

RESEARCH ARTICLES

Knowledge Level and Personal Hygiene Related To The Incidence of Scabies at Darul Hikmah Islamic Boarding School In Medan City, 2023

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Abstract: Scabies is an infectious skin disease caused by infestation and sensitisation to *Sarcoptes scabiei* var *hominis* and its products. Supporting factors for the occurrence of scabies were poor sanitation and could attack humans who lived in groups, poor personal hygiene, poor sanitation, low socioeconomic economic, and poor behaviour that support health and play a role in skin diseases. This type of research was an observational analysis with a cross-sectional approach on 253 students at the Darul Hikmah Islamic Boarding School in Medan using the total sampling method. The sample would be given a questionnaire, then the data would be collected and processed using the Chi-Square test. Univariate analysis obtained the distribution of knowledge levels, mostly good, as many as 149 people (58.9%) with sufficient personal hygiene, as many as 167 people (66%) and most students do not have scabies, as many as 161 people (63.6%). The results of the analysis using the Chi-Square test showed a relationship between the level of knowledge and personal hygiene on the incidence of scabies, with a value of $p = 0.001$ ($p < 0.05$). There was a relationship between the level of knowledge and Personal Hygiene of the students with the incidence of scabies in Pesantren Darul Hikmah, Medan City.

Keywords: Knowledge level, scabies

INTRODUCTION

Scabies is a contagious skin disease caused by infestation and sensitisation to *Sarcoptes scabiei* var *hominis* and its products. Its life cycle from egg to adulthood lasts for one month. The clinical symptoms

include intense itching, particularly at night, commonly referred to as nocturnal pruritus. This disease is also known by other names such as "kudis," "the itch," "seven-year itch," "gudikan," "gatal agogo," or "budukan."¹

The World Health Organisation (WHO) reported a global scabies incidence of 130 million people in 2017, while the International Alliance for the Control of Scabies (IACS) stated that in the same year, scabies prevalence varied from 0.3% to 46%. Scabies incidence in 2015 also showed high prevalence in several countries, including Egypt (4.4%), Nigeria (10.5%), Mali (4%), Malawi (0.7%), and Kenya (8.3%). The highest incidence is found among children and adolescents.²

The prevalence of scabies is high in tropical regions but less common in temperate zones. The highest global incidence of scabies in tropical climates can reach 25%. The highest scabies incidence rate in the world's tropical regions is in West African countries at 28.33%. Scabies is also frequently found in Indonesia, as it is a tropical country. Data from the Indonesian Ministry of Health stated that the prevalence of scabies in community health centres across Indonesia in 2014 reached 7.4% - 12.95%, ranking as the third most common among the twelve most frequent skin diseases.³

A study conducted in East Java found the prevalence of scabies in 12 Islamic boarding schools in Lamongan Regency to be 48.8%. Another study in Southeast Sulawesi Province reported a scabies disease prevalence of 4.5% in 2011.⁴

In North Sumatra Province, research by Saragih (2021) found the incidence of scabies at the Al-Kautsar Modern Islamic Boarding School in Simalungun was 80

people (30.7%).⁴ Based on the results of Damanik's research (2019) on the Relationship between Personal Hygiene Behaviour and the Incidence of Scabies at the Darul Hikmah Modern Islamic Boarding School in Medan City, the number of scabies cases was 81 out of 220 respondents. The highest incidence occurred in the 10-13-year age group and was more common in males than females.⁵

Contributing factors to scabies include poor sanitation, and it tends to affect people living in communal settings such as dormitories, prisons, Islamic boarding schools, orphanages, as well as damp places with limited sunlight. Poor personal hygiene, unsanitary environments, low socioeconomic status, and unhealthy behaviours are all factors that play a role in skin diseases.⁶

Based on this background, the researcher is interested in conducting a study to determine whether there is a relationship between the level of knowledge and personal hygiene with the incidence of scabies at the Darul Hikmah Modern Islamic Boarding School in Medan.

METHOD

This research employed an observational analytic design with a cross-sectional approach. The study was conducted at the Darul Hikmah Islamic Education Park Modern Islamic Boarding School (PPMDH TPI) in East Teladan Sub-district, Medan City, North Sumatra Province. The population in this study

consisted of all junior and senior high school students residing at the Darul Hikmah Islamic Boarding School in Medan, with a total sample of 253 students.

The sample size for this study was determined using total sampling, wherein all students at the Darul Hikmah Islamic Boarding School in Medan who met the inclusion and exclusion criteria were selected. The inclusion criteria were students willing to participate as respondents in the study. The exclusion criteria were students who did not complete all the data in the questionnaire comprehensively.

