REFLECTION JOURNAL
https://journal-center.litpam.com/index.php/RJ
reflectionjournal21@gmail.com

Desember, 2025 Vol. 5, No. 2
e-ISSN: 2808-1501
pp. 883-897

The Knowledge Practice Gap in Scabies Prevention among Female Students at Nurul Huda Islamic Boarding School, Mempawah

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Accepted: November 2025; **Revised:** November 2025; **Published:** December 2025

Abstract

Scabies remains a relevant public health problem in communal settings such as Islamic boarding schools, where crowding and shared daily facilities facilitate transmission. Although various health education activities have been implemented, field observations often show that increased knowledge does not automatically lead to sustained preventive practices. This study aimed to describe levels of knowledge and preventive behaviour related to scabies among female students and to highlight the gap between the two in the context of Nurul Huda Islamic Boarding School, Mempawah District. A descriptive cross-sectional design was applied with total sampling of 69 female students. Data were collected using a structured questionnaire covering knowledge about the cause, transmission, symptoms, and prevention of scabies, as well as preventive behaviours related to personal hygiene, clothing, towels, bedding, and the dormitory environment. Data were analysed descriptively and presented as frequencies and percentages. The findings show that most respondents had good knowledge of scabies, yet only about half demonstrated preventive behaviour in the good category. Risky practices, such as sharing beds and clothing and inconsistent management of clothes and bedding, remained relatively common. These results support the view that knowledge alone is insufficient to ensure consistent preventive behaviour, particularly in crowded environments with limited facilities and strong peer norms. The cross-sectional design, reliance on self-reported data, and absence of formal psychometric testing of the instrument limit the strength of inferences and point to the need for further, more analytical research on determinants of scabies-preventive behaviour in boarding school settings.

Keywords: Scabies; Islamic boarding school; female students; knowledge; preventive behaviour

***How to** Cite:* Selviana, S., Karisma, A. N. ., & Suwarni, L. . (2025). The Knowledge Practice Gap in Scabies Prevention among Female Students at Nurul Huda Islamic Boarding School, Mempawah. *Reflection Journal*, *5*(2), 883-897. https://doi.org/10.36312/fxszc274

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INTRODUCTION

Scabies is a contagious skin disease caused by the ectoparasitic mite *Sarcoptes scabiei* that remains a considerable global public health concern, particularly in low- and middle-income countries. Its distribution is strongly shaped by structural and socioeconomic conditions. Community-based studies in several endemic regions report prevalence rates that may reach 20–30% in certain populations, illustrating how easily the disease can become entrenched when living conditions favour transmission (Engelman & Steer, 2018; Karimkhani et al., 2017). Crowded housing, inadequate sanitation, and limited access to timely health care repeatedly appear as key determinants in these settings (Engelman & Steer, 2018; Engelman et al., 2021). Beyond the direct dermatological manifestations, scabies is associated with intense pruritus, sleep disturbance, and secondary bacterial infections, which in turn contribute to stigma, social isolation, and reduced quality of life, particularly among children and adolescents (Engelman et al., 2019; Chang & Fuller, 2018).

From a health-systems perspective, scabies contributes meaningfully to the global burden of disease. Analyses using Global Burden of Disease data estimate that scabies accounts for millions of disability-adjusted life years (DALYs) each year, reflecting both its high prevalence and the chronic, relapsing nature of the condition in many communities (Mitchell et al., 2024; Li et al., 2024). Despite some encouraging results from targeted interventions, such as mass drug administration and community-based control programs, epidemiological trends between 1990 and 2021 suggest that scabies remains a

persistent problem in many endemic regions and requires sustained, context-sensitive public health strategies (Li et al., 2024; Akpan et al., 2024). Recognition of scabies as a neglected tropical disease (NTD) by the World Health Organization has provided a clearer policy framework, and the WHO NTD roadmap 2021–2030 explicitly calls for integrated approaches that combine case management, preventive chemotherapy, and health education (El-Moamly, 2021; Akpan et al., 2024). Even so, recent estimates suggesting more than 200 million cases globally underline that scabies remains far from controlled and continues to warrant focused attention (Yovalwan et al., 2022).

In Indonesia, scabies (often known as *kudis*) is one of the most frequently reported skin diseases in communal living environments such as *pondok pesantren* (Islamic boarding schools) and student hostels. National and local studies indicate that prevalence in these institutions typically ranges from around 6% to more than 20%, with some reports approaching 27% in specific pesantren (Sumiatin & Yunariyah, 2017; Setyorini & Lutifah, 2022; Rusdianingseh et al., 2024). These figures suggest that pesantren provide a setting where the classic risk factors for scabies are concentrated: high population density, shared sleeping arrangements, shared bedding and towels, and pressure on water and sanitation facilities. Many pesantren house adolescents who are undergoing important developmental, social, and educational transitions, so recurrent scabies may interfere with comfort, concentration, and participation in learning activities (Dhuha & Setyoningrum, 2023; Safira & Ayunin, 2024).

Various studies in Indonesian pesantren point to overlapping personal and environmental factors behind the high incidence of scabies. Constraints in personal hygiene, such as infrequent bathing, shared use of towels and clothing, or inconsistent washing practices, are often linked to limited access to clean water, overcrowded bathroom facilities, and lack of adequate drying space for clothes and bedding (Fitriani et al., 2021; Sumiatin & Yunariyah, 2017; Majid et al., 2020; Dhuha & Setyoningrum, 2023). Environmental sanitation issues, including poor ventilation, damp dormitory conditions, and the absence of clear routines for cleaning mattresses, blankets, and dormitory environments, further increase the likelihood of sustained transmission (Resnayati et al., 2022; Sari et al., 2021). Such structural constraints can make it difficult for students to maintain recommended hygiene behaviours, even when they are aware of correct practices, and may contribute to repeated outbreaks within the same institution (Mauliza et al., 2023; Samosir et al., 2020).

In response, many pesantren and local health programs have implemented educational and promotional activities targeting personal hygiene and environmental sanitation. Health education sessions, counselling, and school health unit (*UKS*) activities have been reported to improve students' knowledge and, in some cases, their self-reported hygiene practices (Resnayati et al., 2022; Safira & Ayunin, 2024; Handari, 2018; Hermawan et al., 2023). Several intervention studies describe increases in knowledge scores and short-term reductions in reported scabies symptoms after educational campaigns in Islamic boarding schools (Handari, 2018; Hermawan et al., 2023; Mirza et al., 2024). Peer group discussions and interactive learning methods have also been shown to strengthen attitudes and preventive behaviours, suggesting that approaches which engage students actively and socially may be more effective than didactic information alone (Syukrowardi et al., 2023; Mirza et al., 2024).

However, the relationship between knowledge and preventive practice has not always appeared straightforward. Some studies find a positive association between higher knowledge about scabies and better personal hygiene or lower reported incidence (Damayanti et al., 2021; Zaafira et al., 2023), while others document persistent risky behaviours despite relatively good levels of knowledge (Emeka, 2021; Reksa et al., 2025). Research in school and pesantren contexts indicates that educational interventions may improve knowledge more consistently than they change daily routines, especially behaviours that are strongly shaped by habit, convenience, or group norms, such as sharing beds or clothes (Supriyadi et al., 2024; R et al., 2022). Peer education initiatives appear promising for supporting behaviour change in these environments, as they can harness peer influence to reinforce desirable practices, but evidence is still emerging and tends to be context-specific (Sartika, 2025; Syukrowardi et al., 2023).

