

Influence of Dermatophytosis on Quality of Life at a Tertiary Care Center in ChennaiPriyadharsini Jeyaprakash¹, Jefferson Joshua S², Vatsan V³, Shyamala C⁴, Ambika H⁵¹Assistant Professor, Department of Dermatology, Venereology and Leprosy, Sri Lalithambigai Medical College and Hospital, Tamilnadu, India²Assistant Professor, Department of Dermatology, Venereology and Leprosy, Sri Lalithambigai Medical College and Hospital, Tamilnadu, India³Assistant Professor, Department of Dermatology, Venereology and Leprosy, Sri Lalithambigai Medical College and Hospital, Tamilnadu, India⁴Assistant Professor, Department of Dermatology, Venereology and Leprosy, Sri Lalithambigai Medical College and Hospital, Tamilnadu, India⁵Professor and Head of Department, Department of Dermatology, Venereology and Leprosy, Sri Lalithambigai Medical College and Hospital, Tamilnadu, India

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Abstract:**Background:** Superficial Dermatophytosis is an extensively prevalent dermatological condition that significantly affects the quality of life of affected individuals. This study explored the demographic and clinical dimensions of extensive dermatophytosis, emphasising its varied manifestations and the need for personalised management.**Aim:** To comprehensively assess the impact of extensive dermatophytosis on the quality of life of affected individuals considering diverse demographic and clinical factors.**Methods:** This questionnaire-based observational study was conducted over 8 months at the Department of Dermatology, Sri Lalithambigai Medical College and Hospital, Chennai. The study included 150 patients aged ≥ 15 years who were clinically diagnosed with extensive dermatophytosis. Demographic details, disease characteristics, and Dermatology Life Quality Index (DLQI) questionnaire responses were also collected.**Results:** Extensive dermatophytosis in 150 patients significantly impacted quality of life, with a predominant presence in the 21-30 age groups. Sex differences were not statistically significant. Patients with symptoms lasting 6-12 weeks reported a higher impact, and the DLQI scores varied based on marital status, previous treatment, topical steroid use, and dermatophytosis types.**Conclusion:** The impact of dermatophytosis is influenced by demographic and clinical factors. Despite the limitations of observational studies, it advocates a patient-centred approach that emphasises tailored treatments and holistic care. These findings pave the way for future research on psychosocial factors.**Keywords:** Dermatophytosis, DLQI, Tinea, Ringworm, Rash, Skin Infection.

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Introduction

Superficial dermatophytosis, commonly referred to as tinea or ringworm, presents a spectrum of distressing symptoms including itching, red scaly rashes, blisters, nail discolouration, and bald spots on the scalp. These infections, caused by aerobic fungi known as dermatophytes, are not only physically uncomfortable but also have profound socio-psychological implications.

Often considered a social nuisance, dermatophytosis's chronic nature, propensity to spread to exposed areas, person-to-person transmission, and resistance to topical treatments pose significant challenges for affected individuals.

[1,2] The impact of extensive dermatophytosis extends beyond the physical discomfort it inflicts. It has been described as a severe and chronic condition with the potential to affect the quality of life of those grappling with its implications.

The rashes and lesions can extend to the face and exposed areas, making the condition not only physically debilitating but also emotionally distressing. [3] Moreover, the transmission of the infection from person to person and the resistance to commonly used topical treatments emphasize the need for a comprehensive understanding of the implications of dermatophytosis. [4] Affected

individuals often face a unique set of challenges, both mental and physical. The visible nature of the symptoms may subject them to discrimination and avoidance, leading to social isolation and a significant psychological burden. [5] The chronic nature of the condition, recurrence despite treatment, and the necessity of resorting to expensive systemic antifungal drugs add another layer of complexity to the management of dermatophytosis. [6]

Prevalence and the significant challenges it poses, such as the associated impact of dermatophytosis on the affected individuals' quality of life, must be investigated further. This lack of exploration leaves a critical gap in our understanding of the holistic implications of this condition, particularly its socio-psychological dimensions. By assessing the effect of extensive dermatophytosis on various aspects of daily life, including physical, emotional, and social well-being, this study seeks to contribute valuable insights that can inform both clinical practice and public health interventions. [7] Understanding the broader impact of dermatophytosis is crucial for designing effective management strategies that not only target the physical symptoms but also address the holistic well-being of the individuals affected by this often-overlooked condition.

Aim

This study aimed to evaluate the effects of extensive dermatophytosis on the quality of life of affected individuals.

Materials and Methods

This questionnaire-based observational study was conducted with 150 participants at the Department of Dermatology, Sri Lalithambigai Medical College and Hospital, Chennai, over a period of 8 months from April 2023 to November 2023. Ethical approval and informed consent were obtained from all participants.

