

THE IMPACT OF SUPERFICIAL DERMATOPHYTOSIS ON QUALITY OF LIFE IN A RURAL POPULATION: A CROSS-SECTIONAL OBSERVATIONAL STUDY

RUCHIKA TRIPATHI¹, UDAY PRABHAKAR², RAJARAM YADAV³

¹Department of Dermatology, Government Medical College, Azamgarh, Uttar Pradesh, India. ²Department of General Medicine, Government Medical College, Azamgarh, Uttar Pradesh, India. ³Department of Community Medicine, Government Medical College, Azamgarh, Uttar Pradesh, India.

*Corresponding author: Ruchika tripathi, Email: ruchikat22@gmail.com

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ABSTRACT

Objective: The present study aims at measuring the impact of the disease on the quality of life (QoL) of the patients and its relation to the number of relapses in the disease course and the socio-economic status (SES) of the patients.

Methods: The study was a cross-sectional study that was undertaken for a period of 6 months. A total of 100 patients aged 16 or more were enrolled with clinically and microscopically proven dermatophytosis of the skin and evaluated for impact on QoL using the dermatology life quality index (DLQI) questionnaire. A modified BG Prasad scale was used for assessing the SES of the study subjects. Statistical analysis was performed using the t-test to determine the impact of dermatophytosis on QoL, and the correlation of DLQI scores with the number of relapses and SES of the patients was also assessed.

Results: The majority of patients (80%) reported to have a moderate to very large impact on QoL due to tinea. The DLQI was found to be significantly associated with the number of relapses ($p=0.023$). However, no significant association was seen with socioeconomic class ($p=0.670$).

Conclusion: Superficial dermatophytosis has a large effect on the QoL of the patients, and it impacts their lives adversely, leading to psychological and social problems.

Keywords: Dermatology life quality index, Dermatophytosis, Tinea, Quality of life.

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INTRODUCTION

In this era of epidemic superficial dermatophytosis, it is the most common infective dermatosis encountered in dermatology outpatient departments, and the recent trend is that of chronic or recurrent dermatophytosis [1]. The various factors attributable to this trend are environmental factors, erratic use of antifungal agents, increased prevalence of Trichophyton mentagrophytes infections causing more inflammatory lesions, irrational use of topical steroid combinations, and probably an increasing resistance to antifungal agents [2]. The Dermatology Life Quality Index (DLQI) is a reliable scale to measure the extent to which dermatosis affects the daily life of a patient [3,4]. It has been used in a number of skin conditions, such as psoriasis, acne, and vitiligo, and has aided in therapeutic decisions too [4,5]. But paradoxically, there is a dearth of this information with respect to dermatophytosis. We aim to fill this lacuna with the current study.

METHODS

The study was conducted for a period of 6 months, from August 2023 to January 2024, at a tertiary care institute in the rural population of Eastern India. Institutional ethical clearance and permission to use DLQI from the concerned authority were obtained.

The inclusion criteria were: patients aging 16 years or more with clinical evidence of cutaneous dermatophytosis and demonstration of septate branched hyphae on microscopic examination of potassium hydroxide (KOH) mounts from lesional skin scrapings. Patients who were not willing to participate in the study, or those with underlying chronic illness, immunosuppression, pregnancy, lactate, or <16 years of age, were excluded from the study. Written informed consent was taken

from all the enrolled patients, and the basic demographic details (age, gender, occupation, and per capita income) were recorded. A DLQI self-administered questionnaire in Hindi was distributed to the participants and contained 10 questions, each to be answered with one of the four available options and scored from zero to three. Help from a counselor was provided to patients wherever required. The total score of DLQI ranged from zero to thirty. The DLQI score interpretation is done as follows:

