<b>Cleanliness of clothes</b>		
Bad	55	49.1
Well	57	50.9
<b>Skin hygiene</b>		
Bad	43	38.4
Well	69	61.6
<b>Hand and nail hygiene</b>		
Bad	55	41.9
Well	57	50.9
<b>Towel cleanliness</b>		
Bad	49	43.8
Well	63	56.3
<b>Cleanliness of bed linen and sheets</b>		
Bad	54	48.2
Well	58	51.8
<b>Clean water</b>		
Bad	45	40.2
Well	7	59.8
<b>Occupancy density</b>		
Bad	42	40.2
Well	70	59.8
<b>Ventilation area</b>		
Not eligible	44	49.3
Qualify	68	60.7
<b>Humidity</b>		
Not eligible	48	42.9
Qualify	64	57.1

**Tabel 3**  
**Bivariate analysis of the relationship between variables and the incidence of scabies**

Variable	Scabies Incident				<i>por</i> (95%CI)	<i>p-value</i>
	scabies		No scabies			
	F	%	F	%		
<b>Gender</b>						
Man	30	48.4	32	51.6	2.056	<b>0.026</b>
Woman	13	26.0	37	74.0		
<b>Cleanliness of clothes</b>						
Bad	29	74.4	10	25.6	5,242	<b>0.000</b>
Well	26	35.6	47	64.4		
<b>skin hygiene</b>						
Bad	20	51.3	19	48.7	2,288	<b>0.065</b>
Well	23	31.5	50	68.5		

<b>Hand and nail hygiene</b>						
Bad	21	38.2	34	61.8	1.338	<b>0.953</b>
Well	18	31.6	39	68.4		
<b>Towel cleanliness</b>						
bad	19	35.8	34	62.4	1.090	<b>0.986</b>
Well	20	33.9	39	61.4		
<b>Cleanliness of bed linen and sheets</b>						
Bad	23	42.6	31	57.4	1,948	<b>0.142</b>
Well	16	27.6	42	72.4		
<b>Clean water</b>						
Bad	23	59.0	16	41.0	3,332	<b>0.001</b>
Well	22	30.1	51	69.9		
<b>Occupancy density</b>						
bad	26	66.7	13	33.3	7,125	<b>0.010</b>
Well	16	21.9	57	78.7		
<b>Ventilation area</b>						
Not eligible	22	54.4	17	43.8	3,678	<b>0.003</b>
Qualify	19	26.0	54	74.0		
<b>Humidity</b>						
Not eligible	22	56.4	17	43.6	2,339	<b>0.075</b>
Qualify	26	36.6	47	64.4		

The results of the analysis showed that there was a relationship between clean water and the incidence of scabies  $p = 0.006$  ( $p < 0.005$ ), there was an interaction between the density of housing and the incidence of scabies

$p = 0.010$  ( $p < 0.005$ ). From the table, it is known that there is an interaction between ventilation and the incidence of scabies  $p = 0.003$  ( $p < 0.05$ ), there is no significant interaction between the humidity variable and the incidence of scabies.

**Table. 4**  
**The relationship of risk factor variables with the incidence of scabies**

Variable	p value	OR	description
Gender	0.026	2.56	Significant
Cleanliness of clothes skin hygiene	0.000	5,252	Significant
Hand and nail hygiene	0.065	2,288	Not significant
Towel cleanliness	0.593	1.338	Not significant
Cleanliness of bed linen and sheets	0.986	1.090	Not significant
Clean water	0.142	1,948	Not significant
Occupancy density	0.006	3,332	significant
Ventilation Area	0.010	7,125	significant
Humidity	0.003	3,678	significant
	0.055	2,339	Not significant

Analyzing the relationship between the independent variable and the dependent variable and controlling for some confounding variables. The results of the logistic regression analysis explained that the cleanliness of clothes was a variable that had a more significant relationship ( $p = 0.001$ ) with the incidence of scabies compared to the occupancy density variable ( $p = 0.005$ ). In addition, residential density has an Exp (B) or OR = 4.98 with a Confidence Interval of 1.36 - 17.86, which means that informants with residential densities that do not meet the standards are at risk of contracting scabies 4 times from informants who have residential densities that meet the standards.

Meanwhile, poor clothing hygiene has an OR = 5.75 with a Confidence Interval of 2.01 - 16.39, which means that respondents with poor clothing hygiene have a 5.75 times risk of contracting scabies than respondents who have good clothing hygiene.

