

Clinicoepidemiological Patterns of Dermatophytosis: A Cross-Sectional Study from Western Uttar PradeshSrishti Nepal¹, Rohan Tyagi², Pragya Kushwaha³, Diksha Agrawal⁴, Sanjeevan Kaur⁵¹Resident, Dept of Dermatology, Venereology and Leprosy, Venkateshwara Institute of Medical Sciences, Gajraula, Amroha²Assistant Professor, Dept of Dermatology, Venereology and Leprosy, Venkateshwara Institute of Medical Sciences, Gajraula, Amroha³Professor, Dept of Dermatology, Venereology and Leprosy, Venkateshwara Institute of Medical Sciences, Gajraula, Amroha⁴Assistant Professor, Dept of Dermatology, Venereology and Leprosy, Venkateshwara Institute of Medical Sciences, Gajraula, Amroha⁵Resident, Dept of Dermatology, Venereology and Leprosy, Venkateshwara Institute of Medical Sciences, Gajraula, Amroha

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Abstract:**Background:** Dermatophytosis is one of the most prevalent superficial fungal infections, affecting 20-25% of the global population. The rising number of cases, coupled with prolonged durations and recurrence, has been increasingly reported in India, underscoring its growing public health burden.**Objective:** To evaluate the clinico-epidemiological profile of dermatophytosis among patients attending the Dermatology outpatient department at a tertiary care hospital in Western Uttar Pradesh over a period of one-year.**Method:** A cross-sectional observational study was conducted on 155 clinically diagnosed cases of dermatophytosis. Patients were selected based on clinical diagnosis and confirmed with positive findings on potassium hydroxide (KOH) examination. Detailed epidemiological and clinical data were collected and analyzed to determine the distribution and identify the clinical types of dermatophytosis.**Results:** The majority of cases in the study were observed in females. The 21 to 30-year age group was the most affected, with a mean age of 32.42 ± 18.71 years. Clinically, the most common presentation of dermatophytosis was Tinea corporis, followed by Tinea cruris and Tinea faciei.**Conclusion:** This study highlights the importance of regularly assessing the clinico-epidemiological patterns of dermatophytosis to better understand its distribution, demographic trends, and clinical presentations, thereby shaping more effective treatment strategies and improving patient management.**Keywords:** Dermatophytosis; Tinea; Fungal infection; Epidemiology.

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Introduction

Dermatophytosis, commonly known as tinea, is a superficial fungal infection of keratinized tissues, caused by dermatophytes. [1] It is the most prevalent type of cutaneous fungal infections affecting both humans and animals. [2] Dermatophytes are divided into the following three genera based on their morphology- *Epidermophyton*, *Trichophyton* and *Microsporum*. [1] *Epidermophyton* is known to infect skin and nail, *Trichophyton* can infect the skin, hair and nail and *Microsporum* primarily infects skin and hair.

Dermatophytosis can be clinically classified according to the site involved. They are categorized as follows: Tinea capitis affects the scalp, Tinea faciei affects the face, Tinea manuum affects the hands, Tinea unguium (or onychomycosis) affects

the nails, Tinea barbae (also known as barber's itch or tinea sycosis) affects the beard and moustache area, Tinea cruris (jock itch) affects the groin, Tinea corporis affects the body including the trunk and arms, and Tinea pedis (athlete's foot) affects the feet.

Tinea can affect any part of the body; however, it is more common for patients to have multiple site involvement rather than just one. [3] Transmission of the infection can occur from one site to another through direct contact or by coming into contact with contaminated objects. [4] The World Health Organization (WHO) estimates that dermatophytes may infect up to 25% of the world's population, [5] with a significant portion of adults (30-70%) acting as asymptomatic carriers. [6]

Once considered a seasonal infection, it has now become a perennial problem, particularly in tropical and subtropical regions like India. [3] In recent years, there has been a notable rise in its incidence, especially in densely populated areas of Uttar Pradesh.

The most affected demographic includes individuals in their productive years, [7] with males traditionally showing a higher predisposition due to occupational exposure and lifestyle choices. However, recent studies have also indicated a growing female predominance in dermatophytosis cases. This infection carries considerable socioeconomic consequences, particularly for populations engaged in manual labor or those frequently exposed to outdoor environments, where factors such as inadequate hygiene and environmental conditions significantly contribute to its prevalence. [8]

This study aims to explore the epidemiological trends and clinical types of dermatophytosis in patients presenting to a tertiary care hospital in Western Uttar Pradesh. By examining these factors, we aim to contribute to the understanding of the growing burden of dermatophytosis and its impact on public health.

Materials and Methods

This cross-sectional, observational study was conducted over a 12-month period in the Department of Dermatology, Venereology, and Leprosy at Venkateshwara Institute of Medical Sciences (VIMS), a tertiary care hospital in western Uttar Pradesh. Institutional ethical clearance was obtained prior to start of the study.