Against this background, theoretical frameworks from health behaviour research provide a useful lens to interpret why knowledge gains do not always translate into sustained behavioural change. The Knowledge Attitude Practice (KAP) perspective assumes that increased knowledge should influence attitudes and, in turn, practices, but empirical work shows that this sequence is often interrupted by

competing influences, particularly in adolescent populations (Wahyuni et al., 2023; Mardhiyah et al., 2021). The Green Precede Proceed model highlights that behaviour is shaped not only by predisposing factors such as knowledge and attitudes, but also by enabling factors (e.g. availability of water, sanitation, and hygiene facilities) and reinforcing factors (e.g. supervision by teachers, parental support, peer approval) (Merita et al., 2019; Mardhiyah et al., 2021). In many pesantren, enabling and reinforcing conditions may be less supportive than desired, which helps explain why good knowledge alone does not guarantee preventive practice.

The Health Belief Model (HBM) adds a further dimension by emphasising perceived susceptibility, perceived severity, perceived benefits, and perceived barriers as determinants of preventive behaviour. Adolescents who do not perceive scabies as a serious or threatening condition, or who view preventive steps as inconvenient, may be less likely to adopt recommended practices even if they understand the biomedical explanations (Darni & Agustin, 2023). At the same time, peer influence is particularly salient in this age group; studies on adolescent health behaviour consistently point to the role of peer norms and peer modelling in either supporting or undermining hygiene practices (Mardiyanti & Anggasari, 2020; Solo et al., 2024). In pesantren dormitories, where many activities are conducted collectively, these social dynamics are likely to be critical for scabies prevention.

Taken together, previous research in Indonesia and abroad has described the magnitude of scabies in boarding institutions, documented a range of risk factors, and examined the effects of educational interventions on knowledge and, to a lesser extent, behaviour (Sumiatin & Yunariyah, 2017; Majid et al., 2020; Damayanti et al., 2021; Zaafira et al., 2023; Mirza et al., 2024). Yet, there still appears to be limited empirical work that explicitly focuses on the mismatch between knowledge and preventive behaviour among female students in Islamic boarding schools, and that interprets this mismatch within recognised health behaviour frameworks. Local evidence from specific pesantren is also important, because institutional cultures, facility conditions, and management practices differ and can shape both risk and response.

Pondok Pesantren Nurul Huda in Kabupaten Mempawah represents one such setting in which scabies has been reported repeatedly among female students (*santriwati*), despite general awareness-raising about personal hygiene. This situation raises questions about how far santriwati's knowledge about scabies is aligned with their day-to-day preventive practices, and what kind of gap might exist between the two. The present study was designed as a descriptive investigation to characterise the levels of knowledge and preventive behaviour related to scabies among santriwati at Pesantren Nurul Huda, and to identify areas where knowledge and practice diverge. By situating the findings within KAP, Green Precede–Proceed, and HBM perspectives, this study aims to provide locally grounded evidence that can inform more targeted and realistic scabies prevention strategies in pesantren and similar communal educational environments.

METHOD

This study used a descriptive cross-sectional design to describe levels of knowledge and preventive behaviour related to scabies among female students in an Islamic boarding school setting. The research was conducted at Nurul Huda Islamic Boarding School in Mempawah District. The study population comprised all female students (*santriwati*) residing in the dormitories at the time of data collection. A total sampling technique was applied, so all *santriwati* who met the inclusion criteria were invited to participate. Inclusion criteria were: residing in the dormitory during the study period, being present on the day of data collection, being able to complete the questionnaire independently, and agreeing to participate. The final sample consisted of 69 respondents.

Data were collected using a structured questionnaire developed by the researchers based on relevant literature and health guidelines on scabies. The draft instrument was reviewed for content appropriateness by two community health nursing lecturers and one health practitioner working with pesantren, to support content validity. The questionnaire consisted of two main sections: knowledge about scabies and preventive behaviour related to scabies.

The knowledge section covered five domains: aetiology, modes of transmission, clinical manifestations, prevention, and basic principles of management. Items were presented in a true–false

format. Each correct answer was scored 1 and each incorrect or "don't know" answer was scored 0. The total knowledge score for each respondent was summed and converted into a percentage of the maximum possible score. Knowledge was then categorised into three levels using conventional percentage cut-offs: good (≥ 76%), fair (56–75%), and poor (≤ 55%).

The behaviour section assessed preventive practices across four domains: personal hygiene (for example bathing frequency, use of personal soap and towels), clothing and towel management (washing and ironing), bedding hygiene (sunning mattresses and blankets, not sharing beds), and dormitory environmental cleanliness. Items were rated on a four-point Likert scale (always, often, sometimes, never), scored from 4 to 1. Behaviour scores were summed, converted to percentages, and categorised using the same thresholds as for knowledge: good (≥ 76%), fair (56–75%), and poor (≤ 55%).

Permission to conduct the study was obtained from the pesantren management, and ethical approval was granted by the Health Research Ethics Committee of the Faculty of Health Sciences and Psychology, Universitas Muhammadiyah Pontianak (No. 012/KEPK-FikPsi/UM PONTIANAK/2025). Before completing the questionnaire, respondents received an explanation of the study aims, voluntary participation, confidentiality, and their right to withdraw without consequences. Questionnaires were self-administered under the supervision of the researchers.

Data analysis was purely descriptive. Univariate analysis was performed to generate frequency and percentage distributions for respondent characteristics, knowledge categories, and behaviour categories. No inferential statistical tests were conducted. The study did not include formal psychometric testing for construct validity or reliability of the instrument and relied on self-reported data, which introduces potential recall and social desirability bias; these limitations are recognised as important weaknesses to be addressed in future research.

RESULTS AND DISCUSSION

The findings in this study are presented descriptively and supported by the distribution of data in the research tables. The respondent characteristics summarised in Table 1 show that the 69 *santriwati* are predominantly in early and middle adolescence, with most in the junior and senior high school age range. The majority have resided at Pondok Pesantren Nurul Huda for several years, with a substantial proportion in the 3–10 year length of stay category. This pattern indicates that many students have experienced prolonged exposure to the boarding environment, sharing dormitory rooms, beds, and daily facilities over extended periods. Such conditions are relevant for understanding both the risk of scabies transmission and the opportunities for health education during their stay.

Table 1. Respondent Characteristics

Respondent characteristics	n	%
Age		
7–12 years	16	23.2
13–15 years	30	43.5
16–19 years	23	33.3
Education level		
Primary school (SD)	9	13.0
Junior high school (SMP)	31	44.9
Senior high school (SMA)	29	42.0
Length of residence		
3–12 months	12	17.4
1–3 years	23	33.3
3–10 years	34	49.3

Levels of knowledge about scabies are presented in Table 2. Most *santriwati* fall into the "good" knowledge category, with around two-thirds to three-quarters of respondents achieving scores above the cut-off for good knowledge (approximately 71% in the original analysis). This suggests that many students are already familiar with basic aspects of scabies, such as its cause by *Sarcoptes scabiei*, modes of transmission through close contact and shared towels or clothing, and general preventive measures. Item-level responses (also summarised in Table 2) indicate that respondents tend to answer correctly on questions related to crowding, humidity, and the risk of transmission through shared bedding, which aligns with previous reports of pesantren as high-risk environments (Sumiatin & Yunariyah, 2017; Majid et al., 2020; Rusdianingseh et al., 2024).

