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قسم الجلدية

Clinical Presentation and Risk Factors of Tinea Capitis in Children up to 15 Years Old in Major Referral Hospitals, Sana'a City, Yemen , 2024

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Dedication

We, the authors, dedicate this research to our families, whose unwavering support, patience, and encouragement have been our guiding lights throughout this journey. Your belief in us has been the foundation of our strength and determination.

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List of Abbreviations

WHO	World Health Organization
SPSS	Statistical Package for the Social Sciences
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
SD	Standard Deviation
YER	Yemeni Rial

Abstract

Background: Tinea capitis is an important superficial infection that affects children globally, known as scalp ringworm; it is a dermatophyte infection of the scalp predominantly affecting prepubertal children and caused by dermatophytic fungi. It accounts for up to 92.5% of dermatophytosis in children under 15 years. The prevalence and clinical characteristics of tinea capitis among children in Yemen remain largely unexplored.

Objective: To assess the clinical presentation and risk factors, and confirm the diagnosis by KOH skin scraping of tinea capitis in children attending dermatological clinics in Sana'a City, Yemen, in 2024.

Methods: A cross-sectional study was conducted over three months, from March 1st to may 30th, 2024. Data were collected from 82 children under 15 years old attending dermatological clinics. A structured questionnaire was used to gather information on demographic characteristics, clinical features, symptoms, and risk factors. The study was conducted over a period of seven months, from 1st March to 30th September 2024. The study included all children up to 15 years old in clinics of three major referral hospitals in Sana'a City, Yemen, specifically at Al-Thawra General Hospital, Al-Gomhori Teaching Hospital, and Al-Kuwait University Hospital. Data collection was obtained by using a structured questionnaire, which was designed to capture detailed information on socio-demographic data of the participants, the clinical presentation of tinea capitis, and associated risk factors. Data were collected by a team of thirteen trained medical students. A p-value of less than 0.05 was considered statistically significant using SPSS version 26. Data were evaluated for demographic and other clinical characteristics as definite variables. Consent was obtained from 21 September University.

Results: The majority of participants were male (67%) and had a mean age of (9.13+4.30) years (47.6%). Most children resided in urban areas (78.05%) and came from large families with more than six members (89%). The most common symptoms were hair scales (85.4%), itching (68.3%), and hair loss (67.1%). Significant risk factors included sharing personal equipment (28%), poor house ventilation (36.6%), animal contact (pets) (50%), immune deficiency (15.9%), and Habitual head covering (31.7%), lower maternal education levels (43.9%), not attending school, hygiene practices, and delayed healthcare seeking due to low income.

Conclusion and Recommendation: Tinea capitis constitutes a significant public health issue among children in Sana'a City, Yemen. Targeted public health interventions focusing on hygiene practices are crucial to reducing the transmission of tinea capitis. Public education should emphasize the importance of personal hygiene, including regular hair washing and avoiding the sharing of personal items such as combs and hats. It is recommendation to implement dermatological disease programs aimed at conducting awareness campaigns and performing dermatological examination prior to school enrollment. Improving accessibility to dermatological healthcare services is essential to ensure early detection and management. Furthermore, additional research is warranted to elucidate the epidemiology of tinea capitis across various regions of Yemen.

Keywords : Tinea capitis, dermatophytes, risk factors, Sana'a City, Yemen.

الخلاصة

سعفة الرأس هي عدوى سطحية مهمة وتؤثر على الأطفال على مستوى العالم، والمعروفة باسم سعفة فروة الرأس، وهي عدوى جلدية في فروة الرأس تؤثر في الغالب على الأطفال قبل البلوغ وتسببها الفطريات الجلدية. و تمثل ما يصل إلى 92.5% من حالات الفطار الجلدي لدى الأطفال دون سن 15 عامًا .لا يزال انتشار سعفة الرأس وخصائصها السريرية بين الأطفال في اليمن غير مستكشفة إلى حد كبير

الهدف :تقييم العرض السريري وعوامل الخطر وتأكيد التشخيص عن طريق كشط الجلد لسعفة الرأس لدى الأطفال الذين يترددون على عيادات الأمراض الجلدية في مدينة صنعاء، اليمن، في 2024.

الطرق :أجريت دراسة مقطعية تحليلية على مدار ثلاثة أشهر، من 1 مارس إلى 30 مايو 2024. وتم جمع البيانات من 82 طفلاً تقل أعمارهم عن 15 عامًا يرتادون عيادات الأمراض الجلدية .تم استخدام استبيان منظم لجمع معلومات عن الخصائص الديموغرافية والسمات السريرية والأعراض وعوامل الخطر .أجريت الدراسة على مدى سبعة أشهر، من 1 مارس إلى 30 سبتمبر 2024. وشملت جميع الأطفال حتى سن 15 عامًا في عيادات ثلاثة مستشفيات في مدينة صنعاء، اليمن، وتحديدًا في مستشفى الثورة العام .والمستشفى الجمهوري التعليمي ومستشفى جامعة الكويت. تم جمع البيانات باستخدام استبيان منظم، تم تصميمه للحصول على معلومات مفصلة عن البيانات الاجتماعية والديموغرافية للمشاركين، والعرض السريري لسعفة الرأس، وعوامل الخطر المرتبطة بها. تم جمع البيانات بواسطة فريق مكون من ثلاثة عشر طالب طب تم تدريبهم .واعتبرت القيمة الاحتمالية التي تقل عن 0.05 ذات دلالة إحصائية باستخدام الإصدار 26 من برنامج SPSS. تم تقييم البيانات للخصائص الديموغرافية والسريرية الأخرى كمتغيرات محددة .تم الحصول على الموافقة من جامعة 21 سبتمبر.

النتائج :غالبية المشاركين كانوا من الذكور (67%) وكان متوسط اعمارهم (4.30+9.13) سنوات .(47.6%) يقيم معظم الأطفال في المناطق الحضرية (78.05%) وينحدرون من أسر كبيرة تضم أكثر من 6 أفراد .(89%) وكانت الأعراض الأكثر شيوعاً هي قشور الشعر (85.4%) والحكة (68.3%) وتساقط الشعر (67.1%). وشملت عوامل الخطر الهامة تقاسم المعدات الشخصية (28%) وسوء تهوية المنزل(36.6%) ، والاتصال بالحيوانات(الحيوانات الأليفة (50%) ونقص المناعة (15.9%) ، غطاء الرأس المعتاد(31.7%) ، انخفاض مستويات تعليم الأمهات (43.9%)، و عدم الذهاب ممارسات إلى المدرسة، ممارسات النظافة،و تأخر الرعاية الصحية بسبب انخفاض الدخل.

الاستنتاج والتوصيات :سعفة الرأس هي مشكلة صحية عامة هامة بين الأطفال في مدينة صنعاء، اليمن .تسلط الدراسة الضوء على عوامل خطر متعددة قابلة للتعديل، مع التركيز على تدخلات الصحة العامة المستهدفة لتحسين النظافة. يمكن أن تساهم معالجة هذه العوامل في الحد من انتشار سعفة الرأس وتحسن النتائج الصحية للأطفال المتضررين. ينبغي تثقيف الجمهور حول كيفية انتقال سعفة الرأس، والتأكيد على أهمية النظافة الشخصية، وغسل الشعر بانتظام، وتجنب مشاركة الأغراض الشخصية مثل الأمشاط والقبعات . وتوصي بتنفيذ حملات للأمراض الجلدية في المدارس بتنفيذ برامج للفحوصات الصحية قبل دخول المدارس . كما يوصى بتحسين وتسهيل الوصول إلى الرعاية الصحية للأمراض الجلدية .وهناك حاجة إلى مزيد من الدراسات لتشجيع المزيد من الأبحاث حول وبائيات سعفة الرأس في مناطق مختلفة من اليمن.

الكلمات المفتاحية :سعفة الرأس، الفطريات الجلدية، عوامل الخطر، صنعاء، اليمن.

Introduction

1.1 Background

Tinea capitis (TC), commonly known as scalp ringworm, is a dermatophyte infection of the scalp predominantly affecting prepubertal children[1]. This infection is caused by dermatophytic fungi belonging to three genera: Trichophyton, Microsporum, and Epidermophyton[2]. Despite of advances in medical science, tinea capitis remains a global public health issue[3]. Several risk factors predispose populations to this infection, including poor hygiene, sharing of fomites, overcrowding, and low socioeconomic status[4]. The growth of dermatophytes, including those causing tinea capitis, is supported by warm and moist environments.

The prevalence of tinea capitis is influenced by factors such as infrequent bathing, prolonged damp skin conditions, sweating, minor skin injuries, and close contact with infected individuals. Sharing personal items like combs, living in overcrowded conditions, and attending overcrowded classrooms are common modes of transmission[5].

Clinically, tinea capitis is characterized by hair loss, often accompanied by inflammation, scaling, pustule formation, and itching[6]. Complications can include id reactions and scarring alopecia, with erythema nodosum being associated with kerion infections[7–10]. Hypopigmented scaly lesions resembling pityriasis alba and symmetrical papules or plaques may also occur, sometimes leading to confusion with allergic drug reactions due to similar presentations[11–14].

Tinea capitis primarily affects preadolescent children, with the typical age of onset between 5 and 15 years. It accounts for up to 92.5% of dermatophytosis in

children under 15 years[15]. In the United States, the peak incidence is reported among school-aged African American male children, with rates as high as 12.9%[16,17]. In the United Kingdom and North America, Trichophyton tonsurans is a responsible for over 90% of cases[17]. Conversely, in Southeast Asia, the incidence has significantly decreased from 14% to 1.2% over the past 50 years due to improved sanitary conditions and personal hygiene practices. In Ethiopia, the incidence of tinea capitis is reported to be 8.7% among children aged 4-14 years[16].Some studies have investigated tinea capitis in Yemen, providing insights into its prevalence, clinical features, and management in the Yemeni population. One study in Sana'a found that tinea corporis was the most common form of dermatophytosis, followed by tinea capitis, with 170 dermatophytes isolated from lesions of both conditions, related to nine different species[18]. Another study in Taiz City identified Microsporum canis as the second most common cause of tinea corporis and the leading cause of tinea capitis[19].

Research on the spectrum of skin diseases in Yemen highlighted tinea infections as a major group of conditions affecting an patients. This study noted that 99% of the affected individuals were Yemeni nationals, emphasizing the significance of investigating local skin conditions like tinea capitis[20]. Despite these findings, significant gaps remain in our understanding of tinea capitis in Yemen. Further research is needed to fully elucidate the risk factors for this infection in the Yemeni population and to develop effective strategies for prevention and early detection. Additionally, research is needed to optimize treatment regimens and minimize the risk of complications.

1.2 Problem Statement and Significance of the Study

Tinea capitis, a prevalent dermatophyte infection of the scalp, primarily affects prepubertal children worldwide. Despite its global impact, the prevalence and clinical characteristics of tinea capitis among children in Yemen remain largely unexplored,

particularly regarding to specific risk factors and healthcare utilization patterns. Addressing this knowledge gap is essential for crafting effective prevention and treatment strategies tailored to the local population.

