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Dermatophytosis- Its Impact on Quality of Life and Financial Burden

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Abstract

Background: Dermatophytosis is superficial skin infection caused by group of filamentous fungi called dermatophytes that affect the keratinized tissue. Almost every fifth person in the world is affected by it. It causes huge impact on the quality of life and is a cause of financial burden on the patients.

Methods: The impact on the quality of life and the financial burden in patients diagnosed with dermatophytosis was assessed using DLQI questionnaire and financial burden questionnaire. The results were calculated using appropriate statistical tests.

Results: Mean DLQI Score±SD (Range) was 14.48±5.18 (3-23). Mean financial burden and financial worry scores were 3.79±1.82 (out of 7) and 3.29±1.10 (out of 5) respectively. Quality of life of all the patients was affected, majority of the patients had Very large to Extremely large effect (72.5%), Small effect was observed in only 6.7% and Moderate effect in 20.8% patients.

Conclusions: The findings of the study showed that quality of life was highly impaired in the patients with dermatophytosis and it also showed a significant association with financial burden.

Key words: Dermatophytosis, quality of life, financial burden, financial worry, DLQI , tinea

Conclusion: Iron deficiency anemia is more frequent among children with febrile seizures than with febrile illness alone.

Introduction

Dermatophytosis is superficial skin infection caused by a group filamentous fungi called dermatophytes that affects the keratinized tissues (1,2,3). It is reported to affect nearly 20-25% of the global population (4,5,6). Hospital-based studies from India report its prevalence to range from 15 to 35% (7,8). It occurs on both the exposed and non-exposed sites of the body, thus affecting the appearance of the individuals and is characterised by erythematous papules, plaques and scaling that causes itching, irritation and pain. Secondary complications like bacterial infections, tinea incognito, majocchi's granuloma and disseminated or generalised eczema can also occur (9). The disease is often chronic in nature, getting years to resolve (10). All of these contribute to significant fall in the quality of life and affect the patient psychologically too (11,12). Quality of life has also been recognized to hold relevance in assessment of disease status and treatment outcome (13).

Financial impact is a matter of great concern in a developing country like India where the average per capita income is 1,24,865 INR per annum (14). Incidentally the financial burden of the disease may vary from individual to individual (15), hence it emerges as major risk factor regressing the impact of disease severity and duration thus holds a high relevance to be studied as a separate factor that could act as confounder. The present study was done to assess the quality of life and financial burden on patients of dermatophytosis.

Methods

The present study was a cross sectional study, done over 6 months on 120 adult patients with symptoms of dermatophytosis attending OPD of Department of Dermatology, Era's Lucknow Medical College & Hospital. Patients with other co-existing dermatological conditions, other co-morbid conditions like liver, renal, cardiac diseases and patients with psychiatric illness were excluded from the study. A total of 120 patients of dermatophytosis, confirmed with KOH mount were enrolled. Detailed history and clinical examination was done. Written and informed consent was taken. Details of demographic data, duration of symptoms, site and extent of involvement, history of medications, past and family history were taken and documented. Armamentarium used was DLQI and financial burden questionnaire. Questionnaires were explained to the patients and their responses were noted.

Dermatology Life Quality Index (DLQI): (annexure 1)

The DLQI is designed to measure the health-related quality of life of adult patients suffering from a skin disease. The Questionnaire contains 10 questions score from 0 to 3 can be granted to each question. Higher score indicate greater impact on quality of life. The DLQI score was calculated according to the standard method It is a reliable and most commonly used scale to determine Dermatology Life Quality Index.

Burden

Financial Burden & Worry Questionnaire: (annexure 2)

The questionnaire had been used in various studies to assess the financial burden and worry

Data analysis was done by appropriate statistical tests

Results

A total of 120 patients with dermatophytosis were enrolled. Age of the patients was between 19 and 69 years, mean age was 29.59±10.09 years (Table 1). Itching and scaling were presenting symptoms in all the cases (Table 2). Most common complaint of patients was pain (32.5%) followed by Fissuring (13.3%) and Maceration (5.8%). Out of 120 patients, 60 (50.0%) had 5-15% of body surface area involved, only 31.7% patients had <5% body surface area involved, >25% body surface area was involved in 3.3% patients.

In majority of the cases multiple sites were involved. Most common involved sites were Groin (78.3%), Buttocks (65.8%) and Trunk (53.3%). Other common sites were Face (29.2%), Arms (28.3%), Neck (27.5%), Perineum (22.5%), Perianal (18.3%), Extremities (17.5%), Nails (12.5%). Beard/mustache, Hands, Feet, Palm, Toes, scalp and hair were less common sites. Tinea corporis et cruris was the most common variant (40%) seen in patients. Other common variants seen were isolated tinea cruris and tinea facei.

In 47.5 % patients the disease duration was ≤ 1 month (figure 1). Only 15% of the patients were fresh cases, 85 % patients had used various over the counter drugs (steroids alone or in combination with antifungals and antibiotics).