Inclusion Criteria:

- All patients coming to the Out Patient department and diagnosed clinically with a case of superficial dermatophyte infection.

- Patients who provided written consent for participation.

Exclusion Criteria:

- Patients on prolonged immunosuppressant and antibiotic therapy.
- Infants.
- Patients already on antifungal therapy.
- Patients not giving written consent for the study.

A total of 155 patients clinically diagnosed with dermatophytosis and confirmed positive on potassium hydroxide (KOH) examination were enrolled in the study after providing written informed consent. Data collection involved demographic details such as age, gender, occupation, educational status, and socioeconomic status based on the BG Prasad classification. Each patient underwent a detailed general physical examination and a thorough cutaneous examination in a well-lit room. Based on the anatomical site of involvement, patients were categorized into various clinical types of tinea. Skin scrapings were collected from the margin of the lesion under aseptic conditions. These samples were then evaluated under direct microscopy using 10% potassium hydroxide (KOH) to confirm the diagnosis of dermatophytosis.

Result

The majority of patients in the study were between 21-30 years comprising 24.52% of the total, followed by the 11-20 years group with 20.65%. The lowest representation was seen in the 31-40 years age group, accounting for just 4.52% of cases. Pediatric patients (0-10 years) made up 12.26% of the study population. (Table 1).

Table 1: Age wise distribution

Age group (years)	No. of patients (n)	Percentage (%)
0-10	19	12.26%
11-20	32	20.65%
21-30	38	24.52%
31-40	7	4.52%
41-50	23	14.84%
51-60	27	17.42%
>60	9	5.81%
Total	155	100.00%

The mean age of the study population was 32.42 ± 18.71 years. Females slightly outnumbered males (53.55% vs. 46.45%), with a female-to-male ratio of 1.15:1. (Table 2)

Table 2: Gender Distribution

Gender	No. of patients (n)	Percentage (%)
Females	83	53.55%
Males	72	46.45%
Total	155	100.00%

Based on the area of residence, a higher proportion of patients were from rural areas, accounting for 53.5% of the total, while 46.5% were from urban areas. (Table 3)

Table 3: Distribution based on area of Residence

Area of living	No. Of patients (n)	Percentage (%)
Rural	83	53.5%
Urban	72	46.5%
Total	155	100.00%

Patient distribution in terms of occupation showed the highest frequency of disease among students, accounting for 26.45% of the total. This was followed by farmers and homemakers, each comprising 20.65%. (Table 4)

Table 4: Occupational Distribution

Occupation	No. of patients (n)	Percentage (%)
Carpenter	8	5.16%
Pre-school	10	6.45%
Driver	12	7.74%
Farmer	32	20.65%
Homemaker	32	20.65%
Nurse	2	1.29%
Plumber	2	1.29%
Retired	3	1.94%
Service	8	5.16%
Student	41	26.45%
Tailor	5	3.23%
Total	155	100.00%

The distribution of patients based on education showed that the majority were uneducated, comprising 36.77% of the total. Among those who received education, the highest representation was among patients with middle school education (20.65%), while the lowest was among postgraduates (1.29%). (Table 5)

Table 5: Distribution on educational qualifications

Education	No. of patients (n)	Percentage (%)
Uneducated	57	36.77%
Pre-school	10	6.45%
Primary school	16	10.32%
Middle school	32	20.65%
Higher secondary school	20	12.90%
Graduate	18	11.61%
Postgraduate	2	1.29%
Total	155	100.00%

Socio-economic status, determined using the BG Prasad classification, revealed that the majority of patients belonged to the lower middle class (51.61%), followed by the middle class (38.06%). (Table 6)

Table 6: Socioeconomic Variance

Socio Economic Status	No. of patients (n)	Percentage (%)
Upper class- I	0	0.00%
Upper middle class- II	14	9.03%
Middle class- III	59	38.06%
Lower middle class- IV	80	51.61%
Lower class- V	2	1.29%
Total	155	100.00%

The distribution of clinical variants of dermatophytosis revealed that Tinea corporis was the most prevalent type, affecting 143 patients (92.26%). Following this, Tinea cruris was identified in 83 patients (53.55%). Other variants observed included Tinea faciei in 32 patients (20.65%), Tinea manuum in 12 patients (7.74%), and Tinea pedis in 10 patients (6.45%). The least common variant was Tinea barbae, found in only 2 patients (1.29%). (Table 7)

Table 7: Clinical variant of dermatophytosis- single type

Type of Tinea	No. of patients	Percentage
T. corporis	143	92.26%
T. cruris	83	53.55%
T. faciei	32	20.65%
T. manuum	12	7.74%
T. pedis	10	6.45%
T. barbae	2	1.29%

Table 8: Mixed variant of dermatophytosis

Mixed variants	Yes	Yes %	No	No %	Total
T. corporis and T. cruris	77	49.68%	78	50.32%	155
T. faciei and T. corporis	31	20.00%	124	80.00%	155
T. faciei and T. cruris	10	6.45%	145	93.55%	155
T. faciei, T. corporis, T. cruris	10	6.45%	145	93.55%	155
T. corporis and T. manuum	9	5.81%	146	94.19%	155
T. corporis and T. pedis	8	5.16%	147	94.84%	155

Among mixed variants, the most common combination was Tinea corporis and Tinea cruris, observed in 77 patients (49.68%) which was followed by Tinea faciei and Tinea corporis, present in 31 patients (20.00%).