This study seeks to fill this gap by evaluating the clinical presentation and associated risk factors of tinea capitis in Yemeni children, focusing on those attending the dermatological clinic in Sana'a City, Yemen. By describing the common clinical manifestations of the condition, the research aims to facilitate early and accurate diagnoses, leading to improved management and treatment outcomes. Additionally, the study will identify and assess potential risk factors specific to the Yemeni context, enabling targeted public health interventions to reduce the incidence of tinea capitis. Furthermore, understanding the healthcare-seeking behaviors, treatment practices, and barriers faced by families will inform strategies to improve access to care and adherence to treatment, ultimately enhancing the effectiveness of healthcare services for this condition. Through these efforts, the study will contribute to the health and well-being of Yemeni children affected by tinea capitis and support the development of evidence-based policies and practices in dermatological care.

1.3 Study Objectives

1.4.1 General Objective

To evaluating the clinical presentation and risk factors of tinea capitis in children attending the dermatological clinic, Sana’a City, Yemen.

1.4.2 Specific Objectives

1. To determining the prevalence of tinea capitis among Yemeni children.
2. To describing the common clinical features and symptoms of tinea capitis in Yemeni children.

3. To identifying and assess potential risk factors for tinea capitis in Yemeni children.
4. To assessing the patterns of healthcare utilization among families of children with tinea capitis, including their healthcare-seeking behaviors, treatment practices, and barriers to accessing medical care.

Literature Review

Study 1

In a study conducted in the United States examining the epidemiology of tinea capitis (TC) among children in Northern California from 1998 to 2007, it was found that the incidence of TC significantly decreased over this period. The study, which included over 670,000 children annually, reported that boys had higher incidence rates than girls, while African American children exhibited the highest rates among all ethnic groups. The predominant organism identified was Trichophyton tonsurans. Using of griseofulvin decreased, while prescriptions for newer antifungals increased, suggesting a shift in treatment practices. This decline in incidence is attributed to better education, recognition, diagnosis, and the adoption of new antifungal treatments[29].

Study 2

In Europe, Ginter-Hanselmayer et al. (2007) conducted a comprehensive study on the epidemiology of tinea capitis in Europe, highlighting significant changes in incidence and causative agents over recent decades. The study found that Microsporum canis remains the predominant causative agent, particularly in Mediterranean countries and neighboring regions such as Austria, Hungary, Germany, and Poland. There has been an observed shift towards anthropophilic dermatophytes, with notable increases in Trichophyton tonsurans in the UK and Trichophyton soudanense and Microsporum audouinii in France. This shift is largely associated with urban areas and may be linked to immigration from African countries.

While children aged 3 to 7 years are the most commonly affected demographic, there has also been a rise in cases among adults and the elderly. The study

emphasizes the need for proper diagnosis and treatment of mycotic scalp infections to prevent potential epidemic outbreaks. Enhanced surveillance and interdisciplinary cooperation among healthcare professionals, including general practitioners, mycologists, veterinarians, and dermatologists, are recommended to managing and control the spread of tinea capitis in Europe[30].

Study 3

In India, a cross-sectional study by Kundu, Mandal, and Sen investigated the prevalence of tinea capitis among school-going children in Kolkata, West Bengal. Out of 505 students screened, 52 were diagnosed with tinea capitis, indicating a prevalence rate of 10%. The prevalence was consistent across age groups (6 to 8, 9 to 11, and 12 to 14 years) and significantly higher in boys (14%). The study found that there is no significant difference in prevalence based on the type of hair oil used or general hygiene practices. The most common clinical presentation was dull gray patches with symptoms of itching and hair loss, often accompanied by cervical lymphadenopathy. Potassium hydroxide examination revealed the presence of endothrix spores in most cases. The study highlights the need for public health measures to reduce the incidence of tinea capitis in this population[31].

Study 4

In Kenya, a study conducted by Moto, Maingi, and Nyamache assessed the prevalence of tinea capitis among school-going children in the Mathare informal settlement in Nairobi, Kenya. A cross-sectional study included 150 children aged 3 to 14 years, comprising 89 males and 61 females. The overall prevalence of dermatophyte infections was found to be 81.3%.

The predominant etiological agents were identified as *Trichophyton* species (61.3%), followed by *Microsporum* species (13.3%) and *Epidermophyton* species (7.3%). The infections presented as single (56%), dual (38%), or triple co-infections (6%). The study

highlights a notably high prevalence of tinea capitis in this population, with *Trichophyton tonsurans* being the most common causative agent[3].

Study 5

In Ethiopia , Bongomin et al. A study conducted a comprehensive systematic review to estimate the burden of tinea capitis among children under 18 years of age in Africa. The study included 40 studies covering 229,086 children from 17 African countries, published between January 1990 and October 2020. The pooled prevalence of tinea capitis was found to be 23%, primarily caused by Trichophyton species. The total number of cases was estimated at 138.1 million, with the majority (96%) occurring in sub-Saharan Africa. Nigeria and Ethiopia had the highest numbers of cases, contributing 16.4% and 8.5%, respectively. Most affected children were primary school students, with a mean age of 10 years. The study highlighted a significant discrepancy between clinical and mycological diagnoses. The findings underscore the importance of accurately quantifying this neglected tropical disease to guide effective clinical and public health interventions.[32].

Study 6

In Yemen, a study conducted by Mahmoud et al. (2002), the prevalence and causative agents of dermatophytoses were investigated among 1,100 patients in Sana'a, the capital of the Republic of Yemen. The study found that 16.6% of the patients had dermatophytoses, with a higher prevalence in males (70%) and the age group 11 to 20 years being the most affected. Tinea corporis was identified as the most common form of dermatophytosis, followed by tinea capitis. The study identified 170 isolates of dermatophytes belonging to nine species, with Microsporum canis being the most prevalent, followed by Trichophyton violaceum. The findings highlight the significance of dermatophytoses in this region, particularly among young adults[33].

Clinical Features and Symptoms

Tinea capitis, a common fungal infection in children, presents with various clinical features and symptoms. These include hair loss, itching, and specific patterns such as gray patch, black dot, kerion, and agminate folliculitis [34]. The presence of adenopathy and alopecia, either alone or in combination with scalp scaling, can predict dermatophyte culture positivity [35,36]. Dermoscopic signs, such as corkscrew hair, can aid in the diagnosis, particularly in Black children [37]. The disease is the most common in children aged 5 to 15 years, with alopecia being a common presenting feature [38]. The most common causative organisms are Trichophyton and Microsporum species, with T. violaceum being the most prevalent in North India [39,40]. Trichoscopy can serve as a rapid diagnostic and monitoring tool during antifungal treatment [41]. Tinea capitis presents with various clinical features and symptoms. These include hair loss, itching, and specific patterns such as grey patch, black dot, and kerion [34,36,42–47]. The presence of adenopathy and alopecia is highly predictive of a positive fungal culture [36]. Trichoscopy can aid in the identification of the causative fungus, with specific hair shaft abnormalities associated with different types of tinea capitis [42]. The most common causative fungus is Trichophyton soudanense [45,46].

The disease significantly impacts the quality of life of affected children, particularly in terms of symptoms and treatment difficulties [47].

Risk Factors for Tinea Capitis

Tinea capitis is associated with various risk factors. These include male gender [48], lower socioeconomic status [49], playing with animals, sharing combs, and poor hygiene [50–52], age, sex, educational status, and presence of similar interventions, and

school settlement [54]. The prevalence of tinea capitis is high in certain regions, such as Nigeria and Ethiopia [48,50–53]. Additionally, children with tinea capitis may be at higher risk of developing allergic diseases [55].Environmental factors such as climate, humidity, and poor living conditions which have been found to significantly contribute to the risk of tinea capitis in children [48,50–53,56]. These factors can create an environment conducive to the growth and spread of the causative fungi, leading to a higher prevalence of the infection. However, the role of specific hair care practices in the acquisition of tinea capitis is less clear, with some studies suggesting a potential protective effect of hair conditioners [57]. Further research is needed to fully understand the complex interplay between environmental factors and the risk of tinea capitis in children.Socioeconomic factors, such as low standard of living, poor hygiene, low levels of parental education, overcrowded living conditions, and low family income, have been consistently linked to the prevalence of tinea capitis in various studies [48,51,58–61]. These factors are often associated with poor quality of life and can increase the risk of infection. However, the association between these factors and tinea capitis is not always significant, as seen in the study by Fienemika 2020[48]. Further research is needed to fully understand the role of socioeconomic factors in the prevalence of this condition.

A range of studies have identified specific risk factors for tinea capitis in various populations. In Yemeni children, these factors may include poor living conditions, crowded school premises, and a lack of hygiene control and health education [48,62]. The prevalence of tinea capitis in Yemeni children may also be influenced by factors such as rural residence, sex, long hair, age, a positive history of previous infestation, and family overcrowding [63]. However, further research is needed to fully understand the specific risk factors for tinea capitis in Yemeni children compared to other populations.

Diagnosis and Treatment of Tinea Capitis

A range of diagnostic methods is commonly used to identify tinea capitis in children. These include conventional mycological methods such as culture and microscopy [64], the brush-culture method [36], the cotton swab technique [65], scalp brushings (Nasir 2014), and the use of calcofluor white [66]. More recent studies have also explored the use of trichoscopy, a non-invasive method that can differentiate tinea capitis from other conditions [42,67,68]. These methods offer a range of options for healthcare professionals to accurately diagnose Tinea Capitis in children.Tinea capitis is primarily treated with systemic antifungal agents. Griseofulvin has long been the standard treatment, but newer oral antifungal agents such as terbinafine, itraconazole, and fluconazole have shown comparable efficacy and safety, with the advantage of a shorter treatment duration [69–75]. These newer agents are particularly effective against Trichophyton tonsurans, the most common cause of tinea capitis in the USA [74]. However, griseofulvin remains the treatment of choice for cases caused by Microsporum species [71,74]. Topical antifungal therapy is not recommended as a standalone treatment but can be used as adjuvant therapy [72,73].

Further research is needed to establishing clinical guidelines for the management and treatment of tinea capitis [74].Tinea capitis presents with a wide range of clinical manifestations, from subtle hair loss and scaling to more severe inflammatory forms like kerion. This variability complicates accurate diagnosis, as the condition which may mimic other disorders such as alopecia areata or dissecting cellulitis [76]Additionally, the causative fungi vary geographically, with Trichophyton tonsurans being more common in the US and Microsporum canis more prevalent in Mediterranean countries, necessitating tailored diagnostic approaches. Emerging atypical pathogens in certain populations further complicate the diagnosis [76]. Mycological confirmation through fungal culture or molecular testing is often required for accurate diagnosis, but these

methods may not be readily available in all clinical settings [77]. Tinea capitis requires systemic (oral) antifungal therapy, as topical agents alone cannot penetrate the hair follicles [76,78]. The duration of treatment can be prolonged, lasting 3 to 6 months in some cases, which can be challenging for patient compliance, especially in children [76]. The choice of antifungal agent must consider the causative organism, as certain agents like terbinafine may be less effective against Microsporum species [78]. Monitoring for adverse events, particularly liver enzyme abnormalities, is crucial during prolonged systemic antifungal therapy [76]. Additionally, asymptomatic carriers of tinea capitis can serve as a reservoir for transmission, and the need for treatment of these individuals is still debated [77].

