Original Research Article

A clinicodemographic study and life quality Assessment in seborrheic dermatitis at a tertiary care centre in South India

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Abstract

Introduction: Seborrheic dermatitis (SD) is a common, recurring papulosquamous disorder. Although it's not a fatal disease, it can have substantial consequence on the quality of life due to its symptoms leading to significant effect on the quality of life (QOL)

Aims & Objectives: To study the clinicodemographic profile of SD and to evaluate the dermatological life quality index (DLQI) in such patients.

Materials and Methods: This was a cross sectional study, done for a period of one year. A total of 100 patients with SD were included in the study. Quality of life was measured by utilising dermatological life quality index (DLQI) questionnaire.

Results: The mean age of our study population was 29.69± 6.9 years. The male: female ratio was 1:2. The most severe symptom was scaling (mean: 2.17), followed by pruritus (mean: 2.12) and oily skin (mean: 0.72). The mean of the DLQI score in our study was 4.45. Of the 100 patients, 69% of patients had small effect on the life quality, 29% had moderate effect and 2% had no effect on life quality. Regarding individual domains in DLQI, itching and embarrassment had the highest mean DLQI score (1.78 and 1.62) respectively. Statistically significant association existed between DLQI score and Scaling, Pruritus.

Conclusion: This study portrays that SD is having influence on the life quality and it's primarily attributed to the pruritus and also the cosmetic imperfection caused by the scaling.

Take Home Message: Even though Seborrheic dermatitis is not a life threatening dermatoses, it has a significant negative influence on the life quality leading to loss of self-esteem. This study highlights that DLQI is one of the simple tool which is useful in understanding the effect of SD over the life quality which helps in assessing treatment options for the patients.

Keywords: Seborrheic dermatitis, Dermatological life quality index, Quality of life.

1. Introduction

Seborrheic dermatitis (SD) is a very common, recurring papulosquamous dermatoses. It is characterised by minimal erythema with well defined, fine, greasy yellow scales. Scalp, periauricular area, glabellar region, eyebrows and paranasal region are the most common sites of predilection for SD. SD also affects mid chest, genitalia, groin folds.[1] It affects roughly 11.6% of general public and about 70% of infants in the first three months of life. The peak incidence of SD among adults is in the third and fourth decades of life.[2]

The etiopathogenesis of SD is not completely understood. It is considered to be multifactorial disease where several endogenous and exogenous factors play a role.[3] The important factors that contribute to pathogenesis are sebaceous secretions, increase in triglycerides, cholesterol and decrease in free fatty acids & squalene, surface

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colonisation by Malassezia yeasts, host factor predisposition and interaction among all these factors.[4]

The outbreaks are prompted by emotional stress, lassitude, exposure to air conditioning or damp or dry conditions in the workstation, systemic infection, certain medications usage.[5] SD has a cyclical pattern presenting recurrently during winter and improving typically during summer.[6] In SD patients, the skin is sensitive to irritation, exposure to sun/ heat, febrile illnesses. In such patients, aggressive topical treatment may trigger flares and dissemination.[7] SD arises in all races and ethnic groups and has a worldwide distribution but more frequent in people with neurological diseases like Parkinsonism and in AIDS patients.[3]

The treatment of SD should be tailored to the individual patient and it must also take into account the influence of SD on patient's life quality index. Patients with SD complain of discomfort with symptoms of itching and burning and also have some serious cosmetic problems leading to psychological distress.[8] Chronic dermatoses can have physical and emotional impression on their quality of life which include distress, stigmatisation, loss of self-esteem and restrictions in social activities.[9] Very few studies are there in our tropical climate set up about this aspect of SD.

2. Aims and Objectives

The objective was to study the clinicodemographic profile and assess the impact of Seborrheic dermatitis on quality of life using the dermatological life quality index (DLQI).