Inclusion criteria: Patients who were willing to participate in the study, clinically diagnosed with tinea, and of both sexes aged 15 and above were included.

Exclusion criteria: Patients unwilling to participate in the study, those with a history of allergy to antifungal drugs, acute febrile illness, immunocompromised or HIV-infected status, and pregnant or lactating women were excluded.

Patients were included in the study after they provided informed consent. Personal data including names, ages, sexes, occupations, contact numbers, and permanent residential addresses were obtained. A detailed medical history was collected, including the onset and duration of the disease, affected sites, aggravating and relieving factors, past treatments, recurrence, and treatment duration.

Additionally, information about the patients' medical backgrounds, including systemic diseases such as asthma, allergic skin disorders, or convulsions, and drug histories, including the use of corticosteroids or other immunosuppressive drugs, was also gathered, along with DLQI questionnaire responses, to comprehensively assess the impact of extensive dermatophytosis on quality of life.

DLQI: The DLQI questionnaire (in tamil / English) comprising of ten key questions related to symptoms, embarrassment, shopping, day-to-day activities, types of clothing patterns, leisure activities, sports involvement, work or study activities, sexual difficulties, and treatment, was handed over to the patient for assessment.

After scoring was done the forms were collected for assessment. The effect on QOL was assessed based on the total score as 0-1 (no effect), 2-5 (small effect), 6-10 (moderate effect), 11-20 (very large effect), and 21-30 (extremely large effect).

Operational Definition: extensive dermatophytosis involving more than 20 per cent of the body surface area.

Statistical analysis: Data were entered into Microsoft Excel, and the analysis was performed using SPSS software. The variables are expressed as numbers and percentages. The P values of these characteristics were calculated to identify statistical significance.

Results

Demographically, most patients fell within the age range of 21-30 (32%), followed by 31-40 (24%), and <20 (22.7%).

The sex distribution was balanced, with 48.7% females and 51.3% males. Marital status showed that 56% of the patients were married, whereas 44% were unmarried.



Figure 1: Tinea corporis

Table 1: Demographic characteristics, clinical parameters, and dermatology life quality index (DLQI) scores of patients with dermatophytosis

		Number of patients (%)
Age group	<20	34(22.7)
	21-30	48(32)
	31-40	36(24)
	41-50	15(10)
	51-60	6(4)
	>61	11(7.3)
	Sex	Female
Male		77(51.3)
Marital status	Married	84(56)
	Unmarried	66(44)
Duration of symptoms In weeks	<6	26(17.3)
	6-12	78(52)
	>12	46(30.7)
Previously treated	No	69(46)
	Yes	81(54)
Topical steroid use	No	98(65.3)
	Yes	52(34.7)
Dermatophytosis types	Tinea corporis	128(85.3)
	Tinea manuum	46(30.7)
	Tinea pedis	37(24.7)
	Tinea faciei	48(32)
	Tinea cruris	77(51.3)
DLQI score	Small effect	14(9.3)
	Moderate effect	57(38)
	Very large effect	61(40.7)
	Extremely large effect	18(12)

The symptom duration was divided into three groups: <6 weeks (17.3%), 6-12 weeks (52%), and >12 weeks (30.7%). Previous treatment was received by 54% of the patients, while 46% did not. Topical steroids were used by 34.7% of the patients, while 65.3% did not.

The prevalence of dermatophytosis types is tinea corporis (85.3%) tinea cruris (51.3%) tinea faciei (32%) tinea manuum (30.7%), and tinea pedis (24.7%).

The impact of dermatophytosis on quality of life was shown by the DLQI scores: small effects

(9.3%), moderate effects (38%), very large effects (40.7%), and extremely large effects (12%) (Table 1).

Table 2: Demographic characteristics, clinical parameters, and dermatology life quality index (DLQI) scores of patients with dermatophytosis

