

Personal Hygiene and Environmental Sanitation Factors that Influence the Incidence of Scabies in Al-Bayan

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ABSTRACT

Introduction: The scabies is a skin disease caused by an infestation of *Sarcoptes scabies mites*. The scabies prevalence in Makassar city health profile in 2012 was 8 of 10 major diseases with a huge 6.63 %.

Methods: Analytical description with cross-sectional design. Data was collected through interviews using personal hygiene questionnaires and environmental sanitation observation sheets. The sample for this study was total sampling, a total of 67 junior high school Al Bayan Hidayatullah students were selected.

Results: Chi-square test results that showed that there was a relationship between skin hygiene and the incidence of scabies (p-value = 0.000), there was a relationship between hand hygiene and the incidence of scabies (p-value = 0.014), there was a relationship between nail hygiene and the incidence of scabies (p-value = 0.023), there is a relationship between clothing hygiene and the incidence of scabies (p-value = 0.000), there is a relationship between towel hygiene and the incidence of scabies (p-value = 0.006), there is no relationship between bed and bed linen hygiene and the incidence of scabies (p-value = 0.095), There is no relationship between environmental sanitation and the incidence of scabies (p-value = 0.538), There is no relationship between residential density and the incidence of scabies (p-value = 0.538).

Conclusion: Improve personal hygiene and improve environmental sanitation so that they can avoid scabies as early as possible.

Keywords: Scabies; personal hygiene; environmental sanitation



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Introduction

Dermatosis is a disease of the outer layer of the body characterized by itching, redness and swelling. Which occurs due to exposure to chemical substances, exposure to hot sun, bacteria, low immunity, microorganisms, fungi, and personal hygiene factors ⁽¹⁾.

Teenagers who live in Islamic boarding schools often suffer from various kinds of skin disorders, both contagious and non-contagious. Many things that pose risks, for example, hormonal changes, clean living habits and, overcrowding in residential areas which can increase the risk of skin disorders for teenagers in Islamic boarding schools. Skin disorders, for example, scabies in teenagers, are often overlooked ⁽²⁾.

Scabies is an infectious skin disorder that occurs due to exposure to parasites or mites. Scabies mites enter the layers under the skin, causing discomfort in the form of itching. This discomfort occurs continuously, and peaks at night. Touch between two skins can transmit this microorganism, so people closest to someone with scabies are at the highest risk. It is estimated that hundreds of millions of people across continents are exposed to scabies every year, especially in developing countries. High prevalence is associated with poor hygiene, low economy and also homelessness ⁽³⁾.

The spread of scabies in Indonesia itself is quite high. From the number of cases found, this skin disease is ranked third out of 12 skin disorders. In 2016 the number of patients exposed was 3.6% of the population, which was an increase from the previous year of 0.7% ⁽⁴⁾.

There are many things that influence the spread of these mites, including limited access to suitable water, inadequate hygiene practices, and overcrowded housing. Disturbances by these mites are often found in places that have inappropriate density levels and often have close interactions, thus encouraging the spread of scabies ⁽⁵⁾.

Methods

In this study, the analytical description method was used and a cross-sectional design was used. Where the design for this is used to describe personal hygiene factors and environmental sanitation which can influence scabies cases in Al Bayan Hidayatullah Islamic Boarding School Middle School students, Makassar. The population and sample in this research were junior high school students who were selected as a whole 67 people, where the sampling technique is total sampling. Data collection was obtained by interviews as well as observations using observation sheets and questionnaires. The instruments or tools used in this research are data obtained from filling out questionnaires and direct observation. In this research, a Likert scale questionnaire was used. The Likert scale is used to measure the attitudes, opinions and perceptions of a person or group of people. The measuring scale used is ordinal. The measurement

results obtained were often, rarely and never. Each question has a value or score. Then the data is entered into a table adjusted for the variable to be measured. For statistical tests, use univariate and bivariate tests and use the SPSS 23 application services. Univariate analysis to determine the distribution of data for both independent and dependent variables. This is followed by bivariate analysis, namely carrying out statistical analysis using the chi-square test to see what factors are related to scabies cases.

