

## Determinants of Scabies Symptoms in Students at Al Falah Sukajaya Islamic Boarding School in 2024

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**Abstract.** *Introduction: The prevalence of scabies cases in Palembang from data from the Ministry of Health of the Republic of Indonesia in January 2020 was 8.3% and December 2020 was 4.5%. The incidence of scabies in Islamic boarding schools is still very high. There are 20 dormitories that can accommodate 10 to 15 students, with foam mattresses lined up for sleeping and stacked when not in use. There are also 4 bathrooms and toilets with large toilets. The source of water used daily is well water which may be brown in color. The habit of changing towels, prayer equipment, clothes, hand towels, even soap. Research Method: The type of research to be carried out is Quantitative research with a Cross Sectional design and a sampling method, namely simple random sampling. The location of the research is at the Al-Falah Sukajaya Islamic Boarding School, Bayung Lencir District, South Sumatra Province. The analysis used in this study is the Chi Square Test. Research Results: The sample in this study amounted to 77 people. The symptoms of scabies with the highest frequency of experiencing symptoms of scabies were 48 (62.4%) respondents, while those who did not have symptoms were 29 (37.7%) respondents. The results of this study indicate that knowledge has a p-value of 0.000 ( $p = <0.05$ ), the knowledge of students has a p-value of 0.000 ( $p = <0.05$ ), the role of Islamic boarding school officers has a p-value of 0.0030 ( $p = <0.05$ ), and the utilization of facilities and infrastructure p-value 0.004 ( $p = <0.05$ ) with the incidence of scabie Conclusion: Lack of knowledge of students, student behavior, the role of Islamic boarding school elders, utilization of health facilities and infrastructure can increase the risk of scabies. Therefore, it is hoped that there will be improvements in the health aspects of students, such as education and supervision of students, training for officers, and optimal utilization of facilities and infrastructure.*

**Keywords:** Scabies, Prevalence, Dormitories, Water

### 1. INTRODUCTION

Skin diseases are common in most tropical areas, where the pattern of clinical presentation is dominated by infection. Alongside common diseases such as pyoderma and fungal infections, a group of conditions collectively known as neglected tropical skin diseases or cutaneous NTDs, which are targets for control or elimination worldwide, are also seen in health care settings. These diseases range from the common, such as scabies, to the less common, including leprosy and mycetoma. Scabies is a disease caused by *Sarcoptes scabiei* and affects human skin. This disease generally infects people in developing countries and can occur in more than 10 individuals, with incidence rates varying between 3 and 46% (Zaman et al. 2024)

. Scabies is a skin disease that is still a health issue for many people, especially for those who do not maintain their cleanliness and health. This disease can be transmitted through direct or indirect contact . (Kesehatan and Kefis 2023) This skin disease is often considered a common problem among boarding school children. Unhealthy environments

and behaviors can facilitate the spread of diseases, including skin diseases. (Triana and Razi 2019) .

The incidence of scabies can increase due to one factor, namely the lack of attention to personal hygiene. Fanini stated that in the research of Novitasari et al. (2021), scabies can be caused by several triggering factors , including personal hygiene which includes knowledge of skin care. Inadequate personal hygiene can make a person susceptible to various diseases, such as skin diseases and infections. (Sulistiarini et al. 2022) . A serious health problem in developing countries is scabies. According to information from WHO, more than 200 million people in the world are affected by scabies at any one time. The prevalence ranges from 0.2% to 71%, with about 5% to 10% of them being children. Although many people are affected by scabies, this disease is often ignored because it is considered harmless. This neglect can make scabies treatment less important and cause serious complications such as sepsis, acute kidney disease that is asymptomatic can turn into chronic in adulthood, and heart disease . (World Health Organization 2020)

Based on data from the Indonesian Ministry of Health, the prevalence of scabies In 2016, the prevalence of scabies ranged from 4.60% -12.95% of 261.6 million. in 2017 it was recorded at 10.60% -12.96%, then 7.9% -9.95% in 2018 and 4.9% -6.95% in 2019 in 2020, the prevalence increased between 5.6 - 12.9% (Rosmawati, Sopiah, and Rosyda 2023) Data from the South Sumatra Provincial Health Office showed that there were 1,027 cases of scabies infection out of 1,623,099 people from all skin infection diseases in the South Sumatra Region. The incidence of scabies infection in 2017 reached 227 sufferers ( Palembang City Health Office , 2017). The prevalence of scabies cases in Palembang from data from the Ministry of Health of the Republic of Indonesia in January 2020 was 8.3% and in December 2020 it was 4.5% (Sumatra Provincial Health Office, 2020).

