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ORIGINAL RESEARCH ARTICLE

The Assessment of Quality of Life Among Pediatric Patients Having Dermatophytosis

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ABSTRACT

Introduction: Dermatophytosis constitutes a group of superficial fungus infections of keratinized tissues. Presently, there is not much data on what impact dermatophytosis has on the quality of life among pediatric patients. With the growing prevalence of dermatophytosis, it has become the time to assess the impact of this infection on the quality of life of the children affected. There is a dearth of quality of life (QoL) studies assessing children in dermatophytosis. The aim and objective of this study is to assess the quality of life among pediatric patients suffering from dermatophytosis.

Materials and Methods: Pediatric patients with clinically diagnosed dermatophytosis presenting in the Department of Dermatology at Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, from April 2021 to May 2022 were evaluated for inclusion in this study. The questionnaire applied is a validated Hindi version of the children dermatology life quality index (CDLQI). SPSS version 23 was used for statistical analysis.

Results: Out of 100 patients, 75 were male and 25 were female. The mean ± SD CDLQI score in our study was13.88 ± 5.3. The majority 66.0% of the cases had very large to extremely large effect on the quality of life due to disease, followed by a moderate effect (33.0%). Most patients belonged to class 2 socio-economic classes (31%) with a mean duration of illness 4.75 ± 1.93 months.

Conclusion: Dermatophytosis was found to have a very large effect on the QoL of affected children. The CDLQI score was largely influenced by the patient's age, the disease duration, the number of lesions, size of the family and the total body surface area involved. It was affected more in females. This study also underscores the feasibility of CDLQI score-based QoL assessment in dermatophytosis.

Keywords: Dermatophytosis, Pediatric, Children dermatology life quality index, Quality of life.

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INTRODUCTION

It is an indisputable fact that an increase in prevalence of dermatophytosis is being witnessed over past 4 to 5 years not only in India but also worldwide. Skin diseases have a profound impact on quality of life (QoL) and psychosocial well-being of the patient.[1] Few studies have been carried-out in different parts of country on impact on QoL in dermatophytosis but there is a dearth of studies which have assessed the QoL among pediatric patients having dermatophytosis worldwide.[1]

Due to the psychosocial discomfort, and ill feeling, these superficial mycoses might affect expression and the self-confidence.[2,3]

Northern India experiences huge climatic difference compared to rest country. The long summer months and humid summers might have bearing on the fungal recurrence, and subsequently on QoL. The aim of this study was to assess quality of life among pediatric patients suffering from dermatophytosis

MATERIALS AND METHODS

This was a single center, a cross sectional observational study conducted at a tertiary care medical college hospital in North India over 18 months- April 2021 to May 2022. Patients in the age group of 4 to 16 years diagnosed clinically as dermatophytosis by a qualified dermatologist, attending dermatology OPD and whose parent or guardian were willing to participate in the study were included as study subjects. In this study taking the prevalence of dermatophytosis to be 19%, the sample size came out to be 58. However, the numbers of the patients included in the study were 115 during the study time period and 15 were excluded from the study as per the criteria defined for the usage of CDLQI questionnaire.[4] Written informed consent was obtained from all participants and patient's parents/guardians. Study was approved by institutional ethics committee. Due permission was obtained for using validated Hindi version of CDLQI questionnaire.[4]

All patients were subjected to thorough history taking and clinical examination. Data regarding demographic

characteristics of patients with presenting complaints, history, and general and cutaneous examination findings were collected in a pre-determined proforma. A validated hindi CDLQI questionnaire was handed over to patient who was asked to fill them along with help of their parent, or guardian. The scoring was done as explained elsewhere for CDLQI.[5]

Data thus obtained was collected and tabulated. For statistical analysis of the data, Statistical Package for the Social Sciences (SPSS) Software trial version 21 was used. Chi-square test, anova test and student t test were applied for comparison between variables. The results were considered significant at *p-value* < 0.05.

