MEDALION JOURNAL: Medical Research, Nursing, Health and Midwife Participation | ISSN (e): 2986-7754
Volumes 7 No. 1 (2026)

THE RELATIONSHIP BETWEEN PERSONAL HYGIENE AND THE INCIDENCE OF PITYRASIS VERSICOLOR

Maulina Fadila Putri
Universitas Abulyatama, Indonesia
Email: maulinafadilaputri@gmail.com

Received: 01 March 2026 Accepted : 25 March 2026
Revised : 10 March 2026 Published : 31 March 2026

Abstract

Pityriasis versicolor is a superficial fungal infection caused by *Malassezia* and is commonly found in tropical regions with high temperatures and humidity. Personal hygiene is known to be a factor that plays a role in the occurrence of this disease. This study aims to analyze the relationship between personal hygiene and the incidence of pityriasis versicolor based on the results of various studies that have been conducted. The method used is *a literature review* by examining scientific articles from various databases such as ProQuest, ScienceDirect, Scopus, PubMed, Cochrane Library, EBSCOhost, ClinicalKey, and Sage Publications. The results of the study showed that all analyzed studies stated a significant relationship between personal hygiene and the incidence of pityriasis versicolor. Individuals with poor personal hygiene have a higher risk of developing pityriasis versicolor compared to individuals who maintain good personal hygiene. Factors such as poor skin hygiene, increased moisture, sebum production, wearing inappropriate clothing, and an unhygienic environment play a role in increasing the growth *of Malassezia* . Thus, personal hygiene is a modifiable risk factor in the prevention of pityriasis versicolor. Efforts to improve clean and healthy living behavior are very important to reduce the incidence of this disease, especially in high-risk populations.

Keywords: ***personal hygiene, pityriasis versicolor,*** **Malassezia,** ***fungal infection, skin disease***

INTRODUCTION

Pityriasis versicolor (PV), also known as tinea versicolor, is a superficial fungal infection of the skin caused by *Malassezia species,* a lipophilic microorganism that is part of the normal flora of human skin (Leung *et al.*, 2022; Singla *et al.*, 2022). This condition is characterized by the appearance of macules or plaques of varying color, such as hypopigmentation or hyperpigmentation, which are often accompanied by fine scales and sometimes mild pruritus (Leung *et al.*, 2022). *Malassezia* is often found in tropical climates with high temperatures and high humidity, such as in Indonesia (Laely *et al.*, 2024). The prevalence of PV is quite high in tropical regions, reaching 40–50% of the population, while in colder climates it is only around 1% (Tumilaar, Suling and Niode, 2019). In Indonesia, skin diseases, including PV, remain a significant health problem with a high incidence rate (Afifah and Hazlianda, 2024).

This condition is often found in adolescents and young adults, and is thought to be related to increased sebaceous gland activity and sebum production (Hill *et al.*, 2024). Environmental factors such as hot and humid climates, excessive sweating (hyperhidrosis), and the use of oily skin products also increase the risk of developing PV (Leung *et al.*, 2022). Additionally, other predisposing factors such as tight clothing, poor personal hygiene, and oily skin also play a role in the pathogenesis of this condition (Singla *et al.*, 2022). The occurrence of pityriasis versicolor is influenced by various factors, including environmental conditions, humidity, sweat production, and personal hygiene (Laely *et al.*, 2024). Personal hygiene is an individual's effort to maintain cleanliness and health to prevent disease, including skin diseases (Timur, Sholichah and Santoso, 2023). Several studies have shown that poor personal hygiene is a risk factor for pityriasis versicolor. Suboptimal skin hygiene can increase moisture and sebum accumulation, thus creating an environment that supports the growth *of Malassezia* . Therefore, this *literature review* aims to analyze the relationship between personal hygiene and the occurrence of pityriasis versicolor based on various studies that have been conducted.

