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ANALYSIS OF SCABIES FACTORS AMONG MALE AND FEMALE STUDENTS AT THE ISLAMIC BOARDING SCHOOL IN EAST JAKARTA REGION IN 2022

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Abstract

Introduction: *Scabies, also known as 'gudik' in Indonesian, is a disease accounted by the itch mite Sarcoptes scabies var. hominis that is commonly transmitted through fomites including shared use of beddings, clothings, soap, towels, and many household items. This parasitic disease is typically identified through four main cardinal signs including nocturnal itching, a shared complaint among a larger group, finding burrows on the skin, and the presence of mites in skin scrapings. This study aims to identify the factors associated with scabies in a boarding school in East Jakarta, a densely populated area at risk of such parasitic infestation.* ***Methods:*** *This study is an analytical descriptive study aimed to identify factors related to scabies, including lighting, water cleanliness, bed hygiene, cleanliness of clothing and prayer equipment, towel hygiene, use of soaps or antiseptics, and nutritional needs. Questionnaires, physical examinations, and laboratorium parameters were utilized appropriately as data in this study.* ***Results and Discussion:*** *The findings identified a correlation between lighting, water hygiene, cleanliness of clothing and prayer items, towel hygiene, and the use of soap or antiseptics with scabies occurrence. However, no significant correlation was found between bed hygiene or nutritional factors and scabies in the boarding school.* ***Conclusion:*** *Low sunlight exposure, poor water hygiene, unclean clothing or prayer items, inadequate towel hygiene, and lack of antiseptic soap use increased the scabies occurrence at Nurul Hijrah Islamic Boarding School. The most influential factor associated with scabies occurrence was sunlight exposure.*

INTRODUCTION

Scabies, known as "gudik" in Bahasa Indonesia, is a disease caused by *Sarcoptes scabiei* var. hominis (1). Sociodemographic and environmental factors can influence the disease occurrence (2). Transmission of *Sarcoptes scabiei* occurs through direct contact with individuals with scabies, such as shaking hands, and indirect contact, such as sharing beds or clothing (3–4). The armpits, areolae in women, web spaces between the fingers, elbows, male genitalia, and lower buttocks are common predilection sites for scabies (3).

There are four clinical signs of scabies: nocturnal pruritus, occurrence in groups of people, the presence of burrows, and detection of mites in skin scrapings under a microscope. Identifying at least two of these four signs is required to diagnose scabies. Scabies is most prevalent in tropical and subtropical regions such as Central America, South America, Africa, North Australia, Central Australia, the Caribbean, India, Egypt, and Southeast Asia (5).

Among the 12 most prevalent skin conditions in tropical regions, scabies is ranked third in Indonesia (6). According to data from the Indonesian Ministry of Health,

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prevalence has decreased over the years, ranging from 5.60% to 12.96% in 2008, 4.9% to 12.95% in 2009, and 3.9% to 6.5% based on the latest data from 2013 (7).

In places with large populations such as dormitories, orphanages, and Islamic boarding schools, this condition usually occurs. This parasitic infestation often affects individuals with poor personal hygiene, including those who share bathing items such as soap, sarongs, or towels, or those who fail to upkeep a clean bedroom environment (7–8). Without proper management, the parasite may infest other individuals who are within a close proximity, leading to an outbreak within the population, and potentially cause distressing complications in the form of persistent itching, insomnia, and secondary bacterial infections (9).

Prominent factors of scabies infestations include poverty, malnutrition, homelessness, and inadequate hygiene, which accounts for the high prevalence of this parasite in third world countries. Among the general population, this parasite is more likely to affect adolescents than adults. Individuals who are at direct or indirect contact with those known to have the disease, may contaminate their own bedding with *Sarcoptes scabiei* mites. In developing countries like Indonesia, who is notorious to home large populations and crowded living environments, including many religious-based boarding schools, it is unfazing that scabies transmission rates remain high (3,10).

An initial survey performed at the Nurul Hijrah Modern Islamic Boarding School demonstrated that most students had wounds between their fingers and often shared prayer mats. In addition, the bathrooms were shared between male and female students, and male students were found to have poorer personal hygiene. Furthermore, out of 50 students, 44 students (88%) experienced clinical symptoms of scabies, revealing strong indications of scabies transmission among students. Based on these findings, we performed a study to analyze factors that potentially contribute to scabies transmission among students in an Islamic boarding school in Jakarta.