Results

This research was carried out at the Al Bayan Hidayatullah Islamic Boarding School in Makassar, carried out in August 2023, with a total of 67 respondents. The data was then processed using Microsoft Excel 2013 and SPSS 23 applications.

Univariate Results

Table 1. Distribution of Scabies Incidence

Scabies Occurrence	Amount	Presentation (%)
Positive	21	31.3
Negative	46	68.7
Total	67	100

From Table 1, it was found that the number of respondents who were negative for scabies was 46 with a percentage of (68.7%), and the number of respondents who were positive for scabies was 21 respondents with a percentage of (31.3%).

Table 2. Distribution of Characteristics Based on Respondent Age

Respondent Characteristics	Scabies Occurrence		%
	Yes	No	
Age	10-14	20	89.55
	15-19	1	10.44
Total		21	100
Class	7	7	40.29
	8	7	22.38
	9	7	23.88
Total		21	100

From Table 2, it is found that respondents for the highest age at an average age of 10-14 years amounted to 20 respondents with a percentage of (89.55%), and respondents for the highest class level were in the entire class with 7 respondents each in each class with a percentage of (33.33%).

Table 3. Distribution of Personal Hygiene Categories

Personal Hygiene	category	n	Presentation (%)
Hygiene skin	Good	37	(55.2)
	Not enough	28	(41.8)
	Bad	2	(3)
Hygiene Hand	Good	26	(38.8)
	Not enough	37	(55.2)
	Bad	4	(6)
Hygiene Nail	Good	42	(62.7)
	Not enough	25	(37.3)
	Bad	0	(0)
Hygiene Clothes	Good	45	(67.2)
	Not enough	18	(26.9)
	Bad	4	(6)
Hygiene Towel	Good	14	(20.9)
	Not enough	47	(70.1)
	Bad	6	(9)
Hygiene Bed and bed linen	Good	7	(10.4)
	Not enough	34	(50.7)
	Bad	26	(38.8)

From table 3. above, it was found that there were 37 respondents with good skin hygiene (55.2%), 37 respondents with poor hand hygiene (55.2%), 42 respondents with good nail hygiene (62.7%), respondents with good clothing hygiene 45 people (67.2%), respondents with poor towel hygiene 47 people (70.1%) and respondents with poor bed hygiene and bed linen 34 respondents (50.7%).

Table 4. Residential Density Distribution

Room	Residential density		Room
	Good	Bad	
1	0	8	8
2	0	8	8
3	0	8	8
4	0	8	8
5	0	7	7
6	0	7	7
7	0	8	8
8	6	0	6
9	7	0	7
Total	13	54	67

From table 4. above, the results show that the rooms occupied by the Santri are categorized as bad for the density level of 7 rooms and occupied by 54 people with a percentage of (80.6%) and the rooms occupied by the Santri are categorized as good for the density level as many as 2 rooms and occupied by 13 people with a percentage (19.4%).

Table 5. Distribution of Environmental Sanitation

Assessment Components	Criteria	Frequency (%)
Clean water facilities	Good	54 (80.6%)
	Bad	13 (19.4%)
Latrine (means of waste disposal)	Good	13 (19.4%)
	Bad	54 (80.6%)
Waste water disposal facilities (SPAL)	Good	13 (19.4%)
	Bad	54 (80.6%)
Waste disposal facilities	Good	13 (19.4%)
	Bad	54 (80.6%)

From Table 5. above, the results show that the rooms occupied by the students are categorized as bad for the density level of 7 rooms and occupied by 54 people with a percentage of (80.6%) and the rooms occupied by the students are categorized as good for the density level as many as 2 rooms and occupied by 13 people with a percentage (19.4%).