## DISCUSSION

This study focuses on analyzing the risk factors for the incidence of scabies. Various risk factors for scabies disease are gender, age, education level, personal hygiene and the environment such as the difficulty of obtaining adequate clean water facilities, residential density, ventilation area and humidity<sup>5</sup> Research respondents were dominated by men as many as 62 people (54.6%). Based on the results of observations, there were as many as 48.4% of male respondents who filled out the questionnaire had been exposed to scabies. Other research explains that women have the hormone estrogen which has an impact on the psyche and feelings so that empathy and sympathy arise. Thus, female hormones have an impact on environmental awareness.

This study is similar to research at the Darul Ma'arif Islamic Boarding School, Sibtang Regency, showing that the prevalence of scabies has a significant relationship with gender ( $p = 0.00$ ).<sup>11</sup> The prevalence of scabies is dominated by men, because from the observations of researchers the

female sex group is more concerned about the environment and personal hygiene. Maintaining the cleanliness of the clothes on the respondents showed that the practice of bad clothing hygiene was 55 people with a percentage of 49.1%.

It is known from the results of the questionnaire answers there are 29 people (74.4%) including the group of respondents with poor clothing hygiene who suffer from scabies. In addition, there are still many respondents who still rarely change clothes 2 times a day and often change clothes with other family members. In a day, clothes that are not replaced will accumulate sweat and make clothes moist, this humid condition will become a health problem especially health problems related to the skin because the body is in humid conditions. One way to prevent transmission of scabies mites is to keep clothes clean and one of the ways to prevent the spread of mites. The results of the analysis explained that there was an interaction of clothing hygiene variables on the incidence of scabies  $p = 0.000$  ( $p < 0.05$ )  $OR = 5.24$ . This means that respondents with poor clothing hygiene have a 5.24 times risk of contracting scabies compared to respondents with good clothing hygiene.

Maintaining skin hygiene in respondents showed that poor skin hygiene practices were 43 people (38.4%). It is known from the results of the questionnaire answers that 20 respondents with poor skin hygiene (51.3%) suffer from scabies. Good personal hygiene is a condition where a person keeps his body and skin clean based on bathing habits which include the use of soap and how often it is used together.

The results of the analysis explain that there is no interaction of skin hygiene variables on scabies where  $p = 0.065$  ( $p > 0.005$ ) with an  $OR = 2.28$ . Contrary to research conducted at the Liang Anggang Islamic Boarding School in 2016, it was found that there was an interaction of skin hygiene variables on incidence of scabies ( $p = 0.000$ ). Respondents with poor hand and nail hygiene as many as 55 people (41.9%) good 69 people (61.6%). Respondents who rarely wash their hands after using the bathroom are 43 people (38.4%), people cut their nails (16.1%) and 37 people do not (37.0%).<sup>12</sup> According to Soebono (2011), the transfer of mites can occur due to scratching from infected skin sticking to the nails or moving hands to other parts of the skin. So for prevention it is recommended to wash hands with soap after scratching exposed skin.

The results of the analysis showed that there was no interaction of hand and nail hygiene variables on the incidence of scabies where  $p = 0.593$  ( $p > 0.005$ )  $OR = 1.33$ . Similar research conducted in Darussalam Islamic Boarding School Banyuwangi in 2015 showed that there was no interaction between hand and nail hygiene on the incidence of scabies in students ( $p = 0.266$ ). Explained that there was an interaction of hand and nail hygiene variables on the incidence of scabies ( $p = 0.010$ ).<sup>14</sup>

Transmission of scabies can also occur through direct contact, namely using the bed together with scabies sufferers and indirect contact such as using towels, bed sheets and pillowcases together. The results of the study explained that there was no interaction between the variables of towel cleanliness and the incidence of scabies where  $p = 0.986$  ( $p > 0.005$ ) because some respondents already had good towel hygiene. Similar research was conducted at the Jabal An-Nur Islamic Boarding School, West Batung Bay District, Bandar Lampung City which showed that there was no interaction between towel cleanliness and the incidence of scabies ( $p = 0.667$ ).<sup>14</sup>

