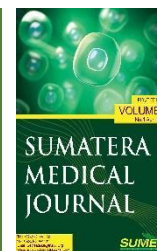




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Research Article

Overview of Knowledge Levels and Risk Factors for Scabies and Pediculosis capitis among Female Students in Darularafah Raya Islamic Boarding School

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ABSTRACT

Background: Scabies and pediculosis capitis infections remain common parasitic issues, particularly in densely populated living environments such as boarding schools. The high incidence of these infections is influenced by the level of knowledge and risk-related behaviors within the population. **Objective:** This research was conducted to understand the level of knowledge and risk factors for scabies and pediculosis capitis infections among female students at Darularafah Raya Islamic Boarding School. **Methods:** This descriptive research was conducted with eleventh-grade female students, with a sample size of 58 participants selected using systematic random sampling techniques. Data were collected through questionnaires assessing knowledge levels and risk factors. **Results:** Research data indicate a prevalence of scabies of 22.4% and pediculosis capitis of 55.4%. A total of 31 respondents (53.4%) demonstrated a good level of knowledge about scabies, while 52 respondents (89.7%) showed a good level of knowledge about pediculosis capitis. The primary risk factors for scabies observed among respondents were sharing clothing and sharing beds. For pediculosis capitis, the prevalent risk factors include using communal prayer garments and sharing bedding equipment. **Conclusion:** Most respondents possess good knowledge; however, the incidence of scabies and pediculosis capitis infections remains relatively high.

Keywords: knowledge, pediculosis capitis, risk factors, scabies

1. Introduction

Living in communal environments such as boarding schools increases the risk of ectoparasitic infections, including scabies and pediculosis capitis, which spread through direct contact or shared personal items [1,2,3]. Scabies, caused by *Sarcoptes scabiei*, is a contagious skin infection with a global prevalence of approximately 400 million cases annually, according to the World Health Organization (WHO). Similarly, pediculosis capitis, caused by *Pediculus humanus capitis*, is prevalent across various socioeconomic groups, with a reported prevalence of 43.1% among students in Bali, particularly female students. Limited knowledge about these diseases exacerbates the risk of infection [4,5]. Studies conducted in Medan and Grobogan have demonstrated that students with poor knowledge are more vulnerable to these infections [6].

This study aims to assess the level of knowledge, risk factors, and incidence rates of scabies and pediculosis capitis among female students at Darularafah Raya Islamic Boarding School. Furthermore, the findings are

intended to serve as a scientific reference for the control and prevention of these infections in similar communal settings.

2. Methods

This study utilized a descriptive research design to explore the level of knowledge and risk factors associated with scabies and pediculosis capitis infections among eleventh-grade female students at Darularafah Raya Islamic Boarding School, located in Deli Serdang Regency, North Sumatra, Indonesia, during the period from June to October 2024. The study targeted all eleventh-grade students, with a minimum sample size of 58 participants determined using the Slovin formula. A stratified random sampling approach was used to select participants who were systematically selected based on odd roll numbers from six existing classes [7,8].

Data collection involved the use of a validated and reliable questionnaire. The questionnaire included questions about knowledge levels and risk factors related to scabies and pediculosis capitis infections. Validity testing yielded an r-value exceeding 0.632, while reliability testing produced a Cronbach's Alpha score of 0.877, indicating a high level of reliability [9,10,11]. To support clinical diagnoses, scabies was identified based on the presence of at least two out of four cardinal signs, while pediculosis capitis was diagnosed through the wet combing method. Diagnostic tools included surgical blades, glass slides, lice combs, and hair oil to facilitate accurate examination.

Collected data underwent systematic analysis using SPSS software version 29.0.2, following the stages of editing, coding, data entry, cleaning, and tabulating. Knowledge levels were categorized into three groups: good, moderate, and poor based on questionnaire scores [12,13]. Diagnoses of scabies required the identification of two or more cardinal signs, while pediculosis capitis was confirmed by detecting live lice or eggs during wet combing [14,15,16].

Ethical considerations were rigorously upheld throughout the study. Ethical approval was obtained from the Research Ethics Committee of Universitas Sumatera Utara. Confidentiality of respondents' data was maintained, and informed consent was secured from all participants. This study aims to provide a comprehensive understanding of the prevalence of scabies and pediculosis capitis infections, as well as the knowledge levels and risk factors contributing to their spread, offering valuable insights for the development of prevention strategies in communal living environments such as Islamic boarding schools.

3. Results

3.1 Scabies

Table 1. Scabies Prevalence Based on Cardinal Sign

Clinical diagnosis	n	%
Positive	13	22.4
Negative	45	77.6
Total	58	100.0

The table above indicates that the prevalence of scabies infection among the female students is 22.4.