Category	Question item	Yes (n)	Yes (%)	No (n)	No (%)
Knowledge about scabies	Scabies is transmitted through sharing towels/clothes	52	75.4	17	24.6
	Scabies easily spreads in crowded environments such as dormitories	60	87.0	9	13.0
	Damp rooms and lack of sunlight facilitate scabies	56	81.2	13	18.8
	Scabies is caused by the mite *Sarcoptes scabiei*	54	78.3	15	21.7
	Damp towels/clothes become a place for mites	61	88.4	8	11.6
	Scabies cannot be adequately treated with anti-itch powder alone	28	40.6	41	59.4
Bathing behavior	Take a bath twice a day	48	69.6	21	30.4
	Use soap when bathing	69	100.0	0	0.0
	Scrub the body while bathing	69	100.0	0	0.0
	Use personal soap	66	95.7	3	4.3
	Bathe after exercise	40	58.8	29	42.0
	Do not share bathing equipment	54	78.3	15	21.7
Towel hygiene behavior	Use a personal towel	48	69.6	21	30.4
	Hang the towel to dry after bathing	60	87.0	9	13.0
	Wash their own towel	57	82.6	12	17.4
	Dry the towel under sunlight	58	84.1	11	15.9
	Use the towel when it is dry	67	97.1	2	2.9
Clothing hygiene behavior	Change clothes twice a day	59	85.5	10	14.5
	Use personal clothes	54	78.3	15	21.7
	Wash clothes with detergent	65	94.2	4	5.8
	Iron clothes	7	10.1	62	89.9
	Wash their own clothes	63	91.3	6	8.7
	Dry clothes under sunlight	62	89.9	7	10.1

Category	Question item	Yes (n)	Yes (%)	No (n)	No (%)
Bed hygiene behavior	Use a personal mattress	40	58.0	29	42.0
	Do not exchange beds	31	44.9	38	55.1
	Wash bed sheets/pillowcases/blankets once a week	43	62.3	26	37.7
	Do not mix bed linen laundry with other laundry	54	78.3	15	21.7

At the same time, some misconceptions remain. A proportion of students still report incorrect views regarding treatment and certain preventive measures, for example an overreliance on topical remedies or "bedak gatal" without understanding the need for comprehensive treatment and environmental decontamination. These residual misconceptions point to gaps in more nuanced knowledge, particularly about the importance of treating all close contacts and managing bedding, mattresses, and clothing systematically (Majid et al., 2020; Mounsey et al., 2016).

Preventive behaviour related to scabies is summarised in Table 3. While more than half of the respondents are categorised as having "good" preventive behaviour (in the original data around 53.6%), a sizeable minority remain in the "sufficient" or "less" categories. The items underlying this categorisation suggest an uneven pattern. On the one hand, many students report relatively consistent basic hygiene practices, such as bathing regularly, using personal soap and towels, and washing clothes with reasonable frequency. These behaviours are likely supported by prior health education and daily routines in the pesantren (Resnayati et al., 2022; Safira & Ayunin, 2024).

Table 3. Univariate Analysis

Variable	Category	n	%
Knowledge	Good	49	71.0
Knowledge	Poor	20	29.0
Behavior	Good	37	53.6
Behavior	Poor	32	46.4

On the other hand, several specific behaviours that are directly relevant to scabies transmission appear weaker. Only a portion of *santriwati* report always ironing their clothes or routinely sunning and cleaning mattresses and blankets. A number still admit to sometimes sharing beds or frequently moving sleeping places, especially when visiting friends' rooms. The habit of borrowing or sharing clothing and towels has not disappeared entirely, even among those with good knowledge scores. These patterns, reflected in item distributions in Table 3, indicate that daily practices which require extra effort, access to facilities (such as irons), or deviation from group habits are less consistently adopted than basic hygiene activities.

Taken together, the data in Tables 1–3 depict a profile of *santriwati* who, on average, possess reasonably good knowledge about scabies and engage in several recommended hygienic behaviours, but who also maintain a set of high-risk practices that can facilitate ongoing transmission in a crowded dormitory environment. The following discussion interprets these findings by relating them to previous research and to behavioural theory, while also acknowledging important limitations of the study design.

The first point emerging from these results is that knowledge about scabies among *santriwati* at Pondok Pesantren Nurul Huda can be considered relatively good, at least in terms of basic concepts. This is broadly consistent with other studies in Indonesian boarding school settings which report moderate to high knowledge about scabies and personal hygiene among students (Damayanti et al., 2021; Zaafira et al., 2023; Mirza et al., 2024). Prior exposure to health education programs, experiences of previous scabies episodes, and the presence of school health units (*UKS*) may contribute to this level of awareness (Handari, 2018; Resnayati et al., 2022; Hermawan et al., 2023).

However, the behaviour data in Table 3 suggest that good knowledge is not fully reflected in consistent preventive practice. Despite the majority having "good" knowledge, only slightly more than half demonstrate "good" preventive behaviour, and several key behaviours such as ironing clothes, avoiding bed sharing, and managing bedding optimally remain insufficient. This mismatch echoes a well-documented pattern in health behaviour research: theoretical knowledge often does not translate straightforwardly into daily practice.

Studies in other contexts support this observation. Wungtongkum found that although high school students had favourable attitudes toward hygiene, many still engaged in suboptimal hygiene practices, indicating that knowledge and attitudes alone were not enough to change behaviour (Wungtongkum, 2022). Opoku et al. similarly reported that junior high school students in Ghana possessed adequate knowledge of oral hygiene but did not consistently practice effective oral care, highlighting a gap between understanding and routine implementation (Opoku et al., 2024). Research on menstrual hygiene among adolescent girls shows comparable patterns: while higher knowledge is associated with better practices, persistent misconceptions, cultural stigma, and practical constraints often limit the application of this knowledge (Sharma et al., 2020; Belayneh & Mekuriaw, 2019; Kpodo et al., 2022; Jatal & Chaudhary, 2024; Ene et al., 2024). Even among nursing students who receive formal training in infection prevention, adherence to hand hygiene protocols may remain inconsistent despite high awareness (Tem et al., 2019). These findings suggest that providing information is a necessary step but rarely sufficient to ensure sustained behavioural change.

The present study's results fit this broader pattern. Many *santriwati* know that scabies is transmitted through close contact and shared items, yet a non-trivial proportion still share beds, clothing, or towels and do not routinely iron clothes or regularly manage bedding. The Green PRECEDE–PROCEED model offers one way to understand this inconsistency. According to this framework, knowledge and attitudes function as predisposing factors, but actual behaviour is also shaped by enabling factors (such as access to clean water, sufficient washing and drying facilities, irons, and adequate sleeping space) and reinforcing factors (such as supervision by teachers and *ustadzah*, peer approval, and institutional rules) (Merita et al., 2019; Kara & Başbakkal, 2023; Permana & Andriani, 2023).

In many pesantren, the enabling environment for personal hygiene and scabies prevention is imperfect. Overcrowded dormitory rooms, limited number of bathrooms, constrained washing and drying areas, and restricted access to irons or spare bedding are common challenges (Majid et al., 2020; Ismah et al., 2021; Mounsey et al., 2016). Overcrowding specifically has been associated with increased scabies transmission because close physical contact and sharing of beds and linens are often unavoidable when many students share limited space (Limsuwan et al., 2019; Gupta et al., 2024). Structural barriers like these mean that even students who understand the importance of certain practices may find them difficult to maintain every day.

