
The Dynamics Of Female Students At Ibnu Hajar Islamic Boarding School In Understanding Pediculosis Capitis

Lourensya Berta Joharlina¹⁾, Atikah Sri Rejeki²⁾, Nanik Marfuati³⁾, Kanti Ratnaningrum⁴⁾
^{1,2,3,4)} Fakultas Kedokteran Universitas Muhammadiyah Semarang

*Corresponding Author

E-mail: lourensia@unimus.ac.id

Abstract

Pediculosis capitis remains common in Islamic boarding schools, especially among female students living in overcrowded dormitories, facilitating transmission through close contact and shared personal items. In Indonesia, the prevalence is still high at around 20%, particularly among children and adolescents in communal settings. Despite this, pediculosis capitis is often considered a neglected disease, leading to suboptimal management. This study aims to identify factors associated with the risk of pediculosis capitis among female students. This research used a qualitative approach with a case study design. Informants were selected purposively, consisting of caregivers, dorm supervisors, sanitation staff, and students. Data were collected through in-depth interviews and document review, then analyzed using qualitative analysis supported by ATLAS.ti. The risk of pediculosis is influenced by behavioral and environmental factors. Behaviors such as sharing combs, infrequent hair washing, and limited knowledge of prevention increase vulnerability. Environmental factors—including crowded rooms, humidity, close sleeping arrangements, and limited cleanliness supervision also contribute to transmission. Pediculosis among female students results from a combination of personal habits, room conditions, and communal living culture. Effective prevention requires stronger hygiene education, reduced sharing of personal items, and improved environmental cleanliness monitoring.

Keywords: *Pediculosis, Female Students, Hygiene, Boarding School Environment, Risk Factors*

INTRODUCTION

Pediculosis is a scalp disease caused by the obligate species of *Pediculus humanus capitis* which belongs to the family Pediculidae.¹ Pediculosis is caused by head lice *Pediculus Humanus Capitis* which grow on the head and will suck blood through the scalp, causing itching on the head and making you feel like scratching your head.^{2,3} Usually, pediculosis often occurs in girls compared to boys, and is most often found in children aged 9-16 years.⁴ In the 21st century, cases of *Pediculosis capitis* (head lice) in the Asian region show varying figures, ranging from 0.7% to 59%. The average incidence is in the range of 12.8% to 15.1%. In developed countries, head lice are found in around 8.9% of school children. Meanwhile, in developing countries, the figure can be much higher, reaching 16.59% to 81.9%. In Indonesia itself, around 20% of children experience this problem, which indicates that head lice are still a fairly serious health problem. This high rate is generally influenced by several factors, such as family economic conditions, the child's age, and poor personal hygiene. Students at Islamic boarding schools are a vulnerable group, as 75% of them are known to have poor hygiene habits. Crowded environments and communal living habits can also accelerate the spread of head lice among them.²

Pediculosis usually does not cause serious health problems, but the presence of this parasite can cause discomfort to those infected. Symptoms of pediculosis include pruritus, excoriations, pyoderma, secondary impetigo, conjunctivitis, and fever. In addition to discomfort, pediculosis can cause anxiety for parents, embarrassment for children, and can negatively impact a child's academic performance by disrupting concentration.⁵ Pediculosis can be spread through head-to-head contact, either directly or through an intermediary. When one child is infested with pediculosis, there is the potential for transmission to other children.²

This disease can be influenced by several factors, including age, gender, hair length, poor hair hygiene, use of hair accessories, physical contact, and the habit of sleeping with someone infected with pediculosis. Other factors that cause pediculosis include crowded living conditions, economic

conditions, and knowledge. 6,7 Children with pediculosis experience itching. This occurs because the *Pediculus humanus capitis* mite bites the skin, causing itching. The infection can lead to a lack of self-confidence and shunning by peers. 3

Pediculosis is often found in boarding schools (*pesantren*) where students are exposed to physical contact, sleep together, and lack of hair hygiene. Islamic boarding schools are boarding school educational institutions. Pediculosis is transmitted through direct contact with the head of an infected person, through sleeping together on the same bedding, and through poor hygiene. 3

Most previous research on pediculosis capitis has used a quantitative approach that emphasizes individual factors, thus not fully reflecting the dynamics of life and culture in Islamic boarding schools. This indicates a knowledge gap regarding the contextual understanding of pediculosis risk factors in female Islamic boarding school students.

