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## **Overview of Personal Hygiene and Environmental Sanitation in Shared Living with Scabies: Literature Review**

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### **ABSTRACT**

**Introduction:** Scabies is a disease caused by Sarcopites scabiei which is in the form of itching all over the body. This disease tends to occur in places with a fairly low Human Development Index and is one of the diseases that is still ignored in developing countries such as Indonesia. Scabies disease in Indonesia has a fairly high prevalence. This disease is closely related to personal hygiene and environmental sanitation in a person's residence. This disease is easier to spread when an individual's space is small and lives in the same place

**Objective:** This study aims to provide information related to sanitary and personal hygiene features with scabies disease in shared residences to minimize the prevalence of scabies disease

**Method:** This study uses the method of reviewing literature on journal articles published within the last five years related to the topic of discussion. Data retrieval techniques using Google Scholar, Pubmed, and Scopus. Then, in the corresponding article eliminated is carried out.

**Result:** Four different articles on shared residences namely orphanages, detention centers, foundations, and Islamic boarding schools have a poor sanitation and personal hygiene at high risk of scabies. These four residences have the same characteristics, namely co-living with limited personal space. The manager and those who live in a shared residence must have awareness in maintaining environmental sanitation and know the importance of personal hygiene.

**Conclusion:** This study recommends to stakeholders, health care providers, and other parties to follow up on scabies prevention efforts. Moreover, for places that providing shared living needs to watch over the sanitation and personal hygiene from its environment and people who lived in the neighborhood.

**Keywords:** Scabies; Personal Hygiene; Sanitation; Environment

## INTRODUCTION

Along with the development of the population around the world in line with the increasing challenges in the world of health, resulting in many actions aimed at preventing the emergence of a new disease infection in an area. The increasing population causes a decrease in environmental quality, so everyone should be able and understand the importance of protecting the environment and themselves as a form of defense from various diseases, including skin infectious diseases. Scabies is one of the skin infections transmitted through mites called *Sarcoptes scabiei* which causes itching all over the body which is transmitted either directly from skin to skin, or indirectly from skin to contaminated objects (1). Scabies is one of the skin diseases that occurs a lot, but is still often ignored and classified as Neglected Tropical Disease (NTD) by the World Health Organization (WHO) in 2017 because it has a high number of annual events and on a large scale so that its management requires quite expensive funds(2). The report from WHO also states that the impact of skin diseases is disability, stigmatization, and other socioeconomic problems. Globally, it is estimated that as many as 200 million people suffer from scabies, with endemicity in tropical and subtropical regions(3). Scabies generally occurs in countries that have a low human development index (HDI) due to lack of sanitation facilities and efforts (4).

Scabies cases in the last two decades have increased quite rapidly, this is evidenced from world epidemiological data, where the prevalence of this disease ranges from 2% - 71% with the highest prevalence in the Pacific region. Indonesia is the number one country with the highest prevalence of scabies, followed by China, Timor Leste, and Vanuatu (5) In Indonesia, the prevalence of scabies cases is 2.9% of the total population and ranks 3rd out of 12 skin disease problems (6) The development of scabies disease is expected to increase in the era of the Covid-19 pandemic. This disease is often referred to as scabies which can develop rapidly in a dirty environment. Scabies prevention efforts are still often ignored because this disease is considered harmless so that handling practices are still lacking. Scabies sufferers mostly come from low socioeconomic environments, communities with poor personal hygiene and sanitation, and in communities with free sexual relations (6). Scabies is a skin disease transmitted from human to human, as well as from animal to human. This disease spreads through direct or indirect touch with clinical manifestations in the form of itching in body parts (7). This disease is closely related to the behavior of a person in maintaining the cleanliness of himself and his environment.