3. Materials and Methods

This was a Prospective cross-sectional study done in our outpatient department after ethical committee approval (VMKVMCH/IEC/20/134). We included 100 patients with SD of both sexes of age group more than 18 years who came to us for treatment during the study period of one year. The diagnosis of SD was made clinically by two qualified dermatologists.

After getting informed consent, baseline demographic data was recorded on a questionnaire. The data of precipitating and predisposing factors were taken in to account. A detailed dermatological examination was performed to assess the lesion and level of involvement.

The severity of SD was appraised using a semi quantitative scale of 0 to 4 for each of the manifestations (erythema, scaling, infiltration, oily skin and pruritus) where a value of zero corresponds to the absence of symptoms, one to mild symptoms, 2 to moderate symptoms, 3 to severe symptoms and the maximum value of 4 to very severe symptoms.

In this study we used the DLQI questionnaire which was first introduced by Finlay and Khan,[10] in 1994 after getting a official consent. It is a authenticated questionnaire which rates the QoL by measuring the following domains: (a) physical symptoms and feelings (questions 1 and 2), (b) daily activities (questions 3 and 4), (c) leisure (questions 5 and 6), (d) work/school (questions 7), (e) personal relationships (questions 8 and 9), and (f) treatment (question 10). Each question is scored as "very much" (score 3), "a lot" (score 2), "a little" (score 1), and "not at all" (score 0), keeping in mind the difficulties encountered the preceding week owing to the dermatoses. The summation of all scores (range 0–30) indicates the Final DLQI score. High scores points to poor QoL.

DLQI score analysis was done as follows:
1. 0–1: no effect on patient's life
2. 2–5: small effect on patient's life
3. 6–10: moderate effect on patient's life
4. 11–20: very large effect on patient's life
5. 21–30: extremely large effect on patient's life.

The Data gathered were compiled, coded and entered in data analysis forms. Analysis of data was performed using SPSS version 27.0. Descriptive statistics, e.g., mean, median, minimum, maximum and percentages was calculated to describe the demographic data. Pearson's Chi-square test was used to compare categorical variables. Demographic data, clinical data and the DLQI score were compared using the Pearson's Chi-square test. Level of significance were assessed with 95% confidence intervals and P value <0.05.

4. Results

Of the 100 patients, majority of them were in the age group of 18-30 years (71%). The youngest patient was 18 years old and the oldest being 42 years of age. The mean age of the patients was 26.69± 6.9 years and the mean age of onset was 24.41±6.467. In this study, 34% were males while 66% were females which depicts that seborrheic dermatitis was more prevalent among female gender. Male to female ratio was 1:2. In this study, most of the patients (33%) were students (**Table 1**).

Regarding associated dermatological conditions, 28% had acne vulgaris and 7% had Tinea versicolor. In this study, 89 (89%) patients had itching, 9(9%) were asymptomatic and 2 (2%) had itching with burning sensation. In our study, 90 (90%) patients had greasy scales and 10(10%) had both greasy scales and erythematous patches. About 86 (86%) patients had only scalp involvement and 14(14%) had mixed involvement of scalp, face and retroauricular area (**Table 1**).

Table 1: Clinico demographic profile of the study population

S.No	Explanatory variable	Parameter	n (%) n=100
1	Age Mean age: 26.69 ±6.9 yrs	18-30 yrs	71
		31-40 yrs	23
		41-50 yrs	6

		Total	100
2	Age of Onset Mean age of onset: 24.41±6.467	< 18 yrs	9
		18- 30 yrs	74
		31- 40 yrs	17
		Total	100
3	Sex M:F- 1:2	Male	34
		Female	66
		Total	100
4	Residence	Rural	43
		Urban	57
		Total	100
5	Education	Literate	99
		Illiterate	1
		Total	100
6	Duration of the disease	< 3 years	74
		>3 years	26
		Total	100
7	Family history	Yes	40
		No	60
		Total	100
8	Associated Dermatological conditions	Acne vulgaris	28
		Tinea versicolor	7
		None	65
		Total	100
9	Symptoms	Asymptomatic	9
		Itching	89
		Itching + Burning sensation	2
		Total	100
10	Clinical features	Greasy scales	90
		Greasy scales + Erythematous patches	10
		Total	100
11	Number of Sites involved	Single (Scalp)	86
		Multiple (Scalp+face+Retr oauricular)	14
		Total	100
12	DLQI	No effect	2
		Small effect	69
		Moderate effect	29
		Very large effect	0
		Total	100