Bivariate Analysis Results

Table 6. Relationship between personal hygiene and the incidence of scabies at the Al Bayan Hidayatullah Islamic boarding school in Makassar

Personal Hygiene	Category	Scabies incidence		Total	<i>p</i>
		Yes	No		
Hygiene skin	Good	4 (6%)	33 (49.3%)	37 (55.2%)	0,000
	Not enough	15 (22.4%)	13 (19.4%)	28 (41.8%)	
	Bad	2 (3%)	0 (0%)	2 (3%)	
Hygiene hand	Good	3 (4.5%)	23 (34.3%)	26 (38.8%)	0.014
	Not enough	17 (25.4%)	20 (29.9%)	37 (55.2%)	
	Bad	1 (1.5%)	3 (4.5%)	4 (6%)	
Hygiene nail	Good	9 (13.4%)	33 (49.3%)	42 (62.7%)	0.023
	Not enough	12 (17.9%)	13 (19.4%)	25 (37.3%)	
	Bad	0 (0%)	0 (0%)	0 (0%)	
Hygiene clothes	Good	5 (7.5%)	40 (59.7%)	45 (67.2%)	0,000
	Not enough	12 (17.9%)	6 (9%)	18 (26.9%)	
	Bad	4 (6%)	0 (0%)	4 (6%)	
	Good	0 (0%)	14 (20.9%)	14 (20.9%)	

Hygiene towel	Not enough	17 (25.4%)	30 (44.8%)	47 (70.1%)	0.006
	Bad	4 (6%)	2 (3%)	6 (9%)	
Hygiene bed and bed linen	Good	0 (0%)	7 (10.4%)	7 (10.4%)	0.095
	Not enough	10 (14.9%)	24 (35.8%)	34 (50.7%)	
	Bad	11 (16.4%)	15 (22.4%)	26 (38.8%)	

From Table 6, based on the chi-square test, the p value is 0.000 for skin hygiene (p-value < 0.05). The p value is 0.014 for hand hygiene (p-value < 0.05). The p value is 0.023 for nail hygiene (p-value < 0.05). The p-value is 0.000 for clothing hygiene (p-value < 0.05). The p value is 0.006 for hygiene towels, (p-value < 0.05), with these results it was found that there was a relationship with the incidence of scabies at the Al Bayan Hidayatullah Islamic Boarding School, Makassar. Meanwhile, for the Chi-square test for bed and bed sheet hygiene, the p value is 0.095 (p-value > 0.05), this explains that there is no relationship between the incidence of scabies and bed and bed sheet hygiene at the Al-Bayan Hidayatullah Islamic Boarding School in Makassar.

Table 7. Relationship between environmental sanitation and the incidence of scabies at the Al Bayan Hidayatullah Islamic boarding school in Makassar

Environment sanitation	Category	Scabies incidence		Total	p
		Yes	No		
Clean water	Good	16 (23.9%)	38 (56.7%)	54 (80.6%)	0.538
	Bad	5 (7.5%)	8 (11.9%)	13 (19.4%)	
Waste disposal facilities	Good	5 (7.5%)	8 (11.9%)	13 (19.4%)	0.538
	Bad	16 (23.9%)	38 (56.7%)	54 (80.6%)	
Waste water disposal facilities	Good	5 (7.5%)	8 (11.9%)	13 (19.4%)	0.538
	Bad	16 (23.9%)	38 (56.7%)	54 (80.6%)	
Waste disposal facilities	Good	5 (7.5%)	8 (11.9%)	13 (19.4%)	0.538
	Bad	16 (23.9%)	38 (56.7%)	54 (80.6%)	

From Table 7, based on the chi-square test, the p value is 0.538 (p-value > 0.05), this result explains that there is no relationship between environmental sanitation and the incidence of scabies at the Al Bayan Hidayatullah Islamic Boarding School in Makassar.

Table 8. The relationship between residential density and the incidence of scabies at the Al Bayan Hidayatullah Islamic Boarding School, Makassar

Residential Density	Scabies incidence		Total	p
	Yes	No		
Good	5 (7.5%)	8 (11.9%)	13 (19.4%)	0.538
Bad	16 (23.9%)	38 (56.7%)	54 (80.6%)	
Total	21 (31.3%)	46 (68.7%)	67 (100%)	

From

Table 8, based on the chi-square test, the p value is 0.538 ($p\text{-value} > 0.05$), this result explains that there is no relationship between residential density and the incidence of scabies.

Discussion

From the results of data testing, the p-value is 0.000, where the value is lower than $\alpha = 0.05$, meaning that there is a significant relationship between skin hygiene and the incidence of scabies. This research is in line with Aulia's 2022 research regarding the relationship between skin hygiene and the incidence of scabies, showing a value of $p = 0.021$ ($p < \alpha$)⁽⁶⁾.