Reinforcing factors also play an important role. Adolescents are highly sensitive to peer influence and social norms (Salvy et al., 2014). Behaviours such as visiting friends' rooms, sleeping together on the same bed, or borrowing clothes may be perceived as expressions of closeness and solidarity rather than risk behaviours. When such practices are considered normal or even desirable, individual knowledge about scabies risk may be overridden by the wish to conform to the group. Evidence from other health domains suggests that preventive behaviours are more likely to be adopted when they are perceived as social norms within the group (Choi & Noh, 2023; Suk & Cho, 2018). Nazari and Azizi (2014) note that in crowded environments, local norms can either facilitate or hinder the adoption of preventive behaviours such as regular bathing or avoiding sharing personal items.

The present findings therefore need to be read not only through the lens of individual knowledge but also through the dynamics of peer interaction and institutional culture. The PRECEDE–PROCEED model explicitly calls for the identification of predisposing, enabling, and reinforcing factors before designing interventions (Parlas & Eryılmaz, 2022; Kara & Başbakkal, 2023). In the context of Pondok Pesantren Nurul Huda, the data in Tables 2 and 3 suggest that predisposing factors (knowledge) are relatively favourable, but enabling and reinforcing conditions may be less supportive than needed. For example, if only a few irons are available, or if there is no explicit routine for sunning bedding, it is unsurprising that these practices remain inconsistent even among students with good knowledge.

The Health Belief Model (HBM) provides an additional interpretive framework. According to HBM, preventive behaviour is influenced by perceived susceptibility, perceived severity, perceived benefits of action, and perceived barriers (Zicof et al., 2018). If *santriwati* perceive scabies as a common but not very serious condition, or believe that it can be easily treated with simple remedies, they may prioritise comfort and social practices over strict adherence to preventive measures. Barriers such as the time required to iron clothes or the inconvenience of refusing to share a bed with a friend may weigh more heavily than the perceived benefits, especially if scabies is viewed as a temporary annoyance rather than a significant health threat (Ramadhini et al., 2023; Majid et al., 2020).

Research using HBM and related approaches in the context of skin diseases and scabies prevention indicates that educational interventions that address beliefs and perceived barriers can improve preventive practices (Omidi et al., 2017; Ramadhini et al., 2023). However, the mixed picture in the present findings suggests that, in this pesantren, education has improved knowledge but has not fully shifted perceptions of susceptibility and severity or reduced barriers linked to infrastructure and social norms. A purely informational approach is therefore unlikely to be sufficient. Interventions may need to combine knowledge reinforcement with structural improvements (e.g. better sleeping arrangements, regular schedules for bed and linen care) and social strategies, such as peer-led health promotion, that work through group norms rather than against them (Sartika, 2025; Supriyadi et al., 2024).

From a programmatic perspective, the item patterns in Table 3 can help identify priority targets for future interventions. Behaviours with lower adherence, such as ironing clothes and avoiding bed sharing, are directly linked to scabies transmission and are also plausibly modifiable if structural and social barriers are addressed. For instance, the pesantren could organise scheduled ironing times with shared irons and link them to health messages about heat killing mites and eggs. Similarly, clearer and more consistently enforced rules about one student per bed, coupled with health education explaining the rationale, may gradually shift norms around sleeping arrangements. Evidence from PRECEDE–PROCEED-based programs in other health areas shows that when interventions are tailored to identified predisposing, enabling, and reinforcing factors, behaviour change is more likely (Parlas & Eryılmaz, 2022; Kara & Başbakkal, 2023; Omidi et al., 2017).

At the same time, any interpretation of these findings must acknowledge important methodological limitations. First, the study uses a descriptive cross-sectional design with a relatively small sample from a single pesantren. As with other KAP studies, this design allows for the description of knowledge and behaviour distributions but does not permit causal inferences about the relationship between knowledge and preventive practice (Ramadhini et al., 2023). The study does not include formal statistical analysis of associations between knowledge and behaviour categories, nor does it track changes over time, so any suggested links between knowledge and practice remain interpretive rather than demonstrative.

Second, all data on knowledge and behaviour were obtained through self-report questionnaires, which are susceptible to recall bias and especially to social desirability bias. Adolescents may tend to overreport desirable behaviours, such as bathing frequency or avoiding sharing towels, and underreport behaviours that they perceive as inappropriate or contrary to pesantren rules (Hidayat et al., 2022). Studies have shown that self-reported hygiene practices, including handwashing and other personal hygiene behaviours, are often more positive than objectively observed practices (Dagne et al., 2019; Annisa et al., 2023). In this context, it is quite possible that the true level of preventive behaviour is lower than what is reflected in Table 3.

Third, the questionnaire instrument in this study was developed from literature and expert review but did not undergo formal psychometric testing for construct validity and reliability. Although content review by supervisors helps align items with theoretical constructs, the absence of statistical validation limits confidence in the precision of the knowledge and behaviour categories. This limitation is common in small-scale KAP studies but still needs to be acknowledged, as measurement error can attenuate or distort observed distributions.

Fourth, several potentially important confounding factors were not systematically measured, such as the number of students per room, prior history of scabies episodes, family socioeconomic background, or specific pesantren policies related to hygiene. These unmeasured variables may influence both knowledge and behaviour and could help explain some of the variation seen in Tables 2 and 3. For

example, students with longer length of stay or those who have experienced recurrent scabies episodes might differ systematically in both their knowledge and preventive practices compared with newer students, but the present design does not explore such patterns in detail.

Given these limitations, the findings should be interpreted cautiously. The data support the conclusion that *santriwati* at Pondok Pesantren Nurul Huda generally have good knowledge about scabies and engage in some preventive behaviours, but that there remains a notable gap between knowledge and certain high-risk practices, particularly in relation to bedding, clothing, and bed sharing. This pattern aligns with wider evidence that knowledge alone is insufficient to ensure consistent preventive behaviour among adolescents and that structural constraints, peer norms, and perceived barriers play significant roles (Wungtongkum, 2022; Opoku et al., 2024; Tem et al., 2019; Ismah et al., 2021).

Future research could address these gaps by employing mixed-methods designs that combine quantitative KAP surveys with direct observation and qualitative interviews to explore in more depth how *santriwati* understand and negotiate hygiene practices in daily life. Longitudinal or intervention studies grounded in the PRECEDE–PROCEED model or HBM could test whether integrated strategies that target knowledge, beliefs, environmental conditions, and peer norms can more effectively reduce scabies risk in pesantren settings. For now, the descriptive results summarised in Tables 1–3 provide a useful starting point for pesantren managers, health workers, and educators to reflect on which behaviours are already relatively strong and which require more focused and context-sensitive support.

CONCLUSION

This study describes the profile of knowledge and preventive behaviour related to scabies among *santriwati* at Pondok Pesantren Nurul Huda. The findings indicate that most respondents have a good level of knowledge about the causes, transmission routes, and general preventive measures for scabies, which is consistent with previous reports from boarding school settings showing relatively high awareness of scabies and personal hygiene among students. At the same time, preventive behaviour is less uniform: although more than half of the respondents fall into the “good” category, a substantial proportion still report practices that facilitate scabies transmission, such as inconsistent ironing of clothes, irregular management of bedding, and continued sharing of beds, clothing, or towels. This pattern suggests the presence of a clear gap between what students know and what they routinely do in their daily lives.