RESULTS

Among a total of 100 patients presenting to the Dermatology out patient Department during the span of our study, 7 (7%) patients were between 5 to 8 years, 28 (28%) patients were between 9 to 11 years, 45 (45%) patients were between 12 to 15 years and 20 (20%) patients were >15 years.

Tables 1 and 2 describes various demographic characteristics of the study group and their correlation with the mean CDLQI score. As age increased, mean CDLQI also increased, and the difference in CDLQI was found to be significant (p = 0.027). The mean CDLQI of female cases was more than that of males, and the association of CDLQI with gender was found to be significant (p = 0.041). The association of CDLQI with educational status and family size was found to be significant (p = 0.039). The association of CDLQI with socio-economic status and disease duration was also significant (p = 0.039). It was observed that the CDLQI score increases as the number of lesions increases and the association of mean CDLQI with the number of lesions was found to be significant (p = 0.047). In cases where BSA involvement was higher, their CDLQI score was higher, and the association of CDLQI with BSA involvement was found to be significant (p = 0.041).

It was found that quality of life was affected in every patient included in this study. The majority (66.0%) of the cases had a very large to extremely large effect on the quality of life due to disease, followed by a moderate effect (33.0%) and the mean CDLQI score was found to be 13.88 ± 5.3.

DISCUSSION

In recent years, the QoL has increasingly been regarded as an important component of the disease burden and a relevant aspect of comprehensive clinical valuation. World Health Organization (WHO) defines QoL as 'individuals' perception of position in life in the context of culture and the value systems where they live, and in relation to the goals, standards, expectations, and concerns.[7] QoL indicators have gained a unique position in contemporary dermatological therapy because skin illnesses are recognized to significantly influence self-consciousness, feelings of unattractiveness, social disengagement, and emotional stress. Considering morbidity and discomfort related to recurrent and persistent dermatophytosis, the present study provides insight into understanding the socio-demographic parameters and the disease-associated variables that have bearing on QoL in affected patients.

In the present study, the distribution of the studied cases was done on the basis of their CDLQI score and it was found that the majority of the studied cases were very large affected by the disease (52.0%) followed by moderately affected (33.0%) and extremely largely affected (14.0%) with mean CDLQI score 13.88 ± 5.3. On the contrary, a study conducted by Mohta A *et al.*,[10] 51.8% of children had a score between 0 and 5 (no impact), 48.2% had a score of ≥ 6 in CDLQI with a mean CDLQI score of the study subjects was 6.01 ± 4.17.

In the present study, the majority of the studied cases were in age range 12 to 15 years (45.0%) followed by 9 to 11 (28.0%) with mean age 13.24 ± 2.7 years with male predominance (74.0%). Our findings were in agreement with the study conducted on the same subject in Nigeria by Fienemika and Okeafor.[5] They stated that the mean age of the pupils was 9.3 ± 3.1 years. A higher proportion of the pupils were males (71.7%; n = 137) and belonged to the age category of 10 to 12 years (52.7%; n = 97).

Another interesting finding of our study, the presence of psychological upset with a female preponderance, was similar to the observation of Mohta A *et al.*[10] and Fienemika and Okeafor.[5] This may not be surprising because girls are more conscious of their body image than boys.[11] Dermatological disorders in female children may result in a negative perception of their body image, poor social acceptance, and the avoidance of some of their daily enjoyable activities.[3]

In our study itching and erythema was present in all the studied cases as the presenting symptoms followed by scaling (63.0%) and burning sensation (38.0%). Mohta A *et al.*[10] stated that the children were affected the mostly due to itching and pain (in case of inflammation). Biçer S *et al.*[2] found that most patients had physical symptoms like redness, pain, bleeding, exfoliation, swelling, ache, pruritus, burning sensation at foot, and nail thickness.