This study aims to explore the risk factors for pediculosis in depth within the lives of female students at Ibnu Hajar Islamic Boarding School through a qualitative approach, in order to provide a basis for formulating prevention strategies that are more appropriate to the Islamic boarding school context.

RESEARCH METHODS

This research employed a qualitative design with a case study approach and was conducted at the Ibnu Hajar Islamic Boarding School in Semarang, after obtaining ethical approval from the Health Research Ethics Commission (KEPK) of Muhammadiyah University of Semarang, issued on October 13, 2025, with the following authorization: 018/EC/KEPK-FK/UNIMUS/2025. This approach was used to gain a deeper understanding of the experiences and perspectives of female students and boarding school administrators regarding pediculosis.

Informants were selected using purposive sampling, including female students (Key Informants), dormitory teachers (Primary Informants), janitors (Supporting Informants), and boarding school caretakers (Additional Informants). Data were collected through in-depth interviews and document review, then analyzed thematically using ATLAS.ti software. Data validity was maintained through triangulation of sources and techniques. This research was independently funded.

RESULTS AND DISCUSSION

Results

The results of this study indicate that the risk factors for pediculosis in female students at Ibnu Hajar Islamic Boarding School are influenced by behavioral and environmental factors. The informants included adolescent female students living in the dormitory, dormitory teachers who interact directly with students, janitors, and caretakers.

Behavioral factors contributing to the occurrence of pediculosis include the habit of sharing combs, towels, and hair accessories, irregular hair washing frequency, and a lack of knowledge about the transmission and prevention of pediculosis. Some female students considered head lice to be a common condition in Islamic boarding schools and therefore did not immediately take preventive or treatment measures.

Environmental factors identified included overcrowding in rooms, the habit of sleeping close together, suboptimal ventilation, and inconsistent hygiene monitoring. The interaction between these behavioral factors and environmental conditions increases the likelihood of pediculosis transmission in the Islamic boarding school environment.

Discussion

Individual Characteristics as a Risk Factor for Pediculosis

Hair Factor

Based on the research results, hair length can be understood as an individual characteristic that plays a role in increasing the risk of pediculosis capitis. Long hair is considered more difficult to care for and maintain than short hair, especially if it's thick and requires a longer drying time. Damp and poorly maintained hair can create a conducive environment for head lice to survive and reproduce.

Simply put, interviews and previous research indicate that long hair makes a person more susceptible to pediculosis capitis. This is because head lice can more easily attach, move, and lay eggs on long hair and prefer the moist, warm scalp as a habitat. Lice can also survive in water, so shampooing alone is not enough to eliminate them and requires special treatment. Therefore, hair length can be considered a factor that increases the risk of pediculosis, but it is also influenced by hair care and personal hygiene habits, especially among female students living in Islamic boarding schools.

Demographic Factors

The study results indicate that head lice (pediculosis capitis) is generally first experienced during childhood and early adolescence (7–15 years) due to high social interaction, the habit of sharing items, and suboptimal awareness of personal hygiene. However, age is not the primary determining factor, as infestation can occur in all age groups if there is close contact and poor hygiene. In terms of gender, women are considered more vulnerable because they generally have longer and thicker hair, which is more difficult to care for and provides an easier place for lice to survive and thrive. However, men remain at risk of infection if exposed to environments conducive to transmission.

In general, the results of this study indicate that age and gender play different roles in the incidence of head lice. Regarding age, the informants' views do not fully align with previous theories that suggest that children aged 6–10 years are more susceptible than those aged 11–15 years. Previous research has shown a higher prevalence in younger age groups, which is associated with lower awareness of personal hygiene. However, in this study, age was not always the primary determinant, as infestation can occur at various ages depending on close contact and hygiene practices.

Conversely, regarding gender, the findings of this study align with previous research showing that women have a higher risk of developing pediculosis capitis. Statistical tests such as chi-square and logistic regression showed a significant association between female gender and the incidence of head lice infestation. This confirms that gender, particularly female gender, is a more consistent risk factor than age.