Healthcare Utilization and Challenges

Healthcare utilization for tinea capitis is influenced by various factors, including socioeconomic status and cultural perceptions. Many families exhibit healthcare-seeking behaviors shaped by a lack of awareness and poor perception of the condition, often considering it a "normal infection" [79]. This perception leads to a reliance on ineffective home remedies and traditional medicine, which can include unstandardized herbal products and incorrect prescriptions [80]. Delays in seeking appropriate medical care are common, increasing the risk of complications such as secondary bacterial infections and scarring alopecia [81]. These challenges are compounded by limited access to healthcare services, especially in rural areas, where geographic and financial barriers can prevent timely and effective treatment [82].

Socioeconomic and Cultural Influences

Socioeconomic status significantly impacts access to healthcare and the management of tinea capitis. Lower socioeconomic status often correlates with barriers to effective treatment, such as reliance on traditional medicine and delays in seeking professional care [48,58]. Cultural beliefs also play a role, with some communities

considering tinea capitis a minor condition or believing in the efficacy of traditional treatments over conventional medicine [80]. Additionally, cultural practices such as sharing personal items can exacerbate the spread of the infection. Education and awareness are crucial in changing these perceptions and promoting effective healthcare-seeking behaviors. Health education programs have been shown to significantly reduce the prevalence of tinea capitis by improving knowledge and attitudes toward the condition [79]. A holistic approach that includes education, psychological support, and comprehensive medical care is essential for managing tinea capitis, particularly in children whose quality of life can be significantly impacted by the condition.

Methodology

3.1 Study Design

A cross-sectional study was conducted in the current research.

3.2 Study Duration

The study was conducted over a period of seven months, from the 1st of March to the 30th September 2024.

3.3 Study Location

The study was carried out in clinics of three major referral hospitals in Sana'a City, Yemen, specifically at Al-Thawra General Hospital, Al-Gomhori Teaching Hospital, and Al-Kuwait University Hospital.

3.4 Target Population

The population for this study included all children up to 15 years old.

3.5 Inclusion Criteria

- All children attending the dermatological clinics at the specified hospitals.
- Children aged up to 15 years old.

3.6 Exclusion Criteria

- Children aged above 15 years.
- Children with other scalp conditions not related to tinea capitis.
- Children whose parents or guardians did not consent to participation.

3.7 Sample Size

All children who attended the dermatological clinics at the specified hospitals during the study period and met the inclusion criteria.

3.8 Study Materials

Data collection was obtained by using a structured questionnaire designed to capture detailed information on socio-demographic data of the participants, the clinical presentation of tinea capitis, and associated risk factors.

3.9 Study Variables

- **Dependent Variable:**
    - Clinical presentation of tinea capitis in patients.
- **Independent Variables:**
    - Socio-demographic factors (e.g., age, gender, socioeconomic status).
    - Associated risk factors (e.g., hygiene practices, sharing of personal items, overcrowding).

3.10 Data Collection Technique

Data were collected by a team of thirteen medical students who were trained to administer the questionnaire. Each student was responsible for filling out the questionnaires during patient consultations in the dermatological clinics.

3.11 Data Analysis

Immediately after the data collection that was completed, each check list was thoroughly reviewed for completeness and consistency by the collectors ,supervisor, and investigators. The data were analyzed by SPSS version 26 .

Ethical Consideration

1. **Institutional Approval:**
    - Consent was obtained from 21 September University for Medical and Applied Sciences to conduct the study.

2. **Hospital Management Approval:**
    - Permissions were secured from the management of Al-Thawra, Al-Gomhori, and Al-Kuwait hospitals to carry out the study in their dermatological clinics.
3. **Patient Consent:**

    Informed verbal consent was obtained from the parents or guardians of the children participating in the study, ensuring their voluntary participation and the confidentiality of their information.

Results

A total of 82 cases were observed, with the tow third being male (67%) compared to females (33%) (Figure 1).

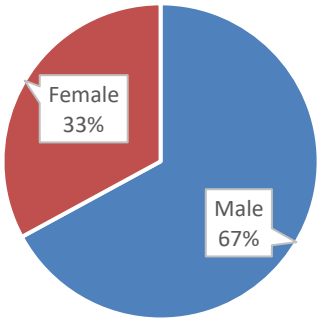

Figure1: Distribution of Tinea Capitis in Children by Gender in Major Referral Hospital in Sana'a City, Yemen, 2024 (N=82)

The less than half were in the age group of 6-10 years (47.6%), while the smallest proportion, 18.3%, were in the 0-5 age group. The mean age of the children is 9 years, with a standard deviation of 3.5 years, indicating a moderate spread around the mean. The median age is 9 years, with the age range spanning from 1 to 15 years (Figure 2).

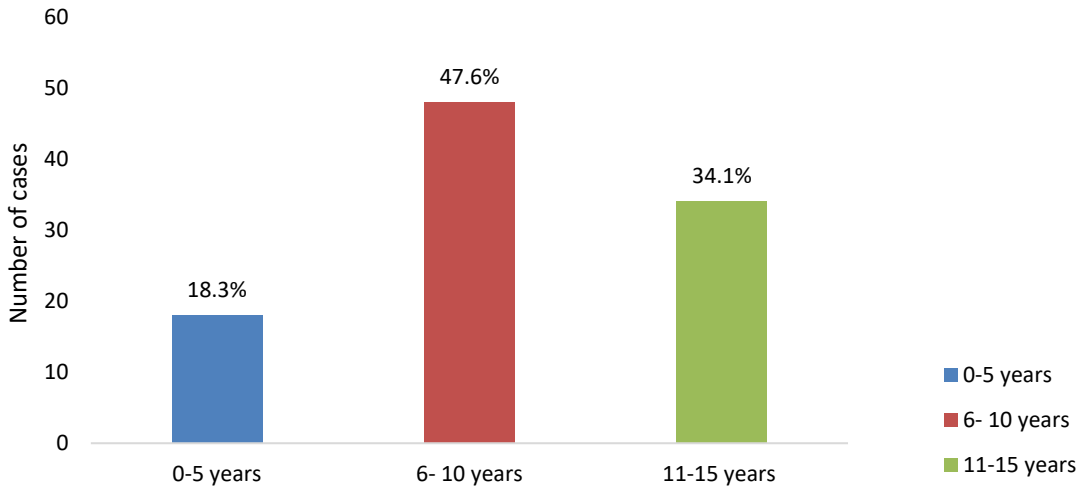

Figure2: Distribution of Tinea Capitis in Childern by Age Groups in Major Hospital in Sana'a City, Yemen, 2024 (N=82)

Regarding educational attainment, more than half, (58%) were at the elementary education level. Those with no formal education constituted 26% of the sample. Children at the intermediate education level represented 11%, while a smaller portion, (5%) were at the high school level (Figure 3).

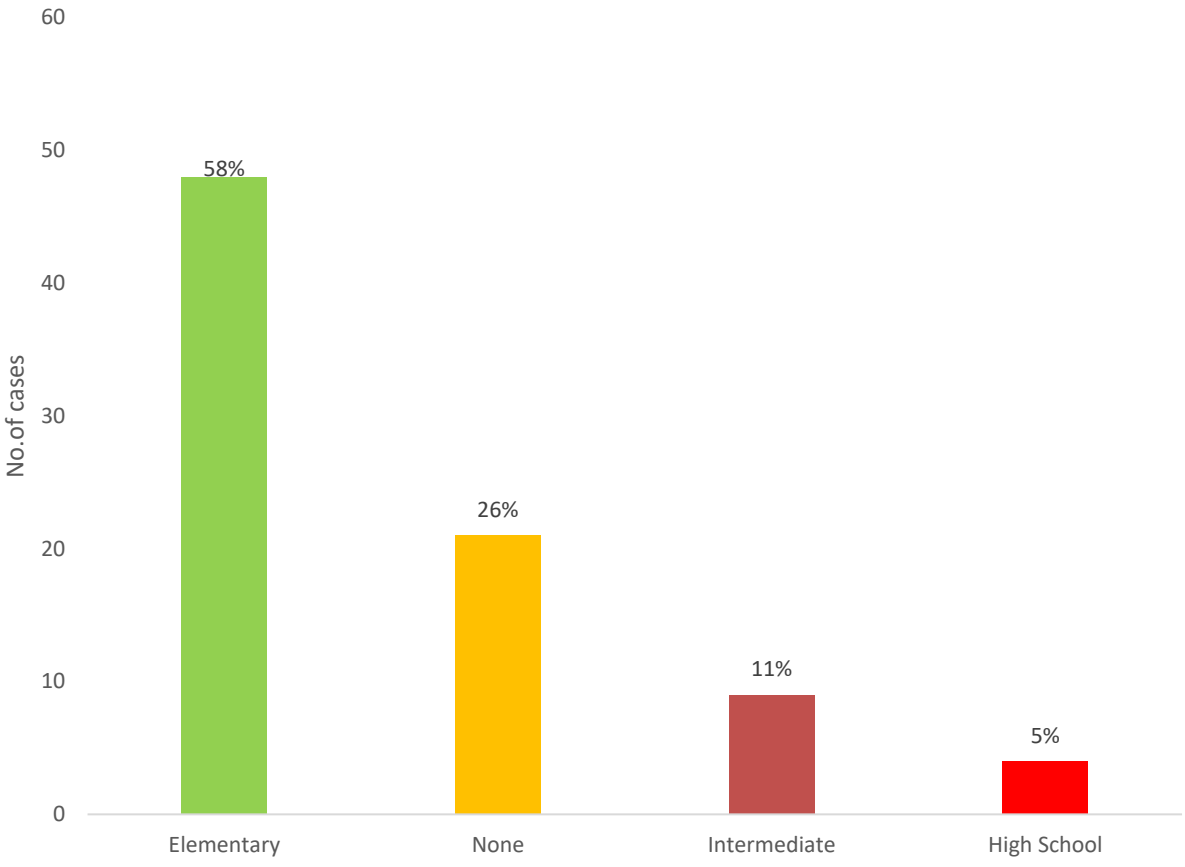

Figure3: Distribution of Tinea Capitis in Children by Educational Level in Major Refrral Hospital in Sana'a City, Yemen, 2024 (N=82)

Most of the children resided in urban areas, with 78.05% (64 children) living in cities, whereas 21.95% (18 children) were from rural areas (Figure 4).

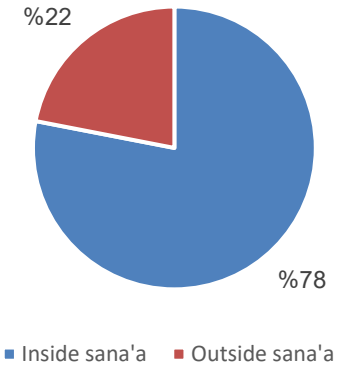

Figure4: Distribution of Tinea Capitis in Children by Place of Residence in Major Referral Hospital in Sana'a City, Yemen, 2024(N=82)

The distribution of the sample by the number of family members shows that 89% of the families have more than 6 members, while only 11% have 6 or fewer members. The mean number of family members is 6.4, with a standard deviation of 2.95, and the median is 6, with the family size ranging from 2 to 23 members (Figure 4).

