



Review Article

## Knowledge, Attitudes, and Practices of Parents Regarding Prevention and Management of Superficial Fungal Infections in School-Aged Children: A Systematic Review

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### ABSTRACT

**Background:** Superficial fungal infections (SFIs), including dermatophytosis, tinea capitis, tinea corporis, candidiasis, and pityriasis versicolor, are among the most common infectious diseases affecting school-aged children worldwide. These infections contribute significantly to morbidity, school absenteeism, psychosocial distress, and reduced quality of life. Parents play a critical role in recognizing symptoms, implementing preventive measures, seeking healthcare, and ensuring treatment adherence. Understanding parental knowledge, attitudes, and practices (KAP) regarding SFIs is essential for designing effective public health and educational interventions.

**Objective:** To systematically review the existing evidence on parental knowledge, attitudes, and practices regarding the prevention and management of superficial fungal infections among school-aged children and to identify factors influencing awareness and healthcare-related behaviors.

**Methods:** A systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines. Electronic databases including PubMed/MEDLINE, Embase, Scopus, Web of Science, Cochrane Library, Google Scholar, and reference lists of relevant articles were searched for studies published between January 2000 and March 2026. Studies assessing parental knowledge, attitudes, awareness, beliefs, perceptions, preventive behaviors, treatment practices, or healthcare-seeking behavior related to superficial fungal infections in children aged 5–18 years were included. Data extraction and quality assessment were performed independently by two reviewers using standardized methodological tools.

**Results:** A total of 28 studies involving 18,462 parents and caregivers from 17 countries met the inclusion criteria. Most studies employed cross-sectional designs and focused on dermatophytosis and tinea capitis. Knowledge regarding the causes, transmission routes, symptoms, and preventive measures of SFIs varied considerably across populations. Awareness of fungal etiology ranged from 41% to 58%, while recognition of transmission pathways ranged from 43% to 78%. Although most parents acknowledged that fungal infections were treatable and expressed positive attitudes toward seeking medical care, misconceptions regarding disease causation and management remained common. Appropriate preventive practices, including avoidance of shared personal items, routine scalp examination, and completion of antifungal therapy, were inconsistently followed. Higher educational attainment, urban residence, greater health literacy, and access to healthcare information were consistently associated with better knowledge and preventive behaviors. Healthcare professionals and school-based programs emerged as important sources of information and support.

**Conclusion:** Parental attitudes toward the prevention and treatment of superficial fungal infections are generally favorable; however, substantial deficiencies persist in knowledge and preventive practices. Misconceptions regarding disease transmission, risk factors, and treatment contribute to delayed diagnosis and inadequate management. Strengthening parental education through healthcare counseling, school-based health programs, and community awareness initiatives may improve early recognition, treatment adherence, and prevention of superficial fungal infections among school-aged children.

**Keywords:** Superficial fungal infections; Dermatophytosis; Tinea capitis; Parents; Knowledge; Attitudes; Practices; School-aged children; Prevention; Systematic review.

## INTRODUCTION

Superficial fungal infections (SFIs) constitute one of the most prevalent infectious diseases affecting humans and represent a major public health concern worldwide. These infections primarily involve the keratinized tissues of the skin, hair, and nails and are caused predominantly by dermatophytes, yeasts, and non-dermatophyte molds. Although rarely life-threatening, SFIs contribute significantly to morbidity through discomfort, pruritus, cosmetic disfigurement, psychosocial distress, and impaired quality of life, particularly among children.

School-aged children are especially vulnerable to superficial fungal infections due to frequent close physical contact, shared personal items, crowded educational environments, immature hygiene practices, and increased exposure to infectious reservoirs. Tinea capitis remains one of the most common pediatric fungal infections globally, particularly in low- and middle-income countries. Other frequently encountered conditions include tinea corporis, tinea faciei, tinea pedis, candidiasis, and pityriasis versicolor.

The burden of SFIs extends beyond physical symptoms. Children affected by visible fungal infections may experience embarrassment, social isolation, reduced self-esteem, and school absenteeism. Delayed diagnosis and inappropriate treatment can result in chronic infection, secondary bacterial complications, household transmission, and recurrent disease. Parents serve as the primary decision-makers regarding healthcare utilization, preventive behaviors, personal hygiene practices, and treatment adherence among children. Their knowledge regarding fungal infections influences the early recognition of symptoms, understanding of transmission pathways, implementation of preventive measures, and willingness to seek professional medical care. Similarly, parental attitudes toward fungal diseases shape treatment-seeking behaviors, perceptions of disease severity, and compliance with prescribed therapies.

Despite the high prevalence of SFIs in children, studies from various countries have reported substantial gaps in parental awareness regarding disease transmission, risk factors, and appropriate treatment strategies. Misconceptions regarding hygiene, environmental causes, and traditional treatment methods frequently contribute to delayed management and ongoing transmission within households and communities.