DLQI- Dermatological Life Quality Index

In this study, all the patients had some exogenous or endogenous triggering factors. Factors reported to exacerbate SD are sweat (47.2%), emotional stress (16.7%), Exposure to sun (15.7%), humidity (9.3%), changes in weather (5.6%), Air conditioner (3.7%) and food (0.9%) (**Figure 1**).
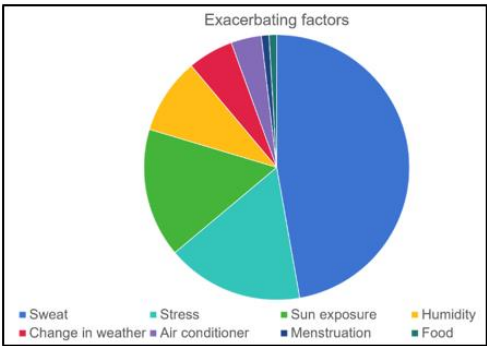

Figure 1: Exacerbating factors of Seborrheic dermatitis in the study population

Regarding Severity of SD, 41% had scaling; 29% had pruritus; 19% had oily skin; 7% had erythema and 4% had infiltration (**Table 2**). The most severe symptom was scaling (mean: 2.17), followed by pruritus (mean: 2.12) and oily skin (mean: 0.72). The least severe symptom was erythema (mean: 0.17) followed by infiltration (mean: 0.1).
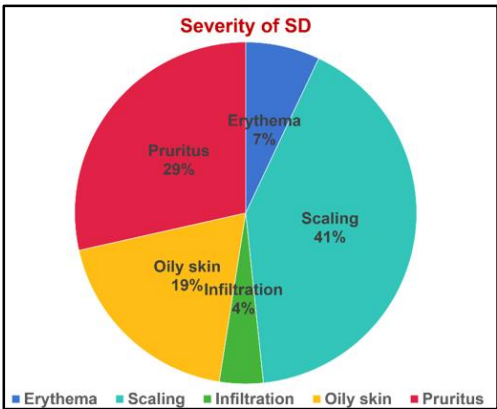

Figure 2: Severity of Seborrheic dermatitis

The mean of the DLQI score was 4.45. of the 100 patients, 69 (69%) patients had small consequence on the quality of life, 29(29%) had moderate effect and 2 (2%) had no effect on the quality of life (**Table 1**). For structured questions on the DLQI scale, in answer to the question about whether the itching associated with SD made them uncomfortable, 70% stated that the itching bothered a lot and 4% stated that they were bothered very much by the itching. The question of whether they were embarrassed due to the SD was answered with bothered a lot by 62% and 1% were bothered very much. The question of whether they had shopping problems because of SD was answered by 48% were bothered a little, and 5% were bothered a lot. In answer to the question of whether the SD had influenced their choice of clothes was answered by 22% that it influenced a little. The question of whether SD had affected their social activities was told by 12% that it bothered a little. The question does SD affects their work and study was answered by 91% as not at all and 9% of people were bothered a little (**Table 2**).

Regarding DLQI score of each question Question 1 (symptom that is itching) and question 2 (embarrassment) had the highest mean DLQI score (1.78 and 1.62)

respectively, followed by question 3 (shopping problems) and question 4 (clothes choice) with a mean DLQI score of 0.58 and 0.12 respectively and the remaining questions had lowest mean score (**Table 2**).