METHOD

The design used in this research is a *literature review* . *A literature review* is a scientific study that focuses on a specific topic with the aim of presenting a comprehensive overview of the development of that topic. Through *a literature review*, researchers can identify and evaluate existing theories and methods, develop them further, and identify gaps between theoretical frameworks and their implementation in the field, as well as the results of previous research.(Bettany-Saltikov, 2012; Pratiwi, Budiharto and Fauzan, 2020). The databases used included ProQuest, SciVerse Science Direct, Scopus, PubMed, the Cochrane Library, EBSCOhost, ClinicalKey, and Sage Publications. The steps in compiling a literature review for this study can be seen in the image below:

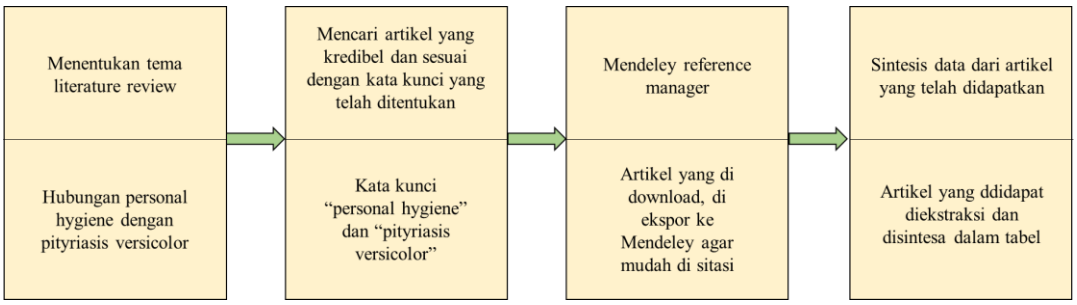

Figure 1. Research Flow

RESULTS

The results of the literature review of several literatures are presented in Table 1.

Table 1. Review Articles

Writer	Title	Sample	Method	Results
Laely et al., 2023	The relationship between the level of knowledge *of personal hygiene* and the incidence of pityriasis versicolor in male students at the Nurul Haramain NW Putra Narmada Islamic Boarding School	92 students	Cross-sectional, Chi-square	This study found that low knowledge about *personal hygiene* contributes to poor hygiene behavior, which ultimately increases the risk of pityriasis versicolor.
Afifah and Hazlianda, 2024	*Relationship between the personal hygiene and the occurrence of pityriasis versicolor in students of state Senior High School 1 Medan 2020*	100 students	Cross-sectional, Chi-square	The results of the study showed that students with low levels of personal hygiene had a higher tendency to experience pityriasis versicolor compared to students who had good personal hygiene.
Timur et al., 2023	The relationship between *personal hygiene and the incidence of scabies and pityriasis versicolor in female students at the*	400 students	Cross-sectional, Spearman	It has been found that suboptimal *personal hygiene practices are associated with an increased incidence of skin diseases, including pityriasis versicolor. The crowded*

Writer	Title	Sample	Method	Results
	Roudlotul Mubtadiin Balekambang Jepara Islamic Boarding School in the 2021 period			*environment of dormitories also increases this risk.*
Tumilaar et al., 2019	The relationship between personal hygiene and the incidence of pityriasis versicolor in male students of the Faculty of Medicine, Unsrat	42 students	Cross-sectional, Fisher test	This study shows that individuals with poor personal hygiene habits are more likely to experience pityriasis versicolor than those who maintain good personal hygiene.
Lukita et al., 2025	The relationship between *personal hygiene* and pityriasis versicolor in Islamic boarding school students in Serang and its review from an Islamic perspective	67 students	Cross-sectional, Chi-square	Most respondents had good personal hygiene and did not experience pityriasis versicolor. PV cases were more common in groups with poor personal hygiene. Overall, this study suggests that good personal hygiene plays a role in reducing the risk of PV.
Singla et al., 2022	Epidemiological, clinical and mycological characteristics of pityriasis versicolor: Results of a study from a teaching hospital in rural part of Northern India	113 patients	Cross-sectional observational, KOH examination and culture	PV is more common in men and those aged 21–30 years; risk factors include excessive sweating, oily skin, occlusive clothing, and a history of recurrent(Singla *et al.*, 2022)
Hill et al., 2024	*Factors associated with pityriasis versicolor in a large national database*	456 cases & 1368 controls	Case-control with multivariate analysis	PV is more common in young people, men, and is associated with high sebum production (e.g., acne)(Hill *et al.*, 2024)
Zahlah et al., 2024	The Influence of Hygiene Behavior on the Incidence of Pityriasis Versicolor in Students	90 students	Cross-sectional, Chi-square	The results of the study showed a relationship between hygiene behavior and the incidence of pityriasis versicolor in students. Students with poor personal hygiene had a higher risk of developing pityriasis versicolor compared to students with good personal hygiene (Zahlah *et al.*, 2024).

