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Dermatological Quality Of Life Index in Persisting And Recurrant Dermatophytosis Patients

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ABSTRACT: Dermatophytosis is a superficial fungal infection that usually results in red, scaly rashes. In India, 1 to 2 cases out of every 1000 patients are found to be affected. Some studies estimate that 20 to 25% of the world's population is affected by superficial fungal infections. Quality of life (QOL) is important in dermatology as skin diseases are having strong impact on daily life. This study is an attempt to create awareness about how the disease impacts the quality of life of patients. The QOL scores can also be used as effective tool in assessing the treatment as well as physical assessment. A total of 102 patients with dermatophytosis were selected from the department of dermatology in the government general hospital and the prepared questionnaire was filled by them. The prospective observational study was done for a period of 3 months. The results were established by descriptive statistical analysis. Most cases were observed in the age group 21-40. Male were affected more than females. Majority of the patients were affected for a duration of less than 6 months. It is more affected in urban region. The disease was found to be effected all over the body. Middle class people were more affected. Persisting were more than recurrent dermatophytosis. Tinea corporis was the most common affected type of tinea infection. The results show moderate effect on patient's quality of life. The study explains the importance of counselling and how it shows impact on people in preventing the spread and to provide accurate treatment.

KEYWORDS: Dermatophytosis, Descriptive, Keratinophilic, Onychomycosis, Tinea Corporis

I. INTRODUCTION

Dermatophytosis is a term used to describe mycotic infections caused by a group of fungus that mainly affect the skin, hair, or nail superficial layers [1]. Dermatophytes are a homogenous clade of keratinophilic filamentous fungi that are found in the stratum corneum of the skin, as well as in the hair and nails of the living host. Dermatophytosis affects 20000 to 25000 people per 100,000 people worldwide [2]. Dermatophytosis has a worldwide incidence that ranges from 10000 per 100000 people to15000 per 100000 people. Dermatophytosis is more common in school-aged children (5-15 years old) [3, 4]. Dermatophytosis is more common in women than men [5]. Males are more likely to develop groin infections than females [6]. Females are more likely to get nail infections. Dermatophytosis is caused by three fungal genera species: Epidermophyton, Microsporum and Trichophyton.

Some dermatophytes spread directly from one person to another by sharing towels, clothing, footwear, or hair brushes. Some are transmitted to humans from soil, animal hosts [7]. The person may experience red, scaly, itchy or raised patches that begin to ooze or develop a blister and may cause burning sensation. Bald plaques may develop when the scalp is affected. Nails may thicken, discolour or begin to crack [8]. Diagnosis includes Potassium hydroxide (KOH) microscopy aids in visualizing hyphae and confirming the diagnosis by adding a few drops of 10 percent-20 percent KOH to the scale, hair, or dirt on a glass slide. Warm the slide carefully for nail material or hair. The wet mount preparation is next viewed under a microscope (x400) [9]. Wood's lamp examination (ultraviolet light) is used for diagnosing tinea versicolor, which fluorescens pale yellow to white and for diagnosing tinea capitis that fluorescence blue-green. Fungal culture uses skin, nail, or hair scrapings in a sterile container for inoculation on sabouraud's dextrose agar. To be certified positive, the culture must be retained for 7-14 days; to be declared negative, it must be held for 21 days. Skin or nail biopsy may guide treatment decisions when the diagnosis is difficult to establish,

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dermatophyte infection has not responded to previous treatment, or KOH microscopy is negative in a patient with dystrophic nails [10]. Topical treatment includes Miconazole, Clotrimazole, Econazol, Terbinafine**.** Oral treatment includes Griseofulvin, Ketaconazole, Itraconazole, Terbinafin**.** Topical medications should be administered twice daily for one to two weeks [11, 12].

Tinea faciei is a dermatophyte infection that is restricted to the skin of the face. Infection of the beard and moustache is not included. Treatment includes topical antifungal drugs are normally used to treat it, but if that fails, oral antifungal medicines such as terbinafine and itraconazole may be used [13]. Tinea Incognita is a fungal skin infection caused when the clinical appearance has been altered by incorrect therapy, usually a topical steroid cream. Treatment includes any topical steroid or calcineurin inhibitor should be discontinued. Bland antipruritic lotions can be applied. Standard antifungal treatment should be used [14]. Tinea pedis is a dermatophyte fungus-causes foot illness. It's the most common dermatophyte infection, and it's especially common in hot, tropical, and urban areas. Athletes' foot is another name for it. Treatment includes topical antifungal therapy once or twice daily is usually sufficient. A typical course is about 2 to 4 weeks. Oral antifungal agents may be needed for few weeks for those who do not respond to topical therapy these include, Terbinafine, Itraconazole, Fluconazole, Griseofulvin. Patients with hyperkeratotic variant may benefit from the addition of topical keratolytic cream containing salicylic acid or urea [15].