Based on the results of an initial survey in June 2024 at the Al-Falah Sukajaya Islamic boarding school, Bayung Lencir District, Musi Banyuasin Regency, South Sumatra Province, it was found that data on students suffering from scabies. In the last 3 months 153 students recorded with details of 85 students son and 68 female students suffering from scabies. A study conducted by Novitasi and colleagues in 2020, which found that personal hygiene is closely related to the incidence of scabies. This study shows that there is a significant relationship between hand and nail hygiene and the incidence of scabies, indicated by a p-value of 0.00 , which indicates a very strong relationship. In addition, foot hygiene (p-value 0.01 ) , clothing hygiene (p-value 0.03), and towel hygiene (p-value 0.06) also affect the occurrence of scabies. From these findings, the author

concludes that it is important for Islamic boarding school leaders to educate students about the importance of maintaining personal hygiene. This education is expected to help prevent the spread of scabies among students.

Research on scabies is important to improve understanding of the disease, identify more effective prevention and treatment solutions, and reduce the health, social, and economic impacts caused. In addition, research also plays a role in increasing public awareness and education, and providing useful data for better public health policy planning. The incidence of scabies in Islamic boarding schools is still very high. There are 20 dormitories that can accommodate 10 to 15 students, with foam mattresses lined up for sleeping and stacked when not in use. There are also 4 bathrooms and toilets with large toilets. The water source used daily is well water which is probably brown in color. The habit of changing towels, prayer equipment, clothes, hand towels, even bath soap. Based on the results of previous research conducted, as well as the initial survey conducted by the researcher, the researcher is interested in conducting research on the determinants of scabies incidence in students at the Al-Falah Sukajaya Islamic boarding school.

## **2. LITERATURE REVIEW**

Scabies is a disease caused by *Sarcoptes scabiei* and attacks human skin. In developing countries, scabies usually attacks several people, but can attack more than 10 people, with an incidence rate of 3 to 46%. (Septalita et al. 2024). According to data from the World Health Organization (WHO) in 2023, WHO explained that scabies often occurs in densely populated areas in developing countries. WHO also estimates that almost 400 million people experience scabies each year in the world. (Munif, Utomo, and Rosyanti 2023) The prevalence of scabies in Indonesia ranges from 4.60% - 12.95% each year. In Indonesia itself, scabies is the third most common disease in Indonesia and the 7th most common disease in health center areas (Qurotu'aini, Zubaidah, and Rahma 2024).

Scabies is highly influenced by individual hygiene and environmental conditions. This disease tends to spread more easily in locations inhabited by many people in a narrow space. If public awareness of the importance of hygiene is still low, and if participation in maintaining health is also lacking, and if health monitoring by the government is inadequate, then health problems will worsen. In addition, environmental problems such as lack of access to clean water can also worsen the situation. Scabies transmission can occur when individuals sleep in the same bed, whether at home, school dormitories, or health facilities used by the community. This shows that environmental conditions and

daily habits play an important role in the spread of this disease. (Rosmawati, Sopiah, and Rosyda 2023)

Knowledge plays a very important role. Students with low knowledge will be more susceptible to scabies due to their lack of efforts in preventing this disease. Students' knowledge and attitudes about scabies play a very important role in preventing and treating it. Good knowledge allows individuals to understand the importance of early detection and effective prevention methods, such as maintaining personal and environmental hygiene. Conversely, attitudes that are less concerned or do not know how to prevent can increase the risk of transmission and spread of this disease. According to Aliffiani and Mustakim (2020), higher knowledge about scabies and how to treat it tends to encourage better preventive measures.