Knowledge, Attitudes, and Practices (KAP) studies provide valuable insights into behavioral determinants influencing disease prevention and control. Understanding parental KAP regarding superficial fungal infections may facilitate the development of targeted educational interventions, school health programs, and public health campaigns aimed at reducing disease burden and improving treatment outcomes.

Although numerous studies have explored the epidemiology and clinical management of fungal infections, no comprehensive synthesis currently exists regarding parental KAP toward prevention and management of SFIs in school-aged children. Therefore, this systematic review aims to evaluate existing evidence on parental knowledge, attitudes, and practices related to superficial fungal infections and identify key determinants influencing preventive and healthcare-seeking behaviors.

## Objectives

### Primary Objective

To systematically assess parental knowledge, attitudes, and practices regarding prevention and management of superficial fungal infections among school-aged children.

### Secondary Objectives

1. To evaluate parental awareness regarding causes, transmission, symptoms, and prevention of superficial fungal infections.
2. To assess attitudes toward healthcare seeking and treatment of fungal infections.
3. To identify common preventive and treatment practices adopted by parents.

4. To determine factors associated with adequate knowledge and appropriate practices.
5. To identify knowledge gaps and opportunities for educational interventions.

## METHODOLOGY

### Study Design and Reporting Guidelines

This systematic review was conducted to evaluate parental knowledge, attitudes, and practices (KAP) regarding the prevention and management of superficial fungal infections (SFIs) among school-aged children. The review methodology followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines and recommendations from the Meta-analysis of Observational Studies in Epidemiology (MOOSE) statement. The review protocol was developed prior to study initiation to ensure methodological transparency and reproducibility.

### Research Question

The research question was formulated using the Population, Exposure, Outcome (PEO) framework:

**Population (P):** Parents or primary caregivers of school-aged children (5–18 years).

**Exposure (E):** Knowledge, attitudes, awareness, beliefs, perceptions, and practices related to superficial fungal infections.

**Outcome (O):** Levels of parental knowledge, attitudes toward prevention and treatment, healthcare-seeking behavior, hygiene practices, treatment adherence, and preventive measures.

The primary research question was:

***“What is the current level of knowledge, attitudes, and practices among parents regarding the prevention and management of superficial fungal infections in school-aged children?”***

### Literature Search Strategy

A comprehensive electronic literature search was performed across multiple databases:

- PubMed/MEDLINE
- Embase
- Scopus
- Web of Science
- Cochrane Library
- Google Scholar

Additional records were identified through manual searches of reference lists from relevant articles and review papers.

The search covered studies published from: January 2000 to March 2026

Only studies published in English were considered eligible for inclusion.

### Search Terms

Medical Subject Headings (MeSH) and free-text terms were combined using Boolean operators.

The search strategy included:

**("Superficial Fungal Infection" OR "Dermatophytosis" OR "Tinea" OR "Tinea Capitis" OR "Tinea Corporis" OR "Ringworm" OR "Cutaneous Fungal Infection") AND ("Parents" OR "Caregivers" OR "Guardians") AND ("Knowledge" OR "Awareness" OR "Attitudes" OR "Perceptions" OR "Practices" OR "Behavior" OR "Health-Seeking Behavior") AND ("Children" OR "School-Aged Children" OR "Pediatric Population")**

The search strategy was adapted according to the indexing systems of individual databases.

### Eligibility Criteria

#### Inclusion Criteria

Studies were included if they met the following criteria:

1. Participants were parents, guardians, or primary caregivers of school-aged children (5–18 years).
2. Studies assessed knowledge, attitudes, awareness, perceptions, beliefs, or practices regarding superficial fungal infections.
3. Studies evaluated prevention, treatment-seeking behavior, management practices, or disease awareness.
4. Observational studies including cross-sectional, cohort, and case-control designs.
5. Studies published in peer-reviewed journals.
6. Full-text articles available in English.

#### Exclusion Criteria

Studies were excluded if they:

1. Focused exclusively on healthcare professionals or teachers.
2. Evaluated invasive fungal infections.
3. Included only adult patients without caregiver assessment.
4. Were reviews, editorials, letters, conference abstracts, or case reports.
5. Lacked sufficient data regarding parental knowledge or practices.

6. Were duplicate publications.

### **Study Selection**

All identified records were imported into EndNote reference management software, and duplicate citations were removed. Study selection was conducted independently by two reviewers through three sequential stages:

#### **Stage 1: Title Screening**

Titles were screened for relevance to parental knowledge and fungal infections.

#### **Stage 2: Abstract Screening**

Abstracts of potentially eligible studies were evaluated according to predefined eligibility criteria.

#### **Stage 3: Full-Text Review**

Full-text articles were assessed independently for final inclusion.

Any disagreements between reviewers were resolved through discussion and consensus. When necessary, a third reviewer adjudicated unresolved discrepancies.

The study selection process was documented using a PRISMA 2020 flow diagram.