In our study, statistically significant association was not found between DLQI score and Age of onset, Sex, Erythema, Infiltration and Oily skin. ($P > 0.05$). There was a statistically significant relationship between Pruritus, Scaling and DLQI in the study population with the P-value for the Pearson chi-square statistic is 0.000 and 0.009 respectively, which is lower than the alpha level 0.05 (**Table 3,4**).

Table 2: Percentage distribution of individual domains of DLQI and Mean DLQI Score of each question in the study population

S.No.	Individual domain	Not bothered at all	Bothered a little	Bothered a lot	Bothered very much	Sex	Mean	SD	Range
1	Itching	0	26	70	4	All	1.78	0.504124	1-3
						Female	1.742424	0.505679	
						Male	1.852941	0.500445	
2	Embarrassment	2	35	62	1	All	1.62	0.54643	0-3
						Female	1.590909	0.581173	
						Male	1.676471	0.474858	
3	Shopping problems	47	48	5	0	All	0.58	0.589127	0-2
						Female	0.545455	0.586563	
						Male	0.647059	0.597081	
4	Clothes choice	78	22	0	0	All	0.22	0.416333	0-1
						Female	0.212121	0.411943	
						Male	0.235294	0.430562	
5	Social activities	88	12	0	0	All	0.12	0.326599	0-1
						Female	0.151515	0.361298	
						Male	0.058824	0.238833	
6	Sport	98	2	0	0	All	0.02	0.140705	0-1
						Female	0.015152	0.123091	
						Male	0.029412	0.171499	
7	Work and study	91	9	0	0	All	0.09	0.287623	0-1
						Female	0.106061	0.310275	
						Male	0.058824	0.238833	
8	Interpersonal problem	100	0	0	0	All	0	0	0
						Female	0	0	
						Male	0	0	
9	Sexual difficulties	100	0	0	0	All	0	0	0
						Female	0	0	
						Male	0	0	
10	Treatment	100	0	0	0	All	0.01	0.1	0-1
						Female	0	0	
						Male	0.029412	0.171499	

Table 3: Association between Scaling and DLQI in the study population

DLQI	Scaling			Total
	Mild	**Moderate**	**Severe**	
No effect on patient life	1(1%)	1(1%)	0	2(2%)
Small effect on patient life	10(10%)	45(45%)	14(14%)	69(69%)
Moderate effect on patient life	1(1%)	13(13%)	15(15%)	29(29%)
Very large effect on patient life	0	0	0	0
	12(12%)	59(59%)	29(29%)	100(100%)

The P-value for the Pearson chi-square statistic is 0.009, which is lower than the alpha level 0.05. Therefore, there is enough evidence to reject null hypothesis. Evidence from the sample shows that there is significant association between Scaling and DLQI Score.

Table 4: Association between pruritus and DLQI in the study population

DLQI	Pruritus				Total
	Nil	**Mild**	**Moderate**	**Severe**	
No effect on patient life	0	2(2%)	0	0	2(2%)
Small effect on patient life	1(1%)	15(15%)	40(40%)	13(13%)	69(69%)
Moderate effect on patient life	0	0	11(11%)	18(18%)	29(29%)
Very large effect on patient life	0	0	0	0	0
	1(1%)	17(17%)	51(51%)	31(31%)	100(100%)

The P-value for the Pearson chi-square statistic is 0.000, which is lower than the alpha level 0.05. Therefore, there is enough evidence to reject null hypothesis. Evidence from the sample shows that there is significant association between Pruritus and DLQI Score.

5. Discussion

Chronic dermatoses like SD can disturb various facets of the patient's QOL, including the physical, socioeconomic and psychological aspects, based on the clinical features, predilection area, and symptoms, like pruritus and scaling.

Mean age of patients in our study population was 26.69 ± 6.9 years comparable to Meiling Xuan et al[11] and Triana Agustin et al's study[12] whereas in other studies[3,9,13] the mean age of the study population was around 40 years. The minor variations in the age group between the above researchers is mainly attributed to the geographical and racial variation as all the above studies are conducted in various countries. Mean age of onset was 24.41±6.467 in this study which was little bit lower than Manapajon Araya et al[9] and J Peyri et al's[3] study.

