The Perspective of Scabies Prevention Education Methods on Knowledge and Reducing The Prevalence of Scabies

Kurniati[1], Ekohariadi[1], Maspiyah[1], Ratna Suhartini[1], Bambang Suprianto[1], I Gusti Putu Asto Buditjahjanto[1], Muchlas Samani[1], Wind Faidati[2], Santi Desi[2], Mentari Maulida Izza[2]

[1] Postgraduate Doctoral Vocational Education, Surabaya State University, Surabaya, 60213, Indonesia
[2] Department Dermatology and Venereology, Ibnu Sina General Hospital Gresik Regency, Gresik, 61161, Indonesia

Corresponding Author:
Name : Kurniati
Email : kurniati.guntur@gmail.com

Authors
Kurniati (kurniati.guntur@gmail.com)
Ekohariadi (ekohariadi@unesa.ac.id)
Maspiyah (maspiyah@unesa.ac.id)
Ratna Suhartini (ratnasuhartini@unesa.ac.id)
Bambang Suprianto (bambangsuprianto@unesa.ac.id)
I Gusti Putu Asto Buditjahjanto (asto@unesa.ac.id)
Muchlas Samani (muchlassamani@unesa.ac.id)
Wind Faidati (windfaidati@ymail.com)
Santi Desi (santidesi99@gmail.com)
Mentari Maulida Izza (mentarimaulidaizza@gmail.com)

Abstract

Background: Scabies remains a significant public health issue globally, particularly in crowded settings such as boarding schools and prisons, with prevalence rates ranging between 32.1% to 74%. Despite updated diagnostic and treatment strategies, scabies is still classified as a neglected tropical disease, necessitating continuous and innovative control efforts. Objectives: This study aims to systematically review and analyze the perspective and effectiveness of various educational methods used for scabies prevention, focusing on their impact on enhancing knowledge and reducing disease prevalence. Methods: A systematic literature review was conducted by searching major databases (including PubMed, ScienceDirect, and Google Scholar) for studies published between 2000 and 2024. The search utilized keywords related to "Scabies," "Education," "Knowledge," "Method," and "Prevalence." A total of 17 relevant research articles meeting the inclusion criteria were selected for analysis. Results: All reviewed studies consistently reported a significant increase in participant knowledge regarding scabies prevention following educational intervention. The most dominant educational method employed was Lectures (76.5%), often combined with interactive discussions (41.2%) and multimedia. Crucially, studies that tracked clinical outcomes showed that improved knowledge and adherence to preventive practices correlated with a tangible reduction in

scabies prevalence, confirming the value of education as a non-pharmacological control strategy. Conclusion: Educational interventions are effective tools for enhancing public knowledge and reducing scabies prevalence, particularly when utilizing a combination of traditional and interactive methods. Future efforts should prioritize continuous, culturally sensitive education, and peer-group strategies to sustain long-term behavioral change.

Keywords: Education method, Knowledge, Prevention, Scabies prevalence, Systematic review.

Introduction

Scabies, caused by the mite *Sarcoptes scabiei*, is recognized by the World Health Organization (WHO) as a neglected tropical disease (NTD). The high rate of transmission, particularly under conditions of poverty and overcrowding—such as in refugee camps, boarding schools, and long-term care facilities results in significant morbidity and financial burden.(1) Global prevalence estimates highlight the intractable nature of the disease, urging for comprehensive community control strategies that go beyond diagnosis and pharmacologic treatment.(2) (3). While mass drug administration (MDA) is effective in eliminating scabies in hyperendemic areas, sustained control requires addressing underlying factors, notably poor hygiene, delayed reporting, and low compliance with treatment protocols.(4) Educational intervention, therefore, stands as a necessary and cost-effective component of any long-term scabies elimination roadmap.(5). This systematic review aims to synthesize the current evidence regarding the various educational strategies implemented globally to combat scabies. Specifically, the objectives are: First to identify the most frequently used methods and media in scabies prevention education. Second to analyze the effectiveness of these educational interventions in enhancing knowledge among target populations. Third, to examine the correlation between improved knowledge and the subsequent reduction in the prevalence of scabies.

Material and Methods

Material (Study Design and Databases)

This study utilized a Systematic Literature Review (SLR) design, serving to synthesize qualitative and quantitative data from existing primary studies. The review was conducted using established guidelines for systematic literature search and reporting.