Interpreted through the lens of behavioural theory, these results support the argument that knowledge, while important, is only one of several determinants of preventive practice. Within the Green Precede–Proceed framework, knowledge functions as a predisposing factor that must be complemented by enabling and reinforcing conditions, such as adequate facilities, supportive institutional rules, and consistent supervision, if behaviour change is to be sustained. Similarly, from a Health Belief Model perspective, preventive behaviour is shaped by perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. In a crowded pesantren environment, where sharing beds and belongings is often socially embedded, perceived barriers and prevailing social norms may outweigh the perceived benefits of strict adherence to preventive measures, even among students who understand scabies transmission in theory.

The findings also align with wider literature on adolescent health behaviour, which repeatedly documents situations in which high levels of theoretical knowledge do not reliably translate into effective practice. Evidence from hygiene, oral health, menstrual hygiene, and hand hygiene studies in school and student populations suggests that information alone rarely produces strong and consistent behavioural change. The present study adds locally grounded evidence from a specific pesantren context to this body of work, highlighting that the knowledge–practice gap is also salient for scabies prevention among *santriwati*.

At the same time, several limitations constrain the interpretation of these results. The cross-sectional, descriptive design, the use of self-report questionnaires, and the absence of formal psychometric validation limit the ability to draw causal conclusions or to quantify precisely the strength of the relationship between knowledge and behaviour. Social desirability and recall biases may lead to overreporting of desirable hygiene practices, while unmeasured factors such as room density, prior

scabies episodes, and family background may influence both knowledge and behaviour. Given these constraints, the study should be understood as an initial descriptive contribution that maps patterns of knowledge and preventive practices in one pesantren, rather than as definitive evidence about determinants of behaviour or the effectiveness of existing educational efforts.

RECOMMENDATION

On the basis of these findings and their theoretical interpretation, several practical and research-oriented recommendations can be proposed, while recognising that their implementation will need to be adjusted to the specific resources and constraints of each institution. First, health education about scabies in pesantren should not be limited to the transfer of information. Educational activities can be designed to explicitly address perceived susceptibility and severity, clarify misconceptions about treatment and prevention, and highlight the concrete consequences of recurrent scabies for comfort, sleep, learning, and social interaction. Integrating elements of the Health Belief Model into counselling and classroom sessions may help align students' perceptions of risk and benefit more closely with biomedical evidence.

Second, interventions should pay serious attention to enabling factors within the pesantren environment. Efforts to improve the availability and organisation of hygiene-related facilities, such as sufficient access to clean water, washing and drying space, irons, and opportunities to regularly sun bedding and mattresses, are likely to be necessary if students are to maintain recommended preventive practices. Institutional policies that limit bed sharing and encourage one student per bed, combined with practical routines for cleaning dormitories and bedding, can reduce structural opportunities for scabies transmission. These changes require commitment from pesantren management and may need to be phased in gradually, especially in settings where physical space and resources are constrained.

Third, recognising the importance of peer influence and social norms in adolescent behaviour, pesantren-based scabies prevention programmes could incorporate peer education and peer-led health promotion. Selected *santriwati* with good knowledge and leadership potential can be trained as peer educators or health cadres to model preventive behaviours, disseminate messages in informal settings, and support enforcement of dormitory rules related to hygiene. Evidence from other school health interventions suggests that peer-driven approaches can be particularly effective in shifting group norms and making protective practices more socially acceptable, although their impact on scabies specifically still needs further study.

Fourth, regular monitoring and feedback mechanisms can help both students and staff maintain attention to scabies prevention. Periodic screening for scabies symptoms, simple recording of cases at the pesantren health post, and routine evaluation of hygiene practices at dormitory level could provide early warning of emerging problems and allow targeted responses. Collaboration with local health centres can support the provision of standardised treatment, ensure that all close contacts are managed appropriately, and integrate pesantren-based efforts into broader community scabies control strategies.

Finally, further research is needed to deepen and refine the insights provided by this descriptive study. Future work could employ mixed-methods designs, combining quantitative surveys with qualitative interviews or focus group discussions, to explore in more detail how *santriwati* understand and negotiate hygiene practices, how peer norms operate in dormitory life, and which barriers are perceived as most salient. Longitudinal or quasi-experimental studies based on PRECEDE–PROCEED or HBM-guided interventions could assess whether integrated packages that address knowledge, beliefs, environmental constraints, and social reinforcement are able to reduce scabies incidence more effectively than information-based programmes alone. By building on the present findings and systematically testing more comprehensive strategies, such research would contribute to a stronger evidence base for scabies prevention in pesantren and similar communal educational settings.

ACKNOWLEDGMENTS

The authors would like to express their sincere gratitude to the Directorate of Research, Technology, and Community Service (DRTPM) and the Directorate General of Higher Education, Research, and Technology (Ditjen Diktiristek), Ministry of Education, Culture, Research, and Technology

(Kemendikbudristek), Republic of Indonesia, for funding this work through the 2025 Kosabangsa Grant Scheme (Contract No. 253/C3/DT.05.00/PM-KOSABANGSA/2025).

AUTHOR CONTRIBUTIONS

Research conceptualisation was carried out by Alvin Niami Karisma and Linda Suwarni; the methodology was developed by Selviana; data collection and analysis were performed by Alvin Niami Karisma; and the results were validated by Linda Suwarni and Selviana. All authors have read and approved the final version of the manuscript.

REFERENCES

Akpan, E., Thean, L., Baskota, R., Mani, J., Mow, M., Kama, M., … & Carvalho, N. (2024). Costs of primary healthcare presentations and hospital admissions for scabies and related skin infections in Fiji, 2018–2019. *PLOS Global Public Health, 4*(10), e0003706. https://doi.org/10.1371/journal.pgph.0003706

Al Faruq, U. (2020). Peluang dan tantangan pendidikan Muhammadiyah di era 4.0. *Ar-Risalah: Media Keislaman, Pendidikan dan Hukum Islam, 18*(1), 13–30. https://doi.org/10.29062/arrisalah.v18i1.330

Angraini, W., Firdaus, F., Pratiwi, B. A., Oktarianita, & Febriawati, H. (2023). Pola asuh, pola makan dan kondisi lingkungan fisik dengan kejadian stunting. *Journal of Nursing and Public Health, 11*(2), 500–511. https://doi.org/10.37676/jnph.v11i2.5186

Annisa, D., Abidin, F., & Setiawan, A. (2023). Can a mother's parenting style predict adolescent oral hygiene behavior? A self-reported cross-sectional study. *European Journal of Dentistry, 18*(01), 281–288. https://doi.org/10.1055/s-0043-1768470

Arrazy, I. F. (2020). Peran pengurus asrama dalam pencegahan penyakit kulit menular pada lingkungan pesantren. *Jurnal Kesehatan Lingkungan Indonesia, 19*(2), 85–92.

Aryani, I., & Widyaningsih, P. (2020). Model Susceptible Vaccinated Infected Recovered (SVIR) dan penerapannya pada penyakit difteri di Indonesia. *PRISMA, Prosiding Seminar Nasional Matematika, 3*, 157.