Scabies can spread rapidly due to close physical contact and crowded conditions (8). One of the preventive efforts that can be done is to maintain personal hygiene, which is the practice of maintaining one's personal hygiene by maintaining body parts, such as hair, mouth, teeth, skin, and so on (9). These actions include not sharing in using underwear, using towels simultaneously, and avoiding direct contact with sufferers (10,11). In addition, the environment contributes to health in a person to realize an optimal degree of health. Environmental sanitation is defined as activities to maximize the state of the environment (12). Efforts in maintaining environmental sanitation can be realized by maintaining cleanliness, such as sweeping, mopping, monitoring the quality of water used, lighting and ventilation of the room, and providing trash cans (13). Therefore, in places where a person's space for movement is very narrow with inadequate sanitation facilities can trigger scabies transmission (14)

## METHOD

The design used in this study is literature review with PRISMA method. This study uses secondary data from previous studies. The study was conducted by searching for literature that fits the inclusion criteria. The databases used in searching literature are Google Scholar, Pubmed, and Scopus. Keywords that are used as inclusion criteria are personal hygiene, or/and hygiene or sanitation or/and sanitation and scabies or skin disease. All articles go through four stages, which is identification, screening, eligibility, and inclusion of final article. All article report that has been collected through databases sorted from years publication and place of the research was held. The criteria for articles that meet the requirements, then sorted again with title selection and duplicate article. The inclusion criteria determined by reading the entire article that focuses on the existence of personal hygiene and environmental sanitation with scabies complaints. The screening method showed on the figures below

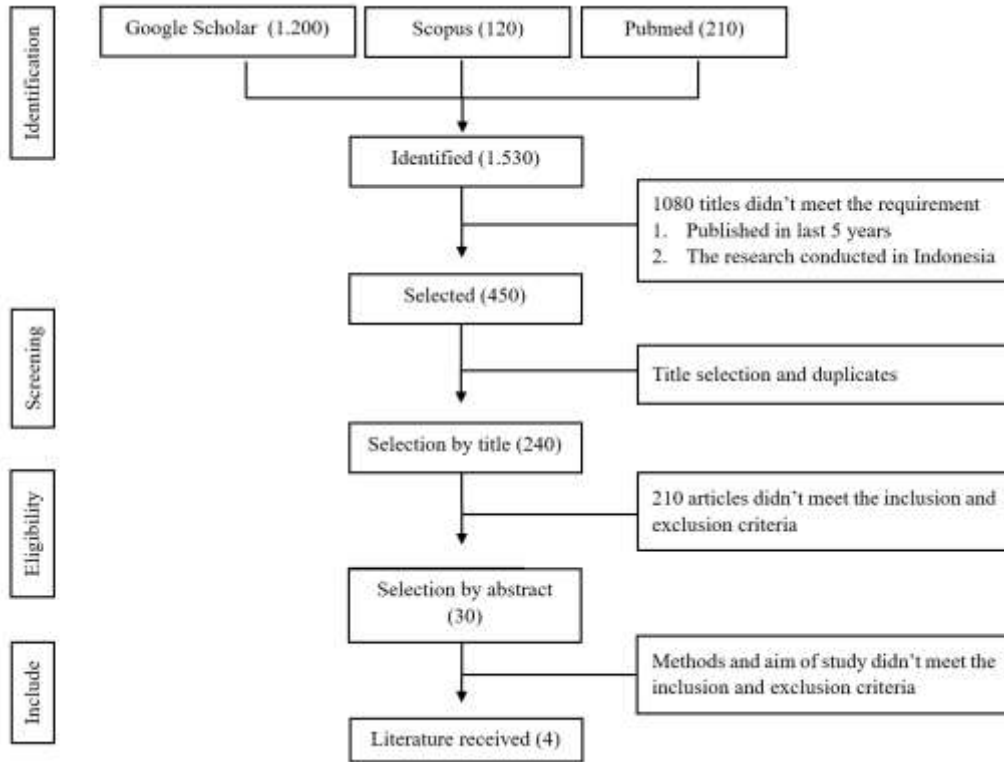


Figure 1. PRISMA Method Flow of Literature Search

RESULTS

Based on the articles that have been previously evaluated, there are four articles that meet the requirements which can be seen in the table below