Therefore, it can be concluded that age is more of an initial vulnerability factor influenced by behavior and hygiene habits, while gender, especially female gender, is a stronger and more consistent risk factor for the incidence of pediculosis capitis.

Personal Practices as a Risk Factor for Pediculosis

Personal hygiene practices are one of the factors contributing to the occurrence of pediculosis capitis in female students. These practices include hair hygiene, body hygiene, hand and nail hygiene, and personal items such as towels.

Regarding hair hygiene, female students generally wash their hair regularly, 2–3 times a week. Some students also wash their hair more frequently when it feels limp, damp, or uncomfortable due to busy activities and prolonged hijab use. Shampooing is generally done to maintain hair comfort and cleanliness, especially when hair feels sweaty and sticky. Massaging the scalp while shampooing is also widely practiced, as it is believed to help cleanse the scalp, reduce dandruff, and provide a relaxing effect.

The findings of this study corroborate those of previous research, which found that hair washing frequency is significantly associated with the incidence of pediculosis capitis, as evidenced by a p -value < 0.05 . Most respondents who washed their hair regularly 2–3 times per week did not experience head lice. Therefore, regular shampooing may help reduce the risk of pediculosis, although it does not guarantee complete freedom from infestation.

Previous research has shown that frequent hair washing does not always guarantee freedom from pediculosis capitis, as regular shampoos are unable to completely kill lice and their eggs. Head lice can survive in water by gripping the hair shaft and reducing respiratory activity, preventing them from being killed by hair washing alone. Therefore, more effective treatment for pediculosis requires combing with a special lice comb (serit) and the use of pediculocidal shampoo, followed by repeated combing to ensure complete removal of lice and eggs.

In addition to hair care, the cleanliness of personal items such as towels is also an important part of personal hygiene. Towels are considered a very personal item and need to be kept clean. Drying towels after use is considered important because damp towels are perceived as a breeding ground for germs, bacteria, and fungi. When towels feel damp or dirty, female students tend to wash them or replace them with new ones. These practices are considered important because they indirectly relate to body and hair hygiene, which can influence the risk of developing pediculosis capitis.

Towels are considered personal items that must be kept clean, so most female students dry them after use to prevent dampness and odor. However, the frequency of towel washing varies, ranging from once a week to once a month, and they are usually washed or replaced when they feel damp, smell, or appear dirty.

However, previous research has shown that some of these personal hygiene practices do not always have a statistically significant relationship with the incidence of pediculosis capitis. Previous research reported that towel drying frequency ($p = 0.316$), towel washing frequency ($p = 0.258$), and hand washing frequency ($p = 0.132$) were not significantly associated with head lice transmission. This is explained by the fact that head lice transmission occurs more rapidly through close interactions, such as head-to-head contact, pillow sharing, and bed sharing.

Handwashing is considered an important way to maintain personal hygiene, although soap use remains inconsistent. Previous research has shown that handwashing frequency is not significantly associated with the incidence of pediculosis capitis ($p = 0.132$), suggesting that handwashing is not a major factor in head lice transmission. However, other studies have shown that lice transmission can be influenced by hand and nail hygiene, as lice and their eggs can attach to nails and be transmitted through contact. Furthermore, research has shown that good hygiene among students (88.2%) correlates with a decrease in pediculosis capitis infestations. Therefore, although handwashing does not directly determine the occurrence of infestation, comprehensive personal hygiene practices, including handwashing, regular hair washing, and proper use of personal hygiene products, still play a significant role in reducing the risk of transmission.

Regarding body hygiene, bathing twice daily is a common practice. Bathing frequency can increase during periods of intense activity or hot weather, and decrease during periods of low activity. Bathing is primarily done to maintain comfort and cleanliness after sweating. However, previous research has shown that bathing frequency is not significantly associated with the incidence of pediculosis capitis ($p = 0.650$). This is because head lice

Dynamic Conditions of the Dormitory Environment

Life in Islamic boarding schools (pesantren) is characterized by the fact that female students live together in a single residence and engage in daily activities communally. This creates a dynamic dormitory environment that contributes to the spread of pediculosis capitis. Living together in a room leads to intense physical interaction, whether while studying, resting, or sleeping. This close proximity increases the opportunity for head-to-head contact, the primary mechanism for head lice transmission.

