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Association between Personal Hygiene Behavior and Sleeping Quality on Scabies Incidence

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Abstract

Introduction: Scabies is a skin disease still often found in Indonesia and remains a public health problem. According to the World Health Organization (WHO), the incidence of Scabies in 2014 was 130 million people in the world. **Objective**: This study aims to determine the correlation between personal hygiene behavior in bathing and sleeping with the incidence of Scabies in students at Manhajul Ulum Islamic Boarding School. **Method:** Descriptive quantitative research using correlation and retrospective research design was used in this research. The total population is 90 students who suffer from Scabies and who do not suffer from Scabies at the Manhajul Ulum Islamic Boarding School. The total sampling technique was used to select the respondents. **Results:** Statistical test results obtained that there is a relationship between personal hygiene behavior and bathing behavior with the incidence of Scabies ($p = 0.023 < 0.05$), and there is a relationship between personal hygiene behavior and sleeping behavior with the incidence of Scabies ($p = 0.011 < 0.05$). **Conclusion**: The conclusion of this study states that there is a significant relationship between personal hygiene behavior, bathing behavior, and sleeping behavior with the incidence of Scabies in students at the Manhajul Ulum Islamic Boarding School. **Recommendation**: This study recommends that Islamic boarding school managers and students improve personal hygiene regarding bathing and sleeping behavior.

Keywords: behavior, personal hygiene, Scabies, sleeping

INTRODUCTION

Scabies is an infectious disease caused by an infestation of Sarcoptes scabies hominins on the skin belonging to the arachnid class (1). According to the World Health Organization (WHO), the incidence of Scabies in 2014 was 130 million people in the world (2,3). The incidence of Scabies occurs not only in developing countries but also in developed countries, such as Germany; Scabies occurs sporadically or in long endemic forms (4). It was also found that the prevalence of Scabies in Kolkata, India was 20.4%. The prevalence of Scabies in Penang Malaysia in children aged 10-12 years is 31%. The prevalence of Scabies, which is endemic to Aboriginal people in Australia and Oceania, is 30%. The prevalence of Scabies in Brazil is 8.8% (5).

The incidence of Scabies in developing countries leads to a cycle that tends to fluctuate. In Indonesia in 2008, as many as 77 million children from the current 220 million population were attacked by infectious diseases such as Scabies due to the increasing population (6). According to data from the Ministry of Health of the Republic of Indonesia, the number of people with Scabies in 2009 was around 6,915,135 (2.9% of the total population of 238,452,952 people), and Scabies ranks third out of 12 common skin diseases. Meanwhile, it increased in 2013 by 9% and in 2017 was 6% of the total population of Indonesia (7).

Incidence of Scabies in West Java Province occurred in 2006 and 2008 at around 40.78%. In 2011 scabies disease was still ranked 9th out of the 10 most significant diseases in West Java Province, with 38,854 cases (3). Based on the outpatient report at the Rajadesa Health Center, the incidence of Scabies in December 2018 was around 97 cases and decreased in December 2019 to about 26 cases. In October 2020, it increased to about 39 cases. When conducting a preliminary study on November 10, 2020, at the Manhajul Ulum Islamic Boarding School, Ciamis Regency, it was found that 60 students had Scabies.

Symptoms People with Scabies immediately feel itching that worsens at night or when the weather is hot. The patient sweats because it is caused by mites' activity, which increases with the increase in body temperature (7). The appearance of small tunnels with small bumps at the end of the skin, attacking between the toes, fingers, buttocks, around the intimate organs, and back. If scratched, it will release a clear liquid that can spread itching elsewhere (8).

It turns out that Scabies experienced by students can affect learning achievement because it is caused by itching at night or when the weather is hot and when sufferers sweat (9). This condition causes sufferers to experience sleep disturbances in the morning; they look lethargic. Sleep disturbances that last long can affect learning concentration and decrease achievement in class (5,10,11).

Scabies is not treated for several weeks or months; they can lead to dermatitis from scratching. Eruptions may take the form of impetigo, ecthyma, cellulitis, lymphangitis, folliculitis, and furuncles. Bacterial infections in infants and young children who Scabies attacks can cause kidney complications, namely glomerulonephritis (12).

Personal hygiene factors significantly affect scabies disease because the higher a person's hygiene level, the lower the risk of getting scabies disease but the worse a person's hygiene level, the greater the risk of contracting Scabies (13,14). The direct touch interaction factor is when students sleep with sufferers in a relatively narrow room and when students shake hands because the location of scabies lesions often occurs between the fingers. Indirect touch interaction is when students who suffer from scabies exchange toiletries, prayer tools, clothes, and towels with other friends, resulting in the transmission of Scabies (15,16).