Table 2. Overview of Knowledge Levels Regarding Scabies Among Female Students at Darularafah Raya Islamic Boarding School

Level of knowledge regarding scabies	n	%
Good	31	53.4
Moderate	15	25.9
Negative	12	20.7
Total	58	100.0

Based on Table 2, it can be observed that the majority of respondents pursuing senior high school education at Pesantren Darularafah Raya demonstrate a good level of knowledge about scabies infection. A total of 31 individuals (53.4%) were found to have good knowledge about scabies, 15 individuals (25.9%) had a moderate level of knowledge, and 12 individuals (20.7%) exhibited a low level of knowledge regarding scabies.

Table 3. Distribution of scabies risk factors among female students at Pesantren Darularafah Raya

Scabies risk factors	Scabies clinical diagnosis				Total	
	Positive		Negative		N	%
	n	%	n	%		
	13	22.4	45	77.6	58	100.0
1. Bathing frequency						
1 time daily	1	7.4	1	2.2	2	3.4
≥ 2 times daily	12	92.3	44	97.8	56	96.6
2. Shared clothing						
Yes	11	84.6	40	88.9	51	87.9
No	2	15.4	5	11.1	7	12.1
3. Frequency of cloth washing						
1 time weekly	1	7.4	1	2.2	2	3.4
≥ times weekly	12	92.3	44	97.8	56	96.6
4. Detergent usage						
No	2	15.4	4	8.9	6	10.3
Yes	11	84.6	41	91.1	52	89.7
5. History of bed sharing						
Yes	11	84.6	35	77.8	46	79.3
No	2	15.4	10	22.2	12	20.7
6. Bedroom hygiene						
Poor	3	23.1	3	6.7	6	10.3
Good	10	76.9	42	93.3	52	89.7
7. Frequency of bed sheet changing						
1 kali sebulan	2	15.4	1	2.2	3	5.2
≥ 2 kali sebulan	11	84.6	44	97.8	55	94.8
8. History of living with individuals suspected of scabies infection						
Yes	11	84.6	14	31.1	25	43.1
No	2	15.4	31	68.9	33	56.9

Based on the table above, the most common risk factors found among the respondents were a history of sharing clothing, reported by 51 respondents (87.9%), and a history of sharing a bed, reported by 46 respondents (79.3%). The least common risk factors observed were bathing once a day and washing clothes once a week, each reported by two respondents (3.4%).

Additionally, the table shows that clinically positive scabies cases were most frequently found among respondents who had risk factors such as sharing clothing, sharing a bed, and having a history of living with individuals suspected of having a scabies infection, each of which was found in 11 respondents (84.6%).

Among the 45 respondents who were clinically negative for scabies, the majority were found to have a bathing frequency of at least twice a day, washing clothes at least twice a week, and changing bed sheets at least twice a month, with 44 out of 45 respondents (97.8%) having these practices.

1.2 Pediculosis Capitis

Table 4. Pediculosis Capitis Prevalence Based on Wet Combing

Pediculosis Capitis Clinical Diagnosis	N = 58	%
Positive	31	53.4
Negative	27	46.6

The table above shows that the prevalence of pediculosis capitis infection among female students is 53.4%.

Table 5. Overview of Knowledge Levels Regarding Pediculosis Capitis Among Female Students at Darularafah Raya Islamic Boarding School

Level of knowledge regarding pediculosis capitis	n	%
Good	31	53.4
Moderate	15	25.9
Negative	12	20.7
Total	58	100.0

Based on the table above, it can be observed that the majority of respondents with a high school education level at Pesantren Darularafah Raya have a good level of knowledge regarding pediculosis capitis. According to the research questionnaire, 51 individuals demonstrated a good level of knowledge about pediculosis capitis (89.7%), five individuals had a moderate level of knowledge (8.6%), and one individual had a poor level of knowledge (1.7%).

Table 6. Distribution of pediculosis capitis risk factors among female students at Pesantren Darularafah Raya

Pediculosis capitis risk factors. ≥		Scabies clinical diagnosis				Total	
		Positive		Negative			
		n	%	n	%	N	%
		31	53.4	27	46.6	58	100.0
1. Length of hair							
Long		28	90.3	22	81.5	50	86.2
Short		3	9.7	5	18.5	8	13.8
2. Type of hair							
Straight		18	58.1	18	66.7	36	62.1