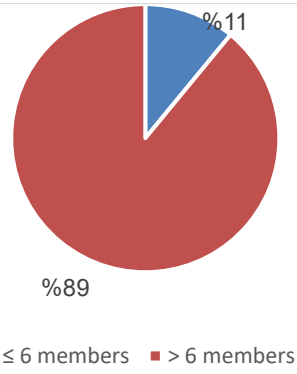

Figure5: Distribution of Tinea capitis in children by Number of Family Members in Major Referral Hospital in sana'a city, Yemen, 2024(N=82)

Regarding to the number of rooms in the house, more than half 57.3% of the households have 3 or fewer rooms, whereas 42.7% have more than 3 rooms. , with the number of rooms ranging from 1 to 5. This data indicates a predominance of larger families living in relatively small homes with limited room numbers (Figure 5).

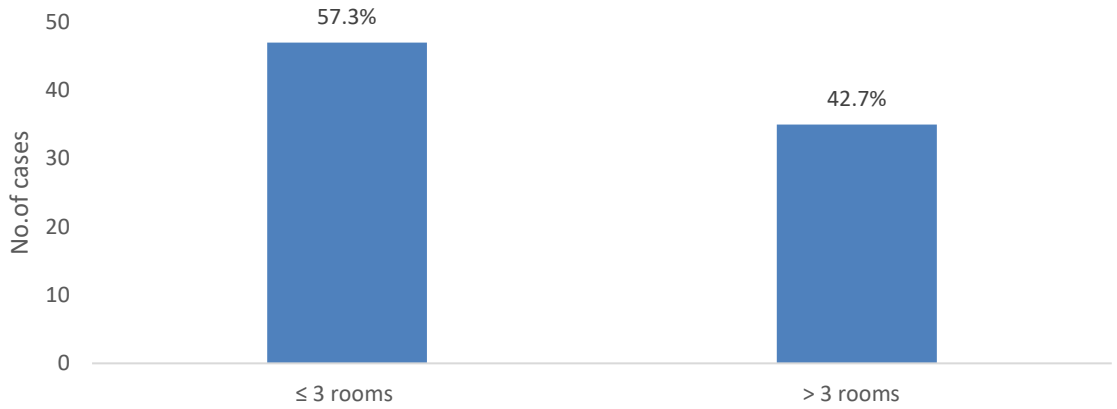

Figure 6: Distribution of Tinea Capitis in Children by Number of Rooms in the House in Major Referral Hospital in Sana'a City, Yemen, 2024 (N=82)

Regarding to economic status, about half of cases 51.2%, have a moderate income, earning between 50,000 and 150,000 Yemeni Rials (YER) per month. Families with a low income, earning less than 50,000 YER per month, constitute 39.0% of the sample. Only a small portion, (9.8%) have a high income, earning more than 150,000 YER per month. This distribution indicates that a significant portion of the sample is economically disadvantaged, with only a small fraction enjoying a higher income level.

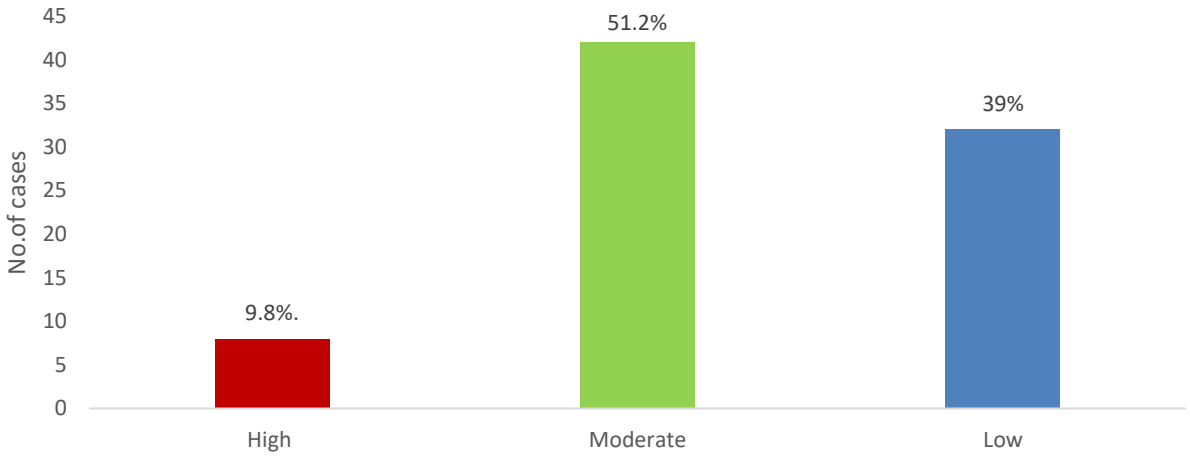

Figure7 : Distribuation of Tinea Capitis in Children by Economic Status in Major Referral Hospital in Sana'a City, Yemen, 2024 (N=82)

Among the fathers, about one third of cases had education level is high school (34.1%) More details showed in table 1.

Table 1:Distribution of Tinea Capitis in Children by Education Levels of among Fathers in Major Referral Hospital in Sana'a City, Yemen, 2024 (N=82)

Educational level	**Frequency**	**Percent**
Elementary	4	4.9%
Intermediate	17	20.7%
High School	28	34.1%
College	25	30.5%
Illiterate	8	9.8%
Total	**82**	**100.0%**

In contrast, the educational distribution for mothers shows that the highest percentage, 32.9%, have completed high school. A significant portion, 23%, are illiterate, which is notably higher than the proportion of illiterate fathers. elementary education is by 19.5% of mothers, and both elementary education and college education are each represented by 12.2% of mothers. Which consist about one third of cases.

Table 2.Distribution of Tinea Capitis in Children by Education Levels of among Mothers in Major Referral Hospital in Sana'a City, Yemen, 2024(N=82)		
Education Level	**Frequency**	**Percent**
Elementary	10	12.2 %
Intermediate	16	19.5 %
High School	27	32.9 %
College	10	12.2 %
Illiterate	19	23 %
Total	**82**	**100.0%**

Figure 8 shows the distribution of the number of baths taken per week by individuals in the sample, indicating that the majority (85.4%) bathe more than once per week, while 14.6% bathe once per week.

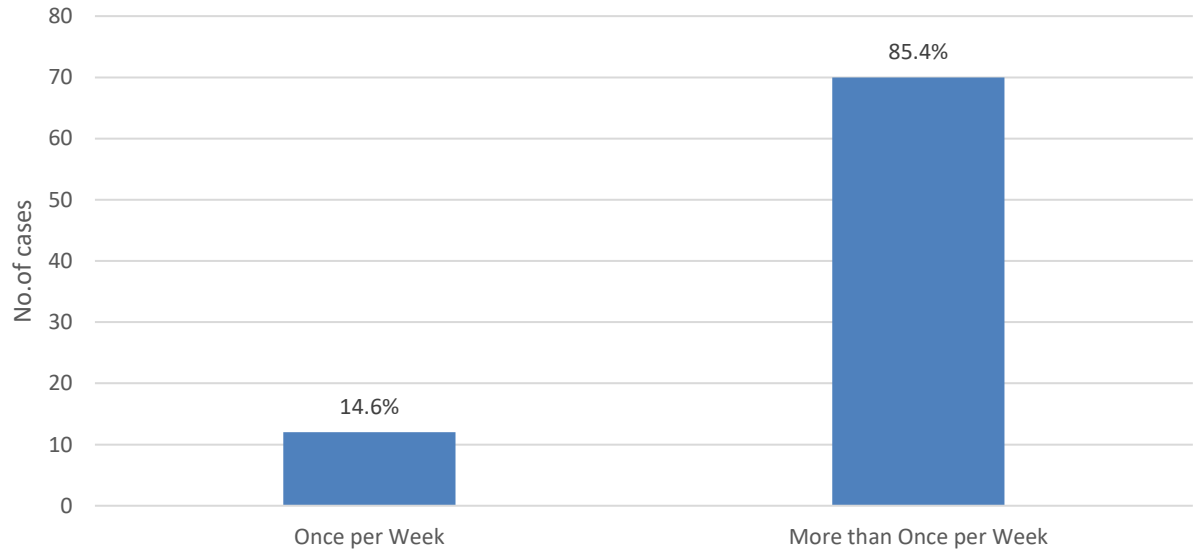

Figure8: Distribution of Tinea Capitis in Children by Number of Baths per Week in Major Referral Hospital in Sana'a City, Yemen, 2024(N=82)

Past History of the Same Infection

Among those with a previous diagnosis, 17.1% reported having been diagnosed before, with a high compliance rate of 85.7% in taking medication. Of those who complied with the medication regimen, 64.3% reported improvement.

Regarding healthcare access, about one third 35.7% experienced difficulty, while half of cases 50.0% did not, and 14.3% sometimes faced challenges.

Table 3:Distribution of Tinea Capitis in Children by Past History of Similar Infection in Major Referral Hospital in Sana'a City, Yemen, 2024(N=82)

Variables		**Count**	**Percent**
Previous Diagnosis of Tinea Capitis	Yes	14	17.1%
	No	68	82.9%
Compliance Taking Medication for Previous Diagnosis	Yes	12	85.7%
	No	2	14.2%
Improvement After Medication	Yes	9	64.3%
	No	5	35.7%
Difficulty Accessing Health Care	Yes	5	35.7%
	No	9	64.3%

Clinical Symptoms and Signs of Tinea Capitis

Table 4 summarizes the clinical symptoms and signs of tinea capitis observed in the study sample. The most common symptoms are hair scales (85.4%), itching (68.3%).

Table 4: Clinical Symptoms and Signs of Tinea Capitis (N=82)			
Clinical Symptoms and Signs	**Response**	**Count**	**%**
Itching	Yes	56	68.3%
	No	26	31.7%
Hair Loss	Yes	55	67.1%
	No	27	32.9%
Hair Scales	Yes	70	85.4%
	No	12	14.6%
Scalp Swelling or Redness	Yes	29	35.4%
	No	53	64.6%
Scalp Lesion or Ulceration	Yes	23	28.0%
	No	59	72.0%
Discharging Sinus	Yes	14	17.1%
	No	68	82.9%
Remnant Hair	Yes	50	61.0%
	No	32	39.0%
Other Dermal Problems	Yes	1	1.2%
	No	81	98.8%

Lab Result of Tinea Capitis

Figure 9 presents the prevalence of tinea capitis in the study population. The scalp sample results indicate more than tow third that 76.8% of the participants tested positive for tinea capitis, while 23.2% tested negative.