Table 1. Result of Journal Article Review

Author (Year)	Journal Title	Purpose/Aim	Methods	Result
Zulmeliza Rasyid, Winda Septiani, Yessi Harnani, Nurvi Susanti, Achmad Riza Bahyaqi (2024)	Determinants of Personal Hygiene and Basic Sanitation with Skin Diseases (Scabies) at Al-Kautsar Modern Islamic Boarding School Pekanbaru in 2022	Knowing personal hygiene and basic sanitation toward skin disease in Modern boarding School Al Kautsar, Pekanbaru in Augst 2022	Quantitative research methods using cross sectional design with sample for about 87 samples with accidental sampling	Result of univariate analysis shows that from 87 respondents, as many 65 respondents (74,7%) have suffered from skin disease, as many as 49 respondents (56,3%) have low knowledge, as many as 48 respondents (55,2%) have poor skin cleanliness, also poor waste management and lack of water needs  Result of bivariate analysis shows that there's relationship between knowledge about personal hygiene, skin, nail and toes personal hygiene with skin disease, also there's relationship between waste management with skin

					disease, drainage of waste water and skin disease, clean water supply with skin disease in Modern Boarding School Al Kautsar in Pekanbaru
Devy Putri Nursanti, Eri Puji Kumalasari, Anis Supriatin (2024)	Personal Hygiene Relationship and Environmental Cleanliness on the Incident of Scabies at Yayasan Sunan Kalijaga Malang	Knowing the relationship between personal hygiene and environmental cleanliness towards the incident of scabies in adolescent in Sunan Kalijaga Foundation Malang	Quantitative research methods using cross sectional design with sample for about 70 samples with random sampling		The result shows that as many as 70 respondents have moderate personal hygiene, as many as 33 respondents (45,7%) have good environmental cleanliness in major, 44 respondents (62,9%), dan majority of respondents as many as 49 respondents (70%) don't have scabies symptoms with Chi Square Test in this research proof that there is relationship between personal hygiene and environmental cleanliness with the incidence of scabies in Sunan Kalijaga Foundation Malang
Sekar Rizki Mauliddah, Neng Shopa Anggraini, Syifa Nurhardiyanti, Ayu Mulya, Hamdan (2023)	The Relationship between the Physical Environment, Level of Knowledge, and Personal Hygiene of Correctional Assisted Citizens to Scabies at the Class I Cirebon Detention Center in 2023	Knowing the relationship of environmental physical condition, level of knowledge, and behaviour related to personal hygiene in correctional inmates in Cirebon Jail Class I	Quantitative research methods analytical survey using cross sectional design with sample for about 83 with stratified random sampling		The result shows that there's relationship between physical environment condition in variable of temperature, humidity, and residential density with scabies disease, whereas there's no relationship between exposure and scabies disease. Hereafter in level of education and behavior related to personal hygiene shows shows a relationship with scabies disease
Sonia, Eko Heryanto, Lina Oktavia, Eva Yustati (2024)	The Relationship between Personal Hygiene and Environmental Sanitation with the Incidence of Skin Diseases at UPTD Sekar Jaya Health Center, Oku Regency	Knowing the relationship between personal hygiene and environmental sanitation with insident of skin disease	Quantitative research methods using cross sectional design with sample for about 100 with accidental sampling		Univariate analysis shosw that as many as 43 respondents (43%) with poor nail and hands hygiene, 44 respondents (44%) with poor skin hygiene, and 37 respondents with poor clean water sources, and 54 respondents (54%) with water disposal facilities that

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don't meet the requirements

Bivariate analysis shows that there's significant relationship between hand and nails hygiene, shin hygiene and water disposal facilities with skin disease

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## DISCUSSION

### Scabies Disease

Scabies classified as Neglected Tropical Disease is still poorly handled by local governments and world health organizations because the impact of this disease is still not an urgency in the disease elimination program(15). The rate of scabies disease becomes high because this disease is closely related to the environment and behavior of the patient. This disease tends to develop in developing countries due to several factors such as low levels of hygiene, difficult access to water, and high occupancy density (16).