Pesantren Health Post (Poskestren) is a pesantren that is ready, able, and willing to prevent and overcome health problems on its own according to its abilities. Poskestren aims to improve public health in pesantren by providing promotive and preventive services. This program is run by pesantren residents with support from the local health center. The main goal is disease prevention and health recovery, as well as improving overall health. (Munif, Utomo, and Rossyanti 2023)

Adequate clean water supply facilities can reduce the risk of scabies transmission compared to those that are not, because clean water is related to disease transmission. Water tanks that are used daily for shared needs have a greater potential to transmit scabies if the water is contaminated with dirt, including mites that cause scabies. In addition, if the room temperature and the capacity of the room's occupants can increase due to body heat, and humidity can also increase due to vapor from breathing or fluid discharge from the skin. ((Mendila 2022)

In Ria's study (2014), 58.7 % of people had poor personal hygiene and 41.3% had adequate personal hygiene. The highest infestation rates occur in several tropical countries, with high humidity that supports the development of parasites, especially in areas of communities with dense population and poverty coexisting and limited access to treatment (World Health Organization (WHO), 2020). Low income, male gender, washing hands without soap, having a history of contact with scabies sufferers, and sharing a bed significantly affect the incidence of scabies in the study area (Munif, Utomo, and Rossyanti 2023)

### 3. METHODS

The type of research to be conducted is quantitative research with a *cross-sectional design and a simple random sampling* sampling method. The location of the research is at the Al-Falah Sukajaya Islamic Boarding School, Bayung Lencir District, South Sumatra Province. The analysis used in this study is the *Chi Square Test*.

### 4. RESULTS

#### Distribution of research variable characteristics

**Table 1.** Distribution of research variable characteristics

<b>Variables</b>	<b>N</b>	<b>Percentage %</b>
<b>Knowledge</b>		
Tall	42	54.5
Low	35	45.5
<b>Behavior</b>		
Not good	40	51.9
Good	37	48.1
<b>Role of Health Administrators</b>		
Not good	32	41.6
Good	45	58.4
<b>Utilization of Infrastructure Facilities</b>		
Not good	44	57.1
Good	33	42.9
<b>Symptoms of Scabies</b>		
There are Symptoms	48	62.4
No Symptoms	29	37.7

Table 1 shows that the incidence of scabies symptoms with the highest frequency of experiencing scabies symptoms was 48 (62.4%) respondents, while those who did not have symptoms were 29 (37.7%) respondents. The results of the knowledge analysis showed that respondents with low knowledge were 42 (54.5%) respondents, while respondents with high knowledge were 35 (45.5%) respondents. Respondents who had bad behavior were 40 respondents.

(51.9%), while good behavior was 37 (48.2%) respondents. The variable of the role of health workers was not good as many as 32 (41.6%), while the role of health workers was good as many as 45 respondents (58.4). Respondents who utilized health facilities and infrastructure in Islamic boarding schools were not good as many as 44 (57.1%), while respondents who utilized health facilities and infrastructure in Islamic boarding schools were good as many as 33 (48.9%).

### The relationship between students' knowledge and scabies symptoms

**Table 2.** of Relationship between Students' Knowledge and Scabies Symptoms

Knowledge	Symptoms of Scabies				Total		P-Value	PR (95% -CI)
	There are Symptoms		No Symptoms		N	%		
	N	%	N	%				
<b>Low</b>	42	87.5	6	12.5	48	100	0.001	4,229 (2,057 - 8,693)
<b>Tall</b>	6	20.7	23	79.5	29	100		

Table 2 shows that students who have symptoms of scabies are more in the group of students with poor knowledge of 87.5% compared to the group of students with good knowledge of 20.7%. Meanwhile, students who do not have symptoms are more in the group of students with good knowledge of 79.5% compared to the group of students with poor knowledge of 12.5%.

The results of this study indicate that the p-value is 0.001 ( $p = <0.05$ ) so it can be seen that there is a relationship between the knowledge of students and the incidence of scabies.

### The relationship between student behavior and scabies symptoms

**Table 3.** of Relationship between Student Behavior and Scabies Symptoms

Student Behavior	Symptoms of Scabies				Total		P-Value	PR (95% -CI)
	There are Symptoms		No Symptoms		N	%		
	N	%	N	%				
<b>Not good</b>	37	92.5	3	7.5	40	100	0.001	3,111 (1,811 - 5,146)
<b>Good</b>	11	29.7	26	70.3	37	100		

Table 3 shows that students who have symptoms of scabies are more in the group of students with poor behavior, which is 92.5% compared to the group of students with good behavior, which is 29.7%. Meanwhile, students who do not have symptoms are more in the group of students with good behavior, which is 70.3% compared to the group of students with poor behavior, which is 7.5%.

The results of this study show that the p-value is 0.001 ( $p = <0.05$ ) so it can be seen that there is a relationship between the knowledge of students and the incidence of scabies.