DISCUSSION

Pityriasis versicolor is a superficial fungal infection that is opportunistic due to the transformation *of Malassezia* from normal flora into a pathogenic form that is oval-round or often shows a typical "spaghetti and meatball" appearance as in Figure 2. This transformation is influenced by the micro-environmental conditions of the skin, especially humidity, temperature, and high lipid content on the skin surface (Leung *et al.*, 2022; Singla *et al.*, 2022). Physiologically,

Malassezia is indeed part of the normal flora of human skin, but under certain conditions such as increased sebum production and humidity, this fungus can experience *overgrowth* and cause infection (Singla *et al.*, 2022).

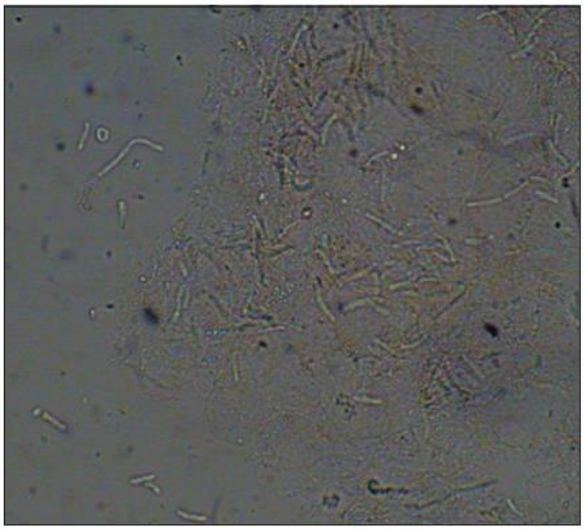

Figure 2. Image showing the 'spaghetti and meatball' appearance of pityriasis versicolor under a KOH microscope.

In relation to *personal hygiene* , there are several main factors that play a role in increasing the risk of developing pityriasis versicolor.

1. Skin cleanliness.

Poor skin hygiene leads to the accumulation of sweat, oil, and dead skin cells, which provide a breeding ground for yeast. This condition is exacerbated by hyperhidrosis, which increases skin moisture. Studies show that approximately 31.8% of PV sufferers experience excessive sweating, which contributes to the rapid colonization *of Malassezia.* (Singla *et al.*, 2022). Other studies also confirm that poor hygiene is a major risk factor for PV, especially in populations living in crowded environments (Zahlah *et al.*, 2024).

2. Oily skin condition (sebum).

Malassezia is a lipophilic fungus that relies heavily on lipids for nutrition. Therefore, increased sebum production will support fungal growth. This is supported by research by Hill et al. (2024), which demonstrated a link between pityriasis versicolor and conditions that increase sebum production, such as acne. Other literature also indicates that PV often appears in areas of the body rich in sebaceous glands, such as the chest, back, and face, as seen in Figure 3 (Leung *et al.*, 2022; Andersen *et al.*, 2025).

3. Wearing clothes and daily habits.

Wearing tight or non-absorbent clothing can increase skin moisture and inhibit sweat evaporation, creating an ideal environment for fungal growth. This factor is part of personal hygiene and relates to daily habits. Epidemiological studies have shown that humid environments and occlusive clothing are important risk factors for PV (Singla *et al.*, 2022).

4. F environmental actors.

Tropical environments with high temperatures and humidity, such as those in Indonesia, are major predisposing factors for pityriasis versicolor. The prevalence of this disease is reportedly much higher in tropical areas than in colder climates (Umar *et al.*, 2026). Furthermore, unsanitary environmental conditions, such as unhygienic bathrooms and poor sanitation, also increase the risk of infection (Zahlah *et al.*, 2024).