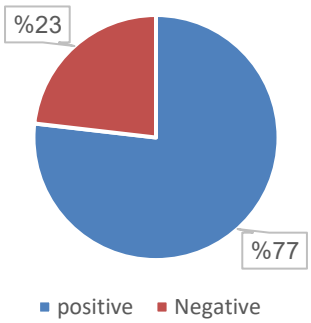

Figure9: Distribution of Tinea Capitis in Children by Lab Result in Major Referral Hospital in Sana'a City, Yemen, 2024(N=82)

Risk Factors for Tinea Capitis

Table 5 details the various risk factors associated with tinea capitis among the study population. Notably, one third 34.1% of participants have a family history of tinea capitis, and 50.0% have pets. Sharing personal equipment is reported by 28.0% of participants, while 31.7% habitually cover their heads. Immune deficiency is present in 15.9% of the population. House ventilation issues are reported by 36.6%, chronic medication use by 3.7%, and 43.9% of participants attend school or other educational facilities. The mean number of hair washes per week is 2.15 with a standard deviation of 1.03, indicating some variability in hair washing habits. The median frequency is 2 times per week, with a range from 1 to 7 times.

Table 5: Risk Factors of Tina Capitis Among Study Population (N=82)

Risk Factors	Response	Count	%
Family History of Tinea Capitis	Yes	28	34.1%
	No	54	65.9%
Pets	Yes	41	50.0%
	No	41	50.0%
Sharing Personal Equipment	Yes	23	28.0%
	No	59	72.0%
Habitual Head Covering	Yes	26	31.7%

	No	56	68.3%
Immune Deficiency	Yes	13	15.9%
	No	69	84.1%
House Ventilation	Yes	30	36.6%
	No	52	63.4%
Chronic Medication Use	Yes	3	3.7%
	No	85	96.3%
Attends School or Educational Facilities	Yes	36	43.9%
	No	46	56.1%
Hair Wash / Week	Mean	2.15 ± 1.03	
	Median	2 (range: 1-7)	

Univariate Analysis of Risk Factors for Tina Capitis

Based on the data and analyses conducted, several risk factors have been identified as significantly associated with an increased likelihood of having tinea capitis within the study population. A p-value < 0.05 indicates a significant risk factor for tinea capitus.

Table 6: Univariate Analysis of Risk Factors for Tinea Capitis (N=82)

Risk Factor	p-value
Sharing Personal Equipment	0.007
Habitual Head Covering	0.001
Immune Deficiency	0.031
House Ventilation	0.005
Attendance at School/Facilities	0.003
Number of Family Members	0.001
Number of Rooms in House	0.029
Frequency of Hair Washing per Week	0.009
Mother's Education Level	0.000

Discussion

This study indicated the clinical presentation and risk factors of tinea capitis in children up to 15 years old in major referral hospitals , Sana'a City , Yemen , 2024.

Tinea capitis (TC), commonly known as scalp ringworm, is a dermatophyte infection of the scalp predominantly affecting prepubertal children [1]. Despite of advances in medical science, tinea capitis remains a global public health issue [3]. Several risk factors predispose populations to this infection, including poor hygiene, sharing of fomites, overcrowding, and low socioeconomic status [4]. The growth of dermatophytes, including those causing tinea capitis, is supported by warm and moist environments. This study showed that males (67%) were more affected than females (33%) due to behavioral factors as boys may engage more frequently in activities that involve close contact or shared use of combs, hats, and other personal items [50,52]. This is similar to studies on tinea capitis in United States, India, Kenya, Yemen [29,31,3,33] . The less than half were in the age group of 6-10 years (47.6%), while the smallest proportion (18.3%) was in the 0-5 age group. This may be due to close contact and hygiene practices; children in this age group tend to be in close physical contact with others at schools or playgrounds and may not yet practice strict hygiene habits, increasing their risk of exposure to the fungus [57]. This is similar to a study in Europe [30], but not similar to a study in Yemen, where the most affected age group was 11-20 years [33]. Regarding to educational attainment, more than half (58%) were at the elementary education level. Those with no formal education constituted 26% of the sample.

Children at the intermediate education level represented 11%, while a smaller portion (5%) were at the high school level. Similar observations have been made in studies from Nigeria and Ethiopia [50,53]. According to place of residence, the most of children resided in Sana'a (78.05%)

Children from larger families were at greater risk of tinea capitis than children from smaller families due to overcrowded living conditions that facilitate the spread of infections. This is consistent with studies highlighting overcrowding as a significant risk factor in various regions [51,52,60,61]. Regarding to the number of rooms in the house, (57.3%) of the households had 3 or fewer rooms, whereas (42.7%) had more than 3 rooms. Poor house ventilation was significantly associated with a higher prevalence of tinea capitis in this study, as inadequate ventilation creates a humid environment conducive to fungal growth. Similar associations have been reported in studies from other regions [50,52,56]. Economic status: about (51.2%) have a moderate income, (39%) have a low income, and (9.8%) a high income. Lower socioeconomic status was significantly associated with higher infection rates, as families with limited income often live in overcrowded conditions with inadequate access to healthcare and hygiene resources. This correlation aligns with studies from Nigeria and Ethiopia, where lower socioeconomic status was linked to higher dermatophyte infection rates, with only a small fraction enjoying a higher income level [50,53,85–87]. Lower maternal education levels were significantly associated with a higher prevalence of tinea capitis. Educated mothers are more likely to be aware of hygiene practices and to seek early medical care for their children. This correlation between parental education and health outcomes has been extensively documented in studies from India and other developing countries [31,49].

This pattern has been observed in various studies across Africa and Asia. Health literacy, driven by education, influences health practices and outcomes, with higher

education levels correlating with better hygiene practices and timely healthcare-seeking behavior. The study underscores the need for integrated public health strategies addressing educational and socioeconomic barriers to improve health outcomes for children. The frequency of hair washing per week was significantly associated with the presence of tinea capitis, showing that a lower frequency of hair washing is associated with a higher likelihood of the condition. Environmental factors such as climate, humidity, and poor living conditions significantly contribute to the risk of tinea capitis in children. These factors create environments conducive to the growth and spread of the causative fungi, leading to a higher prevalence of the infection [48,50–53,56]. However, the role of specific hair care practices in the acquisition of tinea capitis is less clear, with some studies suggesting a potential protective effect of hair conditioners [57]. Socioeconomic factors, such as low standard of living, poor hygiene, low parental education, overcrowded living conditions, and low family income, have been consistently linked to the prevalence of tinea capitis in various studies [48,51,52,59–61]. These factors are often associated with a poor quality of life and can increase the risk of infection. However, the association between these factors and tinea capitis is not always significant, as seen in some studies [48]. Further research is needed to fully understand the role of socioeconomic factors in the prevalence of this condition. The patterns of healthcare utilization observed in this study reveal critical insights into how families in Sana'a City access and respond to healthcare services for managing tinea capitis.

Among those previously diagnosed with tinea capitis, a high compliance rate with medication was reported, with 85.7% of diagnosed individuals adhering to their prescribed treatment regimen. Despite this high compliance, 35.7% of participants reported experiencing difficulty accessing healthcare services due to factors such as distance to healthcare facilities, financial constraints, and limited availability of

dermatological services [79–81]. A notable proportion of families rely on self-medication or traditional remedies before seeking professional medical care, which can delay appropriate diagnosis and treatment. Healthcare-seeking behavior was influenced by socioeconomic factors, with families of higher income levels and better-educated parents more likely to seek early and appropriate medical care for tinea capitis [81]. Comparing to the findings from this study with those from other regions reveals both similarities and differences in the epidemiology and management of tinea capitis. The prevalence rates observed in this study (76.8%) are consistent with high prevalence rates reported in other parts of the Middle East and Africa. For instance, a study in Nigeria reported a prevalence rate of 34.6% among schoolchildren [50]. Similarly, high prevalence rates have been observed in Ethiopia and Kenya, indicating that tinea capitis is a common issue in developing countries [3,88]. Clinical features observed, such as hair scales, itching, and hair loss, align with findings from previous studies, emphasizing the typical presentation of tinea capitis in pediatric populations [34,36,37,47]. The presence of severe symptoms like scalp swelling and discharging sinuses in a subset of patients suggests that delayed diagnosis and treatment may contribute to more advanced disease stages. Hair scales were the most common clinical feature, reported in 85.4% of cases, indicating fungal infection affecting the hair shafts and leading to scalp scaling [36].

Itching, reported by 68.3% of participants, is a significant symptom of discomfort and can lead to secondary bacterial infections due to scratching [60]. Hair loss, affecting 67.1% of children, is a hallmark of tinea capitis, leading to hair breakage and alopecia [83]. Scalp swelling or redness was observed in 35.4% of cases, with the inflammatory response ranging from mild erythema to severe kerion formation [36,84]. Scalp lesions or ulceration were noted in 28.0% of participants, resulting from the direct action of the fungal infection or secondary bacterial infections due to scratching [31].

Discharging sinuses were present in 17.1% of cases, indicating a deep fungal infection leading to abscess formation and drainage. Remnant hair was found in 61.0% of cases, indicating partial hair loss and breakage, which is an important for differential diagnosis. Other dermal problems were rare, reported by only 1.2% of the sample, highlighting that tinea capitis primarily affects the scalp and hair. The lab results of the scalp samples indicated that 77% of the participants tested positive for tinea capitis, while 23% tested negative. The negative result may be due to inadequate sample collection, early or late stage of infection, use of antifungal medication, improper culture conditions, or non-fungal cause [90]. The doctors deal with the negative tests as if they were positive. Our study identifies several key risk factors for tinea capitis in children in Sana'a City, consistent with findings from other regions. These include sharing personal items, poor house ventilation, larger family sizes, not attending school, and lower maternal education levels. In comparing our findings, the study noted that sharing personal items, such as combs, brushes, hats, and towels, is a significant risk factor, consistent with numerous studies [50–52]. This practice facilitates the transmission of dermatophytes, emphasizing the need for targeted public health interventions to educate communities about the importance of personal hygiene. Interestingly, our study found that habitual head covering was associated with a lower likelihood of tinea capitis, possibly due to reduced direct exposure of the scalp to contaminated surfaces and reduced hair-to-hair contact. This finding contrasts with some studies but aligns with research emphasizing the protective effect of personal hygiene practices [57]. The prevalence of tinea capitis is high in certain regions, such as Nigeria and Ethiopia, indicating that environmental, socioeconomic, and cultural factors play a significant role in the epidemiology of the disease (Adesiji et al., n.d.; Ayanlowo et al., n.d.-a; Fienemika et al., n.d.; Hibstu & Kebede, n.d.; Lulekal, n.d.). Children with tinea capitis may also be at higher risk of developing allergic diseases (Zhou et al., 2023

). The clinical presentations in this study, such as hair scales, itching, and hair loss, align with findings from other studies conducted in similar settings. For example, studies in Egypt and Saudi Arabia have reported similar clinical features among children with tinea capitis (Hassan et al., 2012; [83]. The identified risk factors in this study, such as sharing personal equipment, poor ventilation, and large family sizes, are also common in other regions. A study in India identified similar risk factors, highlighting the role of poor hygiene and overcrowding in the spread of tinea capitis [31]. The protective effect of habitual head covering observed in this study contrasts with some literature but aligns with findings that emphasize the importance of personal hygiene and the use of protective clothing in reducing the risk of fungal infections . The impact of socioeconomic status and parental education on the prevalence of tinea capitis observed in this study is consistent with findings from other studies. Research conducted in Nigeria and Ethiopia also highlights the association between lower socioeconomic status, lower parental education, and higher infection rates [59,60,89].