The data used were primary data collected directly from the research respondents through questionnaires, observation, and direct examination. Secondary data was obtained from the Darul Hikmah Islamic Boarding School in Medan. The procedure began with students signing the research consent form, followed by the students filling out the questionnaire guided by the researcher. Subsequently, students were interviewed orally regarding complaints suggestive of scabies. Students with complaints were further examined through physical examination. The researcher looked for the four cardinal signs of scabies in students with complaints; a minimum of two cardinal signs had to be present to establish a preliminary diagnosis of scabies. The researcher photographed the scabies-affected areas, and these were then consulted with a physician to confirm the diagnosis.

Data analysis was performed using SPSS. The collected data were analysed using univariate and bivariate analyses. Univariate analysis aimed to describe the levels of knowledge and personal hygiene. Bivariate analysis was conducted to determine the relationship between the independent and dependent variables using the Chi-Square test.

RESULTS

This study was conducted based on the approval of the Ethical Committee with Number 1074/KEPK/FKUMSU/2023. The research was carried out on 253 students at the Darul Hikmah Islamic Education Park Modern Islamic Boarding School (PPMDH TPI) in East Teladan Sub-district, Medan City, North Sumatra Province.

Table 1. Distribution of Sample Characteristics Based on Gender

Gender	Number (n)	Percentage (%)
Male	144	56.9
Female	109	43.1

Based on Table 1, the results show that the majority of respondents were male, totalling 144 people (56.9%), and female, totalling 109 people (43.1%).

Table 2. Distribution of Sample Characteristics Based on Age

Age	Number (n)	Percentage (%)
10-13 Years	102	40.3
14-17 Years	92	36.4
17-21 Years	59	23.3

Based on Table 2, it was found that the majority of respondents were 14-16 years old, totalling 102 people (40.3%),

followed by those aged 10-13 years old, totalling 92 people (36.4%), and those aged 17-20 years old, totalling 59 people (23.3%).

Table 3. Distribution of Sample Characteristics Based on Knowledge Level

Knowledge Level	Number (n)	Percentage (%)
Good	149	58.9
Enough	49	19.4
Not Enough	55	21.7

Based on Table 3, it was found that the majority of respondents had good knowledge, totalling 149 people (58.9%), while 49 people (19.4%) had adequate knowledge and 55 people (21.7%) had a poor level of knowledge.

Table 4. Distribution of Sample Characteristics Based on Personal Hygiene

Personal Hygiene	Number (n)	Percentage (%)
Good	36	14.2
Enough	167	66
Not Enough	50	19.8

Based on Table 4, it was found that regarding the personal hygiene of students at Darul Hikmah Islamic Boarding School in Medan, 36 people (14.2%) had good personal hygiene, the majority had adequate Personal Hygiene, totalling 167 people (66%), and 50 people (19.8%) had poor personal hygiene.

Table 5. Distribution of Sample Characteristics Based on Scabies Incidence

Scabies Occurrence	Number (n)	Percentage (%)
Scabies	92	36.4
Not Scabies	161	63.6

Based on Table 5, it was found that regarding scabies incidence among students at Darul Hikmah Islamic Boarding School in Medan, the majority did not have scabies, totalling 161 people (63.6%), and the scabies incidence was 92 people (36.4%).

Table 6. Distribution of Scabies Incidence Based on Gender

Gender	Scabies Occurrence			
	Scabies		Not Scabies	
	n	%	n	%
Male	62	43.1	82	56.9
Female	30	27.5	79	72.5

Based on Table 6, the results show that the majority of scabies cases occurred more in males, totalling 62 people (43.1%), while in females, it was only 30 people (27.5%).

Table 7. Distribution of Scabies Incidence Based on Age

Age	Scabies Occurrence			
	Scabies		Not Scabies	
	n	%	n	%
10-13 Years	33	32.4	69	67.6
14-17 Years	58	63.0	34	37.0
17-21 Years	1	1.7	58	98.3

Based on Table 7, the results show that the majority of scabies cases occurred in the 10-14 year age group, totalling 58 people (63%), followed by the 14-17 year age group, totalling 3 people (32.4%).

Table 8. Relationship Between Knowledge Level and Scabies Incidence

Knowledge Level	Scabies Occurrence				p-Value
	Scabies		Not Scabies		
	n	%	n	%	

Good	9	6	140	94	0.001
Enough	33	67.3	16	32.7	
Not Enough	50	90.9	5	9.1	

Based on Table 8, the results show that among respondents with scabies, the majority had poor knowledge levels, totalling 50 people (90.9%), while among those without scabies, the majority had good knowledge levels, totalling 140 people (94%). Bivariate analysis using the Chi-Square test obtained a p-value=0.001 ($p<0.05$), which means that there is a relationship between knowledge level and the incidence of scabies at Darul Hikmah Islamic Boarding School in Medan.