METHODS

This study is a quantitative descriptive and analytical study performed at Pondok Pesantren Modern Nurul Hijrah in the Kramatjati District, East Jakarta, targeting 50 male and female students from February to March 2023. A total sampling technique was used with a minimum sample of 44 students, as evaluated using the Yamane, Isaac, and Michael formulas. The dormitory housed 52 students, however, 2 students were excluded from this study due to illness.

A mix of questionnaires, physical examinations, and laboratorical parameters were utilized as data for this study. Physical examination included identifying skin abnormalities, such as the presence of white or grayish tunnels, referred to as cuniculi, in a straight or winding line, with papules or vesicles at each ends of the tunnels. These were particularly observed in predilection sites including interspaces of fingers, volar surface of the wrist, and extensors of the elbows. Once identified, skin scrapings in the affected areas were taken by a trained examiner and were sent for a microscopic examination.

Two variables were assessed: independent and dependent variables. Lighting, clean water, clean bedding, clean clothing or prayer equipment, clean towels, use of antiseptics or soap, and nutrition were independent variables observed in this study. These factors were then observed through the utilization of a questionnaire, with each factor measured through several questions with weighted scores. The dependent variable was scabies. The characteristics of the variables are presented in Table 1.

Data analysis was performed using SPSS v.21 (IBM SPSS Inc., Chicago, IL). Bivariate analysis was performed using the T-test, and multivariate analysis using logistic regression. As the data was found to be normally distributed, as assessed by the Kolmogorov–Smirnov test, T-test was chosen as the statistical method. Ethical clearance no. 35/Ethical Clearance/FKUKI/2023 was obtained from the Faculty of Medicine, Christian University of Indonesia.

Table 1. Variable Characteristics

No	Variable	Definition	Parameter	Instrument	Score
1	Lighting	Sunlight enters the room through existing ventilation.	- Sunlight can enter - There are windows - Windows are opened every morning - Doors are opened every morning - Feeling fresh in the residence	Questionnaire	Consists of 5 questions. A "Yes" answer is given a score of "1" and a "No" answer is given a score of "0". Assessment Criteria: Good = 4-5 Fair = 2-3 Poor = 0-1

2	Water cleanliness	Water conditions that are odorless, clear, and clean	- Odorless water - Clear water - Adequate water - Water disposal is available	Questionnaire	Consists of 4 questions. A "Yes" answer is given a score of "1" and a "No" answer is given a score of "0". Assessment Criteria: Good = 3-4 Fair = 2 Poor = 0-1
3	Cleanliness of the bed	The condition of the bed, blanket, sheets, and mattress is clean and odor-free.	- Shared bed sheets - Shared bed - Sleeping side by side with another person - Sunning the mattress once a week - Changing the bed sheets once a week - Washing the bed sheets together - Shared bed sheets - Sharing blankets	Questionnaire	Consists of 8 questions. A "Yes" answer is given a score of "1" and a "No" answer is given a score of "0". Assessment Criteria: Good = 6-8 Fair = 4-5 Poor = 0-3
4	Cleanliness of clothes or prayer equipment	Wash clothes and prayer equipment regularly and dry them in direct sunlight after use. Do not share clothes or prayer equipment.	- Washing clothes or prayer equipment with detergent - Ironing clothes - Having your own clothes or prayer equipment - Frequently changing clothes or prayer equipment - Borrowing clothes or prayer equipment from friends - Washing clothes or prayer equipment together with friends - Putting dirty clothes in the same place as other friends - Drying clothes in the sun	Questionnaire	Consists of 8 questions. A "Yes" answer is given a score of "1" and a "No" answer is given a score of "0". Assessment Criteria: Good = 6-8 Fair = 4-5 Poor = 0-3
5	Cleanliness of towels	Towels should be dried immediately after use. Towels should be clean, odor-free, and not damp.	- Bathing using a personal towel - Drying towels after use - Washing towels together with friends - Using towels alternately - Drying towels in the hot sun - Using towels when they are dry	Questionnaire	Consists of 6 questions. A "Yes" answer is scored as "1" and a "No" answer is scored as "0". Assessment Criteria: Good = 5-6 Fair = 3-4 Poor = 0-2
6	Use antiseptic or soap	An action to clean the entire body to avoid germs	- Use soap every time you shower. - Share soap with a friend. - Use antiseptic soap.	Questionnaire	Consists of three questions. A "Yes" answer is given a score of "1" and a "No" answer is given a score of "0". Assessment Criteria: Good = 3 Fair = 2 Poor = 0-1
7	Nutrition	Substances needed by the body that function to produce energy, build and maintain tissue, and regulate life processes.	- Eat 3 times a day - Meal menu (rice, meat, eggs, vegetables) - Eat fruit every day - Drink milk every day - Drink carbonated drinks - Eat fast food twice a week - Drink 8 glasses of water every day	Questionnaire	Consists of 7 questions. A "Yes" answer is given a score of "1" and a "No" answer is given a score of "0". Assessment Criteria: Good = 5-7 Fair = 3-4 Poor = 0-2