In the four journals that have been reviewed, all articles discuss risk factors for environmental sanitation and personal hygiene with the incidence of scabies in various environments, namely prisons, puskesmas work areas, orphanages, and Islamic boarding schools. The four journals were chosen because they can represent residential conditions to be able to provide an overview of conditions with the incidence of scabies in each place. In all four places have the characteristics of residences with limited personal space. Transmission of mites that cause scabies is more common in places that provide dormitory facilities or residences used by the wider community which causes direct or indirect contact between patients (17).

### Environmental Sanitation

Scabies disease is closely related to waste management and waste management facilities. Islamic boarding schools with a large number of students certainly produce a large amount of waste as well, so there needs to be waste management to support a clean lifestyle for the pesantren environment (18) Waste management is one of the determinants of environmental hygiene factors, the culture of protecting the environment becomes an attitude and behavior. Inadequate waste facilities and poor management are one of the media for the development of disease-causing bacteria (19). Transmission of this disease can also be transmitted through inappropriate sewage channels that can contaminate water sources and result in poor water quality (20), Environmental sanitation needs to be done as an effort to prevent scabies by providing quality water, maintaining environmental cleanliness from dust and garbage, and carrying out good waste management (21). The handling of scabies cases in Ethiopia is by providing good water, this is because most scabies sufferers come from areas with poor environmental quality, some previous studies have also agreed that improving access to environmental sanitation is an effort to prevent scabies (22).

There are several factors related to residential quality, such as temperature, humidity, and residential density (23). In Permenkes No. 2 of 2023 it is stated that the temperature requirement in a residence is a maximum of 30 degrees Celsius(24). The temperature in the detention house tends to be high due to the large number of humans who live in the place who remove heat from the body. In addition, the cause of the high temperature in a room, which is more than 30 degrees Celsius is due to lack of ventilation which results in hot air (25). Mites that cause scabies disease grow faster in warm temperature rooms, so the possibility of someone being exposed is higher, lack of air exchange in the room causes the room to become damp. This exchange can take place inoptimally when a room is inhabited with too many numbers and lack of ventilation in the building, this also causes bacteria to grow (26).

### Personal Hygiene

Fairly good environmental sanitation conditions are related to the symptoms of scabies. Maintaining personal hygiene is very important as a measure to prevent disease transmission, where when a person's personal hygiene is poor, the body is more susceptible to various kinds of skin diseases. The usual maintenance of personal hygiene is to maintain the cleanliness of the skin, hands and nails, and not to use personal items simultaneously (27). The results of research at the detention center stated that there was a relationship between physical environmental conditions and the incidence of scabies (Mauliddah). Someone who has poor personal hygiene is also at higher risk of scabies and

other skin diseases. Simple things that can be accustomed to getting used to clean living behavior are bathing at least twice a day and using soap personally (28)

In shared residences such as foundations, it is very important to pay attention to the cleanliness of hands and nails, and skin hygiene is a form of personal hygiene. One should get used to washing hands with soap and cutting nails regularly because the skin is the part of the body that is the easiest medium of disease transmission (Sonia). Lack of practice and awareness of efforts in personal hygiene can trigger the spread of mites, germs, and bacteria that cause disease. Things that can be done to maintain skin cleanliness is to bathe twice a day using soap because at the time of bathing germs and dirt on the body will fade along with soap, besides maintaining the cleanliness of towels by drying towels regularly, changing bed linen, and clothes regularly (29). Shared residences such as Islamic boarding schools are residences for a large number of students so they must pay attention to healthy living habits and sanitation efforts because they have the potential to become disease transmission (30). People who have less skin hygiene behaviors are nine times at higher risk of developing skin diseases such as scabies. In some people who do not have hygiene behaviors on the skin and nails such as washing hands, bathing, and cutting nails regularly, bacteria more easily develop in skin tissue, which this skin condition in addition to being a sense of touch can also be a medium of nonverbal communication between fellow humans (31). Prevention of scabies can also be done by washing hands with soap because hands and nails can carry scabies that are at risk of being transmitted to other people's body parts by scratching the parts of the hands that have symptoms of scabies (32).