Based on research conducted by Hamzah (2020) under the research title Analysis of Personal Hygiene Relationships with Scabies Incidence in the Work Area of the Juntinyuat Health Center, Indramayu Regency. The results showed that 58.2% of respondents suffered from Scabies, and 46.5% had poor bathing habits. The results of statistical tests showed that there was a relationship between bathing habits and the incidence of Scabies ($p = 0.007 < 0.05$) in the working area of the Juntinyuat Health Center, Indramayu Regency (17).

From the results of a preliminary study conducted by interviewing 10 students who suffered from Scabies on November 10, 2020, at the Pondok Pesantren Manhajul Ulum Ciamis, it was found that there were students who felt

itching between the fingers and small spots on the skin and bathing behavior habits. Students only 1 time a day, the habit of borrowing and borrowing towels, the lack of cleanliness of the students' beds such as drying the mattress, rarely changing pillowcases, and the habit of sleeping together. Based on the background described and considering the number of students who experience scabies disease problems, the researchers are interested in conducting the research.

OBJECTIVE

This study aims to determine the correlation between personal hygiene behavior in bathing and sleeping with the incidence of Scabies in students at Manhajul Ulum Islamic Boarding School.

METHODS

Design

This study is descriptive and quantitative and used a correlation design with a retrospective approach. This research was conducted from 8 to 31 January 2021 in Manhajul Ulum Islamic Boarding School, Ciamis Regency. The independent variable in this study was personal hygiene behavior in bathing and sleeping, and the dependent variable in this study was the incidence of Scabies in students at the Manhajul Ulum Islamic Boarding School, Ciamis Regency.

Sample, sample size, and sampling technique

The population used in this study were students in manhajul alum who suffered and did not suffer from Scabies, with as many as 90 respondents who met the research criteria.

The inclusion criteria in this study were students who lived in a dormitory, could write and read, and were willing to sign an informed consent as proof of agreement to become a respondent. Respondents were excluded if they had an autoimmune disease, were under psychiatric supervision, were taking psychotic drugs, and lived alone in their rooms. The sampling technique in this study used a total sampling technique. Namely, the entire population was sampled, 60 respondents suffered from Scabies, and 30 respondents did not suffer from Scabies.

Data collection method

The explanation of the data collection process can be seen in Figure 1 below.

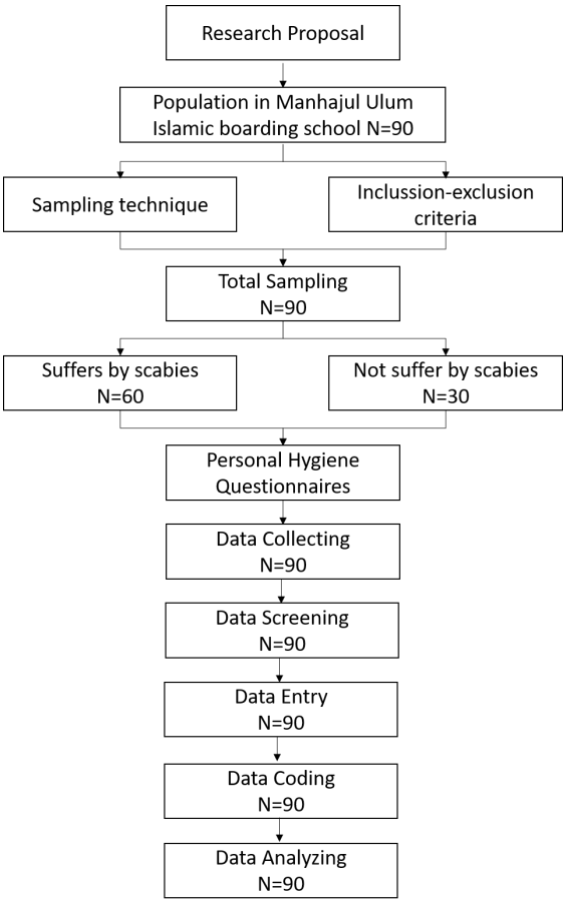

Figure 1. Data processing

The population in the Manhajul Ulum dormitory, an Islamic boarding school, was selected based on inclusion and exclusion criteria. A total of 90 people filled out the questionnaire independently, meaning that the respondents immediately read and filled out the answers to the questionnaire without the help of the researcher. Questionnaires that have been filled out are collected to be screened for completeness of filling, then entered into a computer using a specific code (coding) for analysis using statistical software.