Not straight (wavy/curly)	13	41.9	9	33.3	22	37.9
3. Shampooing frequency						
< 3 times weekly	2	6.5	1	3.7	3	5.2
≥ 3 times weekly	29	93.5	26	96.3	55	94.8
4. Shared use of hair accessories						
Yes	29	93.5	22	81.5	51	87.9
No	2	6.5	5	18.5	7	12.1
5. History of using the communal prayer garment						
Yes	30	96.8	23	85.1	53	91.4
No	1	3.2	4	14.8	5	8.6
6. Shared use of sleeping equipment						
Yes	30	96.8	23	85.1	53	91.4
No	1	3.2	4	14.8	5	8.6
7. Frequency of hair combing						
< 2 times daily	0	0.0	0	0.0	0	0.0
≥ 2 times daily	31	100.0	27	100.0	58	100.0
8. History of living with individuals suspected of pediculosis capitis infection						
Yes	31	100.0	16	59.2	47	81.0
No	0	0.0	11	40.7	11	19.0

Based on the table above, the most common risk factors found among the respondents were a History of living with individuals suspected with pediculosis capitis infection reported by 31 respondents (100.0%), and the next common risk factors were using communal prayer garments (mukena) and shared sleeping equipment, each reported by 53 respondents (91.4%). The least common risk factor was having a shampooing frequency of less than three times a week, reported by 3 respondents (5.2%). In this study, no respondents were found to have a hair combing frequency of less than twice a day. History of living together was also one of the most common risk factors, where 11 respondents (84.6%) who had a History of living with individuals suspected of scabies infection were diagnosed with pediculosis capitis. The majority of the female students without pediculosis capitis often comb their hair. ≥ Twice daily, and wash their hair. ≥ Thrice a week, this might have correlated with hair hygiene.

4. Discussion

This study identified the characteristics of 11th-grade female students at Pesantren Darularafah Raya, the majority of whom were 16 years old and had similar educational backgrounds. The prevalence of scabies infection in this group was 22.4%, which is similar to a comparable study in Medan (36.8%). The knowledge level regarding scabies was predominantly good (53.4%), although this study did not examine the direct relationship between knowledge and infection prevalence [17,18,19]. Respondents with good knowledge tended to have a lower prevalence of scabies.

Sharing clothes emerged as the highest risk factor for scabies (87.9%), although no difference in prevalence was found between the groups who shared and did not share clothes [20,21]. Good laundry practices, such as

washing clothes more than twice a week (96.6%) and using detergent (89.7%), were associated with a lower prevalence of scabies. Sharing sleeping spaces, experienced by 79.3% of respondents, also became a risk factor, with a higher prevalence of infection in this group [22,23,24].

The prevalence of pediculosis capitis was found to be 55.4%, similar to a study in Medan (57.7%). The majority of female students had good knowledge regarding pediculosis capitis (89.7%), but this knowledge level did not significantly influence the diagnostic outcomes, as 51.9% of respondents were still diagnosed as positive [25,26]. These findings align with other studies that suggest knowledge levels do not always impact infection diagnosis [27,28,29].

The prominent risk factors for pediculosis capitis were having long hair (86.2%), sharing hair accessories (87.9%), and sharing prayer garments (91.4%) [30,31]. The prevalence of infection was higher among respondents with these habits. Shared use of sleeping equipment also became an important risk, with 91.4% of respondents reporting sharing sleeping equipment and a higher infection prevalence in this group.

Living with someone suspected of being infected with pediculosis capitis was identified as a new risk factor in this study [32,33]. A total of 81.0% of respondents reported living with someone they suspected to be infected, and 66.0% of them were diagnosed as positive. Conversely, all respondents who did not live with someone suspected of being infected were diagnosed negative [34].

Overall, this study highlights the importance of maintaining personal and environmental hygiene to prevent scabies and pediculosis capitis [35]. The habit of sharing personal items and sleeping equipment emerged as a major risk factor, although good knowledge was not always sufficient to prevent infection. These findings can serve as a basis for preventive interventions in the boarding school environment.

5. Conclusion

This study concludes that the majority of female students at Pesantren Darularafah Raya possess good knowledge about the causes, transmission, risk factors, and clinical manifestations of scabies and pediculosis capitis infections. The main risk factors for scabies are sharing clothes and sleeping spaces, while the primary risk factors for pediculosis capitis include sharing communal prayer garments and sleeping equipment. Although risk factors such as infrequent bathing or washing clothes are less common, the prevalence of scabies (22.4%) and pediculosis capitis (55.4%) infections among the female students remains relatively high, indicating the need for more effective preventive interventions.

6. Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available due to privacy and ethical considerations, but are available from the corresponding author upon reasonable request.

7. Ethical Statement

Ethical approval for this study was obtained from the Universitas Sumatera Utara. The research was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Written informed consent was obtained from all participants prior to their inclusion in the study.

8. Author Contributions

Each author has made substantial contributions to this study, including conceptualization, study design, implementation, data collection, analysis, and interpretation. All authors have participated in drafting, revising, and critically reviewing the manuscript. They have provided final approval of the version to be published and have been involved in the decision regarding the journal for submission. Furthermore, all authors agree to take full responsibility for every aspect of the work.

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11. Conflict of Interest

The authors declare no conflict of interest.

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