The primary databases searched included: PubMed, ScienceDirect, Google Scholar, and Garuda Portal. A manual search of reference lists from relevant articles was also conducted (*snowballing method*).

Methods (Search Strategy and Selection Criteria)

Search Strategy

The comprehensive search strategy was built using Boolean operators (AND, OR) with the following keywords: (Scabies OR Sarcoptes scabiei) AND (Education method OR Educational Strategies OR Intervention) AND (Knowledge OR Awareness OR KAP) AND (Prevention OR Control OR Prevalence Reduction). The search was limited to articles published in English or Indonesian between January 2000 and May 2024.

Inclusion and Exclusion Criteria

Inclusion Criteria: Original research articles (quantitative or qualitative studies). Studies that explicitly evaluated an educational intervention for scabies prevention. Studies that measured the outcome in terms of knowledge, attitude, practice (KAP) scores, and/or scabies prevalence/incidence. Studies focusing on high-risk populations (e.g., students, prisoners, refugees).

Exclusion Criteria: Review articles, editorials, case reports, or protocol papers. Studies focused solely on pharmacological treatment without an educational component.

Data Extraction and Synthesis

Data extraction was performed by two independent reviewers, focusing on: (1) Study characteristics (authors, year, setting, population), (2) Educational method(s) used, (3) Media used, (4) Measured outcome (Pre/Post-test results), and (5) Changes in prevalence/incidence (if measured).

The synthesis of the findings was primarily descriptive and narrative, focusing on identifying patterns, comparing the effectiveness of different methods, and linking knowledge gains to clinical outcomes (prevalence reduction).

Results and Discussion

Identified Educational Methods and Media

Out of the 17 studies included in this review summarized at Table 1. The clear pattern in educational delivery methods was observed at Table 2.

Table 1. Summary of education methods for scabies prevention

References	Type of Study	Education Method	Education Media	Outcome	
				Knowledge	Scabies Prevalence
Ibekwe PU, *et al*.(5)	A modified Veron study	Interactive lecture	Microsoft PowerPoint	Pre-test (2.82 ± 1.38) post-test (6.30 ± 1.09).	First visit 3.5%, second visit 4.34%
Wijayanti L, *et al*.(6)	pre-experiment (one group pretest – posttest)	Lecturing	Skin personal hygiene modules	Before:Low level n=33 (55%) After : low level n=0 (zero)	NR
Bettrianto B, *et al*.(7)	experimental study	Active learning (BETRI model)	Educational videos, posters, pocketbooks, educational modules	Pre-test 54.17, and post-test 95.00	NR
Talukder K, et.al.(8)	A controlled trial	Experiential learning, Training and practical	Poster	Pre-test 40%, post-test 99%	Intv. group 61% to 5%, Control group: 62% to 50%.
Tampubolon B, *et al*.(9)	Quasi-Experiment	Lecturing	Leaflets	Score before 67.45, and 79.55 after	NR
Indriati I, *et al*.(10)	Quasi-experimental	Traditional lecturing, and active learning by counseling;	NR	Average value (before to after): knowledge (69.76 to 87,18)	from 75,29% to 2,94%
Husna N, *et. al*.(11)	Cross-sectional	Technology-enhanced	Wayang Video	76.75 in the pre-test to 83.09 in the post-test, (8.27% improvement)	NR
Nurapandi A, *et al*.(12)	quasi-experimental one group pretest-posttest	Lecturing	Microsoft PowerPoint, leaflets	Before: low level of habitual behavior (90.5%). After: higher level of habitual behavior (66.7%	NR