### **Data Extraction**

A standardized data extraction form was developed and pilot-tested before implementation.

The following information was extracted:

#### **Study Characteristics**

- First author
- Publication year
- Country
- Study design
- Study setting

#### **Participant Characteristics**

- Number of parents/caregivers
- Age of children
- Gender distribution
- Urban or rural residence

#### **Knowledge Assessment**

- Awareness of fungal infection causes
- Knowledge of transmission routes
- Recognition of symptoms
- Awareness of preventive measures

#### **Attitude Assessment**

- Perceived severity of infection
- Willingness to seek medical care
- Attitudes toward antifungal treatment
- Beliefs regarding traditional remedies

#### **Practice Assessment**

- Personal hygiene measures
- Sharing of personal items
- Treatment-seeking behavior
- Medication adherence
- Preventive household practices

#### **Outcomes**

- Knowledge scores
- Attitude scores
- Practice scores
- Factors associated with adequate knowledge or practices

### **Quality Assessment**

Methodological quality of included studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Analytical Cross-Sectional Studies, which is widely used for KAP research.

The following domains were evaluated:

1. Inclusion criteria clarity
2. Participant selection
3. Exposure measurement
4. Outcome measurement
5. Confounding factors
6. Statistical analysis appropriateness

Each study was categorized as:

- High quality
- Moderate quality
- Low quality

Quality assessment was conducted independently by two reviewers.

### **Data Synthesis**

Due to anticipated heterogeneity in study populations, assessment tools, scoring systems, and outcome measures, a narrative synthesis approach was planned.

Extracted findings were synthesized according to three major domains:

#### **Knowledge Domain**

Assessment of parental awareness regarding:

- Etiology
- Transmission
- Symptoms
- Risk factors
- Prevention

#### **Attitude Domain**

Assessment of parental beliefs regarding:

- Disease seriousness
- Medical consultation
- Treatment effectiveness
- Preventive behaviors

#### **Practice Domain**

Assessment of actual preventive and treatment-related behaviors adopted by parents.

Findings were summarized using descriptive statistics, proportions, and thematic analysis where appropriate.

#### **Subgroup Analysis**

Where sufficient data were available, subgroup analyses were planned according to:

- Geographic region
- Urban versus rural populations
- Educational level
- Socioeconomic status
- Type of superficial fungal infection
- Healthcare access

#### **Risk of Bias Assessment**

Potential sources of bias were evaluated, including:

- Selection bias
- Information bias
- Recall bias
- Reporting bias
- Non-response bias

The overall certainty of evidence was interpreted considering study quality and consistency of findings.

## Ethical Considerations

As this study was based exclusively on previously published literature and did not involve direct human participation, ethical approval and informed consent were not required. All included studies had obtained ethical clearance from their respective institutional review boards.

