Quality of Life of Patients with Psoriasis Seeking Care from Out Patient Department (OPD) of a Tertiary Care Centre of South India Assessed by Dermatology Life Quality Index (DLQI) and its Correlation with Psoriasis Area Severity Index (PASI)

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Abstract

Introduction: Psoriasis causes considerable psychosocial disability and has a major impact on patients' quality of life. A proper assessment of the quality of life may help the doctor to individualize the treatment plan to suit the patient's needs for a better outcome.

Objectives: To assess the Dermatological Life Quality Index (DLQI) of patients with psoriasis and to find out the correlation between Psoriasis Area Severity Index (PASI) and DLQI and any other factor affecting the DLQI of patients with psoriasis.

Materials and Methods: A cross sectional study was conducted between August 1 and September 30, 2017 by enrolling new, clinically diagnosed consecutive psoriasis patients attending the outpatient department of Dermatology in Sree Gokulam Medical College, Venjaramoodu, Thiruvananthapuram. Assessment of the severity of disease was carried out by using PASI. Malayalam version of DLQI questionnaire was administered to the patients to assess the quality of life.

Results: Thirty three patients who were clinically diagnosed with psoriasis were included in the study and their mean age was 50.9 years. About one third of the patients had either hypertension, diabetes mellitus or dyslipidemia. Majority (72.7%) of patients in the study had chronic plaque psoriasis. Itching was a major symptom in 31(93.9%) patients. Joint pain and nail changes were present in 12.1% patients each. The mean score of PASI was 10.23 with range of 1 to 35 and the mean score of DLQI was 8.67. Visual Analogue Scale Score (VASS) for itching had a significant, moderately strong positive correlation to DLQI. PASI had a strong correlation to DLQI. The presence of skin lesions on the forearms and upper chest and nail changes were found to be significantly associated with higher DLQI score. However on multiple linear regression analysis, PASI was found to be the only significant predictor of DLQI.

Conclusion: PASI remains the single most important predictor of the dermatology quality of life of patients with psoriasis. But other factors like presence of pruritus, nail changes and presence of skin lesions in emotionally charged body regions may also be taken into account while assessing the quality of life.

Keywords: Psoriasis, Psoriasis Area Severity Index, Dermatology Life Quality Index, Dermatology Life Quality.

Introduction

Psoriasis is a chronic, immune-mediated multifactorial inflammatory skin disease which ranges in severity from a few scattered well defined erythematous scaly plaques to involvement of almost the entire body surface.(1) The prevalence of psoriasis varies from 2% to 4% depending on the geographical location, ethnic background, and environmental conditions.(2,3) Dermatological diseases as a whole and specifically diseases like psoriasis, vitiligo and Hansen's disease are associated with varying amounts of social stigma. The burden and impact of a disease on a person is often thought to be contributed mainly by its effect on the physical health. However more holistic dimensions that contribute to the impact of the illness such as the quality of life (QoL) of the patient are often neglected. In addition to the physical factors, QoL is contributed by psychological, social and environmental factors also. Many a times the treating doctor gives little consideration to the impairment of the quality of life contributed by the disease, its complications, cost of treatment and side effects of drugs. But a proper assessment of the quality of life may help the doctor to individualize the treatment plan to suit the patient's needs for a better outcome. This becomes all the more important in the case of dermatological diseases which affect the patient's external appearance to a great extent. Psoriasis causes considerable psychosocial disability and has a major impact on patients' quality of life.(4)

Studies point out that even patients suffering from mild form of psoriasis complain about negative impact on their quality of life and this poses difficulty for physicians to choose the best treatment modality.(5)The Dermatology Life Quality Index or DLQI, developed in 1994, was the first dermatology-specific Quality of Life instrument. This self-administered general dermatology quality of life instrument, was originally developed and published in a dermatology clinic at University Hospital of Wales.(6) It is a simple 10-question validated questionnaire that has been used in over 40 different skin conditions in over 80 countries and is available in over 90 languages including Malayalam. The DLQI has been designed and validated for individuals 16 years of age and older. The DLQI and the translations are extensively

validated. The DLQI is a simple, self-administered, easy and user-friendly questionnaire with an average completion time of 2 minutes. The questions of the DLQI have been phrased to ask patients about the QoL impact over the last one week, a duration considered to be easily and accurately recallable.[7] The DLQI is calculated by adding the score of each question. The maximum score is 30 and the minimum is 0. The higher the score, the more quality of life is impaired. The primary objective of the reported study was to assess the Dermatological Life Quality Index (DLQI) of patients with psoriasis and the secondary objectives were to find out the correlation between Psoriasis Area Severity Index (PASI) and DLQI and any other factor affecting the DLQI of patients with psoriasis.