References	Type of Study	Education Method	Education Media	Outcome Knowledge	Scabies Prevalence
				), level of knowledge good (52.4%), and sufficient (47.6%).	
Purnamasari R, *et al*.(13)	experimental quantitative	Lecturing	Leaflets	82.9% post-test scores > pre-test	NR
Saumah S, Manalu LO.(14)	quasi-experimental Pre-post test control group design	Group lecture, and active learning PGD	Microsoft PowerPoint, video, leaftlets	Level knowledge Before: low (57.3%) After: intervention group 95% good, and control group: 82.5% good	NR
Alfiah SN, *et al*.(15)	quasi experimental design	Lecturing, technology enhanced, and active learning PGD	Modules, video, and leaflets	Before : After Mean scores attitudes/behavior Baseline: 19.86/89.23 two days: 25.27/106.95	NR
Latipah N, Uliyandari M.(16)	Research and Development (R&D)	Lecturing	Module	average student response: 80.37 N gain average value of 55.56	NR
Sari P, *et al*.(17)	Quasi-experimental	Active learning (counceling and PGD)	NR	Combination groups (counseling and peer education) knowledge 57.37, attitude 47.57; Counseling group knowledge 37.59, attitude 41.23; Peer educator group knowledge 31.43, attitude 49.76.	NR
Anggraeni HE, *et al*. (18)	Quasi-experimental	Active learning (Practical training)	leaflets	Pre-test 44.61±21.30, Post-test 81.70±8.95	NR
Widyasari V, *et al*.(19)	mixed-methods exploratory sequential	Active learning, Technology-enhanced	video, poster, leaflets	knowledge and personal behavior after the intervention (7.22 ± 1.34 pre-intervention to 7.70 ± 0.74 post-intervention and 9.75 ± 2.98 pre-ntervention to 12.16 ± 2.12 post-intervention	NR
Cahyati H, *et. al*. (20)	Quasi-experimental	Active learning (Counseling)	LCD media, book "AKSI SANTRI".	Knowledge average score before: 7.09, after: 8.69 Attitude average score before: 6.78, after: 8.63	NR
Liambana ES, *et. al*.(21)	pre-experimental One Group Pre-test-Post-test Design	Technology-enhanced	Video	pre-test knowledge category 54,0%, low 46,0%, post-test knowledge was high 98.0% and low 2,00%. Pre-test attitude positive 90,0%, negative 10,0%, while the post-test positive attitude 96,0% and negative 4,00%	NR

NR = Not Reported

Table 2. Patern Educational delivery Methods

No.	Educational Method	Frequency (n=17)	Percentage
1	Lecture (Traditional)	13	76.5%
2	Interactive Discussion / Peer Group	7	41.2%
3	Training / Role-play	5	29.4%
4	Technology-based (Video, Apps)	5	29.4%
5	Booklet / Leaflet / Poster	11	64.7%

The results in Table 2 indicate that Lectures remain the most common foundation for scabies education (76.5%), often paired with supporting media like booklets/leaflets (64.7%). However, there is a clear trend toward incorporating interactive methods (Discussion/Peer Group) and technology (videos, multimedia), recognizing the theoretical advantage of active learning, which aligns with Constructivist Learning Theory and Dale's Cone of Experience.(22)(23)

Effectiveness on Knowledge Enhancement

A highly consistent finding across all 17 studies was the statistically significant increase in knowledge scores (measured via pre- and post-test) following the educational interventions. This homogeneity confirms that almost any structured educational effort is superior to no intervention in raising awareness about scabies etiology, transmission, and prevention.

Studies utilizing peer-group education and interactive media often reported higher knowledge retention rates compared to studies relying solely on passive lectures, supporting Bandura's Social Learning Theory.(24)(25) The use of trained community members or peers as educators provided a more relatable and sustainable channel for transferring complex prevention practices, especially in contexts with low health literacy.

Impact on Scabies Prevalence Reduction

While all studies measured knowledge, only a smaller subset tracked the change in clinical outcomes (prevalence/incidence). The findings from these studies demonstrate the critical link between education, practice change, and disease control (Table 3).

Table 3. Education, practice change, and disease control**.**

	Initial Prevalence (%)	Final Prevalence (%)	Reduction Rate	Finding
School-based Education	High (e.g., >50%)	Significant Drop (e.g., <10%)	High	Education linked to immediate hygiene and rapid treatment, leading to drastic reduction (9).
Institutional Education	Moderate (e.g., 20-30%)	Moderate Drop/Stabilization	Varied	Success highly dependent on simultaneous treatment of all contacts and environmental factors (10).

A key finding is the Prevalence Paradox observed in some settings: a slight increase in knowledge scores did not always translate into a corresponding decrease in prevalence. This gap highlights that Knowledge (K) is necessary but insufficient to induce Practice (P). Sustained prevalence reduction requires:

1. Attitude Change: Overcoming cultural stigma (e.g., viewing scabies as a 'curse' rather than a treatable infection).
2. Adherence and Compliance: Ensuring patients and contacts comply fully with the often-complex pharmacological treatment regimen (simultaneous application/dosing).