Our study showed female preponderance similar to studies by Manapajon Araya et al,[9] Meiling Xuan et al,[11] Triana Agustin et al,[12] Nerissa Moodley et al.,[13] Naldi et al[14] and Johnson MT et al[15] whereas J Peyri et al,[3] Gupta AK et al[16] and Sampaio et al[17] showed male preponderance in their studies. It is most commonly seen in males owing to the likely role of sex hormone (Androgens) in SD[6] but in our study, females were most commonly affected. This could be explained by the fact that most men neglect their symptoms and they will seek treatment only when there is a worsening of their symptoms.

Regarding concomitant skin diseases only few researchers have looked in to it in their studies. Acne vulgaris (28%), Tinea versicolor (7%) are the most commonly associated dermatological disorders as all these disorders are associated with seborrhoea. It is very important to look for these associated conditions whenever patients presented with either of these diseases. It is also very useful when formulating treatment for SD where we should consider these diseases. About 2% of our study population had atopic dermatitis. Prevalence of atopy is not elevated in SD patients in our study as the studies done by Rajagopalan M et al[18] in India regarding atopic dermatitis showed a similar prevalence.

Regarding site of lesions, only in our study scalp is the most commonly affected site whereas in Manapajon Araya et al[9] and J Peyri al's study[3] face was the more commonly involved site by SD. In other studies[3,9] thorax is also involved which is not involved in our study. This variations in site of lesions may be partly explained by the fact that the climatic variations can influence the site of involvement. Further multicentric studies should be done to look in to the reasons of variability in the site of lesions of SD.

All the patients in our study had some triggering factors whereas in Manapajon Araya et al[9] study about 83% only reported some triggering factors. In J Peyri et al[3] study 98.4% of the population specified some triggering factors for the exacerbation of SD. In our study climatic condition was found to be the most common triggering factor especially hot and humid climate which increases the sweating leading to SD followed by emotional stress which is comparable to Manapajon Araya et al[9] study whereas in J Peyri et al[3] study which was conducted in temperate climate, stress was found to be the most common exacerbating factor trailed by climatic variables. As there are variable in SD related factors (UV radiation, humidity and temperature) during every season,[19] the diverse climates of the study areas may clarify the divergence of these results.

Harsh environment (low temperature and humidity in winter) on skin barrier is accountable for high frequency of SD in temperate countries.[3,19] Hot and humid climate, facilitates the progress of Malassezia which may induce SD throughout the summer month in India. In addition, cutaneous microbes, which are divergently colonized among patients from various places,[20-22] may influence on the progress of potential pathogenic organisms and contribute to the discrepancy of the health outcome. Even though exposure to sunlight is supposed to be favourable in SD due to inhibition of Pityrosporum ovale and suppression of Langerhans cell,[19,23] we understood that sunlight was considered a prompting factor in certain patients (15.7%).

SD patients have an augmented risk of cutaneous irritation to sodium lauryl sulfate, which is used in cosmetics and household products.[16] None of our patients reported cosmetic products as a triggering factor whereas Manapajon Araya et al[9] and J Peyri et al[3] reported cosmetics also one of the aggrevating factor in 21.4% and 16.8% of patients respectively in their study. As these prompting factors can be subjectively stated by the patients, a study with bigger sample

size and with controls will be useful in identifying the exact risk factors.

Itching and burning sensation were the most common symptoms in our patients which is analogous with the study done by Manapajon Araya et al.[9] Most of the patients in our study had greasy scale (90%) as their presenting manifestation followed by a combination of greasy scale and erythematous patches (10%).The most severe symptom in our study was scaling (mean: 2.17), followed by pruritus (mean: 2.12) and oily skin (mean: 0.72). The least severe symptom was erythema (mean: 0.17) followed by infiltration (mean: 0.1). In J Peyri et al[3] study also scaling was the more

severe symptom and infiltration was the least severe symptom like our study (**Table 5**).