In questionnaires and interviews with Islamic boarding school students, it was found that students bathed less than twice a day, did not use soap, rubbed their bodies and did not clean their genitals when cleaning themselves so that parasites could grow and reproduce. However, this is in contrast to what was stated by Rahmawati in 2021, who stated that there was no relationship. The skin's function is to protect the body, and regulate body temperature, excretion and others, therefore ideally it must maintain hygiene. Unclean skin conditions are one of the reasons for unclean bathing habits, improper bathing frequency will cause scabies to infect more easily, especially on the fingers, thigh creases and others. Therefore, it is important to maintain skin hygiene to avoid skin diseases caused by fungi, germs, and parasites.

From the results of data testing, the p value is 0.014, where the value is lower than $\alpha = 0.05$, meaning that there is a significant relationship between hand hygiene and the incidence of scabies. This research is in line with Asyari's 2023 research regarding the relationship between hand hygiene and the incidence of scabies showing a value of $p = 0.000$ ($p < \alpha$)⁽⁷⁾.

Based on questionnaires and interviews with Islamic boarding school students, it was found that there is still very low awareness of rinsing hands after cleaning the bed, rinsing hands using soap before and after eating, which due to this lack of awareness causes mites to persist because they are rarely cleaned. However, this is in contrast to what was stated by Zuheri in 2021, who stated that there was no relationship.

From the results of data testing, the p-value is 0.023, where the value is lower than $\alpha = 0.05$, meaning that there is a significant relationship between nail hygiene and the incidence of scabies. This research is in line with Sarma's 2023 research regarding the relationship between nail hygiene and the incidence of scabies, showing a value of $p = 0.01$ ($p < \alpha$)⁽⁸⁾.

From the questionnaires and interviews with Islamic boarding school students, was found that there are still many students who do not cut their nails regularly once a week and do not pay attention to the condition of their nails being clean. However, this research is in contrast to Marzuki's research in 2019 which stated that the factors that influence scabies are not only nail cleanliness, in this case compliance and nail care habits as well.

From the results of data testing, the p-value is 0.000, where the value is lower than $\alpha = 0.05$, meaning that there is a significant relationship between clothing hygiene and the incidence of scabies. This research is in line with Novitasari's 2021 research regarding the relationship between clothing hygiene and the incidence of scabies, showing a value of $p = 0.003 (p < \alpha)$ ⁽⁹⁾.

In questionnaires and interviews with students at the Al Bayan Hidayatullah Islamic boarding school, the results showed that there are still many students who rarely change their clothes twice a day plus other factors such as there are still students who rarely change clothes when they sweat, sometimes do not wash their clothes with detergent and still There are students who don't dry their clothes under the sun. However, this is in contrast to Aulia's 2022 research which stated there was no relationship.

From the results of data testing, the p-value is 0.006, where the value is lower than $\alpha = 0.05$, meaning that there is a significant relationship between towel hygiene and the incidence of scabies. This research is in line with Tajudin's 2023 research regarding the relationship between towel hygiene and the incidence of scabies, showing a value of $p = 0.004 (p < \alpha)$ ⁽¹⁰⁾.

Based on questionnaires and interviews with Islamic boarding school students, it was found that there are still many students who do not dry their towels in the sun after use, many still use towels in damp conditions and rarely change towels within 2-3 days. This damp condition causes microorganisms to settle. However, this is in contrast to what was stated by Imartha in 2018, which stated that there was no relationship.

From the results of data testing, the p-value is 0.095, where the value is more than $\alpha = 0.05$, meaning that there is no significant relationship between bed and bed linen hygiene and the incidence of scabies. This research is in line with Rahmawati's 2021 research regarding bed and sheet hygiene and the incidence of scabies showing a p value = 0.966 ($p > \alpha$) ⁽¹¹⁾.

Based on questionnaires and interviews with Islamic boarding school students, the results show that there are still some students who often sleep with friends, rarely change bed sheets every 2 weeks, and rarely dry the mattress once every 2 weeks, where this action allows the mattress to become a place for the growth and development of scabies mites, but not to be one of the main causes. This is in contrast to Zuheri's research in 2021 which stated that there was a relationship.