(a) (b)

(c) (d)

Figure 3. In pityriasis versicolor, multiple macules and hypopigmented patches are seen on (a) chest; (b) back; (c) face; and (d) neck.

Based on the results of various studies, all studies show a significant relationship between personal hygiene and the incidence of pityriasis versicolor. Research by Lukita et al. showed that poor personal hygiene is a major factor in the occurrence of PV in Islamic boarding school students, mainly due to crowded environments and less than optimal cleanliness (Lukita *et al.*, 2025). This is supported by research by Afifah and Hazlianda which states that poor personal hygiene increases the risk of PV in students, so maintaining personal hygiene is an important preventative measure (Afifah and Hazlianda, 2024). Another study by Tumilaar et al. also showed a link between personal hygiene and the incidence of pityriasis versicolor in college students, particularly in tropical climates that favor fungal growth (Tumilaar, Suling and Niode, 2019). Furthermore, research in Islamic boarding schools (pesantren) showed that limited knowledge, poor sanitation, and the habit of sharing personal items also increased the risk of disease transmission (Siti Luthfiah Zulfa *et al.*, 2023).

The results of other studies also show that poor hygiene behavior is significantly related to the incidence of PV ($p<0.05$), which confirms that hygiene is an important determinant factor in the incidence of this disease (Zahlah *et al.*, 2024). Pathophysiologically, poor personal hygiene leads to increased skin moisture, sweat production, and excessive sebum accumulation. These conditions create an optimal environment for the growth of *Malassezia furfur* , the causative agent of pityriasis versicolor. Furthermore, disruption of the skin microbiota balance also plays a role in triggering the fungus's transformation from a commensal to a pathogenic form (Singla *et al.*, 2022). High-density environments like Islamic boarding schools exacerbate the situation. Sharing personal items like towels, clothing, and toiletries can increase the risk of fungal transmission between individuals. Combined with poor environmental sanitation, these conditions accelerate the spread of infection (Siti Luthfiah Zulfa *et al.*, 2023).

However, some literature suggests that pityriasis versicolor is not solely caused by poor hygiene, as *Malassezia* is part of the skin's normal flora. Infection occurs when there is an imbalance between environmental and host factors, such as increased humidity, oil production, and immune factors (Andersen *et al.*, 2025). Personal hygiene plays a predisposing factor that worsens the condition, not the sole cause. Based on the overall literature analyzed, it can be concluded that personal hygiene is significantly associated with the incidence of pityriasis versicolor. Factors such as poor skin hygiene, increased humidity, sebum production, inappropriate clothing, and an unhygienic environment contribute to the growth *of Malassezia.* Thus, personal hygiene is a modifiable risk factor, so that improving clean and healthy living behavior is the main strategy in preventing pityriasis versicolor, especially in high-risk populations such as adolescents, Islamic boarding school students, and individuals living in tropical areas.

CONCLUSION

Pityriasis versicolor is a superficial fungal infection influenced by various factors, including environmental conditions and individual factors. There is a significant association between personal hygiene and the incidence of pityriasis versicolor, with poor personal hygiene increasing the risk of Malassezia infection , particularly in high-density environments and humid conditions.

Personal hygiene plays a crucial role in maintaining clean skin, controlling moisture, and reducing sebum accumulation. Therefore, poor personal hygiene can promote the colonization and growth *of Malassezia* , contributing to the development of pityriasis versicolor.

SUGGESTION

Increased education on the importance of personal hygiene is needed, especially for adolescents and Islamic boarding school students (pesantren). This includes promoting clean living habits such as regular bathing, not sharing towels or clothes, wearing absorbent clothing, and avoiding excessive use of oily products. High-density institutions like Islamic boarding schools (pesantren) need to improve environmental sanitation.

Healthcare workers are expected to provide education and early detection to at-risk groups. Further research is recommended to examine other factors such as environmental humidity and immune status, as well as conduct broader quantitative studies in Indonesia.