- 0–1: No effect on the patient's life
 - 2–5: Small effect on the patient's life
 - 6–10: Moderate effect on the patient's life
 - 11–20: Very large effect on the patient's life
 - 21–30: Extremely large effect on the patient's life
- Socioeconomic categorization was based on the revised B.G. Prasad scale for the year 2023 [6]. Body surface area (BSA) was calculated as per the Wallace rule of nines. BSA was classified into three subgroups (<10%, 10–30%, and >30%). The total number of relapses during the disease course was also recorded (<5, 6–10, 11–20; more than 20 relapses were taken as persistent disease). Working definitions of relapse and persistent infection were defined for the study. Relapse refers to lesions occurring more than 6–8 weeks after a patient has been cured clinically [7]. All these presentations have become very common in current practice [8]. Data were entered into MS Excel, and statistical analysis was carried out using SPSS v24.0 software. For socio-economic status (SES), the category of "unclassified" was reserved for subjects unaware of their family income and excluded from the statistical analysis. DLQI scores were calculated and compared with the number of relapses during the disease course and the SES of the patients for any association using the Chi-square test, assuming $p<0.05$ to be significant.

RESULTS AND DISCUSSION

One hundred consecutive patients with cutaneous dermatophyte infections were enrolled in study 0.53% of the patients were male, and 47% were female. The mean age of presentation was 34.33 years, with the mean duration of illness being 14.94 months. The mean DLQI score was 9.21 (Table 1).

The majority of the patients (60%) had BSA involvement of <10%, while only 2% had BSA involvement of more than 30%. 42 patients had tinea cruris, 38 patients had tinea corporis, 11% had tinea faciei, 4% had tinea manuum, and 5% had tinea pedis. Relapses were common, as they were seen in 95% of the patients. The majority of the patients belonged to the either lower or lower middle class (72%). Only 4% of patients belonged to the upper middle or upper class (Table 2).

Eighty patients (80%) reported to have moderate or very large impact on their lives due to their disease, as reflected in their DLQI score (Table 3).

A Chi-square test was applied to assess the correlation between DLQI and SES and the number of relapses. A significant correlation was seen between DLQI and the number of relapses ($p=0.023$) (Table 4). However, no significant correlation was seen between DLQI and SES ($p=0.670$) (Table 5).

Dermatophytosis is caused by a group of fungi called dermatophytes, which thrive on keratinized tissues (skin, hair, and nails) [9]. *Trichophyton rubrum* is the commonest causative organism of superficial dermatophytosis in India [10]. Over the last decade, most of the dermatologists in India have faced a flurry of dermatophytosis patients, most of them being chronic and relapsing in nature. The expert consensus ECTODERM India by Rajagopalan *et al.* has defined chronic dermatophytosis as disease for more than 6 months to 1 year, with or without recurrence, in spite of being adequately treated; relapsing dermatophytosis as the occurrence of dermatophytosis (lesions) after a longer period of infection-free interval (6–8 weeks) in a patient who has been cured clinically [7]. The plight of patients suffering from such a severely itchy condition is unimaginable. It affects their sleep, personal life, work life, as well as social life. There have been many promising studies on advanced treatment options that aim to improve the overall quality of life (QoL) of patients suffering from dermatophytosis [11,12]. In general, QoL is the patient's sense of well-being in various domains of life, such as physical health, psychological status, sexual well-being, financial status, occupation, and social interaction [13]. The presence of long-standing and relapsing itchy conditions definitely affects these domains governing QoL; also, tinea lesions may sometimes be present in the visible body areas, causing social stigma. DLQI is an formidable tool for a treating dermatologist, and as such, it has been extensively used to assess dermatological diseases [3,4]. A very significant number of new cases encountered in our clinics are affected with dermatophytosis, and there are very limited data available on its impact on the QoL of patients [1].