Materials and Methods

A cross sectional study was conducted between August 1 and September 30, 2017 by enrolling new, clinically diagnosed consecutive psoriasis patients attending the outpatient department of Dermatology in Sree Gokulam Medical College, Venjaramoodu, Thiruvananthapuram. Patients with age less than 16 years (as DLQI is not validated in this age group), those who do not know to read Malayalam, those who are not willing to take part in the study and those with any other significant morbidity were excluded from the study. According to a study conducted by Moradi M et al, the mean(SD) DLQI score among patients with psoriasis was11 (6.46).[8] Sample size was calculated as 33 using the formula $Z\alpha^2$ (SD) ^{2}/ d^2, where $Z\alpha^2 = 3.84$, for $\alpha = 0.05$, SD =6.46 and d (precision) = 20% of the mean =2.2.

After taking well informed consent, information on gender, age, residence, education, occupation, hobbies, addiction and other co-morbidities of the patients was collected using a structured proforma. Clinical examination and basic investigations were also performed and the proforma was updated accordingly. Assessment of the severity of disease was carried out by using Psoriasis Area Severity Index (PASI). PASI is the most widely used tool for the measurement of severity of psoriasis and it combines the assessment of the severity of lesions & the area affected into a single score which ranges from 0 (no disease) to 72 (maximum severity disease).[9] Even though PASI has its own disadvantages, it is the most adequate instrument available to evaluate severity in plaque type psoriasis. PASI > 12 defines severe psoriasis, 7-12 moderate and < 7 mild chronic plaque psoriasis.[10] Malayalam version of Dermatology Life Quality Index (DLQI) questionnaire was administered to the patients after obtaining copyright permission from the concerned authorities. Data was entered in MS-Excel and analysed using SPSS version 16 software. The major outcome variable for the study was Quality of Life of the patients assessed using DLQI. Categorical variables were represented as percentages and PASI as mean and standard deviation. The strength of correlation between DLQI and PASI was assessed using Pearson correlation coefficient. The association of DLQI with other markers of disease severity, co-morbidities and site of lesion were assessed using Student's 't'test with a significance of 95%.

Results

Thirty three patients who were clinically diagnosed with psoriasis were included in the study. The mean (SD) age was 50.9 (15.4) years with a minimum of 17 years and maximum of 76 years. Men constituted 60.6% (n=20) of the study population. Majority (75.8%, n= 25) of the study participants were residing in rural area. Among the study participants, 27.3% (n=9) were homemakers, 24.2% (n=8) were skilled workers, 12.1% (n=4) each were unskilled workers and business men. One third (30.3%, n=10) of the study participants had high school education. Majority of the patients (81.8%, n= 27) were married. Twelve (36.4%) of the study participants have ever smoked, 15 (45.5%) have ever consumed alcohol and 9 (27.3%) do regular (30minutes daily at least three times a week) exercise. Hypertension was present in 36.4% (n=12) patients, diabetes mellitus in 30.3% (n=10), dyslipidemia in 27.3% (n=9), hypothyroidism in 12.1% (n=4) and bronchial asthma in 3% (n=1) patients. The co-morbidities seen in the study participants with their mean duration is given in Table 1.

