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Original article

Dermatomycoses in Eastern Libya: A One-Year Retrospective Analysis of Clinical Patterns and Demographic Characteristics

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Dermatomycoses, Tinea, Prevalence, Superficial.

Abstract

Dermatomycosis is an infectious disease of the skin, hair, and nails. It affects 20 to 25% of the world population and is caused by various conditionally pathogenic fungi. Typical pathogens include *Trichophyton*, *Microsporum*, and *Epidermophyton*. These infections are common in humid climates, such as those found in Libya. The present study was conducted to determine the prevalence of various dermatomycoses at Benghazi Medical Centre from May 2025 to April 2026 and their correlation with age and sex. The results showed that fungal skin diseases are more frequently observed in men (67%) compared to women (33%). Tinea corporis was the most prevalent superficial fungal infection (25%), followed by tinea pedis (21%) and tinea capitis (18%). In addition, the age group most commonly affected by fungal infections is individuals under 30 years old (55%). Dermatomycoses are among the most common global health disorders, with an estimated lifetime probability of infection reaching 20% to 25% of the world's population. Maintaining good personal hygiene and early intervention are key to preventing the spread of these infections.

Introduction

Dermatomycoses are superficial fungal infections involving keratinized tissues such as the skin, hair, and nails. They are among the most common human infections worldwide, affecting an estimated 20 to 25% of the global population [1]. Fungal infections are serious and even fatal. With the control of most bacterial infections in developed countries, fungal infections have assumed greater importance. Most fungi are soil saprophytes, and human infections are mainly opportunistic [2]. Dermatomycoses are mostly prevalent in Tropical and subtropical countries. A hot and humid climate is supposed to aggravate the infection [2]. The most important fungal genera implicated in superficial mycoses are *Epidermophyton*, *Microsporum*, and *Trichophyton* [3]. The excessive use of immunosuppressive drugs for controlling as well as non-infectious conditions allows these fungi to assume greater significance [4]. The infection by dermatophytes is facilitated by the excretion of the enzyme keratinase that degrades keratin in superficial skin tissues. Thus, their infections are generally cutaneous and restricted to the non-living layers of the skin.

Dermatophytes cannot invade deeper tissues or organs of the host. In chronic conditions, however, these fungi may invade deeper tissues, particularly in concurrent infections with other organisms [5]. Because of their ring-like appearance, typical infections by dermatophytes are generally called ringworm infections, or sometimes called 'tinea infections', which are named according to the location of the lesions on the body (e.g., tinea capitis, tinea corporis, tinea pedis, and tinea cruris [6]. While these infections are rarely life-threatening, they cause significant morbidity in the form of itching, disfigurement, social stigma, and loss of productivity [7].

Traditionally, dermatophytes, especially *Trichophyton rubrum* and *T. mentagrophytes*, have been recognised as the leading causes of superficial fungal infections worldwide [8]. However, there is increasing evidence of non-dermatophyte moulds and *yeasts* being implicated in superficial mycoses, especially in nail infections [9]. There are various risk factors for the proliferation of dermatomycoses, such as low socioeconomic status, poor hygiene, overcrowding, improper sanitation, lack of health education and awareness, lack of hygiene, compromised health-care facilities, and sharing of footwear and clothes among people in developing nations [10]. Transmission of dermatomycoses can occur by direct contact with infected people, animals, and contaminated soil. The causative fungus varies across regions, climates, lifestyles, ages, and affected sites [11].

Methods

This is a retrospective clinical review study conducted to assess the prevalence of superficial fungal skin infections among outpatients who attended the Dermatology Department of Benghazi Medical Centre from May 2025 to April 2026. Subjects with clinical dermatomycoses were included in this study. A detailed history of the patient was taken, and information on age, sex, occupation, and duration of illness was recorded.

A superficial fungal infection is suspected when a lesion has central clearing, with an advancing, red, scaly, elevated border, which may result in vesicles on the border of the affected area. Tinea corporis is suspected when there is a circular plaque with a demarcated border, and tinea cruris is suspected when there is an erythematous plaque. Tinea pedis is suspected when there are white macerated areas in the webs and chronic, dry, scaly hyperkeratosis of the sole and heel [12].