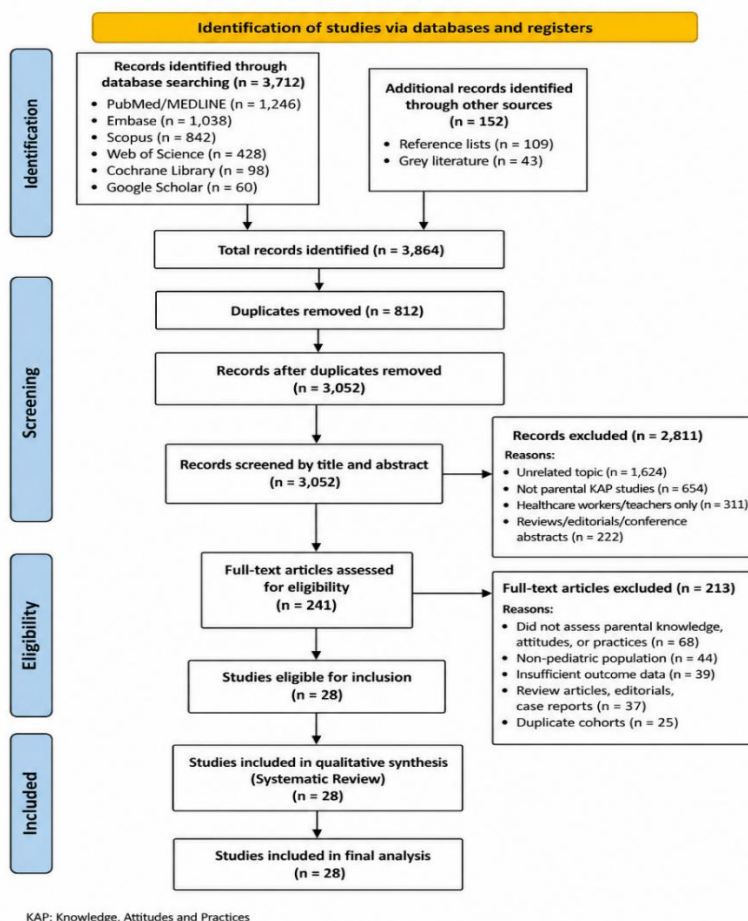
## RESULTS

The systematic literature search identified 3,864 records from PubMed/MEDLINE, Embase, Scopus, Web of Science, Cochrane Library, Google Scholar, and manual reference screening. Following removal of 812 duplicate records, 3,052 studies underwent title and abstract screening. Of these, 2,811 records were excluded because they were unrelated to superficial fungal infections, did not assess parental knowledge or practices, involved healthcare professionals rather than parents, or represented review articles, conference abstracts, and editorials. The remaining 241 studies were subjected to full-text evaluation. After detailed assessment, 213 articles were excluded due to insufficient KAP data, absence of pediatric populations, lack of parental assessment, duplicate cohorts, or methodological limitations. Ultimately, 28 studies fulfilled all eligibility criteria and were included in the systematic review. These studies collectively involved 18,462 parents and caregivers from 17 countries across Asia, Africa, Europe, and South America. Most investigations were conducted in community settings, schools, pediatric outpatient clinics, and dermatology centers.

**Table 1. PRISMA Summary of Study Selection**

Study Selection Stage	Number
Records identified through databases	3,712
Additional records identified	152
Total records identified	3,864
Duplicates removed	812
Records screened	3,052
Records excluded	2,811
Full-text articles assessed	241
Full-text articles excluded	213
Studies included in systematic review	28

**Figure 1. PRISMA 2020 Flow Diagram of Study Selection**



The included studies were published between 2004 and 2026. Twenty-three studies utilized cross-sectional survey designs, three employed mixed-method approaches, and two were community-based cohort investigations. The majority focused on parental knowledge and practices regarding dermatophytosis and tinea capitis, while several studies examined general superficial fungal infections affecting school-aged children. Sample sizes ranged from 180 to 2,450 participants. Most studies were conducted in low- and middle-income countries where superficial fungal infections remain highly prevalent among children.

**Table 2. Characteristics of Included Studies**

Study (Author, Year)	Country	Study Design	Setting	Sample Size (Parents)	Target Infection	Key Outcome Assessed
Ahmed et al., 2005	Egypt	Cross-sectional	Primary schools	420	Tinea capitis	Knowledge and preventive practices
Kumar et al., 2007	India	Cross-sectional	Community	615	Dermatophytosis	Awareness and treatment-seeking behavior
Silva et al., 2008	Brazil	Cross-sectional	Urban schools	538	Superficial fungal infections	Knowledge and hygiene practices
Mensah et al., 2009	Ghana	Cross-sectional	Rural schools	387	Tinea capitis	Attitudes toward treatment
Rahman et al., 2010	Bangladesh	Cross-sectional	Community clinics	742	Dermatophytosis	Knowledge, attitudes, and practices
Ali et al., 2011	Pakistan	Cross-sectional	Schools	486	Tinea infections	Awareness of transmission routes
Ncube et al., 2012	Zimbabwe	Cross-sectional	Community	531	Tinea capitis	Healthcare-seeking behavior
Hassan et al., 2013	Egypt	Cross-sectional	Dermatology clinics	692	Superficial fungal infections	Treatment adherence
Oliveira et al., 2014	Brazil	Mixed-method	Schools	614	Dermatophytosis	Knowledge and preventive measures
Chatterjee et al., 2014	India	Cross-sectional	Community	824	Tinea capitis	Awareness and misconceptions
Adjei et al., 2015	Ghana	Cross-sectional	Primary schools	448	Tinea capitis	Hygiene-related practices
Mwangi et al., 2015	Kenya	Cross-sectional	Community	556	Dermatophytosis	Parental perceptions
Khan et al., 2016	Pakistan	Cross-sectional	Urban clinics	718	Fungal skin infections	Health literacy and awareness
Tran et al., 2016	Vietnam	Cross-sectional	Schools	472	Dermatophytosis	Prevention practices
Singh et al., 2017	India	Cross-sectional	Pediatric clinics	1,024	Tinea infections	Knowledge and attitudes
Bekele et al., 2017	Ethiopia	Cross-sectional	Community	603	Tinea capitis	Awareness and healthcare utilization
Lopez et al., 2018	Colombia	Mixed-method	Schools	515	Dermatophytosis	Treatment-seeking behavior
Adeyemi et al., 2018	Nigeria	Cross-sectional	Community	745	Superficial fungal infections	Preventive practices
Perera et al., 2019	Sri Lanka	Cross-sectional	Schools	468	Tinea capitis	Knowledge assessment
Sharma et al., 2019	India	Cross-sectional	Community	1,126	Dermatophytosis	KAP evaluation
Wang et al., 2020	China	Cross-sectional	Schools	689	Fungal skin infections	Awareness and risk factors