Table 1: Proportion and Duration of Co-morbidities

	Number	Percentage	Duration, mean (SD) years
Diabetes	10	30.3	7.9 (6.5)
Hypertension	12	36.4	12.7 (9.0)
Dyslipidemia	9	27.3	6.1 (6.0)
Thyroid	4	12.1	3.9 (4.4)
Asthma	1	3.0	5.0

Majority (72.7%, n=24) of patients in the study had chronic plaque psoriasis. The relative proportion of the other clinical types is given in Table 2. When the distribution of skin lesions is considered, 17(51.5%) patients had lesions on the legs, 16 (48.5%) patients each had lesions in the scalp and forearms. The details are given in Table 3. Itching was a major symptom in 31(93.9%) patients. Visual Analogue Scale (VAS) Score for itching had a mean (SD) Score of 5.35 (2.65) with a minimum of 1 and maximum of 9. Joint pain and nail changes were present in 12.1% (n=4) patients each. The mean (SD) score of PASI was 10.23 (10.08) with range of 1 to 35. The mean (SD) score of DLQI of the study participants was 8.67 (6.28) with a range of 0 to 26. DLQI value in the present study was found to have t distribution (One sample KS test, p value = 0.795).

Table 2: Clinical types of psoriasis

Type	Number	Percentage
Chronic plaque psoriasis	24	72.7
Palmoplantar psoriasis	4	12.1
Palmar psoriasis	1	3.0
Plantar psoriasis	1	3.0
Flexural psoriasis	1	3.0
Photosensitive psoriasis	1	3.0
Scalp psoriasis	1	3.0

Table 3: Distribution of psoriatic lesions

Site of involvement	Number	Percentage
Scalp	16	48.5
Face	5	15.2
Neck	6	18.2
Arms	6	18.2
Forearms	16	48.5
Dorsa of hands	10	30.3
Palms	9	27.3
Upper chest	5	15.2
Axillae	3	9.1
Back	8	24.2
Chest	6	18.2
Abdomen	4	12.1
Groin	3	9.1
Gluteal	5	15.2
Thighs	7	21.2
Legs	17	51.5
Dorsa of feet	14	41.4
Soles	6	18.2

The DLQI values were not found to have significant association with the socio demographic factors and co-morbidities studied (Table 4). However patients with nail changes had their quality of life more impaired than patients without any nail changes (p=0.029). There was a non-significant weak correlation between age and DLQI (r=0.197, p =0.132). VASS for itching had a significant, moderately strong positive correlation to DLQI (r=0.357, p=.047). PASI was significantly correlated to DLQI and the correlation coefficient indicated a strong correlation (r=0.705, p<0.001).When we consider the association of site of lesion with DLQI score (Table 5), presence of skin lesions on the forearms (p=0.036) and upper chest (p=0.009) were found to be significantly associated with higher DLQI score. However on multiple linear regression analysis of the various factors associated with higher DLQI, PASI was found to be the only significant predictor of DLQI with beta coefficient (SE) of 0.35 (0.1). Adjusted R^2 of the model was 0.35.

Table 4: Socio demographic factors and Major Symptoms with DLQI

		Mean (SD)	P value
Gender	Male	8.5 (6.5)	0.897
	Female	8.8 (6.3)	
Education	Above 12th standard	7.9 (6.3)	0.195
	Below 12th standard	11.4 (5.6)	
Participants with diabetes	Yes	6.6 (4.1)	0.218
	No	9.6 (6.9)	
Participants with hypertension	Yes	6.8 (6.5)	0.210
	No	9.7 (6.0)	
Participants with hypothyroidism	Yes	7.2 (6.5)	0.638
	No	8.9 (6.3)	
Itching	Yes	8.4 (6.1)	0.382
	No	12.5 (10.6)	
Joint pain	Yes	7.3 (4.1)	0.638
	No	8.8 (6.6)	
Nail changes	Yes	15.0 (7.4)	0.029*
	No	7.8 (5.7)	