Indonesian environmental health standards recommend that bedrooms be adequately sized, ideally no more than two people, with a space requirement of approximately 4 m² per person to allow for comfortable rest and avoid the risk of disease transmission due to overcrowding. However, at the study site, female students' rooms measured approximately 2.5 x 2.8 meters (approximately 7 m²) and were occupied by more than one person, thus not meeting these standards. This situation creates shared sleeping and activity spaces in close proximity, making contact between residents difficult to avoid.

Furthermore, the semesterly room transfer system increases interaction between female students and potentially prolongs the chain of disease transmission, including pediculosis capitis.

This finding aligns with previous research showing that bed-sharing is significantly associated with the incidence of pediculosis capitis ($p < 0.05$), with a higher risk in individuals who share beds (OR = 4.205). The study also reported a high proportion of respondents experiencing head lice due to this habit.

Head lice transmission in high-density living conditions occurs primarily through direct, intense, and repeated head-to-head contact. Lice infesting one individual can easily spread to another, making the transmission of pediculosis capitis more difficult to control in crowded rooms with close sleeping quarters. Theoretically, the more crowded a room is, the greater the opportunity for physical contact, thus increasing the risk of pediculosis capitis.

Communal Culture and Chain Transmission

Life in Islamic boarding schools demonstrates a strong communal culture, one of which is the sharing of personal belongings. Living together in a shared environment makes borrowing and lending items a common practice in everyday life. The most frequently shared items include headscarves, combs, helmets or hats, and other personal items. Despite awareness that this habit potentially increases the risk of head lice transmission, sharing remains difficult to avoid as it is seen as part of the communal nature of Islamic boarding school life.

This finding aligns with previous research showing a significant association between borrowing personal items and the incidence of pediculosis capitis ($p = 0.001$), with respondents who borrowed hair accessories being at higher risk of head lice infestation.

In addition to sharing items, sharing rooms and beds is also a part of daily life for female Islamic boarding school students. Sharing beds or being in very close proximity is perceived to facilitate transmission, especially if a roommate is already infested. Sleeping in close quarters or on the same bed is the situation most frequently associated with the transfer of head lice from one head to another.

This finding aligns with previous research showing that bed sharing is significantly associated with the incidence of pediculosis capitis ($p < 0.05$), with a higher risk in individuals who share beds (OR = 4.205). The study also reported a high proportion of respondents experiencing head lice due to these habits.

The high level of social interaction in boarding school living also amplifies the transmission dynamics. Studying, gathering, resting, and engaging in activities in the same space for extended periods increases the opportunity for physical contact. In limited space, close sleeping positions make it difficult to avoid hair contact, increasing the opportunity for head lice transmission.

This finding aligns with previous research showing a significant association between residential density and the incidence of pediculosis capitis ($p < 0.05$), where the majority of respondents in crowded housing experienced head lice.

Perception and Meaning of Female Santri

In addition to hygiene practices and environmental conditions, the dynamics of pediculosis capitis among female students are also influenced by their perceptions of head lice. Most students still associate pediculosis capitis with dirty conditions and poor hair hygiene, thus viewing hair hygiene as a primary preventative measure. This perception aligns with public health concepts that place personal hygiene as a crucial factor in preventing contact-based diseases. However, their understanding becomes more complex when discussing risk factors more broadly. Handwashing, for example, is considered important for preventing disease in general, but is not viewed as a primary factor in the transmission of head lice. This view aligns with literature explaining that pediculosis capitis transmission occurs primarily through direct head-to-head contact, while indirect transmission through objects or hands plays a lesser role, particularly in environments with high social interaction such as schools and dormitories.

Female students also perceive personal hygiene as more influential than environmental cleanliness. This aligns with scientific findings that head lice infestations are not always related to

environmental cleanliness but are rather influenced by individual behavior, frequency of contact, and hair care practices. Lice can persist and spread even in environments that appear clean if there are infested individuals and repeated close contact. Thus, the female students' perceptions align with scientific transmission mechanisms, although they still emphasize hair hygiene as the primary prevention factor.