		DLQI score				P value	
		Small effect (%)	N	Moderate effect N (%)	Very large effect N (%)		Extremely large effect N (%)
Age group	<20	5(14.7)		13(38.2)	13(38.2)	3(8.8)	0.656
	21-30	7(14.6)		16(33.3)	20(41.7)	5(10.4)	
	31-40	1(2.8)		16(44.4)	15(41.7)	4(11.1)	
	41-50	0(0)		6(40)	5(33.3)	4(26.7)	
	51-60	0(0)		2(33.3)	4(66.7)	0(0)	
	>61	1(9.1)		4(36.4)	4(36.4)	2(18.2)	
Gender	Female	5(6.8)		33(45.2)	24(32.9)	11(15.1)	0.106
	Male	9(11.7)		24(31.2)	37(48.1)	7(9.1)	
Duration of symptoms	<6 weeks	9(34.6)		13(50)	4(15.4)	0(0)	<0.0001
	6-12 weeks	2(2.6)		31(39.7)	41(52.6)	4(5.1)	
	>12 weeks	3(6.5)		13(28.3)	16(34.8)	14(30.4)	
Marital status	Married	5(6)		32(38.1)	34(40.5)	13(15.5)	0.234
	Unmarried	9(13.6)		25(37.9)	27(40.9)	5(7.6)	
Previously treated	No	11(15.9)		34(49.3)	20(29)	4(5.8)	<0.0001
	Yes	3(3.7)		23(28.4)	41(50.6)	14(17.3)	
Topical steroid use	No	12(12.2)		43(43.9)	34(34.7)	9(9.2)	0.023
	Yes	2(3.8)		14(26.9)	27(51.9)	9(17.3)	
Dermatophytosis types	Tinea corporis	7(5.5)		47(36.7)	56(43.8)	18(14.1)	<0.0001
	Tinea manuum	4(8.7)		9(19.6)	17(37)	16(34.8)	<0.0001
	Tinea pedis	3(8.1)		6(16.2)	14(37.8)	14(37.8)	<0.0001
	Tinea faciei	2(4.2)		9(18.8)	21(43.8)	16(33.3)	<0.0001
	Tinea cruris	1(1.3)		10(13)	48(62.3)	18(23.4)	<0.0001

The DLQI scores differ among different age groups, ranging from < 20 to > 61 years. The 21-30 age group showed a more pronounced effect, indicating a significant impact on quality of life compared to other age groups. Analysing sex, there was no statistically significant difference in DLQI scores, but it highlighted the perceived impact on quality of life for each sex. Stratifying DLQI scores by symptom duration, patients with symptoms lasting 6–12 weeks reported a higher proportion of a large effect, indicating a profound impact on quality of life. The impact of dermatophytosis on quality of life was examined based on marital status; however, marital status did not significantly influence the perceived impact. When comparing DLQI scores between patients with and without previous treatment, significant associations were observed, and topical steroid use did not influence the perceived impact on quality of life. Different types of dermatophytosis exhibited distinct patterns in DLQI scores, emphasising the varying impact of each type on the quality of life (Table 2).

Discussion

The World Health Organization (WHO) defines quality of life as the "individual's perception of their position in life within the context of the

culture and value systems in which they live, and with their goals, expectations, standards, and concerns." [7] The concept of Life (QoL) in healthcare is intricate and encompasses a multifaceted construct that incorporates both subjective and objective attributes. It involves a complex interplay among various factors, encompassing an individual's physical and mental health, psychosocial well-being, as well as economic and functional independence. [7]

This prospective study, employing a questionnaire-based observational approach, offers a thorough exploration of the intricate relationship between extensive dermatophytosis and its impact on the quality of life of affected individuals. A study conducted by Mushtaq et al. showed that dermatophytosis has a very large effect on the QoL in the majority (44.8%) of patients, while our study demonstrated an extremely large effect (40.7%). [8] The study serves as a detailed demographic canvas, portraying the distribution of patients across various parameters, such as age, sex, marital status, duration of symptoms, previous treatment history, topical steroid use, and specific types of dermatophytosis. [9] Diversity within these categories underscores the complexity of the dermatophytosis landscape. In particular, the

prominence of the 21-30 age group and the substantial impact on quality of life, as indicated by the distribution of DLQI scores, these results align with similar studies by Sadaf Rauf et al. (age from 21 to 35 years, was more reported with psoriasis 35.7%) provide valuable insights into the age-related dynamics of dermatophytosis. [10]

Delving deeper into the intricacies and further dissecting the DLQI scores, our study provides granular perspectives on the influence of age, sex, symptom duration, marital status, previous treatment history, topical steroid use, and specific dermatophytosis types on the perceived impact on quality of life. In a study conducted by Bashir et al., the duration of disease symptoms was longer in those with more than 12 months (50.5%). The nuanced nature of this analysis enriches our understanding of the multifaceted interplay of factors influencing the dermatophytosis experience. [11,12]

This study makes a significant contribution to the growing field of dermatophytosis research by providing a detailed demographic and clinical profile of individuals with extensive dermatophytosis, similar to the studies conducted by Das et al. and Gupta et al. [12,13] In the broader context of the existing evidence, this study adds a valuable understanding of the management of dermatophytosis. In this study topical steroid use did not influence the perceived impact on quality of life but the study conducted by Sajjan et al. observed a moderate correlation was found between DLQI scores and the use of topical steroids ($r = 0.0002$). [15] The observed impact across various demographic and clinical strata emphasizes the need for personalised and targeted interventions. [16,17]

Future research should examine the mechanisms underlying the age- and sex-related variations in the impact of dermatophytosis. Collaboration across various centres can improve the generalizability of the findings, whereas longitudinal studies with extensive follow-up periods may reveal the long-term impact of dermatophytosis on patients' lives.