## CONCLUSION

Scabies is one of the diseases related to the environment. Prevention of scabies disease still cannot be done properly because it is still included in diseases that have not become the main target of disease elimination. Even so, this disease should not be ignored because it can cause physical disability, and the number of annual sufferers is still quite high. The risk of transmission of scabies is higher when living in densely populated environments and less clean environments, this is because the disease is transmitted through the skin. Efforts to maintain environmental cleanliness and personal hygiene are very important in preventing scabies, especially in people who live together. Some personal hygiene efforts that can be done are washing hands, bathing at least twice a day using soap, cutting nails regularly, not using personal items such as clothes and underwear alternately, changing bed linen regularly, and drying towels regularly. In addition, environmental sanitation efforts that can be done are providing quality water, maintaining environmental cleanliness from dust and garbage, carrying out waste management properly, and maintaining the physical condition of the environment, such as occupancy density, temperature, ventilation, and lighting

## SUGGESTION

This study recommends to stakeholders, health care providers, and other parties to follow up on scabies prevention efforts. Moreover, for places that providing shared living needs to watch over the sanitation and personal hygiene from its environment and people who lived in the neighborhood.

## REFERENCES

1. Murray RL, Crane JS. Scabies. StatPearls [Internet]. 2023 Jul 31 [cited 2024 May 18]; Available from: <https://www.ncbi.nlm.nih.gov/books/NBK544306/>
2. Tsoi SK, Lake SJ, Thean LJ, Matthews A, Sokana O, Kama M, et al. Estimation of scabies prevalence using simplified criteria and mapping procedures in three Pacific and southeast Asian countries. BMC Public Health [Internet]. 2021 Dec 1 [cited 2024 May 18];21(1):1–10. Available from: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-12039-2>
3. World Health Organization. Ending The Neglect to Attain the Sustainable Development Goals : a Road Map for Neglected Tropical Disease 2021 - 2030 [Internet]. 2020. Available from: <http://apps.who.int/bookorders>.
4. Schneider S, Wu J, Tizek L, Ziehfrennd S, Zink A. Prevalence of scabies worldwide—An updated systematic literature review in 2022. Journal of the European Academy of Dermatology and Venereology [Internet]. 2023 Sep 1 [cited 2024 May 18];37(9):1749–57. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1111/jdv.19167>
5. Aždajić MD, Bešlić I, Gašić A, Ferara N, Pedić L, Lugović-Mihić L. Increased Scabies Incidence at the Beginning of the 21st Century: What Do Reports from Europe and the World Show? Life [Internet]. 2022 Oct 1 [cited 2024 May 18];12(10). Available from: [/pmc/articles/PMC9604680/](https://pmc/articles/PMC9604680/)