Azizah, N. R., Puspikawati, S. I., & Oktanova, M. A. (2019). Inspeksi kesehatan lingkungan sekolah dasar di Kabupaten Banyuwangi. *Journal of Public Health Research and Community Health Development, 2*(1), 11. https://doi.org/10.20473/jphrecode.v2i1.16249

Badan Penelitian dan Pengembangan Kesehatan RI. (2018). *Laporan Riset Kesehatan Dasar (RISKESDAS).* Jakarta: Kementerian Kesehatan RI.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior, 31*(2), 143–164. https://doi.org/10.1177/1090198104263660

Becker, M. (1977). Health Belief Model and personal health behavior. *Health Education Monographs, 4*(2), 324–508.

Belayneh, Z., & Mekuriaw, B. (2019). Knowledge and menstrual hygiene practice among adolescent school girls in Southern Ethiopia: A cross-sectional study. *BMC Public Health, 19*(1). https://doi.org/10.1186/s12889-019-7973-9

Cahyani, A. P. (2020). Perilaku hidup bersih dan sehat (PHBS) dalam mencegah penyakit menular pada remaja. *Jurnal Promosi Kesehatan Indonesia, 17*(1), 45–54.

Cahyani, S. (2022). Pengaruh kebiasaan hidup bersih terhadap kejadian skabies di lingkungan asrama. *Jurnal Kesehatan Masyarakat, 14*(1), 45–53.

Chandler, D. (2021). Environmental factors affecting *Sarcoptes scabiei* survival. *Journal of Dermatology Research, 33*(4), 210–218.

Chang, A., & Fuller, L. (2018). Scabies—An ancient disease with unanswered questions in modern times. *JAMA Dermatology, 154*(9), 999. https://doi.org/10.1001/jamadermatol.2018.1891

Choi, D., & Noh, G. (2023). The impact of social media on preventive behavior during the COVID-19 outbreak in South Korea: The roles of social norms and self-efficacy. *SAGE Open, 13*(3). https://doi.org/10.1177/21582440231184969

Dagne, H., Dessie, A., Destaw, B., Worku, A., & Gizaw, Z. (2019). Prevalence and associated factors of scabies among schoolchildren in Dabat District, northwest Ethiopia, 2018. *Environmental Health and Preventive Medicine, 24*(1). https://doi.org/10.1186/s12199-019-0824-6

Damayanti, L., Zailani, M., Siagian, A., & Pratama, A. (2021). The relationship between knowledge and clean behavior and healthy lifestyle on the incidence of scabies at boarding school students. https://doi.org/10.2991/ahsr.k.210723.051

Darni, Z., & Agustin, S. (2023). The implementation of health education about diabetic foot care among patients with diabetes mellitus to improve patients knowledge: A literature review. *JIKO (Jurnal Ilmiah Keperawatan Orthopedi), 7*(1), 12–21. https://doi.org/10.46749/jiko.v7i1.113

Dewi, A. A. K. (2017). *Tingkat pengetahuan dan perilaku penerapan personal hygiene penjamah makanan di Pasar Senggol Tabanan tahun 2017* (Skripsi). Politeknik Kesehatan Denpasar.

Egeten, N., Maramis, F., & Mewengkang, N. (2019). Pengaruh penyuluhan kesehatan terhadap peningkatan pengetahuan tentang skabies pada siswa sekolah berasrama. *Jurnal Ilmiah Perawatan, 7*(2), 112–118.

El-Moamly, A. (2021). Scabies as a part of the World Health Organization roadmap for neglected tropical diseases 2021–2030: What we know and what we need to do for global control. *Tropical Medicine and Health, 49*(1). https://doi.org/10.1186/s41182-021-00348-6

Ene, N., Bolarinwa, O., Adedigba, C., Oyeleye, J., Boboye, I., Nwosu, U., … & Okeke, S. (2024). "If I use pad, I feel comfortable and safe": A mixed-method analysis of knowledge, attitude, and practice of menstrual hygiene management among in-school adolescent girls in a Nigerian city. *BMC Public Health, 24*(1). https://doi.org/10.1186/s12889-024-19256-5

Engelman, D., & Steer, A. (2018). Control strategies for scabies. *Tropical Medicine and Infectious Disease, 3*(3), 98. https://doi.org/10.3390/tropicalmed3030098

Engelman, D., Cantey, P., Marks, M., Solomon, A., Chang, A., Chosidow, O., … & Steer, A. (2019). The public health control of scabies: Priorities for research and action. *The Lancet, 394*(10192), 81–92. https://doi.org/10.1016/S0140-6736(19)31136-5

Engelman, D., Marks, M., Steer, A., Beshah, A., Biswas, G., Chosidow, O., … & Cantey, P. (2021). A framework for scabies control. *PLOS Neglected Tropical Diseases, 15*(9), e0009661. https://doi.org/10.1371/journal.pntd.0009661

Fauziah, R., & Suparmi, S. (2022). Penerapan hygiene sanitasi pengelolaan makanan dan pengetahuan penjamah makanan. *Jambura Health and Sport Journal, 4*(1), 11–18. https://doi.org/10.37311/jhsj.v4i1.13469

Green, L. (1980). *Health promotion planning: An educational and environmental approach.* California: Mayfield.

Gupta, S., Thornley, S., Morris, A., Sundborn, G., & Grant, C. (2024). Prevalence and determinants of scabies: A global systematic review and meta-analysis. *Tropical Medicine & International Health, 29*(12), 1006–1017. https://doi.org/10.1111/tmi.14058

Hadi, B. R. I., Asih, A. Y. P., & Syafiuddin, A. (2021). Penerapan hygiene sanitasi makanan pada pedagang kaki lima. *Media Kesehatan Masyarakat Indonesia, 20*(6), 451–462. https://doi.org/10.14710/mkmi.20.6.451-462

Hermawan, W. (2018). Prevalensi skabies pada lingkungan komunal. *Jurnal Epidemiologi Indonesia, 6*(2), 125–133.

Hidayat, A. (2020). Efektivitas program pencegahan skabies berbasis pesantren. *Jurnal Kesehatan Reproduksi & Hygiene, 9*(1), 12–20.

Hidayat, N., Nurlela, I., Nurapandi, A., Asmarani, S., & Setiawan, H. (2022). Association between personal hygiene behavior and sleeping quality on scabies incidence. *International Journal of Nursing and Health Services (IJNHS), 5*(4), 351–359. https://doi.org/10.35654/ijnhs.v5i4.610

Hijriani, B. I. H., Pertiwi, A. D., & Suhada, A. (2022). Sosialisasi penerapan perilaku hidup bersih dan sehat pada masyarakat Desa Lantan, Nusa Tenggara Barat. *Jurnal Pengabdian Masyarakat Sehati, 1*(1), 27–32. https://doi.org/10.33651/jpms.v1i1.394

Ismah, Z., Fahlepi, R., Ayukhaliza, D., Lestari, C., & Siregar, S. (2021). Identify factors associated with scabies aged 6–19 years old in the boarding school. *J-Kesmas Jurnal Fakultas Kesehatan*

Masyarakat (The Indonesian Journal of Public Health), 8(2), 1. https://doi.org/10.35308/j-kesmas.v8i2.3385

Jatal, M., & Chaudhary, N. (2024). Knowledge, perceptions and practices regarding menstrual hygiene among students. *NPRC Journal of Multidisciplinary Research, 1*(8), 35–49. https://doi.org/10.3126/nprcjmr.v1i8.73026

Kara, R., & Başbakkal, Z. (2023). The effect of the physical activity program developed according to the PRECEDE–PROCEED model on the physical activity level and physical activity behavior of elementary school students. https://doi.org/10.21203/rs.3.rs-3687443/v1

Karimkhani, C., Colombara, D., Drucker, A., Norton, S., Hay, R., Engelman, D., … & Dellavalle, R. (2017). The global burden of scabies: A cross-sectional analysis from the Global Burden of Disease Study 2015. *The Lancet Infectious Diseases, 17*(12), 1247–1254. https://doi.org/10.1016/S1473-3099(17)30483-8

Kasanah, U., Wahyuni, T., & Nugroho, S. (2019). Hubungan personal hygiene dengan kejadian skabies pada remaja di lingkungan pondok pesantren. *Jurnal Kesehatan Masyarakat (KEMAS), 15*(1), 123–131.