From the results of data testing, the p value is 0.538, where the value is more than $\alpha = 0.05$, meaning that there is no significant relationship between clean water sanitation and the incidence of scabies. This research is in line with Indriani's 2021 research regarding the relationship between clean water sanitation and the incidence of scabies, showing a p value = 0.571 ($p > \alpha$) ⁽¹²⁾.

Based on observations made at the Islamic boarding school, the results showed that in general the physical nature of the water was colorless, tasteless and odorless and the use of the bathtub in each bathroom was different. Therefore, when the supply of clean water is sufficient, the cause of scabies will

die and disappear. However, this is in contrast to what Farihah stated in 2019, which stated that there was a relationship.

From the results of data testing, the p-value is 0.538, where the value is more than $\alpha = 0.05$, meaning that there is no significant relationship between waste disposal facilities and the incidence of scabies. This research is in line with Ritonga's 2023 research regarding the relationship between waste disposal facilities and the incidence of scabies, showing a p value = 0.317 ($p > \alpha$)⁽¹³⁾.

Based on observations made at the Islamic boarding school, the general results showed that the waste disposal facilities were categorized as poor. Garbage disposal facilities are said to be good if they meet the criteria in the form of a septic tank, covered and gooseneck, whereas in the cottage the septic tank does not have a gooseneck. However, this is not one of the factors that causes scabies. However, this is in contrast to what was stated by Intan in 2018 which stated that there was a relationship.

From the results of data testing, the p-value is 0.538, which is more than $\alpha = 0.05$, meaning that there is no significant relationship between waste water disposal facilities and the incidence of scabies. This research is in line with Fitria's 2020 research regarding the relationship between wastewater disposal facilities and the incidence of scabies, showing a p value = 0.725 ($p > \alpha$)⁽¹⁴⁾.

Based on observations made at Islamic boarding schools, the results showed that in general wastewater disposal facilities were categorized as poor. This facility is said to be good if it fulfills the criteria in the form of a place where the waste water flows through a closed ditch. Meanwhile, in Islamic boarding schools, sewers are found that are still open and not kept clean, which has a negative impact on the students. However, this is not one of the causes of scabies. However, this is in contrast to Saragih's 2021 research which stated that there was a relationship.

From the results of data testing, the p-value is 0.538, which is more than $\alpha = 0.05$, meaning that there is no significant relationship between waste disposal facilities and the incidence of scabies. This research is in line with Fitria's 2020 research regarding the relationship between waste disposal facilities and the incidence of scabies, showing a p value = 0.481 ($p > \alpha$)⁽¹⁴⁾.

Based on observations made at the cottage, the general results showed that waste disposal facilities were categorized as poor. Waste disposal facilities are said to be good if they meet the criteria in the form of a watertight and closed trash can, whereas in cottages there are trash cans that are still uncovered. But in some trash bins, some fall into the sufficient category. However, this is in contrast to what was stated by Ubaidillah in 2021, which stated that there was a relationship.

From the results of data testing, the p-value is 0.538, which is more than $\alpha = 0.05$, meaning that there is no significant relationship between residential density and the incidence of scabies. This research is in line with Selvianty's 2023 research regarding residential density and the incidence of scabies showing a

p-value = 0.710 ($p > \alpha$)⁽¹⁵⁾.

Based on observations made at Islamic boarding schools, the results showed that on average students occupy rooms with an area that does not match the existing capacity. However, there are still students who have rooms according to capacity. However, this is in contrast to what was stated by Indriani in 2021, which stated that there was a relationship.

Conclusion

The incidence of scabies was 21 people, there was a significant relationship between skin hygiene and the incidence of scabies, there was a significant relationship between hand hygiene and the incidence of scabies, there was a significant relationship between nail hygiene and the incidence of scabies, there was a significant relationship between clothing hygiene and the incidence of scabies, there is a significant relationship between towel hygiene and the incidence of scabies, Further research is needed to produce maximum findings. The researchers after this are expected to understand more deeply the specific factors in personal hygiene that have a significant impact on the incidence of scabies. Then carrying out comparative studies with other populations, such as students or the general public, can help in comparing the factors that influence scabies and see whether there are significant differences.

Conflicts of Interest

There is no conflict of interest

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