6. Audini Karim J, Serlina D. PENATALAKSANAAN HOLISTIK SKABIES PADA WANITA USIA 26 TAHUN MELALUI PENDEKATAN KEDOKTERAN KELUARGA. *Jurnal Penelitian Perawat Professional* [Internet]. 2024;6(2):689–704. Available from: <http://jurnal.globalhealthsciencegroup.com/index.php/JPPP>
7. Wahyuni H, Zara N, Syafridah A, Zahara I, Namira I. Upaya Pengelolaan Skabies dengan Pendekatan Pelayanan Kedokteran Keluarga pada Anak Usia 9 Tahun. *GALENICAL : Jurnal Kedokteran dan Kesehatan mahasiswa Malikussaleh*. 2023;2(3).
8. Sanei-Dehkordi A, Soleimani-Ahmadi M, Zare M, Jaberhashemi SA. Risk factors associated with scabies infestation among primary schoolchildren in a low socio-economic area in southeast of Iran. *BMC Pediatr*. 2021 Dec 1;21(1).
9. Nurudeen ASN, Toyin A. Knowledge of Personal Hygiene among Undergraduates. *J Health Educ*. 2020 Sep 30;5(2):66–71.
10. Lubis J, Siregar N. HUBUNGAN PERSONAL HYGIENE (KEBERSIHAN HANDUK) DENGAN KEJADIAN SCABIES DI PONDOK PESANTREN NIZHOMUL HIKMAH DESA TAMIANG. *MIRACLE JOURNAL*. 2023;3(1):29–32.
11. Melese F, Malede A, Sisay T, Geremew A, Gebrehiwot M, Woretaw L, et al. Cloth sharing with a scabies case considerably explains human scabies among children in a low socioeconomic rural community of Ethiopia. *Trop Med Health*. 2023 Dec 1;51(1).
12. Paendong WHG, Maddusa SS, Warouw F. GAMBARAN SANITASI LINGKUNGAN PADA MASYARAKAT DI WILAYAH KERJA PUSKESMAS KAKASKASEN KECAMATAN TOMOHON UTARA KOTA TOMOHON TAHUN 2021. *Jurnal KESMAS*. 2021;10(8):84–93.
13. Umam AR, Nanan S, Mia Yasmina Andarini. Sanitasi Lingkungan Berpengaruh terhadap Kejadian Skabies pada Santri Laki-laki di Ponpes. *Jurnal Riset Kedokteran*. 2023 Dec 25;3(2):123–8.
14. Stifani N, Mindiharto S. Hubungan Sanitasi Lingkungan dan Personal Hygiene Anak Panti dengan. *Jurnal Ilmiah Wahana pendidikan* [Internet]. 2023;2023(12):369–77. Available from: <https://doi.org/10.5281/zenodo.8079045>
15. CA J, P VBK, Kandi V, N G, K S, Dharshini D, et al. Neglected Tropical Diseases: A Comprehensive Review. *Cureus* [Internet]. 2024 Feb 10 [cited 2024 May 18];16(2). Available from: [/pmc/articles/PMC10925483/](https://pubmed.ncbi.nlm.nih.gov/410925483/)
16. Puspita S, Rustanti E, Wardani MK. HUBUNGAN PERSONAL HYGIENE DENGAN KEJADIAN SKABIES PADA SANTRI. *Jurnal Keperawatan*. 2018;11(2):33–8.
17. Hasan AK, Kartika K, Djuria SA. Factors Affecting the Incidence of Scabies in Darul Abror Modern Islamic Boarding School, Kace Village. *East Asian Journal of Multidisciplinary Research*. 2023 Dec 8;2(11):4383–94.
18. Fahham AM. Sanitasi dan Sampaknya Bagi Kesehatan : STUDI DARI PESANTREN. *Jurnal Aspirasi*. 2018 Sep 21;7(1):1–16.
19. Ulya T, Syaidatussalimah, Halid M. EDUKASI PERILAKU HIDUP BERSIH DAN SEHAT UNTUK MENCEGAH PENULARAN SKABIES PADA SANTRI PONDOK PESANTREN AL-MUWAHHIDIN LELEDE. *SELAPARANG : Jurnal Pengabdian masyarakat Berkemajuan*. 2023;7(1):511–6.
20. Mara D. Scabies control: the forgotten role of personal hygiene. Vol. 18, *The Lancet Infectious Diseases*. Lancet Publishing Group; 2018. p. 1068.
21. Gustina M, Yorita E. Analysis of Environmental Sanitation Risk Factors Scabies in Adolescents. *Cntagion : Scientific Periodical of Public Health and Coastal health*. 2023;5(2):664–72.
22. Ararsa G, Merdassa E, Shibiru T, Etafa W. Prevalence of scabies and associated factors among children aged 5–14 years in Meta Robi District, Ethiopia. *PLoS One* [Internet]. 2023 Jan 1 [cited 2024 May 18];18(1). Available from: [/pmc/articles/PMC9810185/](https://pubmed.ncbi.nlm.nih.gov/4109810185/)
23. Devy Putri Nursanti, Eri Puji Kumalasari, Anis Supriatin. PERSONAL HYGIENE RELATIONSHIP AND ENVIRONMENTAL CLEANLINESS ON THE INCIDENCE OF SCABIES AT YAYASAN SUNAN KALIJAGA MALANG. *Journal for Quality in Women’s Health*. 2024 Mar 25;7(1):37–43.