A clean environment does not always guarantee freedom from pediculosis capitis, as transmission can still occur through intense social interaction, shared personal items, and close head-to-head contact. This suggests that environmental hygiene plays a more supporting role, while individual hygiene practices and social interaction patterns play a more dominant role in transmission dynamics. Therefore, pediculosis capitis prevention cannot focus on a single factor but requires a comprehensive approach, balancing individual hygiene, environmental management, and controlling risky interactions, as this problem is strongly influenced by behavior, the social environment, and communal living.

CONCLUSION

This study shows that the incidence of pediculosis capitis among female students at Ibnu Hajar Islamic Boarding School is influenced by the interaction of individual factors, personal hygiene practices, risk behaviors, and the dynamics of boarding school life. Individual characteristics such as early adolescence, female gender, and long hair increase susceptibility to head lice infestation.

Personal hygiene practices, particularly hair washing frequency, play a crucial role in preventing head lice, although other hygiene practices such as bathing, hand washing, and changing towels serve as supporting factors and do not directly influence transmission without proper hair care.

Risk behaviors, particularly the habit of borrowing personal items, sleeping close together, and sharing beds, have been shown to increase the risk of head lice transmission through close contact between students. Furthermore, the dynamics of boarding school life, such as overcrowding, limited space, and suboptimal physical conditions, contribute to the increased risk of pediculosis capitis transmission and reinfestation.

Therefore, preventing pediculosis capitis among female students requires a comprehensive approach that focuses not only on individual hygiene but also on changing risk behaviors and improving the environmental conditions and management of boarding school accommodations.

REFERENCES

- Analdi V, Santoso ID. Gambaran perilaku kebersihan diri terkait infestasi kutu kepala (*Pediculus humanus capitis*) pada santriwati di Pondok Pesantren Anshor Al-Sunnah Riau. *Tarumanagara Medical Journal*. 2021;3(1):175–81. doi:10.24912/tmj.v3i2.11760
- Angelia, Sutanto IK, Susanto DH. Studi Prevalensi Pedikulosis Kapitis di Pondok Pesantren X Jakarta Barat. *Jurnal Kedokteran Meditek*. 2023;29(2):129–37. doi:10.36452/jkdoktmeditek.v29i2.2555
- Chintya Cahyarini IGAA, Swastika IK, Sudarmaja IM. Prevalensi Dan Gambaran Faktor Risiko Pediculosis Capitis Pada Anak Sekolah Dasar Negeri 11 Dauh Puri, Provinsi Bali. *E-Jurnal Medika Udayana*. 2021;10(10):21. doi:10.24843/mu.2021.v10.i10.p04
- DAIRI F– FYBDKPCPDPP. Desri Amrainum 1* , Meutia Nanda 2. *Jurnal Kesehatan Tambusai*. 2025;6(September):12443–53.
- Dewi M, Tuju F, Ngazizah FN. Head lice: *Pediculus humanus capitis* (Insecta: Phthiraptera (Anoplura): Pediculidae). *Prosiding Seminar Nasional Biologi*. 2024;3:56–61.
- Gudulkar S, Dawda H, Mukundan U. *Pediculus humanus capitis* : A multidisciplinary review of infestation , impact , and intervention. Vol. 7. 2025;7:200–5.