In our study, the duration of presenting complaints was 4.75 ± 1.93 months. Mohta A *et al.*[10] depicted that the average duration of illness was 2.6 ± 1.9 months (range 2 weeks 8 months). Poojary S *et al.*[12] in their study

Table 1: Describes association of CDLQI with various demographic characteristics

Demographic characteristics	*Variables*	*Number of cases (n = 100)*	*Percentage (%)*	*Mean CDLQI score*	*p-value*
Age group in years	5–8	7	7.0	12.7 ± 7.3	0.027
	9–11	28	28.0	13.0 ± 5.1	
	12–15	45	45.0	15.7 ± 5.0	
	>15	20	20.0	11.8 ± 5.4	
Gender	Male	74	74.0	13.8 ± 5.3	0.041
	Female	26	26.0	15.9 ± 5.5	
Family size	≤4	10	10.0	10.2 ± 3.5	0.039
	5–6	66	66.0	14.8 ± 5.3	
	>6	24	24.0	9.8 ± 3.3	
Educational status	Illiterate	14	14.0	10.9 ± 4.1	0.002
	Up to 10th	81	81.0	14.8 ± 5.4	
	Post high school	5	5.0	12.7 ± 4.8	
Socio-economic status As per BG Prasad 2020[9]	Class I (≥7533)	22	22.0	13.7 ± 5.2	0.039
	Class II (3766–7532)	31	31.0	16.0 ± 5.3	
	Class III (2260–3765)	24	24.0	13.3 ± 5.2	
	Class IV (1130–2259)	20	20.0	12.2 ± 4.9	
	Class V (≤ 1129)	3	3.0	9.0 ± 1.7	
Family history	Yes	42	42.0	14.0 ± 5.7	0.854
	No	58	58.0	13.8 ± 5.1	
Presenting complaints	Itching	100	100	13.88 ± 5.3	0.976
	Scaling	63	63.0	13.7 ± 5.3	
	Erythema	100	100.0	13.88 ± 5.3	
	Burning	38	38.0	14.2 ± 5.3	
Duration of presenting (in months)	<6	80	80.0	13.7 ± 5.2	0.034
	>6	20	20.0	15. ± 5.7	
Number of skin lesions	Single	11	11.0	10.5 ± 3.3	0.047
	Few (2–5)	56	56.0	14.5 ± 5.2	
	Multiple (>5)	33	33.0	13.9 ± 5.7	
Body surface area involved	≤3.0%	11	11.0	10.5 ± 3.3	0.041
	4.0–5.0%	67	67.0	14.2 ± 5.6	
	>5.0%	22	22.0	14.9 ± 4.7	
KOH mount	Septate	93	93.0	13.6 ± 5.3	0.092
	No hyphae	1	1.0	14.0 ± 0.0	
	Spores	6	6.0	18.5 ± 4.5	
Morphology	Papule	35	35.0	14.1 ± 6.3	0.682
	Plaque	98	98.0	13.9 ± 5.3	
	Erosion	30	30.0	15.8 ± 5.2	
	Ulcer	1	1.0	10.0 ± 0.0	
	Excoriation	24	24.0	14.4 ± 5.3	
	Erythema	100	100.0	13.88 ± 5.3	
	Scaling	66	66.0	13.7 ± 5.2	
	Annular lesion	36	36.0	14.7 ± 4.8	

on pediatric dermatophytosis: The changing clinic-mycological patterns in Western India reported that the symptoms were present for a duration ranging from two days to one year. History of superficial dermatophytosis in a family member/close contact was present in 76.12% of children (n = 51).