8	Scabies	A contagious disease caused by the mite *Sarcoptes scabiei*	- Itching at night (pruritus nocturna) - Attacks groups of people living in crowded huts or dormitories. - There are white or grayish burrows or cuniculi, which are straight or curved, and papules or vesicles at the ends of the burrows. Predilection areas include the spaces between the fingers, the volar wrists, the outer elbows, the anterior armpits, the areolae in women, the umbilicus, the external genitalia in men, and the posterior abdomen. - Finding scabies mites	Questionnaire, Physical examination, and Microscope	Yes = 2 of 4 clinical symptoms of scabies are present. No = No clinical symptoms of scabies are present.

RESULTS

The Table 2 shows that most respondents at Pondok Pesantren Modern Nurul Hijrah were in the 15–17 year age group, totaling 26 students (52%). The majority of respondents were male, namely 35 students (70%), and the most common level of education was junior high school, with 24 students (48%).

Table 2. Baseline Characteristics

Characteristics	N	%
Age		
12 – 14 years	23	46
15 – 17 years	26	52
>18 years	1	2
Total	50	100
Gender		
Male	35	70
Female	15	30
Total	50	100
Education		
Senior high school	21	42
Junior high school	24	48
Islamic education school	5	10
Total	50	100

The results of the T-test for the independent variables are presented in Table 3. T-test results indicate that five of the seven independent variables have a statistically significant relationship with scabies incidence ($p < 0.05$). These variables are lighting ($p = 0.000$), water cleanliness ($p = 0.000$), clothing cleanliness (prayer tools) ($p = 0.001$), towel cleanliness ($p = 0.006$), and use of antiseptics or soap ($p = 0.001$). On the other hand, two variables, namely bed cleanliness ($p = 0.275$) and nutritional needs ($p = 0.333$), show no significant correlation with scabies incidence ($p > 0.05$).

Multivariate analysis using logistic regression shows that all variables significant in the bivariate analysis remain significant at the multivariate level ($p < 0.05$), as seen in Table 4. Based on the odds ratio (Exp(B)), lighting is the most influential factor on scabies incidence with an Exp(B) value of 272.726, while water hygiene is the factor with the lowest Exp(B) value of 27.106, but remains significant on scabies incidence.

Table 3. Factors Related to Scabies

Hypothesis Test of Independent Variables	P
Lighting	0.000
Water Cleanliness	0.000
Bed Cleanliness	0.275
Clothing or Prayer Equipment Cleanliness	0.001
Towel Cleanliness	0.006
Use of Soap or Antiseptics	0.001
Nutritional Needs	0.333

Table 4. Multivariate Analysis Results

Variable	P	Exp (B)
Lighting	0.016	272.726
Water Cleanliness	0.041	27.106
Clothing or Prayer Equipment Cleanliness	0.029	204.923
Towel Cleanliness	0.036	40.242
Use of Soap or Antiseptics	0.033	41.835

For the dependent variable, scabies, three of the four clinical signs were observed: nocturnal itching, occurrence among groups of students in the boarding school, and the presence of burrows on physical examination. No mites were detected on microscopic examination 44 (88%) of the 50 students who were assessed had clinical indications of scabies (Table 5).

Table 5. Scabies Clinical Symptoms

Clinical Symptoms of Scabies	Frequency	Percentage (%)
Yes	6	12
No	44	88
Total	50	100

From outside, the external environment of the boarding school appears clean, where males and females had separate dormitories with beds arranged without partitions. Water within the building were

sourced from allegedly clean piped water, however, the questionnaire responses indicated that the utilized water were foul-smelling, discolored, and were often insufficient for instrumental activites including bathing and washing dishes. No drainage system for wastewater was identified.

DISCUSSION

Scabies is notorious for being a significant public health problem, affecting more than 200 million people worldwide, with the greatest burden occurring in resource-limited tropical regions and caused by *Sarcoptes scabiei* var. hominis (11). Complications from scabies include impetigo, skin and soft tissue infections, glomerulonephritis, and an elevated risk of rheumatic heart disease. Children and young adults are more likely to contract scabies (12).