- Gurning PPB. HUBUNGAN PERSONAL HYGIENE DENGAN PEDIKULOSIS KAPITIS PADA ANAK ASRAMA PUTRI SANTA LUSIA. Vol. 5. 2024;5(1):44–52.
- Islami AC, Natalia D, Zakiah M. Efektifitas Penyuluhan Menggunakan Media Audiovisual Terhadap Personal Hygiene dan Angka Kejadian Pediculosis Capitis pada Santri Putri Madrasah Tsanawiyah (MTs) di Pondok Pesantren X Kecamatan Mempaah Timur. Jurnal Nasional Ilmu Kesehatan (JNIK) [Internet]. 2020;3(1):29–43. Available from: <http://journal.unhas.ac.id/index.php/jnik/issue/view/542>
- Jhon Riswanda, S.Pd, M.Kes Dr. Yesi Arisandi, SKM MK, Editor: Pediculosis Capitis. Media TQ, editor. CV. Penerbit Qiara Media [Internet]. Pasuruan, Jawa Timur: CV. Penerbit Qiara Media - Pasuruan, Jawa Timur; 2021. 1–154 p. Available from: http://sciotea.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y%0Ahttp://dx.doi.org/10.1016/j.regsciurbeco.2008.06.005%0Ahttps://www.researchgate.net/publication/305320484_SISTEM_PEMBETUNGAN_TE_RPUSAT_STRATEGI_MELESTARI doi:10.1088/1751-8113/44/8/085201 PubMed PMID: 25246403.
- Kadek N, Malini C, Song C. ANGKA KEJADIAN PEDICULOSIS CAPITIS PADA ANAK-ANAK DI BANJAR BUJANG, BALI. Jurnaal Kesehatan Tambusai. 2024;5:1773–80.
- Khasanah NAHK, Yuniati NI, Husen F, Rudatiningtyas UF. Analisis Faktor Risiko Personal Hygiene terhadap Pediculosis capitis pada Santriwati Ponpes Miftahul Huda. Journal of Holistics and Health Science. 2022;4(2):282–91. doi:10.35473/jhhs.v4i2.197
- Nurfadhilah N, Nurfachanti Fattah, Farah Ekawati Mulyadi, Lisa Yuniati, Yusriani Mangarengi. Hubungan Personal Hygiene Dengan Insidensi Pediculosis Capitis Pada Santriwati Pesantren Al Bayan Hidayatullah Makassar. Unram Medical Journal. 2023;12(4):379–84. doi:10.29303/jku.v12i4.1029
- Penelitian U, Politeknik M, Febrinatilova R, Lilia D, Ma SA. MEDIA INFORMASI Hubungan Antara Personal Hygiene Dan Pengetahuan Dengan Kejadian Pediculosis Capitis Pada Siswa Sekolah Dasar. Media Informasi [Internet]. 2024;20(P-ISSN : 2086-3292 E-ISSN : 2655-9900):128–38. Available from: <https://ejurnal2.poltekkestasikmalaya.ac.id/index.php/bmi%0AHubungan>
- P Sari, Rifka. D Prasasty, Gita. Anwar Chairil Fatmawati. Hubungan Penggunaan Barang Bersama dengan Pedikulosis Kapitis pada Santri di Pondok Pesantren Subulussalam Palembang. Journal of Agromedicine and Medical Science 2022. 2022;8(2):78–84.
- Pringgayuda F, Putri GA, Yulianto A. Personal Hygiene Yang Buruk Meningkatkan Kejadian Pediculosis Capitis Pada Santriwati Di Pondok Pesantren Fitra. Jurnal Keperawatan Muhammadiyah. 2021;6(1):54–9.
- Ratnaningrum K, Meivitaningrum RN, Kurniati ID, Prihandani OR, Nugraheni DM. Risk Factors Associated of Pediculosis Capitis Among Elementary School, Semarang City, Indonesia [Internet]. Vol. 1. Atlantis Press International BV; 2023. 75–80 p. Available from: http://dx.doi.org/10.2991/978-94-6463-132-6_10 doi:10.2991/978-94-6463-132-6_10
- Roy J, Roy D, Sarma M, Das K. Prevalence and Risk Factors of Pediculosis capitis Among Adolescent Schoolgirls in Rural and Urban Silchar , Assam: A Cross-Sectional Study. XXVI. 2025;XXVI(1):1558–62.
- Sukesi TW. Risk Factors Associated with Head Lice (Pediculosis Capitis) Infestation in Children Aged 6 – 15 years in Abstract : 2024;1–9. doi:10.2174/0118749445334408241003045837
- Qomariyah L, Zenyta Z, Fadhilah H, Faizal D. Hubungan Antara Usia, Tingkat Pendidikan Dan Karakteristik Tempat Tinggal Dengan Pediculosis Capitis Pada Santriwatiwati. J-KESMAS: Jurnal Kesehatan Masyarakat. 2024;10(2):196. doi:10.35329/jkesmas.v10i2.5917