### The relationship between the role of Islamic boarding school administrators and the occurrence of symptoms

**Table 4.** of Relationship between the role of Islamic boarding school administrators and scabies symptoms

the role of health workers	Symptoms of Scabies				Total		P-Value	PR (95%-CI)
	There are Symptoms		No Symptoms					
	N	%	N	%	N	%		
<b>Not good</b>	25	78.1	7	22.9	32	100	0.030	1,529 (1,088 - 2,146)
<b>Good</b>	23	51.1	22	48.9	45	100		

The table above shows that students who have symptoms of scabies are more in the group of students whose health workers' role is not good at 78.1% compared to the group of students who have a good health worker's role at 51.1%. Meanwhile, students who do not have symptoms are more in the group of students who have a good health worker's role at 48.9% compared to the group of students who have a poor health worker's role at 22.9%.

The results of this study show that the p-value is 0.0030 ( $p = <0.05$ ) so it can be seen that there is a relationship between the role of health workers and the incidence of scabies.

### Relationship between Utilization of Health Facilities and Scabies Symptoms

**Table 5.** of Relationship between Utilization of Health Facilities and Infrastructure with Scabies Symptoms

Utilization of infrastructure facilities	Symptoms of Scabies				Total		P-Value	PR (95%-CI)
	There are Symptoms		No Symptoms					
	N	%	N	%	N	%		
<b>Not good</b>	34	77.3	10	22.7	44	100	0.004	1,821 (1,187- 2,796)
<b>Good</b>	14	42.4	19	47.6	33	100		

Table 4.5 shows that students who have symptoms of scabies are more in the group of students whose role in utilizing health facilities and infrastructure is 77.1% compared to the group of students who have good utilization of health facilities and infrastructure 42.4%. Meanwhile, students who do not have symptoms are more in the group of students who have good utilization of health facilities and infrastructure by 47.6% compared to the group of students who have poor utilization of health facilities and infrastructure by 22.7%.

The results of this study indicate that the p-value is 0.004 ( $p = <0.05$ ) so it can be seen that there is a relationship between the use of infrastructure and the incidence of scabies.

## **5. DISCUSSION**

### **The relationship between students' knowledge of environmental health and scabies symptoms**

The results of this study indicate that the p-value is 0.001 ( $p < 0.05$ ) so that it can be seen that there is a relationship between the knowledge of students and the incidence of scabies. In line with the research conducted by Hidayat on Manbaul Ulum students, it is known that the p value is 0.001, which means that there is a significant relationship between the level of knowledge and the incidence of scabies in Manbaul Ulum students. (Hidayat et al. 2022)

Research conducted by Sekar at the Roudhotul Qur'an Banyumas Islamic Boarding School found that the p value was 0.001, which means that there is a significant relationship between the level of knowledge and the incidence of scabies in students at Roudhotul Qur'an Banyumas. (Sekar 2019) Research conducted by Nurhidayat and colleagues at the Miftahul Amin Islamic Boarding School showed that the results of the chi-square test produced a p value of 0.03, which is smaller than 0.05. This shows a relationship between knowledge and the incidence of scabies among students. (Nurhidayat et al. 2022)

Research conducted by Sonhaji et al. (2019) at the Jlamprang Islamic Boarding School, Batang Regency regarding the relationship between knowledge and bathing behavior of female students with the incidence of scabies. Based on cross-sectional data between the relationship between knowledge and the incidence of scabies,  $p = 0.000$  was obtained so that there was a relationship between knowledge and the incidence of scabies at the Islamic boarding school. (Sonhaji, Hastuti, and Safitri 2019)

### **The relationship between student behavior and scabies symptoms at the Al-Falah Sukajaya Islamic Boarding School.**

The results of this study indicate that the p-value is 0.001 ( $p < 0.05$ ) so that it can be seen that there is a relationship between the knowledge of students and the incidence of scabies. In line with the research conducted by Tahani Aziza by the results of the chi-square test, a p value of 0.000 ( $p < 0.05$ ) was obtained, meaning that there is a relationship between personal hygiene behavior and suspected scabies incidence at the Darul Falah Asahan-Kisaran Islamic Boarding School. (Tahani 2022)

Research conducted by Ma'rufi showed that the results of the chi-square test produced a value of  $p = 0.000$  ( $p < 0.05$ ), which means that there is a relationship between healthy behavior and the possibility of scabies in Islamic Boarding Schools in Lamongan