REFERENCES

Afifah, N. and Hazlianda, C.P. (2024) "Relationship Between the Personal Hygiene and The Occurrence of Pityriasis Versicolor In Students of State Senior High School 1 Medan 2020," *SCRIPTA SCORE Scientific Medical Journal*, 6(1), pp. 62–66. Available at: https://doi.org/10.32734/scripta.v6i1.15764.

Andersen, P.L. *et al.* (2025) "Pityriasis versicolor," *Ugeskrift for Læger*, pp. 1–6. Available at: https://doi.org/10.61409/V10240670.

Bettany-Saltikov, J. (2012) *Bettany-Saltikov, J. (2012).How to do a systematic literature review in nursing: a step-by-step guide. McGraw-Hill Education (UK).* New York: McGraw-Hill Education.

Hill, R.C. *et al.* (2024) "Factors associated with pityriasis versicolor in a large national database," *Mycoses*, 67(8). Available at: https://doi.org/10.1111/myc.13775.

Laely, Z. *et al.* (2024) "Hubungan Tingkat Pengetahuan Personal Hygiene dengan Kejadian Pityriasis Versicolor pada Santri Putra Pondok Pesantren Nurul Haramain NW Putra Narmada," *JIKIMDS*, 5(1), pp. 9–15.

Leung, A.K. *et al.* (2022) "Tinea versicolor: an updated review," *Drugs in Context*, 11, pp. 1–20. Available at: https://doi.org/10.7573/dic.2022-9-2.

Lukita, S. *et al.* (2025) "Hubungan Antara Personal Hygiene Dengan Pityriasis Versicolor Pada Santri Pesantren Di Serang Dan Tinjauannya Menurut Pandangan Islam," *Cerdika: Jurnal Ilmiah Indonesia*, 5(2), pp. 699–716. Available at: https://doi.org/10.59141/cerdika.v5i2.2504.

Pratiwi, B., Budiharto, I. and Fauzan, S. (2020) "Hubungan Kecerdasan Emosional dengan Kenakalan Remaja pada Remaja Madya: Literature Review," *Tanjungpura Journal of Nursing Practice and Education*, 2(2). Available at: https://doi.org/10.26418/tjnpe.v2i2.46145.

Singla, P. *et al.* (2022) "Epidemiological, clinical and mycological characteristics of pityriasis versicolor: Results of a study from a teaching hospital in rural part of Northern India," *Journal of Family Medicine and Primary Care*, 11(9), pp. 5236–5240. Available at: https://doi.org/10.4103/jfmpc.jfmpc_2317_21.

Siti Luthfiah Zulfa *et al.* (2023) "Faktor-faktor yang Berhubungan dengan Kejadian Pityriasis Versicolor pada Santriwati SMP IT Abu Hurairah Mataram," *Cakrawala Medika: Journal of Health Sciences*, 1(2), pp. 97–107. Available at: https://doi.org/10.59981/w6my4k11.

Timur, W.W., Sholichah, F. and Santoso, A. (2023) "Hubungan Personal Hygiene terhadap Kejadian Skabies dan Pityriasis Versicolor pada Santriwati di Pondok Pesantren Roudlotul Mubtadiin Balekambang Jepara Periode 2021," *Jurnal Kefarmasian Akfarindo*, pp. 18–23. Available at: https://doi.org/10.37089/jofar.v8i1.176.

Tumilaar, J., Suling, P.L. and Niode, N.J. (2019) "Hubungan Higiene Personal terhadap Kejadian Pitiriasis Versikolor pada Mahasiswa Laki-laki Fakultas Kedokteran Unsrat," *e-CliniC*, 7(1). Available at: https://doi.org/10.35790/ecl.v7i1.23537.

Umar, Z.L.R. *et al.* (2026) "The Role of Malassezia Spp. in Pityrasis Versicolor: A Literature Review," *Journal of Community Health Provision*, 6(1), pp. 27–45. Available at: https://doi.org/10.55885/jchp.v6i1.876.

Zahlah *et al.* (2024) "Pengaruh Perilaku Hygiene dengan Kejadian Pityriasis Versicolor pada Siswa," *Fakumi Medical Journal: Jurnal Mahasiswa Kedokteran*, 4(4), pp. 271–277. Available at: https://doi.org/10.33096/fmj.v4i4.401.