3. Environmental Support: Providing access to necessary resources (clean water, laundry facilities) to facilitate preventive hygiene practices.

Conclusion

This systematic review confirms that educational strategies are an indispensable component of the global scabies elimination strategy. All reviewed interventions were successful in significantly enhancing knowledge regarding scabies prevention. The most effective methods combined traditional delivery (Lectures) with interactive components (Peer Group Discussion) and multimedia, aligning with modern learning theories that promote active engagement and social learning.

The primary limitation of this review is the heterogeneity of educational protocols and the varying quality of prevalence measurement across primary studies. Furthermore, the lack of standardized long-term follow-up data makes it challenging to conclusively determine the sustainability of knowledge retention and behavioral change.

Future research should prioritize Randomized Controlled Trials (RCTs) to compare the long-term effectiveness and cost-efficiency of different educational methods (e.g., digital-based vs. peer-group training). Policy makers should incorporate continuous, culturally tailored, and resource-backed education as a mandatory standard alongside mass drug administration programs..

Acknowledgments

Thank you to our teachers Prof. Dr. Muchlas Samani, M.Pd, Dr. Ratna Suhartini, M.Si for their guidance. Friends in the Class of 2023 even in the S3 Vocational Education program, my beloved husband Fatkhul Ulum, and my dear children Najmu Shuha, Aliyah Fania, and Muhammad Mahran Karami who are the main supporters in doing assignments. This paper triggers enthusiasm for completing education in the Postgraduate Program at Surabaya State University.

References:

1. WHO. New WHO regional strategy supports Indonesia's mission to end NTDs by 2030 [Internet]. 2024 [cited 2025 Feb 17]. Available from: https://www.who.int/indonesia/news/detail/19-11-2024-new-who-regional-strategy-supports-indonesia-s-mission-to-end-ntds-by-2030#:~:text=Of%2021%20NTDs%20globally%2C%2011,rabies%20and%20venomous%20snake%20bites.
2. WHO. Ending the Neglect to Attain the Sustainable Development Goals A Strategic Framework for Integrated Control and Management of Skin-Related Neglected Tropical Diseases. World Health Organization; 2022.
3. WHO South East Asia. Regional Strategic Framework for sustaining, accelerating and innovating to end neglected tropical diseases in the South-East Asia Region 2024-2030 [Internet]. World Health Organization. Regional Office for South-East Asia, editor. 2024 [cited 2025 Feb 17]. 1–84 p. Available from: https://www.who.int/publications/i/item/9789290211327
4. Hardy M, Samuela J, Kama M, Tuicakau M, Romani L, Whitfeld MJ, et al. Community control strategies for scabies: A cluster randomised noninferiority trial. PLoS Med. 2021 Nov 1;18(11).
5. Ibekwe P, Henshaw E, Otike-Odibi B, Okoh N, Ukonu B, Nnaji T, et al. Scabies education in secondary schools: A multicenter study. Ann Afr Med. 2020 Oct 1;19(4):263–8.
6. Wijayanti L, Ainiyah N. The effect of The Skin Personal Hygiene Modules as Health Education Media against Knowledge in Prevention of Skabies. Nurse and Health: Jurnal Keperawatan. 2019 May 25;8(1):1–7.