Sarcoptes belongs to the subfamily *Sarcoptinae*. The lifespan of a female mite ranges from 4 to 6 weeks, during which she lays approximately 2–4 eggs per day. Mites avoid areas with a high density of sebaceous glands. Adult female mites live on a host for up to one month, burrowing into the lower stratum corneum. Mites may live outside of a human host for 24 to 36 hours in a typical room, with longer survival in colder environments. Their ability to infect a host decreases the longer they remain outside the body. Transmission requires at least five minutes of skin-to-skin contact (13–14).

In 2017, Scabies was included to the World Health Organization (WHO) list of Neglected Tropical Diseases (NTDs). Although diagnosis is primarily clinical and treatment is relatively affordable, both diagnosis and treatment are frequently delayed, and treatment, when given, is often applied incorrectly (15). Common predilection sites for scabies lesions include the web spaces of the fingers, flexor surfaces of the arms and wrists, extensor surfaces of the elbows, periumbilical region, buttocks, ankles, legs, genitalia, and the periareolar area in women. Unlike adults, children may develop lesions across the entire body, and in infants under one year old, lesions can also appear on the head, soles of the feet, and anterior axillary folds (16).

In a systematic review, a study of 105 randomly selected schoolchildren in Indonesia found that 76.9% had scabies, representing the highest prevalence among the 43 studies from various countries (17). In a study analyzing Disability-Adjusted Life Years (DALYs) per 100,000 people with age standardization across 195 countries from 1990–2015, Indonesia had the highest value at 153.86, indicating that 153.86 healthy life-years were lost due to scabies (18).

The Global Burden of Disease 2015 study evaluated the scabies severity in 30 countries and found that scabies accounted for 0.21% of DALYs out of 315 conditions assessed. The greatest burden are reported in tropical regions of East, South, and Southeast Asia, Oceania, and Latin America. Among 246 other diseases, scabies ranked 101st globally in age-adjusted DALYs (19). According to the Global Burden of Disease 2021, this parasitic infestation is estimated to affect nearly 206.6 million people worldwide, with an yearly incidence of 622.5 million new cases (20).

A study reviewing 70 publications from 2000–2024 with an accumulation of 10,324,381 participants identified significant risk factors associated with scabies infestations. Demographic and behavioral factors, such as a history of contact with itchy household members, not using soap, sharing a bed, infrequent bathing, the presence of pets, and being male, were associated with scabies (21).

Bivariate and Multivariate Analysis of This Study

Lighting

T-test analysis of this factor resulted in a p-value of 0.000 ($p < 0.05$), showing a significant relationship between lighting and the scabies occurrence at Pondok Pesantren Modern Nurul Hijrah. Our multivariate analysis found that lighting has increased the risk of scabies by 273-fold, which is considered the most prominent among other identified factors. This findings align with previous studies who has found an association among ventilation and the incidence of scabies (22–23). This is further propagated by how several students seldom open their room windows as a results of physical obstruction of windows or the presence of neighboring construction, which leads to a lack of ventilation in their rooms.

The lack of general adequate lighting and sunlight exposure exacerbates conditions likely for scabies mites to proliferate. These mites thrive in humid environments with limited sunlight. Additionally, the amount of incoming light affects humidity and temperature, and high humidity promotes mite growth. In dry environments (> 50 ºC), *Sarcoptes scabiei* mites survive for only 10 minutes, and eggs hatch within 3–4 days, whereas in humid environments, mites can survive for up to 2-5 days (24). With limited sunlight exposure in the students' rooms, humidity remains high, allowing mites to survive and consequently transmitted to nearby fomites (6).

High temperatures may also lead to further diaphoresis, which potentially worsens scabies-related itching (25). This may account to why lighting the most dominant factor influencing scabies occurrence in Islamic boarding schools. These results align with

a 2023 study demonstrating a significant association between inadequate lighting and scabies incidence in the Asy-Syadzili 4 Gondanglegi Malang Islamic boarding school (p = 0.01031) (7). Proper lighting, supported by adequate ventilation, decreases humidity and prevents environments perpetuating microbial and mite growth.

Poorly controlled humidity provides an ideal environment for scabies mites, which are particularly sensitive to environmental settings. Scabies can persist on the skin for extended periods especially when temperatures are low and humidity is high (1). Preventive measures to avoid propagation of mites include opening windows regularly, ensuring good ventilation, and keeping room windows free from obstruction that block incoming light.