Impact on quality of life:

Mean DLQI Score±SD (Range) was 14.48±5.18 (3-23). Quality of life of all the patients was affected, majority of the patients had Very large to Extremely large effect (72.5%), Small effect was observed in only 6.7% and Moderate effect in 20.8% patients. Significant association of quality of life of patients was seen with symptom scores ($F=34.66$; $p<0.001$), disease variant ($F=34.66$; $p<0.001$), duration of disease ($F=3.663$; $p=0.014$), number of sites involved ($F=44.97$; $p<0.001$), body surface area ($F=46.04$; $p<0.001$) and financial burden ($F=3.718$; $p=0.013$).

Impact on financial burden:

Mean financial burden and financial worry scores were 3.79±1.82 (out of 7) and 3.29±1.10 (out of

5) respectively. Correlation of DLQI scores for quality of life with financial burden and financial worry scores was weak and non-significant statistically. Financial worry scores showed a significant incremental trend with decreasing socioeconomic status. Financial worry also showed positive correlation with increasing age of the patient.

Table 1: Demographic Profile and Clinical Profile of Patients (n=120)

SN	Characteristic	No.	%
1.	Mean age±SD (Range) in years Median age	29.59±10.09 (19-69) 26 Years	
2.	Sex		
	Male	56	46.7
	Female	64	53.3
3.	Marital status		
	Married	67	55.8
	Unmarried	53	44.2
5.	Socioeconomic Status		
	Lower	13	10.8
	Upper Lower	12	10.0
	Lower Middle	39	32.5
	Upper Middle	39	32.5
	Upper	17	14.2

Table 2: Presenting Symptoms

SN	Complaint	Not at all		A little		A lot		Very much	
		No.	%	No.	%	No.	%	No.	%
1.	Itching	0	0	17	14.2	64	53.3	39	32.5
2.	Scaling	0	0	18	15.0	64	53.3	38	31.7
3.	Redness	1	0.8	20	16.7	63	52.5	36	30.0
4.	Burning sensation	37	30.8	38	31.7	42	35.0	3	2.5
Mean Total Symptom score±SD (Range)				5.39±2.05 (2-9)					

Table 3: Distribution of patients according to DLQI Score category

SN	DLQI Score Category	No.	%
1.	No effect	0	0
2.	Small effect	8	6.7
3.	Moderate effect	25	20.8
4.	Very large effect	57	47.5
5.	Extremely large effect	30	25.0
Mean DLQI Score±SD (Range)		14.48±5.18 (3-23)	

Table 4: Association of DLQI with body surface area involved

SN	Surface area involved	No. of patients	%	Mean DLQI	SD
1.	<5%	38	31.7	10.13	3.40
2.	5-15%	60	50.0	14.73	4.11
3.	16-25%	18	15.0	21.06	1.21
4.	>25%	4	3.3	22.25	0.96

F=46.04; p<0.001

Table 5: Association of DLQI Score category with symptom score

SN	DLQI Score Category	No. of patients	Mean total symptom score	SD
1.	No effect	0	-	-
2.	Small effect	8	3.25	1.39
3.	Moderate effect	25	3.44	1.36
4.	Very large effect	57	5.58	1.63
5.	Extremely large effect	30	7.23	1.41

F=34.66; p<0.001

Table 6: Association of DLQI scores with duration of illness

SN	Duration of illness	No.	%	Mean DLQI	SD
1.	≤ 1 month	57	47.5	13.16	5.17
2.	1-3 months	35	29.2	15.11	5.42
3.	3-6 months	23	19.2	15.65	4.17
4.	6-12 months	5	4.2	19.60	3.13

F=3.663; p=0.014

Table 7: Association of DLQI Score category with Number of sites involved

SN	DLQI Score Category	No. of patients	Mean no. of sites involved	SD
1.	No effect	0	-	-
2.	Small effect	8	1.63	1.41
3.	Moderate effect	25	2.20	1.12
4.	Very large effect	57	3.23	1.35
5.	Extremely large effect	30	6.97	2.74

F=44.97; p<0.001

Table 8: Financial Burden and Financial Worry score

SN	Variable	Statistic	
1.	Mean Financial burden score (Range)	3.79±1.82 (0-7)	
2.	Financial worry status	**No.**	**%**
	Score 1	11	9.2
	Score 2	14	11.7
	Score 3	37	30.8
	Score 4	45	37.5
	Score 5	13	10.8
	Mean score±SD	3.29±1.10	