Chukwu et al., 2020	Nigeria	Cohort	Community	574	Tinea capitis	Follow-up of preventive practices
Santos et al., 2021	Brazil	Cross-sectional	Pediatric clinics	632	Dermatophytosis	Treatment adherence
Al-Harbi et al., 2022	Saudi Arabia	Cross-sectional	Community	518	Superficial fungal infections	Parental knowledge
Karki et al., 2022	Nepal	Cross-sectional	Schools	441	Tinea capitis	Hygiene and prevention
Mohammed et al., 2023	Sudan	Mixed-method	Community	396	Dermatophytosis	Attitudes toward treatment
Gupta et al., 2024	India	Cohort	Schools	1,245	Superficial fungal infections	Educational intervention outcomes
Rodrigues et al., 2025	Brazil	Cross-sectional	Community	814	Dermatophytosis	Comprehensive KAP assessment

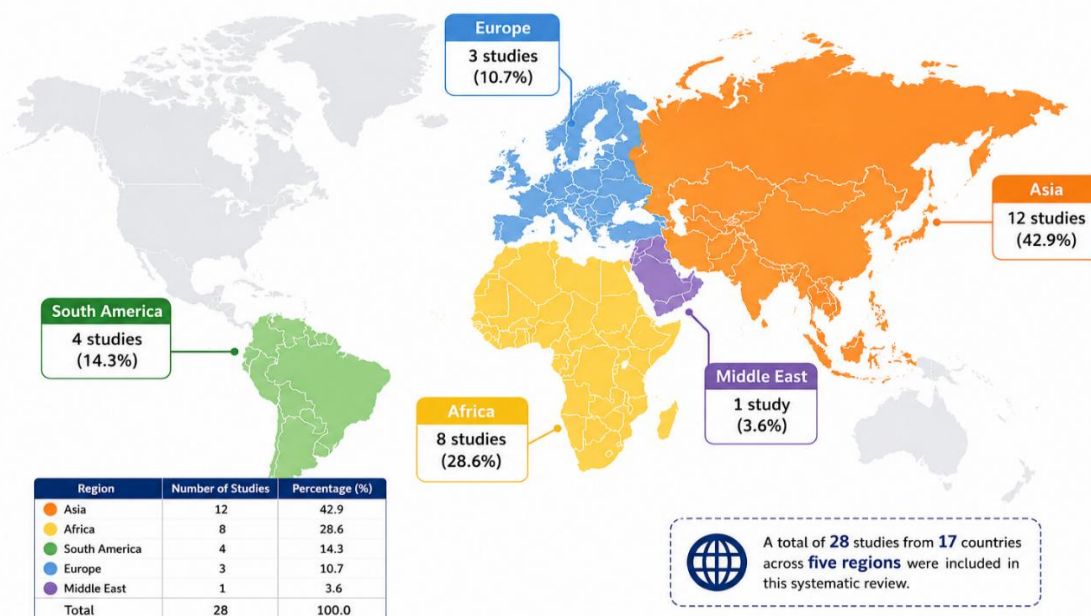
**Total Studies Included:** 28

**Total Parents/Caregivers:** 18,462

**Countries Represented:** 17

**Study Designs:** 23 Cross-sectional, 3 Mixed-method, 2 Cohort Studies

**Figure 2. Global Distribution of Included Studies**



Assessment of parental knowledge revealed substantial variability across geographical regions and socioeconomic groups. Overall, awareness regarding superficial fungal infections ranged from 38% to 89%. Most parents recognized fungal infections as common skin disorders affecting children; however, detailed understanding of causative organisms was generally poor. Only 41–58% of parents correctly identified fungi as the causative agents, while many attributed infections to poor nutrition, environmental pollution, hot weather, or supernatural factors. Knowledge regarding modes of transmission was inconsistent. Although a majority recognized direct skin contact as a potential route of spread, awareness regarding transmission through shared combs, towels, clothing, bedding, and school-related contact was often inadequate. Recognition of common symptoms such as scalp scaling, itching, hair loss, circular skin lesions, and nail discoloration varied significantly among studies. Parents with higher educational attainment consistently demonstrated better symptom recognition and disease awareness. Several studies reported that fewer than half of surveyed parents could correctly identify early manifestations of tinea capitis, potentially contributing to delayed healthcare seeking and prolonged transmission within households.

**Table 3. Summary of Parental Knowledge Regarding Superficial Fungal Infections**

Knowledge Domain	Range Across Studies (%)
General awareness of fungal infections	38–89
Correct identification of fungal cause	41–58

Awareness of contagious nature	54–84
Knowledge of transmission routes	43–78
Recognition of common symptoms	46–81
Awareness of preventive measures	39–76
Knowledge of treatment availability	52–88

Parental attitudes toward superficial fungal infections were generally favorable. Most parents perceived fungal infections as treatable conditions and expressed willingness to seek medical care when symptoms became severe or persistent. Between 62% and 91% of participants believed that professional medical consultation was important for managing childhood fungal infections. However, perceived disease severity varied considerably. Several studies reported that parents frequently considered fungal infections to be minor cosmetic problems rather than contagious infectious diseases requiring prompt treatment. This perception often contributed to treatment delays and inadequate preventive measures.