Regency. The relationship between the behavior of students and the occurrence of scabies can be understood, because bad behavior, such as often changing clothes with friends, sleeping together in one bed or room, can increase the risk of being infected with scabies. Clothes worn by infected individuals have the potential to carry *sarcoptes scabiei*, so when healthy people wear these clothes, there is a high possibility that the parasite will move and infect healthy individuals. (Ma'rufi, Istiaji, and Witcahyo 2012)

Research conducted by showed the results of the chi-square test, obtained a value of  $p = 0.001$  ( $p < 0.05$ ) meaning that there is a relationship between healthy behavior and suspected scabies incidents at the X Islamic Boarding School in Brebes, Central Java (James W, Elston D 2020) . The behavior of students related to scabies is often ignored, because many students, especially those who have just entered their first year in the Islamic boarding school dormitory, live in rooms that are not clean. Many of them are reluctant to go to the clinic to get treatment for infectious diseases such as scabies. Students at the beginning level generally only know how to deal with scabies by maintaining personal hygiene, such as washing hands and bathing, and tend to think of scabies as an ordinary itchy disease. (Rahmawati et al. 2021)

**The relationship between the role of Islamic boarding school administrators and scabies symptoms at the Al-Falah Sukajaya Islamic Boarding School.**

The results of this study indicate that the p-value is 0.030 ( $p = < 0.05$ ) so that it can be seen that there is a relationship between the role of Islamic boarding school administrators and the incidence of scabies . In line with the research conducted by showing the results of the chi-square test, the p value = 0.000 ( $p < 0.05$ ) means that there is a relationship between healthy behavior and the alleged incidence of scabies at the Al-Falah Islamic Boarding School, Silo District, Jember Regency (Azizah 2019) .

Behavioral patterns and environmental cleanliness greatly affect the transmission of scabies. Therefore, health workers are expected to be able to immediately treat children with scabies so that it does not spread to others. Research conducted at the Kutoarjo Class I LPKA shows the importance of counseling efforts on how to maintain good hygiene. This counseling aims to increase early detection of scabies, especially at the Kutoarjo Class I LPKA, so that children are not infected. This is important because scabies is a common disease in the LPKA environment. (Tegar Karunia Esa and Umar Anwar 2022)

**The relationship between the utilization of health facilities and infrastructure with scabies symptoms at the Al-Falah Sukajaya Islamic Boarding School.**

The results of this study indicate that the p-value is 0.004 ( $p < 0.05$ ) so that it can be seen that there is a relationship between the utilization of facilities and infrastructure with the incidence of scabies . In line with the study entitled the role of the Islamic Boarding School Polyclinic (Politren) on the prevalence of scabies, the p value = 0.000 with  $\alpha = 0.05$  was obtained. This shows a significant relationship between the role of the Islamic Boarding School Polyclinic (Politren) and the prevalence of scabies in female students at the Darus Sholah Islamic Boarding School in Jember.

Based on the results of the counseling activities carried out by OSPI and Poskestren at the Al-Ikhlash Modern Islamic Boarding School, it can be concluded that there is a significant difference in the knowledge of participants before and after attending counseling about scabies. This activity focuses on several important aspects, including the causes of scabies, how it is transmitted, the symptoms that appear, preventive measures, and the impact of this disease. During the counseling, participants were introduced to more in-depth information about these issues. After participating in the activities, participants from OSPI and Poskestren showed a clear increase in understanding of the importance of preventing scabies, especially in the Islamic boarding school environment. This shows that the counseling was successful in increasing the awareness and knowledge of students regarding this health problem. (Al Hijrah et al. 2021)

The promotional efforts carried out by the Poskestren to prevent scabies consist of several activities. One of them is counseling on Clean and Healthy Living Behavior (PHBS) which is carried out at a predetermined time. In addition, the Poskestren also provides additional nutrition and vitamins to maintain the health of the students. Meanwhile, preventive measures to prevent scabies include mobilizing student organizations in Islamic boarding schools. This organization is tasked with inviting students to carry out and apply cleanliness rules in their respective rooms. Thus, it is hoped that students can be more aware of the importance of maintaining the cleanliness of their environment. (Nurlita and Rahman 2022)

The activeness of the Islamic Boarding School Polyclinic (Politren) in providing health education about scabies, providing treatment to female students infected with scabies, and conducting sanitation inspections in the female students' environment, plays an important role in overcoming health problems related to the prevalence of scabies in Islamic Boarding Schools.