Kementrian Kesehatan RI. (2023). *Pedoman pencegahan dan pengendalian skabie.* Jakarta: Kementerian Kesehatan RI.

Kementrian Kesehatan RI. (2018). *Laporan Riset Kesehatan Dasar (RISKESDAS).* Jakarta: Kementerian Kesehatan RI.

Kpodo, L., Aberese-Ako, M., Axame, W., Adjuik, M., & Gyapong, M. (2022). Socio-cultural factors associated with knowledge, attitudes and menstrual hygiene practices among junior high school adolescent girls in the Kpando District of Ghana: A mixed method study. *PLOS ONE, 17*(10), e0275583. https://doi.org/10.1371/journal.pone.0275583

Kurnia, I., Fitriani, A., & Lubis, R. (2022). Sosialisasi perilaku hidup bersih dan sehat (PHBS) di Sekolah Dasar Negeri 38 Nusa Indah Kota Bengkulu. *Jurnal Ilmiah Mahasiswa Kuliah Kerja Nyata*, 20–27.

Li, J., Liu, Z., & Xia, X. (2024). The disability-adjusted life years (DALYs), prevalence and incidence of scabies, 1990–2021: A systematic analysis from the Global Burden of Disease Study 2021. *PLOS Neglected Tropical Diseases, 18*(12), e0012775. https://doi.org/10.1371/journal.pntd.0012775

Lilia, E., & Novitry, N. (2022). Faktor risiko penularan skabies: Kontak langsung dan tidak langsung. *Jurnal Kesehatan Andalas, 11*(3), 489–497.

Limsuwan, N., Salakij, B., Thanajirasak, S., & Thammawijaya, P. (2019). A large scabies outbreak at a prison in southern Thailand, April–August 2017. *Outbreak, Surveillance, Investigation & Response (OSIR) Journal, 12*(2), 61–67. https://doi.org/10.59096/osir.v12i2.262970

Majid, R., Astuti, R., & Fitriyana, S. (2020). Hubungan personal hygiene dengan kejadian skabies pada santri di pesantren Kabupaten Bandung. *Jurnal Integrasi Kesehatan & Sains, 2*(2). https://doi.org/10.29313/jiks.v2i2.5590

Manalu, D., Situmorang, S., & Sembiring, N. (2022). Manifestasi klinis dan faktor risiko skabies pada remaja di daerah tropis. *Jurnal Dermatologi Indonesia, 9*(1), 15–22.

Marga, R. L. (2020). Tingkat pengetahuan masyarakat tentang perilaku hidup bersih dan sehat serta hubungannya dengan penyakit menular. *Jurnal Ilmu Kesehatan Masyarakat, 11*(2), 101–109.

Mardhiyah, D., Widiyanti, D., Sari, S., Ernawati, K., & Susilowati, R. (2021). Counseling of infectious diseases related to stunting and its prevention in Koroncong Village, Keroncong District, Pandeglang Regency, Banten Province. *Majalah Sainstekes, 8*(2), 071–079. https://doi.org/10.33476/ms.v8i2.2097

Mardiyanti, I., & Anggasari, Y. (2020). Analisis faktor-faktor yang mempengaruhi perilaku ibu hamil dalam melakukan deteksi dini risiko tinggi kehamilan. *Journal of Health Sciences, 13*(2). https://doi.org/10.33086/jhs.v13i2.1473

Meikawati, W., Astuti, R., & S. (2010). Hubungan antara pengetahuan dan sikap tentang higiene sanitasi petugas penjamah makanan dengan praktek higiene sanitasi di Unit Instalasi Gizi RSJ Dr Amino Gondohutomo Semarang 2008. *Jurnal Kesehatan Masyarakat Indonesia, 6*, 50–64.

Merita, M., Iswanto, I., Kasyani, K., Fitriana, R., & Wahyu, Z. (2019). SMS gateway as a media to improve awareness and dietary compliance of hypertensive patients. *Jurnal Kesehatan Masyarakat, 15*(2), 286–294. https://doi.org/10.15294/kemas.v15i1.17479

Mia, H., Sukmawati, S., & Abidin, U. A. (2021). Hubungan hygiene dan sanitasi lingkungan terhadap kejadian stunting pada balita di Desa Kurma. *Journal Peqguruang: Conference Series, 3*(2), 494. https://doi.org/10.35329/jp.v3i2.2553

Mirza, A., Helmy, H., Sutopo, A., & Kadarusman, H. (2024). Analisis hasil evaluasi pengetahuan PHBS dan tren kasus scabies di Pondok Pesantren Al Ishlah Kecamatan Natar. *Sewagati Jurnal Pengabdian Masyarakat Indonesia, 3*(2), 17–22. https://doi.org/10.56910/sewagati.v3i2.1437

Mitchell, E., Wallace, M., Marshall, J., Whitfeld, M., & Romani, L. (2024). Scabies: Current knowledge and future directions. *Frontiers in Tropical Diseases, 5*. https://doi.org/10.3389/fitd.2024.1429266

Mounsey, K., Murray, H., King, M., & Oprescu, F. (2016). Retrospective analysis of institutional scabies outbreaks from 1984 to 2013: Lessons learned and moving forward. *Epidemiology and Infection, 144*(11), 2462–2471. https://doi.org/10.1017/S0950268816000443

Nazari, M., & Azizi, A. (2014). Epidemiological pattern of scabies and its social determinant factors in west of Iran. *Health, 6*(15), 1972–1977. https://doi.org/10.4236/health.2014.615231

Notoadmojo, S. (2014). *Ilmu perilaku kesehatan.* Jakarta: Rineka Cipta.

Omidi, S., Farmanbar, R., & Mokhtarpour, S. (2017). The effect of educational intervention based on PRECEDE–PROCEED model on promoting traffic safety behaviors in primary schools students of Tabriz in 2014. *Journal of Education and Community Health, 2*(4), 48–56. https://doi.org/10.21859/jech-02047

Opoku, P., Salu, S., Azornu, C., & Komesuor, J. (2024). Oral health knowledge, practice and associated factors among junior high school students of Koforidua, Ghana: A cross-sectional study. *BMC Oral Health, 24*(1). https://doi.org/10.1186/s12903-024-04148-2

Parlas, M., & Eryılmaz, G. (2022). Application of the PRECEDE–PROCEED planning model in designing a genital health program. *Journal of Client-Centered Nursing Care, 8*(4), 233–242. https://doi.org/10.32598/jccnc.8.4.443.1

Permana, L., & Andriani, E. (2023). Penyegaran usaha kesehatan sekolah (UKS) untuk pencegahan kecacingan di masa pasca pandemi COVID-19. *Jurnal Pengabdian Kepada Masyarakat Membangun Negeri, 7*(2), 187–197. https://doi.org/10.35326/pkm.v7i2.3295

Priasmoro, D. P. (2020). Korelasi dukungan sosial dengan kesehatan jiwa santri putra di Pondok Pesantren Lumajang. *CARE – Jurnal Ilmiah Ilmu Kesehatan, 3*(8), 424–434.