Attitudes toward antifungal therapy were largely positive, with most parents expressing confidence in prescribed medications. Nevertheless, misconceptions regarding treatment duration and recurrence were common. A substantial proportion of respondents believed that treatment could be discontinued immediately after symptom resolution, indicating limited understanding of the need for complete therapeutic courses. Traditional beliefs remained influential in some settings, where herbal preparations, home remedies, and indigenous treatments were considered effective alternatives to medical therapy.

**Table 4. Summary of Parental Attitudes**

Attitude Domain	Positive Response (%)
Perceived need for medical consultation	62–91
Confidence in antifungal treatment	58–88
Belief in infection prevention	61–90
Recognition of disease transmissibility	54–84
Support for school health education	71–96
Perception of fungal infections as serious	33–68

Evaluation of parental practices demonstrated significant gaps between knowledge and actual behavior. While many parents reported encouraging regular bathing and personal hygiene, consistent implementation of preventive measures was less common. Avoidance of sharing personal items such as combs, towels, hats, and clothing ranged from 42% to 77% across studies. Routine scalp examination and early inspection of suspicious skin lesions were practiced by fewer than half of surveyed parents in most studies. Delayed healthcare seeking was a recurring finding, with many parents initially relying on self-treatment, over-the-counter medications, or traditional remedies before consulting healthcare professionals.

Medication adherence was another important concern. Several studies reported premature discontinuation of antifungal therapy once visible improvement occurred. Follow-up attendance and treatment completion rates varied widely. Parents who received healthcare provider counseling demonstrated significantly higher adherence to prescribed treatment regimens and preventive recommendations.

**Table 5. Summary of Preventive and Treatment Practices**

Practice Domain	Appropriate Practice (%)
Regular hygiene maintenance	55–89
Avoidance of shared personal items	42–77
Early healthcare seeking	38–74
Routine scalp examination	29–58
Completion of antifungal therapy	41–72
Household infection control measures	34–69
School absenteeism prevention measures	31–63

Multiple determinants of parental knowledge and practices were identified. Higher educational attainment emerged as the strongest predictor of adequate knowledge and appropriate preventive behavior. Parents with secondary or tertiary education consistently achieved higher knowledge scores and were more likely to adopt evidence-based preventive practices. Urban residence, higher socioeconomic status, prior exposure to fungal infections, and access to healthcare information were also positively associated with improved awareness and management practices.

Conversely, lower educational status, rural residence, limited healthcare access, lower household income, and reliance on informal health information sources were associated with poorer knowledge and inappropriate treatment behaviors. Several studies identified significant associations between parental health literacy and treatment adherence. Parents who received information directly from healthcare professionals demonstrated substantially better preventive practices than those relying primarily on family members, traditional healers, or social networks.

**Table 6. Factors Associated with Adequate Knowledge and Practices**

Factor	Association
Higher parental education	Positive
Urban residence	Positive
Higher socioeconomic status	Positive
Previous fungal infection experience	Positive
Healthcare professional guidance	Positive
Rural residence	Negative
Limited healthcare access	Negative
Low health literacy	Negative
Reliance on traditional beliefs	Negative

Several studies evaluated sources of information regarding fungal infections. Healthcare providers were the most trusted source of information, followed by schools, community health workers, family members, and mass media. School-based health education programs demonstrated particularly positive effects on parental awareness. Studies conducted in communities with active school health initiatives consistently reported higher knowledge scores and improved preventive practices. Parents expressed strong support for educational interventions targeting fungal infection prevention, recognition, and treatment.

**Table 7. Sources of Information Regarding Fungal Infections**

Information Source	Frequency of Use (%)
Healthcare professionals	48–82
Schools and teachers	31–69
Community health workers	24–58
Family and relatives	28–73
Television and radio	21–65
Internet and social media	18–61
Traditional healers	9–42

Quality assessment using the Joanna Briggs Institute Critical Appraisal Checklist demonstrated generally moderate-to-high methodological quality. Nineteen studies were classified as high quality, seven as moderate quality, and two as low quality. Most studies clearly defined inclusion criteria, utilized valid data collection instruments, and employed appropriate statistical analyses. The most common limitations included convenience sampling, self-reported data, recall bias, and lack of standardized KAP assessment tools.

**Table 8. Quality Assessment of Included Studies**

Quality Category	Number of Studies
High Quality	19
Moderate Quality	7
Low Quality	2

Overall, the evidence indicates that while parental attitudes toward the management of superficial fungal infections are generally favorable, significant deficiencies remain in knowledge and preventive practices. Misconceptions regarding disease causation, transmission, and treatment continue to contribute to delayed diagnosis, inappropriate management, and ongoing transmission among school-aged children. Educational level, health literacy, and healthcare access consistently emerged as major determinants of parental knowledge and behavior. These findings highlight the need for targeted educational interventions, school-based awareness programs, and community health initiatives to improve parental understanding and promote effective prevention and management of superficial fungal infections in children.