In our study, the mean DLQI score of SD was 4.45 which is lower than the score of other researcher's findings that was previously published (**Table 5**). In our study there was no statistically significant difference between DLQI with Age of onset, Sex, Erythema, Infiltration and Oily skin ($P > 0.05$). Our study showed a Statistically significant association between DLQI score and Scaling, Pruritus.

Table 5: Comparison of Severity of SD & DLQI with similar studies done elsewhere

S.No.	Researcher	Severity of SD	Mean DLQI score	Domains most affected by SD	Statistically no significant association between the QOL & the following parameters	Statistically significant association between the QOL & the following parameters
1	Our study	Scaling – 41% (mean:2.17) Pruritus – 29% (mean:2.12) Oily skin- 19% (mean:0.72) Erythema -7% (mean:0.17) Infiltration -4% (mean:0.1)	4.45	Itching. (mean-1.78) Embarrassment (mean- 1.62)	Age of onset, sex, site of the disease, erythema, infiltration and oily skin	Scaling and Pruritus.
2	Manapajon Araya et al9		8.1		Disease duration, extent of involvement, symptoms or course of the disease	Women, younger age group, scalp involvement.
3	J Peyri et al3	Scaling –mean:1.90 Erythema -mean:1.89 Pruritus – mean:1.74 Oily skin- mean:1.51 Infiltration -mean:0.86				Women, severe symptoms
4	Triana Agustin et al12		Mild SD-8.73 Moderate SD-9.30		Duration of disease, size of lesion	Men, Young age.
5	Nerissa Moodley et al.13					Women, visible body area involvement, groin involvement
6	Jacek C Szepietowski et al8		7.73			Women, younger age group, higher educational level

QOL- Quality of Life; SD- Seborrheic dermatitis

In all other studies female gender, younger age had significant impairment of QOL but in our study its mainly the flakes and the symptom pruritus significantly impaired the DLQI. Scales in scalp seborrheic dermatitis can be troublesome because of shedding flakes, which can be sensed as uncleanliness.[24] Social-image consciousness may lead to a loss of self-confidence, a negative social image, and a greater negative bearing on QOL. Hence, when deciding treatment schedule for these patients, a more aggressive regimen should be followed to quickly cure the disease and to improve their QOL.

SD is one of the most common conditions for which patients consult a dermatologist. While the disease rarely causes severe difficulties, it always leads to a noticeable aesthetic deterioration that leads to emotional and social problems for the patients.

6. Limitations

1. Small sample size
2. Single centre study

7. Conclusion

Seborrhoeic dermatitis, is one of the common skin disorders with difference in the clinical course and severity in each individual. Even though its not a life threatening disease, with its visible flakes and itching, it has a noteworthy negative influence on the quality of life leading to loss of self-esteem. This situation clearly illustrates the need to treat these symptomatic patients more aggressively so that to alleviate the symptoms swiftly, thereby improving the quality of life in such patients. This study highlights that DLQI is one of the simple tool which is useful in understanding the influence of SD over the quality of life which helps in assessing treatment options for the patients.

8. Authors Contributor Roles

1. Nisanth Balaji Palanisamy: Data curation, Formal analysis, Investigation, Methodology, Project administration.
2. Seethalakshmi Ganga Vellaisamy: Conceptualization, Data curation, Formal analysis, Methodology, Software, Supervision, Validation.
3. Divyasri Thangamuthu: Conceptualization, Data curation, Formal analysis, Methodology, Supervision.
4. Navakumar Manickam: Conceptualization, Data curation, Methodology, Project administration.
5. Kannan Gopalan: Data curation, Formal analysis, Methodology, Project administration.

9. Conflict of Interest

None.

10. Source of Funding

None.

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