Limitations:

However, the significant limitations of this study should be considered. Although adequate for preliminary observations, the sample size may limit the generalizability of the findings to larger groups. Furthermore, the study's single-centre design may have created institutional biases, necessitating validation in multi-centre settings. The lack of long-term follow-up data makes it difficult to determine the long-term effects of dermatophytosis on the quality of life.

Conclusion

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Our findings shed light on the effects of dermatophytosis in affected individuals. . Observational studies have limitations; however, our findings support a patient-centred strategy. Treatment options must be tailored to the many symptoms of the condition. This study promotes dermatology knowledge, while emphasising holistic patient care. Our findings establish a framework for future investigations of the psychosocial aspects of dermatophytosis.

References

1. Seebacher C, Bouchara J-P, Mignon B. Updates on the epidemiology of dermatophyte infections. *Mycopathologia* 2008; 166(5-6):335-52.
2. Kumar Das DN, Das DS. A study to assess the quality of life (QOL) of patients suffering from tinea corporis attending dermatology OPD of a tertiary care centre of Eastern India. *Int J Med Res Rev* 2019; 7(6):490-5.
3. Narang T, Bhattacharjee R, Singh S, Jha K, Kavita, Mahajan R, et al. Quality of life and psychological morbidity in patients with superficial cutaneous dermatophytosis. *Mycoses* 2019; 62(8):680-5.
4. Gnat S, Łagowski D, Nowakiewicz A. Major challenges and perspectives in the diagnostics and treatment of dermatophyte infections. *J Appl Microbiol* 2020; 129(2):212-32.
5. Mphande FA. *Skin disorders in vulnerable populations: Causes, impacts and challenges*. Cham, Switzerland: Springer Nature. 2020. https://books.google.co.in/books?hl=en&lr=&id=przhDwAAQBAJ&oi=fnd&pg=PR9&dq=5.%09Mphande+FA.+Skin+disorders+in+vulnerable+populations:+Causes,+impacts+and+challenges.+Cham,+Switzerland:+Springer+Na-tu-re%3B+2020&ots=PX3GNlwE0X&sig=2BT8ugps-sUh2efGjH3MZi8x4YA&redir_esc=y#v=onepage&q&f=false
6. Gupta AK, Tu LQ. Dermatophytes: Diagnosis and treatment. *J Am Acad Dermatol* 2006; 54(6):1050-5.
7. The W. World Health Organization Quality of Life (WHOQOL). Geneva: WHO; 2012.
8. Mushtaq S, Faizi N, Amin SS, Adil M, Mohtashim M. Impact on quality of life in patients with dermatophytosis. *Australas J Dermatol* 2020; 61(2).
9. Tripathy T, Singh BTP, Kar B, Ray A. Clinicomycological study of dermatophytosis in a tertiary care hospital in eastern India: A cross-sectional study. *Indian Dermatol Online J*. 2020; 11(1):46.
10. Clinical and demographic profile of patients with psoriasis and its effect on the quality of life using dermatology quality of life index: A

- cross-sectional study. *Khyber Med Univ J* 2019.
11. Bashir S, Hassan I, T. Wani R. Influence of dermatophytosis on quality of life: a cross-sectional study from Kashmir Valley in North India. *Int J Community Med Public Health*. 2020; 7(5):1711.
 12. Das A, Sil A, Fatima F, Podder I, Jafferany M. Impact of chronic and recurrent dermatophytosis on quality of life and psychologic morbidity—a cross-sectional study. *J Cosmet Dermatol* 2022; 21(8):3586–92.
 13. Gupta C, Das S, Gaurav V, Singh PK, Rai G, Datt S, et al. Review on host-pathogen interaction in dermatophyte infections. *J Mycol Med* 2023; 33(1):101331.
 14. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI) - a simple practical measure for routine clinical use. *Clin Exp Dermatol* 1994; 19(3):210–6.
 15. Sajjan V, Doshi B, Manjunathswamy BS, Bindagi A. Cross-sectional study on assessing quality of life of patients diagnosed with superficial dermatophytosis in South-West India. *Indian J Health Sci Biomed Res*. 2020; 13(2):160.
 16. Lionakis MS. Exploiting antifungal immunity in the clinical context. *Semin Immunol* 2023; 67(101752):101752.
 17. Bieber T. Personalized management of atopic dermatitis: Beyond emollients and topical steroids. *Personalized Treatment Options in Dermatology*. Berlin, Heidelberg: Springer Berlin Heidelberg; 2015; 61–76.