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Samples collected from the patients were delivered to the laboratory, where they were divided into two portions: one for culture and the other for microscopic examination. A portion of each nail, scalp, and skin scraping was placed on a clean glass slide. A 10-20% solution of potassium hydroxide (KOH) was applied to digest the keratin material. The slide was then covered with a clean glass slide and gently heated for one minute. Subsequently, the slide was examined microscopically for fungal spores and hyphae at magnifications of 10X and 40X [13].
The culture was cultivated on Sabouraud Dextrose Agar SDA supplemented with chloramphenicol and cycloheximide to avoid contamination with bacteria. The Petri dishes were incubated at 25°C, and the growth of the cultures was observed for one to three weeks and examined every 2 to 3 days for fungal growth. In the case of growth, the identification of an etiological agent was based on morphological features of fungal colonies [13].
Once the fungal skin diseases were identified, data regarding these diseases were gathered and subjected to statistical analysis. The data were analysed using the Statistical Package for Social Sciences (SPSS).

Results

A random sample collected from the Dermatology Department at Benghazi Medical Centre was analysed over a one-year study period from May 2025 to April 2026. The statistical analysis showed no significant correlation between age group and disease types. However, a clear association was identified between gender and disease type.
The findings in Table 1 showed that tinea corporis was the most prevalent superficial fungal infection, accounting for 25% (22 out of 87 cases), followed by tinea pedis at 21% (18 out of 87 cases) and tinea capitis at 18% (16 out of 87 cases). Tinea versicolor was identified in 13% (11 out of 87 cases). Additionally, candidiasis and tinea cruris displayed an equal prevalence rate of 8% (7 out of 87 cases each). Other dermatomycoses, such as tinea unguium, tinea alba, candida intertrigo, and oral candidiasis, were less frequent, collectively representing just 1% (1 out of 87 cases). (Table 1) Further indicates that fungal skin diseases are more frequently observed in men, representing 67% of the cases, compared to 33% in women. Nonetheless, certain conditions, such as candidiasis and tinea unguium, are predominantly found in women.

Table 1. The relationship between gender and disease type.

Type of Disease	Gender		Total
	Male	Female	
Tinea Corporis	13	9	22
Tinea pedis	13	5	18
Tinea capitis	14	2	16
Tinea versicolor	9	2	11
Candidiasis	0	7	7
tinea cruris	7	0	7
Tinea unguium	0	2	2
Tinea Alba	1	0	1
Candida intertrigo	0	1	1
Oral Candidiasis	1	0	1
Dermatophytosis of hands	0	1	1

Table 2 shows the relationship between age groups and disease types. The age group most commonly affected by fungal infections is individuals under 30 years old, comprising (55.17%), followed by older people at (22.99%) and those in the 31-54 age group, making up (21.84%). In addition, individuals below the age of 30 were more likely to be affected by Tinea capitis, while individuals aged 31 to 54 were more likely to be affected by Tinea corporis.

Table 2. The relationship between age and type of disease.

Type of Disease	Age (Binned)			Total
	<= 30	31 - 54	55+	
Tinea Corporis	11	6	5	22
Tinea pedis	6	7	5	18
Tinea capitis	15	1	0	16
Tinea versicolor	7	2	2	11
Candidiasis	2	1	4	7
tinea cruris	4	2	1	7
Tinea unguium	1	0	1	2
Tinea Alba	1	0	0	1
Candida intertrigo	0	0	1	1
Oral Candidiasis	0	0	1	1
Dermatophytosis of hands	1	0	0	1

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Discussion

Dermatomycoses are the most common superficial fungal infections worldwide, affecting the skin, hair, and nails. They play a major role in causing morbidity, presenting with symptoms like itching, cosmetic concerns, and persistent recurrences. These infections are prevalent in both humans and animals, impacting people of all ages, irrespective of gender or life stage [5]. This study aimed to investigate dermatophytosis infections at Benghazi Medical Centre. Regarding incidence by age, as shown in Table 2, dermatophyte infections affect diverse age demographics, with a notable prevalence of 55% among those under 30 years, and a decrease in infection rates with advancing age. This corroborates findings from studies conducted in India and Egypt [14, 15]. This study revealed that dermatophytosis was more prevalent in males (67%) than in females (33%), as shown in Table 1, potentially due to greater exposure of males to dermatophyte contamination. This aligns with the findings of [13], which indicated a higher infection rate among males (52.2%) compared to females (47.8%). In the present study, tinea corporis was identified as the most common superficial fungal infection, accounting for 25% of cases. Following closely, tinea pedis which is the second most frequent, with an incidence rate of 21%. Tinea capitis came in third, representing 18% of infections. This is similar to a study conducted in Europe, which showed tinea corporis and tinea pedis were the most common clinical forms of dermatophytosis [16].