Tinea unguium is a form of fungus that is very common. Onychomycosis is another name for it. Fingernails and, more typically, toe nails are infected by the fungal species. Treatment includes topical antifungals are used twice weekly for 6 to 12 months for nail plate infections like Amorolfine nail lacquer, Ciclopirox nail lacquer**.** Azole oral antifungals require specialist's approval. The duration of therapy ranges from 6 to 12 weeks (finger nails) or 3 to 6 months (toe nails) treated with Terbinafine and Itraconazole [16]. Tinea cruris, popularly known as "jock itch," is a type of tinea that affects the groin, pubic region, and adjacent thigh and is caused by a dermatophyte fungus. It appears as an asymmetrical rash that can be transient or persistent.Treatment inclues topical antifungal medications such as imidazoles or terbinafine. Oral antifungal medications for extensive or recalcitrant infection, particularly in immunosuppressed patients. Examples: Griseofulvin, Terbinafine, Itraconazole**.** Mild topical steroid can be used short-term to reduce itch, but is not appropriate as a monotherapy or long-term [17].

Tinea mannum is a dermayophyte infection of one or both hands. It is much less common than tinea pedis. Mild tinea manuum is treated with topical antifungal agents, but if the treatment is unsuccessful, oral antifungal medicines are considered, including terbinafine and itraconazole [18]. Tinea corporis is a skin condition caused by a fungal infection that can affect any region of the body except the hands, foot, scalp, face, beard, groin, and nails. It's popularly referred to as "ring worm" since it causes ring-shaped sores. Treatment inclues topical antifungal medications such as imidazoles and terbinafine. Systemic therapy is also required for majocchi granuloma and tinea imbricate. Recommended oral agents are terbinafine and itraconazole[19]. Tinea capitis is a fungus that affects both the epidermis and the hair on the scalp. Ringworm of the scalp is another name for it. Hair loss, dry scaly spots, redness, and itching are the signs of tinea capitis. Treatment includes at least four weeks of systemic anti-fungal medications. Griseofulvin has previously been the most widely used medication to treat tinea capitis. Newer antifungal medications such as terbinafine, itraconazole, and fluconazole are at least as effective as griseofulvin. Topical agents such as povidone- iodine, ketoconazole and selenium sulfide shampoos can be used to reduce spore transmission [20].

Tinea versicolor is a skin ailment caused by a fungus. The overgrowth of yeast that is naturally present on the skin causes it. It might cause skin discolouration and irritation in some people. Pityriasis versicolor is another name for this ailment. Treatment includes topical antifungal medications such as ketoconazole. In case of chronic conditions oral antifungal agents such as fluconazole can be given [21]. Tinea barbae is a dermatophyte fungus infection affecting the beard and moustache parts of the face. A topical antifungal treatment may be sufficient, but it is commonly treated with oral antifungal medications such as terbinafine and itraconazole [22].

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II. METHODS

A total of 102 patients visiting the department of dermatology, government general hospital, Ongole, Andhra Pradesh were selected for the estimation of impact of the disease on quality of life. A prospective observational study was conducted for a period of 3 months. Patients presenting with persisting and recurrent dermatophytosis were included in this study. Patients who came for review were also included. Patients who were diagnosed with other than dermatophytosis and who were newly diagnosed with dermatophytosis were also excluded. A well-structured patient data collection sheet with questionnaire was prepared in which patient details were recorded. The details such as age, gender, marital status, family history, site of involvement, duration, past history and treatment were taken. The DLQI questionnaire contains details regarding with complaints, self-consciousness, daily work, social activities and treatment usage. The details of the patients were collected after taking the informed consent from the patient. The informed consent form was prepared which was signed by the patient giving their willingness to participate in the study.

The patients were recruited according to the eligibility criteria. The questionnaire was answered by the patient. The score for every question was given as:

- Not at all (0)
- A little (1)
- A lot (2)
- Very much (3)

The total scoring of the questionnaire gives the QOL Score of the patient:

- No effect (0-1)
- Small effect (2-5)
- Moderate effect (6-10)
- Large effect (11-20)
- Extremely large effect (21-30)

Quality of life of the patient was assessed based on the scores. The DLQI score was statistically analyzed by descriptive statistics.

III. RESULTS AND DISCUSSION

The present study is to determine the quality of life in patients with dermatophytosis using dermatology life quality index. It includes a total of 102 patients visiting dermatology department.