Table 9. Relationship Between Personal Hygiene and Scabies Incidence

Personal Hygiene	Scabies Occurrence				p-Value
	Scabies		Not Scabies		
	n	%	n	%	
Good	4	11.1	32	88.9	0.001
Enough	42	25.1	125	74.9	0.001
Not Enough	46	92	4	8	

Based on Table 9, the results show that among respondents with scabies, they were dominated by those with poor personal hygiene, totalling 46 people (92%), and those without scabies were dominated by adequate personal hygiene, totalling 125 people (74.9%). Bivariate analysis using the Chi-Square test obtained a p-value=0.001 ($p<0.05$), which means that there is a relationship between personal hygiene and the incidence of scabies at Darul Hikmah Islamic Boarding School in Medan.

DISCUSSION

The sample characteristics in this study showed that the majority of samples that experienced scabies were male, amounting to 62 people (43.1%). A literature review study conducted by Ratnasari AF in East Jakarta in 2018 explained that out of 12 identified articles, one article stated that gender is a risk factor influencing the incidence of scabies in Islamic boarding schools. The prevalence of scabies was higher in male students (57.4%) than in females (42.9%), with a p-value of 0.048, meaning there is a relationship between scabies prevalence and gender.^{7,8} Scabies can infect both men and women; however, prevalence is higher in men because they more often have habits of being less concerned about their personal hygiene compared to women.^{8,9} Furthermore, men also tend to be less maintain environmental cleanliness and sustainability, so the prevalence of scabies in men is usually much higher than in women.^{8,9}

In this study, the majority of respondents had a Junior High School (MTs) education level, totalling 65 people (38.7%). This aligns with research by Nafassa Z at Qotrun Nada Islamic Boarding School in Depok in 2018, which explained that the majority of MTs students experienced scabies more (96.8%) compared to Senior High School (MA) students.¹⁰ Additionally, research at the Baitul Hidayah Islamic Boarding School in Bandung Regency found that the majority of Junior High School students or MTs equivalents suffered from

scabies due to frequent physical contact with each other and still adapting to the boarding school environment¹¹

Education level is related to age; MTs students are, on average, younger than MA students, where age differentiates a person's level of maturity. A person's age influences knowledge, attitudes, and behaviour. In relation to scabies incidence in a person, exposure experience plays a significant role because those who are older and have experience with scabies are potentially better at knowing how to prevent and transmit the scabies disease.¹⁰

Based on the results of this study, a relationship was found between knowledge level and the incidence of scabies at Darul Hikmah Islamic Boarding School in Medan ($p = 0.001$; $p < 0.05$), where the majority of scabies cases had a poor level of knowledge, totalling 50 people (90.9%). This is consistent with a previous observational analytical study with a cross-sectional design in 2023 on 51 students at Dar El Iman Islamic Boarding School in Padang City, which explained that there is a relationship between knowledge level and the incidence of scabies ($p = 0.00$; $p < 0.05$).¹²

The results of bivariate analysis from research conducted by Abdillah KY in 2020 obtained a p -value = 0.045 ($p < 0.05$), which means that there is a relationship between knowledge level and the incidence of scabies at the Islamic Boarding School in Lampung.¹³ This aligns with a previous observational analytical study conducted by Hardono at the Butanul Ulum Sridadi

Islamic Boarding School in Kalirejo, Central Lampung, in 2018, which explained that there is a relationship between knowledge about personal hygiene and the incidence of scabies ($p=0.000$; $p<0.05$).¹⁴

Knowledge is the result of an individual's knowing after sensing a specific object. Actions taken by a person are highly influenced by the knowledge they possess.¹⁵ Good knowledge can influence an individual's health. A person who knows will form an attitude of readiness or willingness to act, thus realising a behaviour. Behaviour based on good knowledge will last longer compared to behaviour not based on knowledge. Given current technological advances, knowledge is very easy to obtain, including regarding health behaviour related to scabies disease.^{12,15}

The relationship between students' knowledge and the incidence of scabies turns out to play an important role, especially regarding transmission methods, clinical symptoms, and prevention of scabies. Students who have poor or insufficient knowledge are at high risk of experiencing scabies.¹² Meanwhile, high knowledge about scabies will lead to actions in an effort to prevent the disease.^{16,17}

The knowledge that students need to have includes understanding that scabies is a skin disease caused by infestation and sensitisation by *Sarcoptes scabiei* var *hominis* and its products. Scabies in Indonesian is often called 'kudis', 'gudig', or 'budug' with clinical symptoms finding 2 out of 4 main signs (cardinal signs): nocturnal

pruritus meaning itching at night, occurrence in a group of people like in one family/dormitory/boarding school, the formation of burrows or canals in predilection sites, and the finding of mites. Prevention can be done by implementing a good, clean and healthy lifestyle, especially Personal hygiene^{12,13,18}