24. Kementerian Kesehatan RI. PERATURAN MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR 2 TAHUN 2023 [Internet]. 2023. Available from: [www.peraturan.go.id](http://www.peraturan.go.id)
25. Samosir K, Sitanggang HD, MF MY. Hubungan Personal Hygiene dengan Kejadian Skabies di Pondok Pesantren Madani Unggulan, Kabupaten Bintan. *Jurnal Ilmu Kesehatan Masyarakat*. 2020 Jul 16;9(03):144–52.
26. Selvianty W, Alamsyah D, Trisnawati E, Budiastutik I. Sanitasi Lingkungan dan Personal Hygiene dengan Kejadian Skabies Pada Santriwati Di Pondok Pesantren Al-Mukhlisin Kabupaten Mempawah. *Jurnal Mahasiswa dan Peneliti Kesehatan (JUMANTIK)*. 2023;10(1):95–105.
27. Theresiana Y, Nurjanah NAL, Wulandari. HUBUNGAN ANTARA PERILAKU HIDUP BERSIH DAN SEHAT (PHBS) SERTA LINGKUNGAN SEHAT DENGAN KEJADIAN SCABIES DI KABUPATEN BANYUASIN. *Journal of Nursing and Public Health*. 2023;11(2):554–64.
28. Septalita, Zaman C, Suryani L, Wahyudi A, Dwi Priyatno A. Analisis Kejadian Skabies Pada Santri di Pondok Pesantren X Kecamatan Ilir Timur II Kota Palembang Tahun 2023. *Jurnal Kesehatan Saemakers PERDANA*. 2024;7(1):50–6.
29. Asyari N, Setiyono A, Faturahman Y, Studi Kesehatan Masyarakat Fakultas Ilmu Kesehatan P. HUBUNGAN PERSONAL HYGIENE DAN SANITASI LINGKUNGAN DENGAN KEJADIAN SKABIES DI WILAYAH KERJA PUSKESMAS SALAWU KABUPATEN TASIKMALAYA. *Jurnal Kesehatan komunitas Indonesia*. 2023;19(1):1–16.
30. Fauziah R, Suparmi. Analysis of the Scabies Incidence at As'ad Islamic Boarding School, Jambi City. *Arch Razi Inst* [Internet]. 2023 Nov 1 [cited 2024 May 18];78(6):1719. Available from: <https://openurl.ebsco.com/contentitem/doi:10.32592%2FARI.2023.78.6.1719?sid=ebsco:plink:crawler&id=ebsco:doi:10.32592%2FARI.2023.78.6.1719>
31. Alga N, Noerjoedianto D, Fitri A, Guspianto G, Eka Putri F. The Relationship of Personal Hygiene and Physical Environmental Conditions with Scabies Symptoms. *KESANS : International Journal of Health and Science*. 2023 Nov 20;3(2):194–204.
32. Sulistiarini F, Porusia M, Asyfiradayati R, Halimah S. HUBUNGAN FAKTOR LINGKUNGAN FISIK DAN PERSONAL HYGIENE DENGAN KEJADIAN SKABIES DI PONDOK PESANTREN. *Jurnal Kesehatan*. 2022 Dec 10;15(2):137–50.