Clothing or Prayer Equipment Cleanliness

T-test analysis of clothing or prayer equipment cleanliness found a p-value of 0.001 ($p < 0.05$), showing a significant association between cleanliness of clothing and prayer equipments and incidence of scabies at Pondok Pesantren Modern Nurul Hijrah, which was further emphasized by our multivariate analysis findings, showing that cleanliness of clothing and prayer equipments resulted in a 205-fold increase of scabies risk. Previous literature have also shown a significant correlation between sharing clothes or towels and scabies incidence (26).

Questionnaire responses has found that several students cultivated unhygienic habits including lending clothes and prayer equipment to friends, not washing these items with detergent, and not ironing clothes. These practices facilitate indirect transmission of scabies through shared items, referred to as fomites. Students with scabies symptoms can transmit mites directly to peers when clothing or prayer equipment is used in a communal manner. Washing clothes with detergent and drying them under direct sunlight may kill scabies mites (27). Thus, cleanliness of clothing and prayer equipment plays an important role in perpetuating scabies infestation.

Findings of this study is consistent with previous studies. A study performed at Sultan Hasanudin Islamic Boarding School showed a correlation between exchanging prayer equipment and scabies incidence (28). Then as well, a study of 480 school children aged 6–13 years reported a 31% disease prevalence among students who shared items including towels, combs, and clothes, with a markedly higher risk compared to those who did not (OR = 33.37, p = 0.0001) (29).

Sharing personal garments with individuals with poor personal hygiene are additional risk factors for contracting scabies (30). Washing personal items in a washer equipped with 50°C water for at least 35 minutes is recommended to eliminate scabies mites from clothing (14). Other preventive measures, inlcuding washing clothes with detergent, drying them under direct sunlight, avoiding shared use of clothing or prayer items, and avoiding washing dirty laundry together with peers, may also be performed to further maximize attempts.

The Use of Soap or Antiseptic

T-test analysis of the use of antiseptic or soap revealed a p-value of 0.001 ($p < 0.05$), showing a significant association between the use of soap or antiseptics and the occurrence of scabies at the Modern Nurul Hijrah Islamic Boarding School. A 42-fold risk in individuals who do not use antiseptics or soap was discovered through our multivariate analysis. According to questionnaire responses, some students bathed without using antiseptic soap, while others shared liquid soap with peers. The use of soap or antiseptics has a substantial impact on scabies occurrence. Questionnaire responds revealed that those with good personal hygiene (bathing with soap) are less likely to be infested because scabies mites can be killed during bathing, especially when combined with changing and washing clothes daily (30).

These findings are in line with previous studies, where a study reported a significant correlation between antiseptic use and scabies occurrence at the Asy-Syadzili 4 Gondanglegi Islamic Boarding School in Malang (p = 0.004) (7). Prevention includes frequent handwashing with detergent to remove scabies mites from the skin (22-31). Students should be made known of the importance of bathing twice daily with antiseptic soap, washing hands regularly, and avoiding shared use of toiletries, including soap (32).

Towel Cleanliness

T-test analysis of towel cleanliness yielded a p-value of 0.006 ($p < 0.05$), showing a significant association between towel hygiene and the occurrence of scabies at the Modern Nurul Hijrah Islamic Boarding School. Our multivariate analysis suggested that the lack of towel cleanliness leads to a 40-fold increase in the risk of scabies infestation. According to respondents, some students harbored unhygienic towel habits including not sun-drying their towels directly under sunlight and reusing towels while still damp. Damp towels can serve as a medium for transmitting scabies, particularly when they are not appropriately kept dry, allowing mites to survive (7). Towel hygiene, therefore, plays an important role in scabies occurrence (33).

This finding is similar with a previous study that discovered a correlation between towel and clothing hygiene practices and scabies incidence in Islamic boarding schools. A previous study revealed that alternating towel use was the dominant factor in scabies incidence (27–34).

Water Cleanliness

T-test analysis of water cleanliness yielded a p-value of 0.000 ($p < 0.05$), showing a significant correlation between water cleanliness and the occurrence of scabies at the Modern Nurul Hijrah Islamic Boarding School. Multivariate analysis found that water hygiene factor resulted in a 27-fold increase in the risk of scabies. According to respondents, poor water cleanliness was due to foul-smelling water, an insufficient water supply, and inadequate wastewater disposal facilities. Water cleanliness, therefore, has a substantial influence on scabies occurrence.