An instrument for data collection

The bathing and sleeping behavior questionnaire was tested for validity and reliability. A coefficient value > 0.05 indicates that the questionnaire is valid and reliable. The questionnaire consists of 20 questions using a Likert scale that combines favorable and unfavorable questions. The product moment value was 0.632, whereas Cronbach's alpha was 0.963.

Data analysis

Data processing is carried out using the SPSS version 17.0 software application. Chi-square statistical test was used for crosstabs analysis, with the error rate used being <0.05. If the value <0.05, then H_o is rejected and H_a is accepted, which means there is a significant relationship between the dependent and independent variables.

Ethical approval

This research was approved by the Health Research Ethics Committee of Universitas Yogyakarta with the Number 1005/KEP-UNISA/I/2020.

RESULTS

Characteristic of respondents

Based on table 1, it can be concluded that the majority of respondents are male (66.7%) aged 11-14 years (early teens) (55.6%), Junior high school (55.6%), and poor personal hygiene behavior (37.8%), have poor sleep personal hygiene behavior (40.0%) and suffer from Scabies (66.7%). In detail, the data of the characteristics of the respondents can be seen in table 1 below.

Table 1. Characteristic of respondents

Variable	F	%
Sex		
Male	60	66.7
Female	30	33.3
Age		
11-14 yo (first youth)	50	55.6
15-17 yo (middle child)	40	44.4
Education		
Junior high school	50	55.6
Senior high school	40	44.4
Personal hygiene behavior in Bathing		
Less	34	37.8
Enough	30	33.3
Good	26	28.9
Personal hygiene behavior in sleeping		
Less	36	40.0
Good	29	32.2
Enough	25	27.8
Incident of Scabies		
Yes	60	66.7
No	30	33.3

Bivariate analysis

Bivariate analysis was conducted to test the correlation between the two dependent variables on the independent variable. To find out more details can be seen in table 2 below.

The results of the data analysis showed that the value of chi-square (X^2) was 7.558 and the p-value was 0.023, the p-value <0.05, and it can be concluded that H_o is rejected and H_a is accepted. That is, a significant relationship exists between personal hygiene behavior in bathing and scabies incident. Likewise, for the second variable, the chi-square value (X^2) is 8.974, and the p-value is 0.011, with the interpretation that there is a significant relationship between the personal hygiene behavior of students' sleep and the incidence of Scabies at the Manhajul Ulum Islamic Boarding School.

DISCUSSION

The results showed that 34 students (37.8%) were included in the personal hygiene behavior category of poor bathing behavior. Based on the characteristics of the respondents, it is shown that the sexes affected by Scabies are primarily women than men because women pay less attention to hygiene, so they are easily exposed to Scabies.

This study's results align with the opinion of Pratama & Septianawati (2017), which states that the majority of scabies sufferers are female students. This is probably because female students pay less attention to skin health than male students pay more attention to skin health (18).

Some students in one room still use towels together with their roommates so that Scabies and skin disease can be easily transmitted from one person to another. Towels used by students alternately can be a transmission medium for the mite Sarcoptes Scabies to move from place to place and cause indirect transmission (19–21).

The cleanliness of towels that are not maintained can cause Scabies. This is to the opinion expressed by Setiawan (2021) that various items or towels that are not neatly arranged can make it easier for Sarcoptes scabies mites to move from the reservoir to surrounding items they reach new hosts (3).

Using towels that are used alternately and not dried in the sun can increase the activity of

Sarcoptes scabies mites on towels that are on the patient's body, making it easier for individuals to infect individuals with poor personal hygiene.

Table 2. Correlation between variables

Variables	Incident of Scabies				Total		P value
	Yes		No				
	F	%	F	%	F	%	
Personal hygiene behavior in bathing							
Less	27	79.4	7	20.6	34	37.8	0.023
Enough	21	70.0	9	30.0	30	33.3	
Good	12	46.2	14	53.8	26	28.9	
Total	**60**	**66.7**	**30**	**33.3**	**90**	**100.0**	
Personal hygiene behavior in sleeping							
Less	29	80.6	7	19.4	36	40.0	0.011
Enough	20	69.0	9	31.0	29	32.2	
Good	11	44.0	14	56.0	25	27.8	
Total	**60**	**66.7**	**30**	**33.3**	**90**	**100.0**	

This is to Saputra's research (2019) which states that the cause of the easy way for scabies lice to attach and reproduce and transmit to other students is from damp towels and rarely dried in the sun (22).

Borrowing towels that are used alternately in damp conditions and not drying in the sun can increase the activity of the Sarcoptes scabies mite on towels so that the mites on the towels of students who suffer from Scabies can move to healthy students (23).