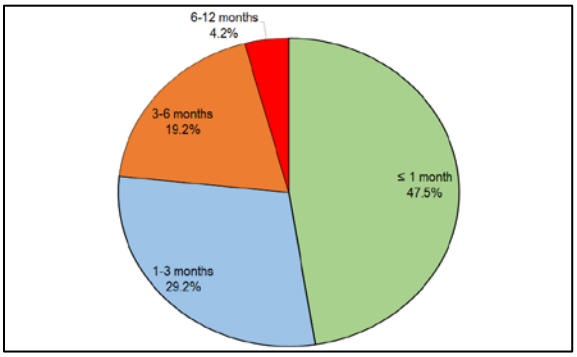

Figure 1: Distribution of cases according to duration of illness

Discussion

A total of 120 patients with confirmed diagnosis of dermatophytosis were enrolled in a cross-sectional study. Mean age of patients was 29.59±10.09 years. Majority of the patients were females (53.3%). The age and sex profile of the patients in the present study is close to that reported by Verma *et al.* who reported the mean age of patients to be 32.2 years and had an equal proportion of males and females (50% each) (16).

With respect to demographic profile of the patients majority of them were married (55.8%), were unemployed/students/housewives or retired persons (52.5%), were from middle class (65%) and urban residents. The prevalence of dermatophytes is highly dependent on socioeconomic status, immunity and hygiene practices (17-19). Population living in suboptimal congested and unhygienic conditions are at a higher risk of fungal infections. Both quality of life as well as financial burden of the disease are highly dependent on the sociodemographic profile of patients (20) and cannot be stated to be only dependent on the disease and its severity hence sociodemographic profile is important in assessment of quality of life

In the present study, the symptom scores for itching, scaling, redness and burning sensation were reflective of a lot and very much discomfort in most of the cases. Symptoms like itching and scaling were reported by all the patients. The cumulative mean score was 5.39±2.05, thus reflecting a moderate symptom severity in the patients. Although a few studies have reported the symptom severity, such as D'Souza *et al* who reported moderate to severe itching in most of their cases (21), however, they did not evaluate its effect on quality of life measures.

In this study, we assessed the quality of life with presenting complaints and used the symptom severity as one of the suitable criteria.

In our study groin was the most common site involved (78.3%) followed by buttocks (65.8%), trunk (53.3%) and face (29.2%). The site of involvement plays an important role in the quality of life of patients as occurrence of skin diseases at visible areas, particularly face generates the feelings of stigmatization which can lead to psychological stress and social withdrawal (22,23). Covered areas of body such as groin, trunk and buttocks give conducive environment for fungal growth. Owing to difficult accessibility, the hygiene maintenance at these sites is also often ignored and sweating between the skin crevices provides the fungus an opportunity to grow. In view of the site-dependent impact of skin conditions on quality of

life, it is essential either to study the site involved or to describe the clinical type. In the present study, we did both of these.

Duration of disease reflects not only the physical burden of disease but also reflects the repeatability of physical, social, financial and psychological events that affect the quality of life. Hence, assessment of duration of disease and its impact on QoL is quite essential. Patients similar in all aspects except duration of disease might show a different quality of life given the difference in events that affect the quality of life. In our study, maximum number of patients had illness for only ≤1 month (47.5%) and only 5 (4.2%) had duration of illness in 6-12 months range. As such the patients were in general newly diagnosed patients and had not experienced the problems associated with chronicity of disease.

In this study, we measured the quality of life of patients using DLQI scale and found the quality of life of all the patients to be affected by the disease. Maximum patients (47.5%) had very large effect on quality of life and mean DLQI score was 14.48±5.18. The findings are interesting from the point of view that even with high proportion of patients with short (0-1 month) duration of disease, the quality of life were affected moderately or higher in 93.3% of patients.

In the present study mean financial burden and financial worry scores were 3.79±1.82 (out of 7)

and 3.29±1.10 (out of 5) respectively. Financial burden of dermatophytosis is a less studied area. Patel *et al*. in a recent study evaluated this and reported the mean score to be 3.46 and financial worry score as 3.66 which is close to that observed in the present study (24).The financial burden and worry related with dermatophytes infections is not that pronounced as the patients had a relatively shorter duration of illness during which the extreme effect in terms of financial burden and worry cannot be expected. However, loss in work opportunities and socialization could be the reason for financial burden and worry. Financial worry scores showed a significant incremental trend with decreasing socioeconomic status.

In the present study, symptom scores, type of diagnosis, duration of disease, number of sites involved, body surface area and financial burden showed a significant association with quality of life of patients. Almost all the workers have reported a significant association of QoL of dermatophytosis patients with the clinical status of their disease.

The findings of the present study showed a high impact of dermatophyte infections on quality of life of patients which was not compensated by the socioeconomic status and patient profile and was mainly governed by the disease severity and other clinical factors.

Conclusion

The findings of the study showed that quality of life was highly impaired in the patients with dermatophytosis and it also showed a significant association with financial burden. The findings of the study show that in view of the declining quality of life and high financial worry/burden in dermatophytosis patients they must be provided psychological counselling in order to avoid stress, anxiety and related psychiatric morbidities in these patients.

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