7. Bettrianto B, Rusdi M R, Hasibuan M H E, Elrifda S. Enhancing Scabies Prevention Knowledge in Boarding School Students through the BETRI Model for Health Promotion. Health Education and Health Promotion. 2025 Jan;13:39–46.
8. Talukder K, Talukder MQK, Farooque MG, Khairul M, Sharmin F, Jerin I, et al. Controlling scabies in madrasahs (Islamic religious schools) in Bangladesh. Public Health. 2013 Jan;127(1):83–91.
9. Tampubolon B, Karwati, Marwiyah. The Influence of Health Education on Clean and Healthy Living Behavior Using The Four-Step Method Media Leaflet on Behavioral Changes of Junior High School Students in Prevention of Scabies at Islamic Boarding Schools Darul Falah Cihampelas 2023. In: The International Conference on Health Sciences (TICHes). 2024.
10. Indriati I, Setyowati T, Abidin MZ. The Effectiveness of Health Promotion in Reducing of Skabies In The Islamic Boarding School. Journal Of Nursing Practice. 2019 Oct 6;3(1):8–13.
11. Husna N, Pohan A, Putra MAD, Isrona L, Firdawati F. Enhancing Scabies Knowledge among Indonesian Boarding School Students through a Wayang Video. Healthc Low Resour Settings. 2024 Apr 22;
12. Nurapandi A, Kusumawaty J, Kusmiawatidi N, Rosmiati R, Rahayu Y, Lismayanti L, et al. The Influence of Environmental Management and Personal Health Education on the Incidence of Scabies at Boarding School. KnE Life Sciences. 2022 Feb 7;
13. Purnamasari R, Retmono RI, Nazah EK. The Effect of Leaflet Media to Students Knowledge about Scabies in the Yanbu'ul Qur'an 1 Pati Boarding School. In: Nusantara Science and Technology Proceedings [Internet]. 2024. p. 6–10. Available from: https://nstproceeding.com/index.php/nuscientech/article/view/1269
14. Octovia Manalu L, Saumah S, Somantri Fakultas Keperawatan B, Kesehatan Rajawali I. The Effect of Health Education Clean and Healthy Living Behavior on Skabies Prevention Knowledge in Al-Basyariyah Islamic Boarding School, Bandung Regency Year 2022. Jurnal Pengabdian Masyarakat Kesehatan Stikes Pemkab Jombang. 2022 Dec;VIII(4).
15. Arfa Syukrowardi D, Nuru Alfiah S, Rachmaniah D, Ernawati E. The Effect of Peer Group Discussion (PGD)-Based Health Education in the Attitude and Behavior Toward Among Student in Boarding School. KnE Social Sciences. 2023 Aug 4;
16. Latipah N, Uliyandari M. Peningkatan Personal Hygiene Santri Pondok Pesantren Melalui Pengembangan Bahan Ajar Mata Pelajaran IPA Materi Klasifikasi Makhluk Hidup untuk Menurunkan Kasus Scabies. Edukasi Islami: Jurnal Pendidikan Islam. 2022 Feb 1;11:581–94.
17. Sari P. The Influence of Health Promotion Interventions Counseling and Peer Education Groups on Clean and Healthy Living Behaviors of Students in Islamic Boarding Schools. Jurnal Promkes. 2024 Sep 2;12(2):201–7.
18. Anggraeni HE, Paramitadevi YV, Apriliani F, Resmeiliana I. Assessing students' "clean and healthy living behavior" in an intervention program. Int J Publ Health Sci. 2023 Mar 1;12(1):56–63.
19. Widyasari V, Prabandari YS, Utarini A. Training intervention to improve hygiene practices in Islamic boarding school in Yogyakarta, Indonesia: A mixed-method study. PLoS One. 2020 May 1;15(5).
20. Cahyati HW, Siyam N, Karnowo. Pengembangan Buku "Aksi Santri" sebagai Upaya Early Detection Penyakit Kulit. HIGEIA Journal of Public Health Research and Development [Internet]. 2021 Apr; Available from: http://journal.unnes.ac.id/sju/index.php/higeia
21. Liambana ESM, Juliana N, Rahim F. Pengaruh Penyuluhan Kesehatan Melalui Media Video Terhadap Upaya Pencegahan Penyakit Skabies Di Pesantren Immim Putra Makassar. Journal of Heatth Quality Development. 2021 Jun;1(1):1–9.
22. Schunk DH. Learning theories : an educational perspective. Pearson; 2012. 561 p.
23. Baukal CE, Ausburn FB, Ausburn LJ. A Proposed Multimedia Cone of Abstraction: Updating a Classic Instructional Design Theory. I-manager's Journal of Educational Technology [Internet]. 2013 [cited 2025 Mar 7];9. Available from: https://files.eric.ed.gov/fulltext/EJ1101723.pdf

24. Bandura A. Social Learning Theory. In: Boone T, Reilly AJ, editors. Books. Interntional Author, B.V.; 1977. p. 348–88.
25. Bandura A. The Evolution of Social Cognitive Theory. In: Smith and Hitt: Great minds in Management [Internet]. 2005 [cited 2024 Dec 27]. p. 9–35. Available from: https://d37djvu3ytnwxt.cloudfront.net/assets/courseware/v1/e57a5dfc0367fe26ee4ff80c9433e74e/asset-v1:USMx+LDT100x+2T2017_2+type@asset+block/Bandura2005.pdf