This study explains that there is no interaction between the variables of cleanliness of the sheets and mattresses on

the incidence of scabies in respondents ( $p = 0.142$ ). This is because based on the respondent's answer, it shows that the cleanliness of the bed linen and the bed is good, the respondent uses his own mattress (31.3%). In line with research that has been carried out on detainees of the Sibuhuan Branch of the Padang Lawas District Detention Center, the results showed that there was no interaction between the cleanliness of bedding and the incidence of scabies ( $p = 0.654$ ).<sup>15</sup>

Water is closely related to scabies disease. This is due to the cleanliness of the skin associated with the provision of clean water which plays a role in disease transmission. The results of this study explain that there is an interaction between the variables of water cleanliness and the incidence of scabies with a value ( $p = 0.006$ ). The analyzer said that the water factor of 112 respondents had poor clean water, namely 59.0% who had scabies but 30.1% who did not. Because based on the results of interviews and observations of the physical form of water from some respondents it smells, tastes and is colored and there are still many respondents who do not have their own sewer for dirty water disposal.

In line with the research conducted at the Pringsewu Hospital, Pringsewu Regency, it was explained that there was an interaction between the water cleanliness variable and the incidence of scabies ( $p = 0.000$ )  $OR$  value of 5.4 ( $CI$  2.7-10.8) meaning that patients using water that did not meet the standards will have a 5.4 times greater risk of contracting scabies than patients who use water that meets the standard.<sup>16</sup>

High occupancy density and physical interaction between individuals can facilitate the transmission and infection of scabies mites. densely populated residential areas will lead to greater direct contact between occupants and a decrease in air supply. If there is a scabies patient in a room, it is likely that other family members will be infected with this disease. The results of this study indicate that there is a relationship between residential density and the incidence of scabies ( $p = 0.010$ ). Where it is known from the results of respondents' answers that some of the respondents in the room tissue that do not meet the requirements are 66.7%.

This study explains that there is an interaction between residential density and the incidence of scabies ( $p = 0.010$ ). Where it is known from the results of respondents' answers that some of the respondents in the room tissue that do not meet the requirements are 66.7%.

In line with research conducted at the Lubuk Buaya Health Center in Padang City in 2015, it was found that there was an interaction between the variable density of housing and the incidence of scabies ( $p = 0.002$ ,  $OR = 4.5$ ).<sup>8</sup> The function of ventilation is to circulate air and allow sunlight to enter the room. If the ventilation is not in accordance with the standard, the air circulation in the room will be poor, so that there is an increase in humidity in the room.

This study explains that there is a significant interaction between ventilation variables and the incidence of scabies ( $p = 0.030$ ) where ventilation is the cause of scabies. From the observation, it is known that the respondent's ventilation area that meets the standard is  $>10\%$  of the floor area (26.0%). In line with the research at An-Nur Islamic Boarding School, Cisaeng Bogor, it was explained that there was a wide interaction of ventilation with the incidence of scabies ( $p = 0.015$ ), increases at high temperatures.<sup>14</sup>

This study explains that there is no interaction between humidity and the incidence of scabies ( $p = 0.065$ ), caused by factors such as poor personal hygiene, clean water,

ventilation area and residential density in scabies sufferers. The logistic regression analysis test showed the results that there were variables that had the most influence among other risk factors with the incidence of scabies, namely cleanliness of clothes, cleanliness of bed linen and sheets, density of occupancy and ventilation area. Cleanliness of clothes is a variable that has a strong relationship with scabies  $p = 0.001$  and the OR value = 5.75 is the largest among other variables that are dominant in the incidence of scabies.

## CONCLUSIONS AND SUGGESTION

The factors that can cause scabies are gender, personal hygiene (hand and nail hygiene, clothing hygiene, skin hygiene, towel cleanliness, bed linen and bed hygiene), and the environment, namely clean water, residential density. Other factors that can contribute to the appearance of scabies include ventilation and humidity. This study explains that the number of scabies diseases that occur around the Lubuk Begalung sub-district, Padang City in 2021, besides being caused by environmental factors, there are also individual factors that cause scabies disease such as gender and personal hygiene. Environmental factors that support the occurrence of scabies are almost half of the population still have room occupancy and ventilation that do not meet the requirements, the physical condition of clean water that sometimes smells, tastes and is colored.

It is recommended to the relevant agencies to coordinate and synergize across sectors and across programs related to overcoming health problems related to healthy homes for the community. People who suffer from scabies can carry out regular checks and avoid things that can trigger a recurrence of scabies, such as: avoiding when a family member is also affected by scabies, not using clothes, towels and bedding at the same time, and always keeping the house clean.

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