Discussion

Our study reveals that dermatophytosis predominantly affects individuals aged 21-30 years (24.52%), followed by those aged 11-20 years (20.65%). Although these findings align with other studies, such as those by Dalei et al. [9] and Kumar et al. [10], which also reported a higher prevalence in younger age groups, the lower incidence observed in the 31-40 years group in our study differs from most studies, suggesting possible demographic or environmental factors unique to our population.

The gender distribution in our study showed a slight female predominance, with 83 women (53.55%) and 72 men (46.45%), resulting in a female-to-male ratio of 1.15:1. Although traditionally dermatophytosis has been more common in males, recent studies, including those by Vineetha et al. (2019) [11] and Patro et al. (2019) [12], have reported an increasing prevalence among females. Factors such as synthetic clothing and better healthcare access may explain this shift, as also noted by other studies. [3,13,14]

Our study showed a slightly higher proportion of patients from rural areas (53.5%) compared to urban areas (46.5%), similar to the findings of Gandhi et al. [15] The higher rural representation may be due to factors like poor hygiene, limited healthcare access, and occupational exposure.

In our study, students constituted the largest group affected by dermatophytosis, accounting for 26.45% of cases. This is in line with the findings of Verma et al. [3] and Dalei et al., [9] who also observed an increasing incidence of dermatophytosis among students in recent years. The high prevalence in this

group may be linked to factors such as close interpersonal contact in school environments, shared facilities like gymnasiums, and the prolonged use of uniforms and closed footwear. These conditions, combined with increased perspiration during physical activities, create a warm, moist environment conducive to fungal growth, as noted by Agarwal et al. [16]

Farmers and homemakers were the next most commonly affected groups, each making up 20.65% of cases. Studies by Kumar et al. ¹⁰ and Gupta et al. [17] highlight that farmers are particularly vulnerable to dermatophytosis due to their strenuous work conditions, which lead to excessive sweating, and prolonged exposure to soil and animals, both of which are common sources of dermatophytes.

Homemakers are also at significant risk, as frequent exposure to water during household tasks like cleaning and washing weakens the skin's protective barrier, making them more prone to fungal infections. Vineetha et al. [11] and Shenoy et al. [18] have similarly reported that homemakers are frequently affected by dermatophytosis, with increased perspiration in humid kitchen environments further exacerbating their susceptibility.

In terms of education status, a significant number of patients were uneducated (36.77%), while others received varying levels of education. Notably, those with low (10.32%) to medium (20.65%) education levels exhibited a higher incidence of cases, likely due to reduced awareness and access to healthcare resources, as reported by Kaur et al. [19] and Patro et al. [12]

Socio-economically, most patients were from lower middle (51.61%) and middle (38.06%) classes, consistent with Ranganathan et al. [20] and Lavanya et al. [21], highlighting the impact of poor living conditions and limited healthcare access on dermatophytosis prevalence.

The distribution of various types of tinea among patients in our study indicates that Tinea corporis was the most frequently observed type, identified in 143 patients (92.26%). This was followed by Tinea cruris, which was present in 83 patients (53.55%), aligning with findings from multiple studies, including those by Shivam et al. [22] and Rudramurthy et al. [23]

In terms of mixed variants, the most prevalent combinations were T. corporis and T. cruris, observed in 77 patients (49.68%), corroborating studies by Peerapur et al. [24] and Kumar Ujjwal. [10]

The predominance of Tinea corporis and Tinea cruris can be attributed to several factors, including increased skin-to-skin contact in communal settings, high humidity, and environmental conditions that facilitate fungal growth. Additionally, tight-fitting clothing, the complexity of anatomical structures in certain body areas, and excessive moisture can contribute to the higher incidence of these infections, creating ideal conditions for fungal proliferation

Conclusion

Dermatophytosis remains a significant public health concern, particularly in tropical regions like Western Uttar Pradesh. The findings from this study provide valuable insights into the clinico-epidemiological patterns of dermatophytosis, offering a deeper understanding of the diverse clinical types and demographic trends associated with the infection. This data is crucial for improving patient care, as it helps clinicians tailor more effective treatment strategies and early interventions.

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