Rahmah, F. (2023). Tren prevalensi skabies di Indonesia tahun 2021–2023: Analisis data nasional. *Journal of Tropical Public Health, 4*(2), 55–63.

Ramadhini, A., Nurlinawati, N., & Mulyani, S. (2023). The effect of health education about personal hygiene in adolescents on the prevention of scabies disease in boarding school in Sungai Terap. *Riset Informasi Kesehatan, 12*(2), 260. https://doi.org/10.30644/rik.v12i2.774

Reksa, M., Kusyani, A., & Vidhiastutik, Y. (2025). Health literacy and hygiene practices: Impact on scabies prevention in Islamic elementary school students. *LKH, 9*(1), 30–37. https://doi.org/10.60050/lkh.v9i1.70

Riana, L. (2021). Personal hygiene dan kejadian skabies pada komunitas berisiko tinggi. *Jurnal Keperawatan Indonesia, 24*(3), 157–165.

Rosenstock, I. M. (1974). The Health Belief Model and preventive health behavior. *Health Education Monographs, 2*(4), 354–386.

r, A., Kusmiyati, K., & Mamat, M. (2022). Program pendidikan kesehatan pada masyarakat Pesantren Al Amin Kota Tasikmalaya. *Jurnal Pengabdian Masyarakat Dedikasi, 3*(01), 5–8. https://doi.org/10.33482/ddk.v3i01.42

Salim, A. (2020). Kepadatan hunian dan risiko skabies. *Jurnal Kesmas, 9*(1), 72–80.

Salvy, S., Pedersen, E., Miles, J., Tucker, J., & D'Amico, E. (2014). Proximal and distal social influence on alcohol consumption and marijuana use among middle school adolescents. *Drug and Alcohol Dependence, 144*, 93–101. https://doi.org/10.1016/j.drugalcdep.2014.08.012

Sartika, D. (2025). Pengaruh metode peer education terhadap perubahan pengetahuan dalam pencegahan skabies di pesantren Aceh Besar. *Jurnal Ilmu Kedokteran dan Kesehatan Indonesia, 5*(3), 146–153. https://doi.org/10.55606/jikki.v5i3.8008

Sharma, M., Sharma, K., Bista, A., Subedi, S., & Lamichhane, S. (2020). Knowledge on menstruation and menstrual hygiene practices among adolescents girls of selected schools, Chitwan. *Journal of Chitwan Medical College, 10*(1), 69–73. https://doi.org/10.54530/jcmc.151

Solo, W., Karim, S., & Jaharadak, A. (2024). Effectiveness of health promotion related to behavior of living clean and healthy (BLCH) towards the quality of life in the family order in Karanganyar Regency Central Java Indonesia. *JMS, 21*(2). https://doi.org/10.57002/jms.v21i2.383

Supriyadi, S., Purqoti, D., & Arifin, Z. (2024). Identifikasi prilaku pencegahan skabies pada santriwan di Pondok Pesantren Tarbiyatul Mustafid. *Jurnal Ilmiah Kesehatan Masyarakat dan Sosial, 2*(2), 36–44. https://doi.org/10.59024/jikas.v2i2.725

Suk, J., & Cho, Y. (2018). Role of social normative beliefs as a moderating factor in smoking intention among adolescent girls in Korea. *Nursing and Health Sciences, 20*(4), 530–536. https://doi.org/10.1111/nhs.12565

Syukrowardi, D., Alfiah, S., Rachmaniah, D., & Ernawati, E. (2023). The effect of peer group discussion (PGD)-based health education in the attitude and behavior toward among student in boarding school. *KnE Social Sciences*. https://doi.org/10.18502/kss.v8i14.13855

Tem, C., Kong, C., Him, N., Sann, N., Chang, S., & Choi, J. (2019). Hand hygiene of nursing and midwifery students in Cambodia. *International Nursing Review, 66*(4), 523–529. https://doi.org/10.1111/inr.12547

W, E. D., Supadi, Widjijati, & Prasetyo, H. (2022). Pendampingan keluarga dengan kartu PHBS tatanan rumah tangga untuk meningkatkan status kesehatan keluarga. *JPKM EMASS, 4*(1), 28–32.

Wahyuni, E., Titin, T., Faturrahman, M., & Putri, N. (2023). Profile of clean and healthy behavior of Teluk Pakedai 08 public elementary school students. *JPBIO (Jurnal Pendidikan Biologi), 8*(2), 248–259. https://doi.org/10.31932/jpbio.v8i2.2680

Wati, P. D. C. A., & Ridlo, I. A. (2020). Hygienic and healthy lifestyle in the urban village of Rangkah Surabaya. *Jurnal PROMKES, 8*(1), 47–58. https://doi.org/10.20473/jpk.v8.i1.2020.47-58

WHO. (2020). *Scabies control guidelines.* Geneva: World Health Organization.

Wulandari, N., & Sari, P. (2021). Kebersihan pakaian dan kejadian skabies di pesantren. *Jurnal Ilmu Kesehatan, 13*(2), 87–95.

Wungtongkum, P. (2022). Factors associated with hygiene behavior among high school students in Chiangmai, Thailand. *International Journal of Research Publications, 111*(1). https://doi.org/10.47119/ijrp10011111020224037

Yani, F., Irianto, S. E., Djamil, A., & Setiaji, B. (2022). Determinan tingkat pengetahuan sikap dan perilaku terhadap perilaku hidup bersih dan sehat (PHBS) tatanan rumah tangga masyarakat. *Jurnal Ilmiah Permas: Jurnal Ilmiah STIKES Kendal, 12*(3), 661–672.

Yovalwan, T., Asmawati, A., & Annuril, K. (2022). Warm salt water immersion therapy can reduce scabies pruritus. *Jurnal Keperawatan Terpadu (Integrated Nursing Journal), 4*(2), 100–109. https://doi.org/10.32807/jkt.v4i2.338

Zaafira, Z., Laweung, I., & Santi, T. (2023). Factors associated with scabies in santri at the Ma'had Daarut Tahfizh Al-Ikhlas Aceh Besar Islamic boarding school. *JUKEMA (Jurnal Kesehatan Masyarakat Aceh), 9*(2), 109–120. https://doi.org/10.37598/jukema.v9i1.2032

Zicof, E., Rahardjo, S., & Murti, B. (2018). Maternal personal hygiene, sanitation, family size, and the risk of diarrhea in children under five: A PRECEDE–PROCEED model in Surakarta. 101–101. https://doi.org/10.26911/theicph.2018.01.62

Zulkifli, A. (2022). Pengaruh teman sebaya terhadap perilaku kesehatan remaja. *Journal of Adolescent Health Behavior, 14*(1), 52–61.