Consistent with the findings of other studies, most of these patients were young adults, with the groin being the most commonly affected site [14,15]. The male-to-female ratio was not as similar as found in previous studies in patients affected with tinea [14]. 80% of the patients reported a moderate to very large impact on life due to the disease, as ascertained by a DLQI score of more than 6, which appears to be a disturbing figure owing to the rising concern toward overall patient satisfaction. The number of relapses had a significant impact on the QoL of patients, as those with fewer relapses had lower DLQI scores than those with multiple relapses. Frequent relapses could also lead to increased financial burden in terms of treatment sought and lost work hours, which could greatly hamper life quality. However, contrary to the general belief, we did not find any significant correlation of DLQI with the SES of the patient. As our study was conducted in a tertiary center lying in a remote rural area, the majority of patients belonged

Table 1: Mean and standard deviation of parameters

Characteristics	Mean	Standard deviation
Age (years)	34.33	12.138
Duration of illness (months)	14.94	15.762
Number of relapses	4.46	3.494
DLQI	9.21	4.028

DLQI: Dermatology life quality index

Table 2: Socioeconomic distribution of patients

Socioeconomic status	Category distribution
Socioeconomic categories	n (%)
Lower (V)	15 (15)
Lower middle (IV)	58 (58)
Middle (III)	23 (23)
Upper middle (II)	3 (3)
Upper (I)	1 (1)

Table 3: Distribution of DLQI scores

Dependent variable	Classification used	n (%)
Banding of DLQI score	0–1: No effect on quality of life	0 (0)
	2–5: Small effect	20 (20)
	6–10: Moderate effect	47 (47)
	11–20: Very large effect	33 (33)
	21–30: Extremely large effect	0 (0)

DLQI: Dermatology life quality index

Table 4: Correlation of number of relapses with different bandings of DLQI

Number of relapses	DLQI n (%)			
	2–5	6–10	11–20	Total
0–3	16 (31.4)	23 (45.1)	12 (23.5)	51 (100)
4–6	4 (12.5)	16 (50)	12 (37.5)	32 (100)
7–15	0 (0)	8 (47.1)	9 (52.9)	17 (100)

$p=0.023$

DLQI: Dermatology life quality index

Table 5: Correlation of socio-economic status with different bandings of DLQI

Socio-economic status	DLQI category n (%)			
	2–5	6–10	11–20	Total
Lower (V)	3 (20)	8 (53.3)	4 (26.6)	15 (100)
Lower middle (IV)	10 (17.2)	26 (44.8)	22 (37.9)	58 (100)
Middle (III)	7 (30.4)	11 (47.8)	5 (21.7)	23 (100)
Upper middle (II)	0 (0)	1 (33.3)	2 (66.7)	3 (100)
Upper (I)	0 (0)	1 (100)	0 (0)	1 (100)

$p=0.670$

DLQI: Dermatology life quality index

to the lower or lower middle strata, and thus there was an uneven distribution of patients from all social classes. Our study differs from previous studies in this aspect that majority of them were conducted in urban centers and had equal representation from all socioeconomic classes. The inclusion of other parameters, such as expenditure capacity, educational status, and affordability of household amenities could overcome a bias, if at all present in assessing the SES of the patients. One of the limitations of the study was its small sample size, as we had to exclude those patients of dermatophytosis who could not read or write and were unable to comprehend the questionnaire as they belonged to rural areas.

CONCLUSION

Superficial dermatophytosis has a large effect on the QoL of the patients, and it impacts their lives adversely, leading to psychological and social problems. Assurance and counseling along with early and prompt treatment play a significant role in reducing disease-related psychosocial sequelae and increasing the efficacy of treatment.

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AUTHOR'S CONTRIBUTION

Dr. Ruchika Tripathi- Concepts, Design, Definition of intellectual content, Literature search, Clinical studies, Data acquisition, Manuscript preparation, Manuscript review, Guarantor. Dr. Uday Prabhakar- Definition of intellectual content, Literature search, Manuscript preparation, Manuscript review. Dr. Rajaram Yadav- Data analysis, Statistical analysis.

CONFLICT OF INTEREST

None.

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