Similar to findings in other developing countries, access in this study to healthcare remains a challenge in Sana`a . Studies similarly to in rural areas of Kenya and Nigeria have reported similar barriers to accessing effective treatment for tinea capitis, often compounded by socioeconomic factors and limited healthcare infrastructure [3,50]. The treatment practices and challenges noted in this study are also seen in other regions. The reliance on traditional medicine and the delay in seeking appropriate medical care are common issues in many developing countries, as noted in studies from various African and Asian countries [72,75].

Conclusions

In light of the study findings, the following can be concluded:

- About two-thirds of cases were male.

- The majority of participants were between 6 and 10 years old.

- More than half of the cases were in elementary school.

- More than three-quarters of children resided in areas within Sana'a.

- The majority of children were from larger families.

More than half of the children affected by tinea capitis live in houses with three or fewer rooms.

About half of the children were from families with moderate income followed by children from families with low income, and there are significant percent of in illiteracy.

- Among fathers, the most common, followed by those who graduated from college, while the least were illiterate. Children of mothers who graduated from high school were the most affected group, followed by children of illiterate mothers, while the least affected were children of mothers with elementary and college education levels. The majority of children bathe more than once a week.

-Only a small fraction of children have been previously diagnosed with tinea capitis with a high compliance rate of taking medication. More than half of children who have been previously diagnosed with tinea capitis haven't experienced difficulty in accessing healthcare.

- The most common clinical features include hair scales, itching and hair loss.

- More than two-thirds of children have positive lab results for KOH.

- Major risk factors identified include having pets, attending to school or educational facilities, poor house ventilation, and family history of tinea capitis.

Recommendations

Based on the conclusions, the following specific recommendations are made to address the findings of this study:

- Health education for communities with higher prevalence rates.

establish campaigns which should focus on educating the public about the transmission of tinea capitis, emphasizing the importance of personal hygiene, regular hair washing, and avoiding the sharing of personal items, such as combs and hats.

- Implement dermatology campaigns in schools should programs for health checks before school entrance to identify and treat tinea capitis early, especially in areas with high prevalence. These programs can also be used to educate children about personal hygiene practices.

- Facilitate access to dermatological healthcare services in underserved areas. This could involve mobile health clinics, telemedicine, or partnerships with local healthcare providers to ensure that treatment for tinea capitis is available and affordable.

- More research is needed to encourage further investigation into the epidemiology of tinea capitis in different regions of Yemen. This research should aim to explore the causative strains of dermatophytes prevalent in Yemen and assess the efficacy of various treatment modalities in the local context.

- Establishing or strengthening existing surveillance systems to monitor the incidence and prevalence of tinea capitis more effectively.

This would help in identifying outbreak patterns and the effectiveness of public health interventions over time.

- The limitations of the study include :

- Short study period.

-It focuses only on three hospitals in Sana'a City,

- Budget constraints of the study.

- Difficulty accessing the hospitals due to the large number of patient.

References

[1] Elewski BE. Tinea capitis: A current perspective. J Am Acad Dermatol 2000;42. https://doi.org/10.1016/s0190-9622(00)90001-x.

[2] Gawdzik A, Nowogrodzka K, Hryncewicz-Gwóźdź A, Maj J, Szepietowski J, Jankowska-Konsur A. Epidemiology of dermatomycoses in southwest Poland, years 2011–2016. Postepy Dermatol Alergol 2019;36. https://doi.org/10.5114/ada.2018.80615.

[3] Moto JN, Maingi JM, Nyamache AK. Prevalence of Tinea capitis in school going children from Mathare, informal settlement in Nairobi, Kenya. BMC Res Notes 2015;8:274. https://doi.org/10.1186/s13104-015-1240-7.

[4] Dogo J, Afegbua SL, Dung EC. Prevalence of Tinea Capitis Among School Children in Nok Community of Kaduna State, Nigeria. J Pathog 2016;2016:1–6. https://doi.org/10.1155/2016/9601717.

[5] Ezomike NE, Ikefuna AN, Onyekonwu CL, Ubesie AC, Ojinmah UR, Ibe BC. Epidemiology and pattern of superficial fungal infections among primary school children in Enugu, south-east Nigeria. Malawi Med J 2021;33:21–27. https://doi.org/10.4314/mmj.v33i1.4.

[6] Hay RJ, Ashbee HR. Mycology. Rook's Textbook of Dermatology, Wiley; 2010, p. 1–93. https://doi.org/10.1002/9781444317633.ch36.

[7] Frieden IJ. Diagnosis and management of tinea capitis. Pediatr Ann 1987;16. https://doi.org/10.3928/0090-4481-19870101-08.

[8] De Las Heras C, Borbujo J, Casado M. Erythema nodosum caused by kerion of the scalp. Clin Exp Dermatol 1990;15. https://doi.org/10.1111/j.1365-2230.1990.tb02098.x.

[9] Torres JM, Llorens Terol J. Erythema Nodosum and Kerion of the Scalp. American Journal of Diseases of Children 1982;136. https://doi.org/10.1001/archpedi.1982.03970410058013.

[10] Honig PJ, Caputo GL, Leyden JJ, McGinley K, Selbst SM, McGravey AR. Microbiology of kerions. J Pediatr 1993;123. https://doi.org/10.1016/S0022-3476(05)81749-4.

[11] du Toit MJ, Jordaan HF. Pigmenting Pityriasis Alba. Pediatr Dermatol 1993;10. https://doi.org/10.1111/j.1525-1470.1993.tb00001.x.

[12] Howard R, Frieden IJ. Tinea capitis: New perspectives on an old disease. Semin Cutan Med Surg 1995;14. https://doi.org/10.1016/s1085-5629(05)80032-x.

[13] SPECIAL SYMPOSIA: Tinea Capitis: Current Concepts. Pediatr Dermatol 1985;2. https://doi.org/10.1111/j.1525-1470.1985.tb01058.x.

[14] Trovato MJ, Schwartz RA, Janniger CK. Tinea capitis: Current concepts in clinical practice. Cutis 2006;77.

[15] Abdel-Rahman SM, Farrand N, Schuenemann E, Stering TK, Preuett B, Magie R, et al. The prevalence of infections with Trichophyton tonsurans in schoolchildren: The CAPITIS study. Pediatrics 2010;125. https://doi.org/10.1542/peds.2009-2522.

[16] Leiva-Salinas M, Marin-Cabanas I, Betlloch I, Tesfasmariam A, Reyes F, Belinchon I, et al. Tinea capitis in schoolchildren in a rural area in southern Ethiopia. Int J Dermatol 2015;54. https://doi.org/10.1111/ijd.12691.

[17] Nasir S, Ralph N, O'Neill C, Cunney R, Lenane P, O'Donnell B. Trends in tinea capitis in an irish pediatric population and a comparison of scalp brushings versus scalp scrapings as methods of investigation. Pediatr Dermatol 2014;31. https://doi.org/10.1111/pde.12093.

[18] Mahmoud A -L. E. A study of dermatophytoses in Sana'a, Yemen Republic. Mycoses 2002;45:105–108. https://doi.org/10.1046/j.1439-0507.2002.00729.x.

[19] A. M. H. S, Alzubariy M, Ameri G. Mycological study on skin diseases in Taiz City,Yemen. Journal of Environmental Studies 2016;15:59–66. https://doi.org/10.21608/jesj.2016.200130.

[20] Lal Khatri M. Spectrum of skin diseases in Yemen (Hajjah and adjacent region). Int J Dermatol 2004;43:580–585. https://doi.org/10.1111/j.1365-4632.2004.02212.x.

[21] Ringworm (scalp) - Symptoms & causes - Mayo Clinic 2022.

[22] Handler MD MZ. Tinea capitis:Background, pathophysiology, etiology 2020.

[23] Grimalt R. Management of tinea capitis in childhood. Clin Cosmet Investig Dermatol 2010:89. https://doi.org/10.2147/CCID.S7992.

[24] DermNet. Tinea capitis. Https://DermnetnzOrg/Topics/Tinea-Capitis 2023. https://dermnetnz.org/topics/tinea-capitis.

[25] Nationwide Children's Hospital. Ringworm of the scalp (Tinea capitis). Https://WwwNationwidechildrensOrg/Conditions/Tinea-Capitis 2023. https://www.nationwidechildrens.org/conditions/tinea-capitis.

[26] Professional CCM. Tinea capitis n.d.

[27] Nemours Children's Health. Ringworm. Https://KidshealthOrg/En/Parents/Fungal-RingwormHtml 2023. https://www.childrens.com/specialties-services/conditions/tinea-capitis.

[28] Mohta A, Singh A, Nyati A, Agrawal A, Nahar D, Lal M, et al. Evaluation of impact of tinea capitis on quality of life in pediatric patients using children's dermatology life quality index and its correlation with disease duration. Int J Trichology 2020;12:213. https://doi.org/10.4103/ijt.ijt_58_20.

[29] Mirmirani P, Tucker L-Y. Epidemiologic trends in pediatric tinea capitis: A population-based study from Kaiser Permanente Northern California. J Am Acad Dermatol 2013;69:916–921. https://doi.org/10.1016/j.jaad.2013.08.031.

[30] Ginter-Hanselmayer G, Weger W, Ilkit M, Smolle J. Epidemiology of tinea capitis in Europe: current state and changing patterns. Mycoses 2007;50:6–13. https://doi.org/10.1111/j.1439-0507.2007.01424.x.

[31] Kundu D, Mandal L, Sen GP. Prevalence of Tinea Capitis in School Going Children in Kolkata, West Bengal. J Nat Sci Biol Med 2012;3:152. https://doi.org/10.4103/0976-9668.101894.

[32] Bongomin F, Olum R, Nsenga L, Namusobya M, Russell L, Sousa E d., et al. Estimation of the Burden of Tinea Capitis Among Children in Africa. Mycoses 2020;64:349–363. https://doi.org/10.1111/myc.13221.

[33] Mahmoud A -L. E. A study of dermatophytoses in Sana'a, Yemen Republic. Mycoses 2002;45:105–108. https://doi.org/10.1046/j.1439-0507.2002.00729.x.

[34] Manangi S, Veena VT, Reddy S. "A STUDY OF CLINICAL, MYCOLOGICALAND TRICHOSCOPIC FEATURES OF TINEA CAPITIS IN CHILDREN." Int J Sci Res 2023:19–20. https://doi.org/10.36106/ijsr/1309533.

[35] Akinboro, Olasode O, Olaniyi O, Mejiuni A. The Impacts of Tinea Capitis on Quality of Life: A Community Based Cross Sectional Study among Nigerian Children. Clinical Medicine Insights: Dermatology 2013:9. https://doi.org/10.4137/CMD.S10781.

[36] Hubbard TW. The Predictive Value of Symptoms in Diagnosing Childhood Tinea Capitis. Arch Pediatr Adolesc Med 1999;153:1150. https://doi.org/10.1001/archpedi.153.11.1150.