In this study the disease duration was a significant predictor of QoL severity as disease duration increases,

Table 2: Describes the association of various clinical parameters with stratified CDLQI scores among studied patients

Variables		Children dermatology life quality index scores				p-value
		Mild (2–5)	Moderate (6–10)	Very large (11–20)	Extremely large (21–30)	
Presenting complaints	Itching	1	33	52	14	1.00
	Scaling	1	21	31	7	0.697
	Erythema	1	33	52	14	1.00
	Burning	0	13	19	6	0.824
Duration of disease (in months)	≤6	1	27	40	12	0.006
	>6	0	6	12	2	
No. of lesions	Single	0	6	5	0	0.372
	few (2–5 lesions)	0	18	28	10	
	Multiple (>5 lesions)	1	9	19	4	
Body surface area	<5.0%	1	29	36	12	<0.001
	5.0–8.0%	0	3	16	2	
	>8.0%	0	1	0	0	
KOH mount	Septate	1	33	47	12	<0.001
	No hyphae	0	0	1	0	
	Spores	0	0	4	2	
Morphology	Papule	1	13	14	7	0.171
	Plaque	1	32	51	14	0.007
	Erosion	0	5	18	7	0.081
	Ulcer	0	1	0	0	0.561
	Excoriation	0	6	14	4	0.721
	Erythema	1	33	52	14	1.00
	Scaling	1	21	37	7	0.422
	Annular lesion	0	8	24	4	0.473

CDLQI also increases ($p = 0.006$).[1] Bashir S *et al.*[1] in their study on the influence of dermatophytosis on quality of life: a cross-sectional study from Kashmir valley in North India; also reported that disease duration emerges as an important factor affecting DLQI. The longer the mean disease duration, the higher the DLQI score in adult patients.

In our study, most cases had few lesions (56.0%) followed by multiple lesions (33.0%) and 11.0% had single lesions. Bashir S *et al.*[1] reported that single site was affected in 25.0%, 2 sites were affected in 27.5% cases, whereas more than two sites were affected in 47.5% cases. In the present study educational status was also causing the disease significantly higher in th educated than those are illiterate ($p = 0.042$). It was in concordance with the findings of Patro N *et al.*,[13] who found a significant association with BSA involvement in demographic variables like sex, level of education and socio-economic status.

In the present study, the distribution of the studied cases was done on the basis of their CDLQI score and it was found that the majority of the studied cases were very large affected by the disease (52.0%) followed by moderately affected (33.0%) and extremely largely affected (14.0%) with mean CDLQI score 13.88 ± 5.3.

Our findings were consistent with the findings of Bashir S *et al.*[1] who reported the overall DLQI was 13.93 ± 6.26. A good proportion of patients (55.5%) had 'very large effect' on QoL. Most of these cases had ≥2 sites involved and had a disease duration >1 year besides taking the irregular treatment due to financial constraints.

In a study by Narang T *et al.*,[14] mean total DLQI was 13.41 ± 7.56 and the main items in the questionnaire influenced by disease were 'symptoms and feelings,' then 'daily activities,' 'leisure', and personal relationships. Doshi B *et al.*[4] also depicted that of 42 patients with DLQI with moderate effect, 19 patients with very large effect and 4 with extremely large effect. Biçer S *et al.*[2] reported that the mean DLQI score in his study was 10.56 ± 6.57.

Limitations of our study were that some of the children were not able to respond properly to the interviewer and even to their parents. As per the guidelines, such patients were dropped out of the study if they could not answer more than 2 questions.

Secondly, due to the Covid-19 effect, the physical presence of adolescents at school was lesser as compared

to regular attendance so the questions answered in the questionnaire were more than 2 in a few patients, which deemed the questionnaire invalid according to CDLQI questionnaire scoring guidelines.

CONCLUSION

Dermatophytosis has a significant impact on the physiological aspect of the children and also on their emotional and social well-being. The CDLQI results confirmed that skin disease in this community can be associated with significant adverse health-related quality of life scores. The QoL in dermatophytosis is affected by various demographical parameters like age, female gender, countryside residence, BSA involvement, disease duration, socio-economic status, and KOH mount of the patient. This study highlights the utility and feasibility of CDLQI based QoL in evaluating the perception of children having dermatophytosis about their health, giving a more comprehensive account of the overall impact of the disease.

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