The results of this study indicate that there is a relationship between personal hygiene and the incidence of scabies at Darul Hikmah Islamic Boarding School in Medan ($p = 0.001$; $p < 0.05$), where the majority of scabies cases had poor personal hygiene, totalling 46 people (92%). This is consistent with quantitative research conducted by Rahmawati AN in 2021 on 107 students at the Nurus Sunnah Islamic Boarding School in Semarang, which stated that there is a relationship between personal hygiene and the incidence of scabies, especially in aspects of clothing and towel cleanliness ($p = 0.001$), and a significant relationship was found between personal hygiene and scabies incidence with a p -value = 0.042 ($p < 0.05$).¹⁹ According to a study at the Baitul Hidayah Islamic Boarding School in Bandung Regency on 50 students, the results showed a significant relationship between students' personal hygiene behaviour and the incidence of scabies ($p = 0.022$; $p < 0.05$).¹¹

Factors influencing the high incidence of scabies in developing countries are identically low levels of personal hygiene, difficult access to water, and population density. Personal hygiene is often referred to as a form of self-care in maintaining health,

both physically and psychologically. Cleanliness is one form of behaviour that can prevent the onset of disease. Factors influencing personal hygiene include individual social and cultural values, especially knowledge and perception regarding personal cleanliness.^{20,21}

The incidence of scabies can be influenced by personal hygiene because the shared use of hygiene tools or exchanging items such as clothes, bar soap, towels, mattresses, and bed sheets can become a medium for the transmission of scabies. The *Sarcoptes scabiei* mite can attach to clothing fibres, towels, and bed sheets, allowing the mites to transfer when used by others. The simultaneous use of these items will increase scabies transmission¹⁹

Another factor is that washing clothes, towels, or bed sheets using detergent is known to kill the *Sarcoptes scabiei* mite. However, sometimes due to the density of student activities, not all students can wash these items thoroughly using a detergent that can kill the scabies-causing mites. Furthermore, not all students always dry them in a place exposed to sunlight, so the mites do not die and can still transmit. This makes sun-drying one of the factors that can influence the incidence of scabies.¹⁹

Interviews with several scabies sufferers who had poor personal hygiene status at Darul Hikmah Islamic Boarding School in Medan revealed that washing clothes, towels, and bed sheets together in the same container with friends' clothes, rarely sun-drying towels, and the habit of

exchanging personal items like towels with others were also triggering factors for scabies incidence. The researcher's observations at the boarding school location found that the availability of sun-exposed drying areas was still relatively insufficient, making it possible for students to rarely dry their towels due to a lack of space. Furthermore, the condition of the student rooms, measuring 4x3 square meters and occupied by about 10-15 students, was unsuitable, as ideally every eight square meters should only be occupied by 2 people. The condition inside several student rooms was assessed as having poor cleanliness because there were dirty clothes hanging around, which sometimes triggered the mixing up of students' personal belongings.

This aligns with research explaining that poor personal hygiene, such as frequently borrowing other students' items, washing clothes or towels without detergent, and not sun-drying directly, can influence the emergence of infectious diseases like scabies. Overcrowded living conditions and poor environmental sanitation can also increase the percentage of scabies incidence¹²

Personal hygiene behaviour is a factor influencing scabies incidence because behaviour is a real action taken by a person. The habits or personal hygiene behaviour of students related to self-care, such as the intensity of bathing, sharing use of towels, clothes, bathing tools, and sleeping equipment, will facilitate the transmission of this disease.¹¹

CONCLUSION

1. Regarding the knowledge level of the santri at Darul Hikmah Islamic Boarding School in Medan, the majority were found to have a good level of knowledge, totalling 149 people (58.9%).
2. Regarding the personal hygiene of the santri at Darul Hikmah Islamic Boarding School in Medan, the majority were found to have adequate personal hygiene, totalling 167 people (66%).
3. Among the santri who suffered from scabies, the majority had a poor level of knowledge, totalling 50 people (90.9%), and had poor personal hygiene, totalling 46 people (92%).
4. The incidence rate of scabies among santri at Darul Hikmah Islamic Boarding School in Medan was 92 people (36.4%), while those without scabies numbered 161 people (63.6%).
5. The highest incidence of scabies occurred in the 10-14 year age group and was more frequent in males compared to females.
6. There is a significant relationship between the knowledge level and personal hygiene of the santri and the incidence of scabies at Darul Hikmah Islamic Boarding School in Medan City, with a p-value of 0.001 ($p < 0.05$).

SUGGESTIONS

1. For the respondents, it is recommended to improve personal hygiene to maintain, preserve, and enhance health, as well as

to prevent diseases, especially infectious ones like scabies.

2. It is expected that the completeness of facilities and infrastructure can be fulfilled, particularly to support the improvement of the santri's health at the boarding school, and to conduct mass scabies treatment in cooperation with the Health Office to break the chain of transmission.

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