[37] Hughes R, Chiaverini C, Bahadoran P, Lacour J. Corkscrew hair: a new dermoscopic sign for diagnosis of tinea capitis in black children. Arch Dermatol 2011;147:355. https://doi.org/10.1001/archdermatol.2011.31.

[38] Pai V, Hanumanthayya K, Tophakhane R, Nandihal N, Kikkeri NS. Clinical study of Tinea capitis in Northern Karnataka: A three-year experience at a single institute. Indian Dermatol Online J 2013;4:22. https://doi.org/10.4103/2229-5178.105461.

[39] Gupta A, Summerbell R. Tinea capitis. Med Mycol 2000;38:255–287. https://doi.org/10.1080/mmy.38.4.255.287.

[40] Grover C, Arora P, Manchanda V. Tinea capitis in the pediatric population: a study from North India. Indian J Dermatol Venereol Leprol 2010;76:527. https://doi.org/10.4103/0378-6323.69078.

[41] Wahbah HR, Atallah R, Eldahshan R, Elsaie M. A prospective clinical and trichoscopic study of tinea capitis in chil dren during treatment. Dermatol Ther 2022;35. https://doi.org/10.1111/dth.15582.

[42] Aqil N, Baybay H, Moustaide K, Douhi Z, Mernissi FZ. A Prospective Study of Tinea Capitis in Children: Making the Diagnosis Easier With a Dermoscope. J Med Case Rep 2018;12. https://doi.org/10.1186/s13256-018-1914-6.

[43] Kassem R, Shemesh Y, Nitzan O, Azrad M, Peretz A. Tinea capitis in an immigrant pediatric community; a clinical signs-based treatment approach. BMC Pediatr 2021;21:363. https://doi.org/10.1186/s12887-021-02813-x.

[44] Lorch Dauk KC, Comrov E, Blumer JL, O'Riordan MA, Furman LM. Tinea Capitis: Predictive Value of Symptoms and Time to Cure With Griseofulvin Treatment. Clin Pediatr (Phila) 2010;49:280–286. https://doi.org/10.1177/0009922809338313.

[45] Farooqi M, Tabassum S, Rizvi DA, Rahman A, Rehanuddin, Awan S, et al. Clinical types of tinea capitis and species identification in children: an experience from tertiary care centres of Karachi, Pakistan. J Pak Med Assoc 2014;64:304–308.

[46] Gajula N, Vumma N, Rohit V, Kalikota A. A clinico-epidemiological study of tinea capitis in children attending a Tertiary Care Hospital in Karimnagar. Indian Journal of Paediatric Dermatology 2019;20:332. https://doi.org/10.4103/ijpd.IJPD_119_18.

[47] Akinboro A, Olasode O, Onayemi O, Oguntola A, Ajibola A. Prediction of dermatophyte culture by clinical features: Saving time and cost in resource-poor settings. Ibnosina Journal of Medicine and Biomedical Sciences 2013;05:189–195. https://doi.org/10.4103/1947-489X.210544.

[48] Fienemika AE, Alikor EA, Opara PI. Prevalence and Risk Factors Associated with Tinea Capitis among Primary School Children in a Semi-Urban Area of Rivers State, Nigeria. West Afr J Med 2020;37:805–811.

[49] Hennessee IP, Benedict K, Dulski TM, Lipner SR, Gold JAW. Racial disparities, risk factors, and clinical management practices for tinea capitis: An observational cohort study among US children with Medicaid. J Am Acad Dermatol 2023;89:1261–1264. https://doi.org/10.1016/j.jaad.2023.07.1025.

[50] Adesiji YO, Omolade BF, Aderibigbe IA, Ogungbe O V., Adefioye OA, Adedokun SA, et al. Prevalence of Tinea Capitis among Children in Osogbo, Nigeria, and the Associated Risk Factors. Diseases 2019;7:13. https://doi.org/10.3390/diseases7010013.

[51] Lulekal S. Assessment on Prevalence of Tinea Capitis and Its Associated Factors among School Children in Addis Zemen, Northwest Ethiopia, 2016. Central African Journal of Public Health 2019;5:172. https://doi.org/10.11648/j.cajph.20190504.16.

[52] Ayanlowo O, Akinkugbe A, Oladele R, Balogun M. Prevalence of Tinea capitis infection among primary school children in a rural setting in south-west Nigeria. J Public Health Afr 2014;5. https://doi.org/10.4081/jphia.2014.349.

[53] Hibstu DT, Kebede DL. Epidemiology of Tinea Capitis and Associated Factors among School Age Children in Hawassa Zuria District, Southern Ethiopia, 2016. J Bacteriol Parasitol 2017;08. https://doi.org/10.4172/2155-9597.1000309.

[54] Balci E, Gulgun M, Babacan O, Karaoglu A, Kesik V, Yesilkaya S, et al. Prevalence and risk factors of tinea capitis and tinea pedis in school children in Turkey. J Pak Med Assoc 2014;64:514–518.

[55] Zhou X, Liu W, Yang S, Wu A, Chen P, Yin S, et al. Exploring the clinical features and risk factors for children *tinea capitis* complicated with allergic diseases. Mycoses 2023;66:338–345. https://doi.org/10.1111/myc.13558.

[56] Coulibaly O, Kone AK, Niaré-Doumbo S, Goïta S, Gaudart J, Djimdé AA, et al. Dermatophytosis among Schoolchildren in Three Eco-climatic Zones of Mali. PLoS Negl Trop Dis 2016;10:e0004675. https://doi.org/10.1371/journal.pntd.0004675.

[57] Sharma V, Silverberg NB, Howard R, Tran CT, Laude TA, Frieden IJ. Do Hair Care Practices Affect the Acquisition of Tinea Capitis? Arch Pediatr Adolesc Med 2001;155:818. https://doi.org/10.1001/archpedi.155.7.818.

[58] Ayanlowo O, Akinkugbe A, Oladele R, Balogun M. Prevalence of Tinea capitis infection among primary school children in a rural setting in south-west Nigeria. J Public Health Afr 2014;5. https://doi.org/10.4081/jphia.2014.349.

[59] Fathi HI, Al Samarai AGM. Prevalence of tinea capitis among schoolchildren in Iraq. Eastern Mediterranean Health Journal 2000;6:128–137. https://doi.org/10.26719/2000.6.1.128.

[60] Hogewoning AA, Adegnika AA, Bouwes Bavinck JN, Yazdanbakhsh M, Kremsner PG, van der Raaij-Helmer EMH, et al. Prevalence and causative fungal species of tinea capitis among schoolchildren in Gabon. Mycoses 2011;54. https://doi.org/10.1111/j.1439-0507.2010.01923.x.

[61] Olusegun TA, Olumayowa O, Funmito F. Tinea capitis:A tropical disease of hygienic concern among primary school children in an urban community in Nigeria. J Public Health Epidemiol 2018;10:313–319. https://doi.org/10.5897/JPHE2018.1050.

[62] Mashiah J, Kutz A, Ben Ami R, Savion M, Goldberg I, Gan Or T, et al. Tinea capitis outbreak among paediatric refugee population, an evolving healthcare challenge. Mycoses 2016;59:553–557. https://doi.org/10.1111/myc.12501.

[63] Al-Maktari MT. Head louse infestations in Yemen: prevalence and risk factors determination among primary schoolchildren, Al-Mahweet Governorate, Yemen. J Egypt Soc Parasitol 2008;38:741–748.

[64] Wiegand C, Mugisha P, Mulyowa GK, Elsner P, Hipler U-C, Gräser Y, et al. Identification of the causative dermatophyte of tinea capitis in children attending Mbarara Regional Referral Hospital in Uganda by PCR-ELISA and comparison with conventional mycological diagnostic methods. Med Mycol 2016:myw112. https://doi.org/10.1093/mmy/myw112.

[65] Le TK, Cohen BA. Tinea capitis: advances and a needed paradigm shift. Curr Opin Pediatr 2021;33:387–391. https://doi.org/10.1097/MOP.0000000000001034.

[66] HONIG PJ, SULLIVAN K, McGOWAN KL. The rapid diagnosis of tinea capitis using calcofluor white. Pediatr Emerg Care 1996;12:333–335. https://doi.org/10.1097/00006565-199610000-00002.

[67] Kumar P, Pandhi D, Bhattacharya SN, Das S. Trichoscopy as a monitoring tool in assessing treatment response in 98 children with tinea capitis: A prospective clinical study. Dermatol Ther 2021;34. https://doi.org/10.1111/dth.15010.

[68] Amer M, Helmy A, Amer A. Trichoscopy as a useful method to differentiate tinea capitis from alopecia areata in children at Zagazig University Hospitals. Int J Dermatol 2017;56:116–120. https://doi.org/10.1111/ijd.13217.

[69] Chan Y-C, Friedlander SF. Therapeutic options in the treatment of tinea capitis. Expert Opin Pharmacother 2004;5:219–227. https://doi.org/10.1517/14656566.5.2.219.

[70] Bennett ML, Fleischer AB, Loveless JW, Feldman SR. Oral Griseofulvin Remains the Treatment of Choice for Tinea Capitis in Children. Pediatr Dermatol 2000;17:304–309. https://doi.org/10.1046/j.1525-1470.2000.01784.x.

[71] Kakourou T, Uksal U. Guidelines for the Management of Tinea Capitis in Children. Pediatr Dermatol 2010;27:226–228. https://doi.org/10.1111/j.1525-1470.2010.01137.x.

[72] Leung AKC, Hon KL, Leong KF, Barankin B, Lam JM. Tinea Capitis: An Updated Review. Recent Pat Inflamm Allergy Drug Discov 2020;14:58–68. https://doi.org/10.2174/1872213X14666200106145624.

[73] Roberts BJ, FriedIander SF. Tinea Capitis: A Treatment Update. Pediatr Ann 2005;34:191–200. https://doi.org/10.3928/0090-4481-20050301-08.

[74] Le TK, Cohen BA. Tinea capitis: advances and a needed paradigm shift. Curr Opin Pediatr 2021;33:387–391. https://doi.org/10.1097/MOP.0000000000001034.

[75] Grimalt R. Management of tinea capitis in childhood. Clin Cosmet Investig Dermatol 2010:89. https://doi.org/10.2147/CCID.S7992.

[76] Ion A, Popa LG, Porumb-Andrese E, Dorobanțu AM, Tătar R, Giurcăneanu C, et al. A Current Diagnostic and Therapeutic Challenge: Tinea Capitis. J Clin Med 2024;13:376. https://doi.org/10.3390/jcm13020376.

[77] Gupta AK, Friedlander SF, Simkovich AJ. Tinea capitis: An update. Pediatr Dermatol 2022;39:167–172. https://doi.org/10.1111/pde.14925.

[78] Alkeswani A, Cantrell W, Elewski B. Treatment of Tinea Capitis. Skin Appendage Disord 2019;5:201–210. https://doi.org/10.1159/000495909.

[79] Daramola LS, Ogunfowokan AA. Maternal Perception and Management of Tinea Capitis of Infected School Children in Southern Nigeria. International Journal of Health Sciences and Research (WwwIjhsrOrg) 2020;10:141–150.