The results showed that 36 students (40.0%) were included in the personal hygiene behavior category of poor sleep behavior. Based on the characteristics of the respondents, it shows that the age factor also affects the incidence of Scabies; someone who is younger still depends on their parents on how to take care of themselves so that they cannot take care of themselves independently and adequately (24).

One of the factors that influence poor personal hygiene in students is because it is affected by a lack of knowledge about Scabies (25). As well as awareness of behavior to carry out personal hygiene is still low due to the busy time factor of the daily schedule of the Koran and school. Actually, at the Islamic boarding school, there is a daily picket schedule whose activities are to clean the room and its surroundings. Still, in reality, the picket schedule is not carried out daily, only carried out on Sundays. Not implementing the picket schedule was influenced by the busy daily activities. If this continues, it will make bacteria grow correctly because the condition of the rooms is rarely cleaned (9).

Occupancy density is one of the causes of the high incidence of Scabies, the transmission of Scabies or other infectious diseases is getting faster because residential density can affect the air quality in the room, where the more the number of occupants, the faster the air in the room will be polluted because CO_2 in the room will increase quickly and will reduce the O_2 level in the room, the density of occupancy is closely related to the number of bacteria that cause infectious diseases such as Scabies (26).

In conditions of residential density that do not meet these requirements, scabies bacteria grow easily in the room because a narrow room supports it, and the occupants are in groups (27,28). The lack of cleanliness of the students' beds causes the transmission of Scabies quickly because usually, the dormitories in the students' beds are humid, and they rarely dry the mattresses and change sheets and pillowcases (9,23).

In addition to sleeping equipment for students, the condition of the students'

bedrooms, including the temperature and humidity of the room, can also play a role in breeding the mite Sarcoptes Scabies. More humid and hotter temperatures will cause mite activity to be higher (28). Measuring high humidity in student rooms will support the proliferation of Sarcoptes scabies mites outside the host (9).

A temperature of 25 ^{o}C with 100% humidity is a condition where Sarcoptes scabies mites can live longer outside the host (5 days). Meanwhile, the decreasing humidity causes the survival of Sarcoptes Scabies to decrease. This causes the activity of mites to be higher in humid and hot temperatures (1).

The results of this study indicate that the highest prevalence of Scabies affects women in as many as 50 people (55.6%). This is because women pay less attention to personal hygiene than men because they are more concerned with personal hygiene and maintaining cleanliness.

This study's results align with the opinion of Pratama & Septianawati (2017), which states that 17 female students suffer from Scabies. This is probably because female students pay less attention to skin health than male students, who pay more attention to skin health (18).

Based on the analysis of the questions contained in the questionnaire item questions no 7, 8, and 9, it is known that one of the objects that can transmit scabies disease by indirect contact is a towel. The habit of borrowing and borrowing towels that are used alternately in humid conditions and not dried in the sun can increase the activity of the Sarcoptes scabies mite on towels so that the mites on the towels of students who suffer from Scabies can move to healthy students (9).

Not all students have toiletries, so when they take a bath, they take turns with their friends. They exchange towels because they don't know that mites can survive on towels and can transmit Scabies. This is in line with Azizah's (2013) research, explaining that poor towel hygiene causes a high incidence of Scabies. In the long term, this condition can trigger the proliferation and transmission of scabies skin disease (29).

Research in Al-Falah IV Islamic Boarding School with 51 respondents found that there was a relationship between bathing habits and the incidence of Scabies with a p-value of 0.006 (<0.05) at Al-Falah IV Islamic Boarding School, Banding Agung District, South OKU (17).

Based on the results of this study, the higher the level of education, the more knowledge, including health knowledge. Education in pesantren has the same level as general education, namely madrasah ibtidaiyah (elementary school), madrasah tsanawiyah (junior high school), and madrasah aliyah (high school). The educational material provided is general knowledge and religious knowledge. Increasing education is expected to increase knowledge about Scabies because students with higher education usually take the initiative to seek information outside of formal education, for example, from the internet (16).

Knowledge about Scabies significantly affects the incidence of Scabies because knowledge is a very important source for forming a person's actions. Santri does not understand that media can be a transmitter of scabies disease. This can affect the formation of the daily actions of students who are at risk for transmission of scabies diseases, such as the practice of exchanging prayer tools and blankets due to the ignorance of students that this can cause them to spread scabies disease (9,16).