This Islamic boarding school uses water from the drinking water company. What makes the water so unsanitary is that the wastewater from the school isn't properly channeled directly to the landfill. Instead, it pools in the surrounding area, leaving the water used for bathing, cooking, and washing smelly. These findings are consistent with other studies that reported a correlation between clean water and scabies incidence ($p = 0.006$; $p < 0.05$) (22).

The boarding school should assess and improve water hygiene by ensuring proper wastewater disposal through adequate drainage channels to prevent contamination, and by installing water filtration systems to reduce odor and discoloration so that water can be safely used for bathing, cooking, and washing.

Bed Hygiene

T-test analysis of bed hygiene yielded a p-value of 0.275 ($p > 0.05$), showing no correlation between bed hygiene and the occurrence of scabies at the Modern Nurul Hijrah Islamic Boarding School. According to questionnaire responses, many students practiced good bed hygiene, such as sun-drying mattresses once a week, washing bed sheets weekly, avoiding sharing bedding and blankets, and alternating their use. Drying bed sheets and mattresses under direct sunlight is an effective method for maintaining bedding cleanliness and preventing scabies (35).

Findings of this study is similar to those found in a 2022 study, where no correlation between sharing sleeping arrangements, airing mattresses, or changing bed sheet liners and scabies occurrence were identified at the Darel Hikmah Islamic Boarding School ($p > 0.05$) (36). Similar findings are also found in a 2020 study that reported no association between personal hygiene, particularly sleep behavior, and the incidence of scabies in an Islamic boarding school. The prevention of scabies in this particular aspect includes washing and sun-drying bed sheets used within the last 5 days, as sunlight helps eradicate mites (16). However, a 2024 scabies study conducted in Sungai Bilu, found that 34% of respondents (23 out of 68) has failed to maintain proper bed and bedding hygiene on the daily, which exponentially perpetuates parasite proliferation.

Common issues in relation with bed hygiene included infrequent washing of sheets and pillowcases, inadequate mattress cleaning, and difficulty drying mattresses, which may be accounted by limited space availability or unfavorable weather conditions (37). A cross-sectional study from June to September 2019 involving 220 students (115 boys and 105 girls) from 10–18 years old at the boarding school in Medan, Indonesia, found that sharing a bed increased the scabies transmission risk by 17.53 times (35).

Nutritional Needs

T-test analysis of nutritional requirements derived a p-value of 0.333 ($p > 0.05$), which showing no correlation between nutritional needs and the occurrence of scabies at the Modern Nurul Hijrah Islamic Boarding School. According to questionnaire responses, students generally fulfilled their nutritional requirements, having three meals a day (rice, meat, eggs, vegetables, and milk), rarely consuming carbonated drinks (Fanta, Coca-Cola, Sprite, etc.), consuming 8 glasses of water or more daily, and eating fruits. This implies that students are at an adequate nutritional status, which may justify the lack of association between nutrition and the occurrence of scabies in this study.

The findings of this study is similar to observations in another study, which also reported no correlation between nutritional status and scabies occurrence ($p = 0.088$; $p > 0.05$) (38). Although malnutrition can impair immunity and increase susceptibility to infectious diseases such as scabies, adequate nutritional intake, food security, and good caregiving practices support stronger immunity and antibody responses, reducing vulnerability to infestation (39).

While most of the findings in this study provide significant support, many factors that may influence the occurrence of scabies remain unexplained, including room hygiene. According to WHO in 2023, vacuuming or sweeping a room, especially in a room previously occupied by a scabies sufferer, can prevent scabies transmission (40).

Furthermore, sampling is not performed in all predilection areas, such as the genitalia in men, the areola in women, the armpit creases, the umbilicus, and the posterior abdomen. This is because the Nurul Hijrah Modern Islamic Boarding School only permits sampling from external areas such as between the fingers and toes, the outer elbow, and the volar wrist. Future study should strengthen diagnostic validity by obtaining permission to conduct scabies sampling in all areas of clinical predilection, as well as integrating quantitative measurements of environmental hygiene variables (such as room hygiene) that have the potential to be significant risk factors for transmission.

CONCLUSION

Factors such as lighting, water hygiene, cleanliness of clothing or prayer equipment, towel hygiene, and the use of antiseptics or soap are associated with the occurrence of scabies. In contrast, bed hygiene and nutritional needs are not associated with scabies at the Modern Nurul Hijrah Islamic Boarding School. Lighting was identified as the most dominant factor influencing scabies occurrence.

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AUTHORS' CONTRIBUTION

AH: Conceptualization and Methodology. MSTT: Content Writing. MZR: Statistical Analysis. K: Writing, Reviewing and Editing.

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