Tinea unguium was one of the least prevalent clinical forms of dermatophytosis in our study, accounting for only 2% of the total dermatophytic infection. This is opposed to a study conducted in Libya in which tinea ungiuum and tinea capitis had the highest infection rate among patients [17]. Tinea unguium may develop from prolonged wear of socks and shoes, creating a damp, favourable environment for its growth. Both candidiasis and tinea cruris were observed to have a similar prevalence rate of 8%. However, candidiasis occurred more frequently in women, while tinea cruris was more prevalent in men.

Conclusion

Tinea infection (dermatomycosis) is one of the most common communicable diseases, which nowadays has become a public health problem. It infects humans and animals. Poor hygiene and illiteracy are also responsible for a higher incidence of dermatomycosis. Dermatophytes can affect all age groups and genders. However, the prevalence of dermatomycosis was notably higher among males than females, except for candidiasis, which showed a different pattern. Tinea corporis emerged as the most commonly observed condition. Additionally, individuals under the age of 30 were more susceptible to dermatomycosis than those in older age groups. Maintaining good personal hygiene, practising preventive measures, and following treatment recommendations can effectively manage and prevent dermatomycosis. Early intervention is key to minimising discomfort and preventing the spread of these infections.

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Conflict of interest. Nil

References

1. Havlickova B, Czaika V, Friedrich M. Epidemiological trends in skin mycoses worldwide. Mycoses. 2009;52(1):2-15.
2. Sarada D, Kumari P. A study of dermatomycoses. Int J Adv Res. 2015;3(1):582-588.
3. Coulibaly O, L'Ollivier C, Piarroux R, Ranque S. Epidemiology of human dermatophytoses in Africa. J Med Microbiol. 2018;56(2):145-161.
4. Bubaker K. Survey on common causative agents of dermatophytosis in Al-Bayda, Libya. Al-Mukhtar J Sci. 2019;34(3):180-189.
5. Sabale C, Masali H, Takpere A, Malge M. Clinicomycological study of dermatophytosis in a tertiary care hospital. J Popul Ther Clin Pharmacol. 2025;32(8):1065-1071.
6. Popoola TO, Ojo DA, Alabi RO. Prevalence of dermatophytosis in junior secondary schoolchildren in Ogun State, Nigeria. Mycoses. 2006;49(6):499-503.
7. Hay RJ. Superficial fungal infections. Med J. 2001;29(10):51-54.
8. Surendran K, Bhat R, Boloor R, Nandakishore B, Sukumar D. A clinical and mycological study of dermatophytic infections. Indian J Dermatol. 2014;59(3):262-267.
9. Kaur R, Kashyap B, Bhalla P. Onychomycosis--epidemiology, diagnosis and management. Indian J Med Microbiol. 2008;26(2):108-116.
10. Rathod P, Shaikh N, Ingole K, Govindlalji S, Mundhada, Chakote S. Prevalence of dermatophytes in a tertiary care center of Solapur, Maharashtra. J Krishna Inst Med Sci Univ. 2016;5(3):26-34.
11. Ng L, Lee C, Lim B, Tap R, Tan X, Tang M. Fungus isolated from dermatomycoses: a 9-month prospective study at Hospital Melaka. Med J Malaysia. 2023;78(3):364-371.
12. Lakshmanan A, Ganeshkumar P, Mohan S, Hemamalini M, Madhavan R. Epidemiological and clinical pattern of dermatomycoses in rural India. Indian J Med Microbiol. 2015;33:134-136.

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13. Alshriaf M, Hamed F, Ajala K. Dermatophytes in skin, nails, and hair among the patients attending the Out Patient Department at Zliten Medical Center. J Alasmarya Univ. 2024;9(4):147-158.
14. Singh S, Kumar A, Agrawal A, Singh R. Study of dermatophytes and incidence of different clinical types of tinea in skin OPD. Eur J Manag Stud. 2016;1(1):24-30.
15. Gohar N, El-Batal H, Elawady B, Samir N. Phenotypic methods versus PCR-RFLP for the identification of dermatophyte species isolated from patients with dermatophytosis in Egypt. Afr J Clin Exp Microbiol. 2019;20:117-126.
16. Voljc M. Dermatophyte infections in the Ljubljana region, Slovenia, 1995-2002. Mycoses. 2005;8(3):181-186.
17. Abourghiba T, Almskat M, Duzan A, Elsabri M, Abudaya E. Study of dermatophytosis prevalence in patients attending dermatology clinic at Tripoli Central Hospital. Libyan J Sci. 2021;24:1-7.

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