This study is in line with the Setiawan (2021) and Ariyanto (2021) opinions age affects a person's perception and mindset. The older they get, the more their grasping power and mindset will develop so that the knowledge they gain is getting better. The connection with the incidence of Scabies in a person is the experience of exposure that plays a significant role because those of higher age and have experience with Scabies will know more about how to prevent and transmit it (30,31).

Based on this research, the large number of occupants will cause residential density. This causes unhealthy conditions because, in addition to the lack of oxygen consumption of each individual in the place, it can also lead to higher transmission of Scabies among individuals. The high density of occupancy and the high interaction or physical contact between individuals facilitate the transmission of scabies disease between individuals. Therefore a high prevalence of Scabies is generally found in environments with high residential density and interpersonal communication, such as in Islamic boarding schools (5,9).

The number of occupants in a room that exceeds the requirements and capacity will increase the room temperature to heat caused by the release of body heat. It will also increase humidity due to water vapor from breathing and evaporation of body fluids from the skin (9).

The results of this study indicate whether personal hygiene behavior in sleeping behavior will affect students suffering from scabies disease or not. This is indicated by the number of students suffering from Scabies due to poor personal hygiene sleep behavior because personal hygiene sleep behavior has a risk factor for Scabies.

In a dry environment, Sarcoptes scabies mites only survive 2-3 days and hatch up to 6 days, while in a humid environment, Sarcoptes scabies mites can stay up to 6 weeks. In students' rooms with humidity that does not meet the requirements, it is an opportunity for mites to survive and reproduce, so the chances of Scabies in students in these rooms are increasing. So that the worse the humidity in a room, it will affect the increase in the incidence of scabies disease (9).

Scabies disease is very easy to transmit because with direct contact transmission, then making direct contact with sufferers can occur during the transmission process. This is why scabies disease with a high prevalence is often found in Islamic boarding schools, considering the condition of the dormitories in Islamic boarding schools, which are inhabited by many individuals so that the opportunity for transmission of scabies disease is high (23).

Based on the analysis of the questions contained in questionnaire items no. 8, 9, and 10, it is known that poor bed hygiene can lead to a higher incidence of Scabies. The cleanliness of the students' beds can be caused by their lack of cleaning and caring for their beds, like rarely changing bed linen and drying the mattress. Santri usually also often move to their friends' beds so that the spread of Scabies is easy (9,16).

Based on this study, respondents were not good at keeping the bed and bed linen clean because respondents thought that the mattress and bed linen were still clean, so respondents did not dry and wash the sheets every 2 weeks. In addition, respondents have poor knowledge that mattresses and bed linen must be dried in the sun every 2 weeks. The respondent's lack of knowledge was due to a lack of socialization with local health workers; this was due to a lack of health workers, so they could not reach all of their working areas, including the Manhajul Ulum Islamic Boarding School, Ciamis Regency.

These results are by Yusof & Damopolii research (2015) which shows that the percentage of students affected by Scabies, 62.9% have the behavior of sleeping with their friends who suffer from Scabies, and 60% have the habit of wearing blankets together with their friends who suffer from Scabies (32).

CONCLUSION

Based on the results of the study entitled the relationship between personal hygiene behavior, bathing behavior, and sleeping behavior with the incidence of Scabies in students at the Manhajul Ulum Islamic Boarding School, Ciamis Regency, which has been discussed in previous chapters, it can be concluded as follows:

1. Personal hygiene behavior bathing behavior in most students in the poor category as many as 34 people (37.8%).
2. Personal hygiene behavior sleeping behavior in students mainly in the less category, namely as many as 36 people (40.0%).
3. There is a significant relationship between personal hygiene behavior and bathing behavior with the incidence of Scabies in students at the Manhajul Ulum Islamic Boarding School, Ciamis Regency.
4. There is a significant relationship between personal hygiene behavior and sleep behavior with the incidence of Scabies in students at the Manhajul Ulum Islamic Boarding School, Ciamis Regency.

This study is an essential issue regarding community health in almost all Islamic boarding schools in Indonesia. Although it does not significantly impact mortality, public health centers in each sub-district have not been able to overcome the effect of morbidity due to its high severity. Therefore, this study is an integral part of the Sustainable Development Goals program, which focuses on improving public health, especially community health.

The limitation of this study is that the number of variables associated with the

incidence of Scabies is too few. This happens because the time for research is very limited. Therefore, we recommend that a more significant number of variables be associated in future studies with the addition of other variables such as handwashing behavior, sanitation, and environmental hygiene.

The results of this study also recommend the importance of health education as a promotive and preventive effort carried out by nurses and other health workers at various community spots such as schools, posyandu, dense settlement centers, and non-profit organizations such as youth organizations.

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