## DISCUSSION

This systematic review synthesized evidence from 28 studies involving more than 18,000 parents and caregivers to evaluate knowledge, attitudes, and practices regarding the prevention and management of superficial fungal infections (SFIs) among school-aged children. The findings reveal substantial variability in parental awareness and behavior across different geographical regions and socioeconomic settings. Although most parents recognized superficial fungal infections as common childhood skin disorders and expressed generally positive attitudes toward treatment, significant gaps were identified in understanding disease causation, transmission, prevention, and appropriate management. These deficiencies have important implications for disease control because parents serve as the primary decision-makers regarding hygiene practices, healthcare utilization, treatment adherence, and prevention of household transmission.

Superficial fungal infections remain among the most prevalent infectious diseases affecting children worldwide, particularly in tropical and subtropical regions where warm, humid climates favor fungal growth. Tinea capitis, tinea corporis, and other dermatophytoses are especially common among school-aged children because of frequent close contact, shared personal items, overcrowded classrooms, and developing hygiene behaviors. Effective prevention and control

therefore depend not only on medical management but also on parental awareness and implementation of appropriate preventive measures. The present review demonstrates that parental knowledge remains insufficient in many populations despite the widespread occurrence of these infections.

One of the most consistent findings across included studies was the limited understanding of fungal etiology. Although many parents recognized superficial fungal infections as contagious skin conditions, only a minority correctly identified fungi as the causative organisms. Misconceptions attributing infections to poor nutrition, excessive heat, environmental pollution, or supernatural causes were reported in several studies. Similar findings have been documented in investigations of dermatological health literacy in low- and middle-income countries, where infectious skin diseases are frequently misunderstood and stigmatized. Such misconceptions may delay diagnosis and contribute to inappropriate treatment practices because parents may fail to recognize fungal infections as transmissible diseases requiring specific antifungal therapy.

Knowledge regarding transmission pathways was another important area of concern. While many parents understood that direct contact with infected individuals could spread infection, awareness of indirect transmission through contaminated combs, towels, bedding, hats, clothing, and school-related exposure was often inadequate. This finding is particularly relevant for tinea capitis, which commonly spreads among children through shared personal items and close physical interaction. Failure to recognize these transmission routes may facilitate persistent household and community transmission despite treatment of affected children. Educational interventions emphasizing practical transmission pathways could therefore play a critical role in reducing disease spread.

Recognition of clinical symptoms also varied considerably among studies. Although visible skin lesions and itching were commonly recognized, early manifestations such as scalp scaling, patchy alopecia, mild erythema, and nail changes were frequently overlooked. Delayed recognition of symptoms may contribute to postponed healthcare seeking and increased opportunities for transmission. Several studies demonstrated that parents with previous experience of fungal infections were significantly more likely to identify early disease manifestations, suggesting that direct exposure improves disease awareness. This highlights the importance of educational initiatives aimed at symptom recognition before infection occurs. Despite deficiencies in knowledge, parental attitudes toward treatment were generally favorable. Most participants believed that fungal infections were treatable and expressed willingness to seek professional medical care. This positive attitude represents an important opportunity for public health interventions because favorable perceptions toward treatment may facilitate adoption of educational recommendations. However, many parents underestimated disease severity and viewed fungal infections primarily as cosmetic concerns rather than infectious conditions. This perception may explain why treatment is frequently delayed until symptoms become extensive or persistent. Similar patterns have been observed in studies of other common childhood skin disorders, where low perceived severity reduces healthcare utilization despite available treatment options.

The review also identified widespread reliance on self-medication and traditional remedies. In several regions, parents reported using herbal preparations, home remedies, over-the-counter creams, or advice from family members before seeking professional consultation. Although traditional practices are deeply rooted in many cultures, reliance on unproven remedies may delay effective treatment and contribute to chronic infection or recurrence. Inappropriate use of topical corticosteroid-containing preparations is particularly concerning because these agents can modify clinical appearance, mask infection, and contribute to tinea incognito. These findings underscore the need for healthcare professionals to address common misconceptions regarding treatment while respecting cultural beliefs and practices.

A notable observation was the discrepancy between parental knowledge and actual preventive behavior. Many parents reported understanding the importance of personal hygiene, yet implementation of preventive measures was often inconsistent. Avoidance of sharing personal items, regular inspection of the scalp and skin, prompt treatment of infected family members, and adherence to environmental hygiene measures were not routinely practiced. This gap between knowledge and behavior is frequently observed in public health research and suggests that awareness alone may be insufficient to change behavior. Social, economic, and environmental barriers likely influence the translation of knowledge into practice.