Table 1: Based on demographics

Age	Number of patients	Percentage	Mean DLQI score	Standard deviation score
0-20	14	13.73%	7.21	3.02
21-40	55	53.92%	8.70	3.96
41-60	30	29.41%	6.5	2.76
>60	3	2.94%	6.66	2.86
Gender				
Male	56	54.90%	7.64	3.55
Female	46	45.10%	7.80	192.43
Duration				
< 6 months	66	64.71%	6.31	3.04
6 months -1 year	24	23.53%	10.41	3.59
>1 year	12	11.76%	10.58	3.66
Residential				
Rural	46	45.10%	7.73	4.07
Urban	56	54.90%	7.82	3.21
Socioeconomic status				
Lower class	32	31.37%	6.5	2.94
Middle class	70	68.63%	8.75	167.55
Upper class	0	0%	-	-

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Table 1 shows that based on age, majority of patients affected were aged between 21 to 40 (53.92%). That may be due to their work environment or unhygienic life style. The results are supported by ***AnushreeKhanvte, et al [23]***. The QOL was also highly affected for the same age group. The mean DLQI score was 8.70±3.96.

It shows that males (54.90%) were more prone to dermatophytosis when compared to females. It may be due to increased outdoor physical activity and increased opportunity for exposure in men than women.Our study was supported by ***T.S.Rajashekar, et al*** **[24]**. The effect on QOL was high in females and the mean DLQI score was 7.80±192.43. It shows that majority of patients were affected for a duration of less than six months (64.71%). It was due to their continued treatment and dietary instructions that resist the progression of infection at early symptoms. ***T.S. Rajashekar, et al*** **[24]** supported our study. There was high impact on QOL in patients affected for more than one year and mean DLQI score was 10.58±3.66. It shows that as the disease progression increases, the effect on QOL also increases. It shows that people who live in urban region (54.90%) were more affected when compared to rural. It may be due to unhealthy lifestyle and working in crowded places. ***Varshney AP, et al*** [(25)] opposed our study. The effect on QOL was also high in people living in urban region and the mean DLQI score was 7.82±3.21.

Table 2: Based on site of infection

Site of infection	Number of patients	Percentage	Mean DLQI Score	SD
Thigh or gluteal region	5	4.90%	6.6	2.87
Groin	28	27.45%	8.60	3.41
Face	6	5.88%	5.16	3.57
Palm or toe	1	0.98%	-	-
Legs	10	9.81%	6.6	1.56
Hands	11	10.79%	6.81	2.79
Body	32	31.37%	8.15	3.91
Trunk	6	5.88%	7.33	4.38
Scalp	3	2.94%	12	2.44

Table 2 shows that the most affected site of infection was over all body (31.37%) which may be due to spread of infection from primary site of infection on skin. The next most affected site was groin region (27%) as this area sweats more. These findings are similar to the study by ***Varshney AP, et al*** **[25]**. People who are affected at groin region had a large impact on quality of life. The mean DLQI score was 8.60±3.41.

Table 3: Based on disease status

Disease status	Number of patients	Percentage	Mean DLQI Score	SD
Persisting	64	62.75%	6.09	2.66
Recurrent	38	37.25%	10.63	3.44

Table 3 shows that persisting dermatophytois (62.75%) was high than recurrent dermatophytosis. This was due to medication adherence. Recurrence (37.25%) of the infection was due to food allergy. It is obvious that QOL was highly affected in recurrent dermatophytosis and the mean DLQI score was 10.63±3.44.

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Table 4: Based on type of tinea infection

Type of tinea infection	Number of patients	Percentage	Mean DLQI Score	SD
Tinea corporis	90	88.24%	7.93	3.58
Tinea faciei	3	2.94%	3	1.41
Tinea barbae	0	0%	-	-
Tinea unguium	0	0%	-	-
Tinea incognito	1	0.98%	-	-
Tinea capitis	3	2.94%	10.66	1.24
Tinea mannum	0	0%	-	-
Tinea cruris	0	0%	-	-
Tinea pedis	1	0.98%	-	-
Tinea versicolor	4	3.92%	5	2.12

Table 4 shows that the most common clinical type encountered in this study was Tinea Corporis (88.24%). Our study was supported by ***Sudip das, et al*** **[26]**.The QOL was highly affected in persons with Tinea capitis and the mean DLQI score was 10.66±1.24.

Table 5: Based on severity of dermatophytosis

DLQI scores	Number of patients	Percentage	Mean DLQI Score	SD
No effect (0-1)	1	0.98%	-	-
Small effect (2-5)	30	29.41%	3.63	1.16
Moderate effect (6-10)	46	45.10%	7.82	1.23
Very large effect (11-20)	25	24.51%	12.84	1.54
Extreme large effect (>21)	0	0%	-	-

Table 5 shows that the DLQI scores are also used as effective tool in assessing the treatment and also physical and psychological assessment. Based on our study, we have observed that moderate effect (45.0%) was high. Our study was opposed by ***AnushreeKhanvte, et al*** **[23]**. As per DLQI scores, the impact on QOL was high in very large effect people. The mean DLQI score was 12.84±1.54.

IV.CONCLUSION

The present study found a significant impact of persisting and recurrent dermatophytosis on quality of life (QOL). The study concluded that based on the DLQI scores dermatophytosis shows a moderate effect on patients affected with Tinea infections. That may be due to early detection of symptoms and appropriate treatment due to early diagnosis.

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