[80] Ifebuzor DC, Mabuza LH, Malete NH, Govender I. The perceptions of parents about the skin conditions of their children presenting with comorbid fungal skin infections in Francistown, Botswana. Afr J Prim Health Care Fam Med 2013;5. https://doi.org/10.4102/phcfm.v5i1.459.

[81] Ewurum O, Ibeneme C, Nnaji T, Ikefuna A. Healthcare-seeking behavior of parents and guardians of school children with skin diseases in Umuahia, South East Nigeria. Nigerian Journal of Medicine 2021;30:581. https://doi.org/10.4103/NJM.NJM_103_121.

[82] Woodard AA, Le TK, DiBiagio JR, Goldenberg NA, Cohen BA. A Retrospective Study of Tinea Capitis Management in General Pediatric Clinics and Pediatric Emergency Departments at 2 US Centers. J Pediatr 2021;234:269–272. https://doi.org/10.1016/j.jpeds.2021.03.051.

[83] VENUGOPAL P V., VENUGOPAL T V. TINEA CAPITIS IN SAUDI ARABIA. Int J Dermatol 1993;32:39–40. https://doi.org/10.1111/j.1365-4362.1993.tb00961.x.

[84] Bongomin F, Olum R, Nsenga L, Namusobya M, Russell L, de Sousa E, et al. Estimation of the burden of tinea capitis among children in Africa. Mycoses 2021;64:349–363. https://doi.org/10.1111/myc.13221.

[85] Ali J, Yifru S, Woldeamanuel Y. Prevalence of tinea capitis and the causative agent among school children in Gondar, North West Ethiopia. Ethiop Med J 2009;47:261–269.

[86] Lulekal S. Assessment on Prevalence of Tinea Capitis and Its Associated Factors among School Children in Addis Zemen, Northwest Ethiopia, 2016. Central African Journal of Public Health 2019;5:172. https://doi.org/10.11648/j.cajph.20190504.16.

[87] Lulekal S. Assessment on Prevalence of Tinea Capitis and Its Associated Factors among School Children in Addis Zemen, Northwest Ethiopia, 2016. Central African Journal of Public Health 2019;5:172. https://doi.org/10.11648/j.cajph.20190504.16.

[88] Figueroa JI, Hawranek T, Abraha A, Hay RJ. Tinea capitis in south-western Ethiopia: a study of risk factors for infection and carriage. Int J Dermatol 1997;36:661–666. https://doi.org/10.1046/j.1365-4362.1997.00236.x.

[89] Al SAMARAI A. Tinea Capitis among Iraqi Children: Public Health Implication. Journal of Clinical and Diagnostic Research 2007;6:476–482.

[90] Journal of the American Academy of Dermatology.

وزارة التعليم العالي والبحث العلمي
جامعة 21 سبتمبر للعلوم الطبية والتطبيقية
كلية الطب البشري
قسم الجلدية

Ministry of Highs Education
21September University
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Faculty of Medicine
Dermatology department

السـلام عليـكم ورحمـة الله وبركـاته

اخـي الكريم / اخـتي الكريمة:

نحن فريق من جامعة 21 سبتمبر كلية الطب البشري قمنا بهذا الاستبيان لغرض معرفة عوامل الخطورة والاعراض السريرية لمرض سعفة الرأس في العاصمة صنعاء نرجوا من سيادتكم التكرم بتعاونكم للمشاركة في هذه المقابلة والتي سوف تستغرق 15-20 دقيقة، كما نوكد بانه يحق لكم الانسحاب من هذه الدراسة في أي وقت، وان جميع المعلومات التي سوف تقدم لنا ستكون بغاية السرية، ولن يتم الكشف عنها لأي جهة خارجية وسيتم استخدامها لغرض البحث فقط.

ولكم خالص الشكر والتقدير على تعاونكم،،،،،،

البيانـات الديـموغرافية

اسم المستشفى :..... التاريخ:.....

اسم المريض:..... العمر:.....الجنس: ◯ ذكر ◯ انثى

المستوى الدراسي:..... محل الإقامة :..... ◯ المدينة ◯ الريف

عدد الأشخاص الذين يعيشون معه:..... عدد الغرف في المنزل:..... ..

الحالة الاقتصادية:◯ دخل مرتفع أكثر من 150 الف ◯ دخل متوسط أكثر من 50-150 الف ◯ دخل منخفض اقل من 50

المستوى التعليمي للاب:..... المهنة:..... المستوى التعليمي للام:.....المهنة:.....

عدد مرات الاستحمام:..... ◯ اقل من مرة في الأسبوع ◯ مرة أو أكثر في الأسبوع

التشخيص المبدئي:..... أخذ عينة: ..... نتيجة العينة :.....

عوامل الخطورة	نعم	لا	احيانا
هل يوجد شخص في عائلتكم يعاني من سعفة الرأس	◯	◯	X
هل لديكم حيوان أليف في المنزل	◯	◯	X
هل يشارك طفلك جزء من ملابسه او مقتنيات شخصية مع الاخرين خصوصاً الكوفية(غطاء الرأس) او منشفة او مشط الرأس	◯	◯	◯
هل يعتاد طفلك تغطية رأسه	◯	◯	◯
هل يعاني طفلك من مرض مزمن او نقص في المناعة	◯	◯	X
هل تعيشون في منزل قليل التهوية	◯	◯	◯
هل يستخدم طفلك أي ادوية بشكل متواصل (في حال الإجابة بنعم فماهي تلك الادوية)	◯	◯	X
هل يذهب طفلك الى المدرسة او أي من مرافق الرعاية النهارية	◯	◯	X
كم مرة يغسل طفلك شعرة في الأسبوع			

الحدوث والانتشار	نعم	لا	احيانا
هل سبق وان تم تشخيص طفلك بمرض سعفه الرأس (اذا كانت الإجابة نعم متى تم التشخيص)	◯	◯	X
هل يستخدم طفلك الادوية كما وصفها الطبيب	◯	◯	X
هل لاحظت تحسن بعد استخدام الدواء	◯	◯	X
هل هناك أي عوائق تواجهك في الحصول على الرعاية الطبية لحالة طفلك	◯	◯	◯

الاعراض السريرية	نعم	لا	احيانا
هل يعاني طفلك من حكة في فروة الرأس	◯	◯	◯
هل يعاني طفلك من تساقط الشعر	◯	◯	X
هل يعاني طفلك من قشور في فروة الرأس	◯	◯	X
هل لاحظت أي تورم او احمرار في فروة رأس طفلك	◯	◯	X
هل يشكو طفلك من نتوءات صغيرة او تقرحات في فروة الرأس	◯	◯	X
هل يشكو طفلك من خراج(قيح) في فروة الرأس	◯	◯	X
هل يوجد شعر قصير مقارنة بالمناطق المجاورة له	◯	◯	X
هل يعاني طفلك من أي مشاكل جلدية	◯	◯	X

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الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية
رئاسة الجامعة

بسم الله الرحمن الرحيم

جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية
الإدارة العامة
السكرتارية
التاريخ
الرقم ٤٨٩

الأخ/ مدير عام مستشفى الكويت الجامعي المحترم

الموضوع: تسهيل مهمة بحث

تهديكم جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية أطيب تحياتها وتقديرها وإشارة إلى الموضوع أعلاه تكرموا مشكورين بالتوجيه الى من يلزم بتسهيل مهمة بحث لطلاب كلية الطب مستوى خامس الدفعة الثالثة قسم (الجلدية). تحت اشراف أ.د/ مطيع ابو عريج ،د/احلام الصايدي والموضح بحسب عنوان البحث الموضح قرين اسمائهم ادناه:-

م	الاسم	الاسم
١	ايمن امين احمد محرم	RESEARCH PROPOSAL EXPLORING THE CLINICAL FEATURES AND RISK FACTORS OF TINEA CAPITIS IN CHILDERN IN SANA'A CITY.
٢	ابراهيم عدنان احمد محمد الجيلاني	
٣	احمد ياسين علي محمد الدواء	
٤	جهاد قاسم احمد السلامي	
٥	ابراهيم قاسم عبدالوهاب علي النوعه	
٦	علي محمد محمد ناصر الشرخ	
٧	شيخة فارع مجاهد السنباني	
٨	امنية احمد ثابت قاسم الاصبحي	
٩	نورية عبدالرقيب احمد محمد محرم	
١٠	رانيا محمد حزام احمد ابوعريج	
١١	فاطمة عبدالله محمد المدومي	
١٢	رقية احمد احمد علي قربة	
١٣	سوسن محمد علي الحداري	

،،،ولكم جزيل الشكر،،،

استاذ دكتور/
مجاهد علي معمار
رئيس الجامعة

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OF MEDICALS & APPLIED SCIENCES
CHANCELLOR OFFICE

الجمهورية اليمنية
وزارة التعليم العالي والبحث العلمي
جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية
رئاسة الجامعة

بسم الله الرحمن الرحيم

السكرتارية
التاريخ
الرقم ٤٨٦

الاستاذ. الدكتور/ محمد جحاف

رئيس هيئة مستشفى الجمهوري التعليمي **المحترم**

الموضوع: تسهيل مهمة بحث

تهديكم جامعة ٢١ سبتمبر للعلوم الطبية والتطبيقية أطيب تحياتها وتقديرها وإشارة إلى الموضوع أعلاه تكرموا مشكورين بالتوجيه الى من يلزم بتسهيل مهمة بحث لطلاب كلية الطب مستوى خامس الدفعة الثالثة قسم (الجلدية).

تحت اشراف أ.د/ مطيع ابو عريج ،د/احلام الصايدي والموضح بحسب عنوان البحث الموضح قرين اسمائهم ادناه:-

م	الاسم	الاسم
١	ايمن امين احمد محرم	RESEARCH PROPOSAL EXPLORING THE CLINICAL FEATURES AND RISK FACTORS OF TINEA CAPITIS IN CHILDERN IN SANA'A CITY.
٢	ابراهيم عدنان احمد محمد الجبلاني	
٣	احمد ياسين علي محمد الدواء	
٤	جهاد قاسم احمد السلامي	
٥	ابراهيم قاسم عبدالوهاب علي النوعه	
٦	علي محمد محمد ناصر الشيخ	
٧	شيخة فارع مجاهد السلباني	
٨	امنية احمد ثابت قاسم الاصبحي	
٩	نورية عبدالرقيب احمد محمد محرم	
١٠	رانيا محمد حزام احمد ابوعريج	
١١	فاطمة عبدالله محمد المدومي	
١٢	رقية احمد احمد علي قربة	
١٣	سومن محمد علي الحداري	

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الدكتور
مجاهد فاجي معمار
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Sana'a – Alswad – Taiz st. –Near 48 Midical Compound
B.O.P :(17021) Tel : (01-696585) Fax (01-696305)
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جسر من التعليم إلى التعلم

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Republic of Yemen
Ministry of Higher Education and Scientific Research
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السكرتارية
التاريخ
الرقم ٤٨٩

الاستاذ. الدكتور/ همدان سالمين باجري

رئيس هيئة مستشفى الثورة العام **المحترم**

الموضوع: تسهيل مهمة بحث

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