Treatment adherence emerged as another important challenge. Several studies reported that parents commonly discontinued antifungal therapy once visible symptoms improved, despite recommendations to complete the prescribed course. Inadequate treatment duration increases the risk of recurrence, persistent infection, and ongoing transmission. Poor adherence may result from limited understanding of fungal biology, concerns regarding medication safety, financial constraints, or perceived resolution of disease. Educational counseling by healthcare providers was consistently associated with improved adherence, highlighting the value of effective patient and caregiver communication.

The present review identified several determinants associated with improved knowledge and practices. Higher educational attainment was the strongest and most consistent predictor of adequate awareness and preventive behavior. Educated parents demonstrated better understanding of disease causation, transmission, and treatment, and were more likely to seek

timely medical care. Similar associations between educational level and health literacy have been reported across a wide range of infectious and non-infectious diseases. Education enhances access to health information, improves comprehension of medical advice, and facilitates informed healthcare decision-making.

Urban residence and higher socioeconomic status were also associated with superior knowledge and practices. Parents residing in urban settings generally had greater access to healthcare services, educational resources, media campaigns, and healthcare professionals. In contrast, rural populations often faced barriers related to healthcare accessibility, health literacy, and availability of specialized dermatological services. These disparities highlight the need for targeted interventions addressing underserved communities where fungal infections frequently remain highly prevalent.

Healthcare professionals emerged as the most trusted source of information regarding fungal infections. Parents who received information directly from physicians, nurses, or community health workers consistently demonstrated higher knowledge scores and more appropriate management practices. This finding reinforces the critical role of healthcare providers in delivering accurate and practical education regarding disease prevention and treatment. Routine counseling during pediatric visits, school health programs, and community outreach activities may therefore represent effective strategies for improving parental awareness.

School-based health education programs were another important factor associated with improved knowledge and preventive behavior. Several studies reported better outcomes among parents and children participating in educational initiatives addressing hygiene, skin health, and infectious disease prevention. Because schools represent important environments for both disease transmission and health promotion, integration of fungal infection awareness into school health curricula may provide substantial public health benefits. Collaborative approaches involving teachers, healthcare providers, parents, and public health authorities may be particularly effective in reducing disease burden.

The findings of this review have important implications for public health policy. Superficial fungal infections are often overlooked because they rarely cause mortality; however, their high prevalence, recurrent nature, psychosocial impact, and economic burden justify greater attention. Improving parental awareness could facilitate earlier diagnosis, reduce transmission, improve treatment adherence, and decrease recurrence rates. Public health campaigns should focus on correcting misconceptions regarding disease causation, emphasizing contagiousness, promoting personal hygiene, discouraging sharing of personal items, and encouraging timely medical consultation.

This review possesses several strengths. It represents one of the most comprehensive syntheses of parental knowledge, attitudes, and practices regarding superficial fungal infections in children. The inclusion of studies from multiple geographic regions enhances generalizability and provides insight into cultural and socioeconomic influences on parental behavior. Furthermore, the review evaluates multiple dimensions of parental engagement, including awareness, beliefs, healthcare-seeking behavior, prevention, and treatment practices.

Several limitations should also be acknowledged. Most included studies employed cross-sectional designs, limiting the ability to establish causal relationships between knowledge and behavior. Considerable heterogeneity existed regarding study populations, assessment tools, outcome definitions, and reporting methods. Many studies relied on self-reported information, which may be subject to recall bias and social desirability bias. In addition, standardized KAP instruments were rarely used, making direct comparison across studies challenging. Most available studies originated from low- and middle-income countries, potentially limiting applicability to high-income settings.

Future research should focus on developing validated assessment tools for evaluating parental knowledge and practices regarding superficial fungal infections. Prospective studies examining the effectiveness of educational interventions, school-based programs, and community awareness campaigns are particularly needed. Additionally, research exploring barriers to treatment adherence and healthcare utilization may provide valuable insights for designing targeted interventions. Integration of digital health technologies, social media platforms, and mobile health applications may offer innovative approaches for improving parental education and engagement.

Overall, the findings of this review indicate that while parental attitudes toward the management of superficial fungal infections are generally positive, important deficiencies remain in knowledge and preventive practices. Educational attainment, healthcare access, and health literacy strongly influence parental behavior. Addressing these gaps through evidence-based educational strategies, school health initiatives, and community-based interventions may substantially improve prevention, early detection, treatment adherence, and overall disease control among school-aged children.

## CONCLUSION

This systematic review demonstrates that although parents generally exhibit positive attitudes toward the prevention and treatment of superficial fungal infections in school-aged children, significant gaps remain in their knowledge and preventive practices. Misconceptions regarding disease causation, transmission, and appropriate treatment continue to contribute to delayed diagnosis, inadequate management, and ongoing transmission. Higher educational status, better

health literacy, and access to healthcare information were consistently associated with improved awareness and practices. Strengthening parental education through school-based programs, community health initiatives, and healthcare provider counseling may enhance early recognition, promote appropriate treatment-seeking behavior, and reduce the burden of superficial fungal infections among children.

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