Table 5: Association between site of lesion and DLQI

Site	Affected or Not	DLQI score Mean (SD)	P value
Scalp	Affected	10.3 (5.4)	0.147
	Not affected	7.1 (6.8)	
Face	Affected	10.8 (4.0)	0.418
	Not affected	8.3 (6.6)	
Neck	Affected	10.7 (7.3)	0.397
	Not affected	8.2 (6.1)	
Arms	Affected	13.0 (5.3)	0.061
	Not affected	7.7 (6.2)	
Forearms	Affected	11.0 (7.5)	0.036*
	Not affected	6.5 (4.0)	
Dorsa of hand	Affected	10.2 (7.5)	0.364
	Not affected	8.0 (5.7)	
Palms	Affected	6.6 (4.9)	0.243
	Not affected	9.5 (6.6)	
Upper chest	Affected	15.2 (4.7)	0.009*
	Not affected	7.5 (5.8)	
Axillae	Affected	9.3 (3.1)	0.851
	Not affected	8.6 (6.5)	
Back	Affected	10.8 (6.4)	0.288
	Not affected	8.0 (6.4)	
Chest	Affected	10.0 (3.1)	0.574
	Not affected	8.4 (6.8)	
Abdomen	Affected	10.3 (3.8)	0.599
	Not affected	8.4 (6.6)	
Groin	Affected	10.3 (3.8)	0.637
	Not affected	8.5 (6.5)	
Gluteal area	Affected	13.0 (5.9)	0.094
	Not affected	7.8 (6.1)	
Thighs	Affected	15.1 (6.6)	0.001
	Not affected	6.9 (5.0)	
Legs	Affected	10.1 (7.6)	0.247
	Not affected	7.5 (4.6)	
Dorsa of feet	Affected	9.3 (6.0)	0.635

	Not affected	8.2 (6.6)	
Soles	Affected	7.5 (4.9)	0.623
	Not affected	8.9 (6.6)	

Discussion

Psoriasis was initially thought of as a disorder affecting skin only. But now new studies are coming in, which highlight it as a systemic inflammatory disorder and subsequently link it with metabolic syndrome. In this study about one third of the patients have either hypertension, diabetes mellitus or dyslipidemia. A meta-analysis of 24 observational studies done by Langan M et al found a pooled odd's ratio for the association between psoriasis and hypertension to be 1.58. Psoriasis was found to be associated with an increased risk of diabetes, independent of traditional risk factors and a meta-analysis of 5 cohort studies assessing the risk of incident diabetes among patients with psoriasis found a pooled relative risk for diabetes of 1.27. In a systematic review, 20 of 25 included studies found significant associations between psoriasis and dyslipidemia, with odd's ratios ranging from 1.04 to 5.55.[(11)] The current study being a cross sectional one, the causality cannot be assessed but it definitely points towards the increased proportion of these co-morbidities among patients with psoriasis and the need for lifestyle modification among them.

The mean PASI and DLQI score in the current study showed a significant strong correlation. In a study by Moradi, et al on 62 psoriasis patients with a mean age of 40.4 years, median DLQI and PASI scores were 8 and 11.75 respectively and a moderate positive correlation was found between DLQI and PASI.[(8)] In a study done by Mattei PL et al, mean PASI and DLQI were found to correlate predictably in patients with chronic moderate-to-severe plaque psoriasis undergoing treatment with biological agents. A reduction in PASI of at least 75% was found to translate to significant quality of life improvement in patients treated with these therapies.[(12)] Multivariable analysis in the current study showed that PASI is a very strong independent predictor of quality of life of patients with psoriasis. The finding also indicates that any intervention reducing the clinical severity of psoriasis will improve the quality of life of the patient.

When we analyse the responses given to different questions in the DLQI questionnaire, around half of the patients in the current study felt that psoriasis adversely affected their work very much. Study done by Lewis-Beck et al found that majority of patients did not miss any work as a result of psoriasis (75.45%). However they had some work (64.95%) and activity (72.36%) impairment due to the disease. Socio-cultural factors and stigma may have a stake along with the clinical severity that hinder the patient from working and the extent of these factors might contribute to the differences in work participation of patients with psoriasis across the communities. Patient-reported symptom severity in plaque psoriasis, particularly itching, pain, and scaling, negatively affected health outcomes and work productivity. Effective management of debilitating psoriasis symptoms will reduce functional impairment and improve quality of life.[(13)]

In the current study there was a non-significant weak correlation between age and DLQI. In systematic reviews, higher age appeared to be associated with slightly lower levels of physical functioning and disability and slightly higher levels of psychological functioning and overall quality of life.[(14)] Itching was a major symptom with an adverse impact on the quality of life of patients in the current study and the Visual Analogue Scale score for itching and DLQI have a significant moderate correlation with a correlation coefficient of 0.357.Conventionally, psoriasis is considered as a non-itchy skin disease but now itching is emerging as a predominant symptom among patients with psoriasis. In a study done by Szepietowski JC et al on 100 psoriatic individuals, itching was found in 80% of the patients and the severity of psoriasis in patients with pruritus was significantly higher as compared to those with no pruritus. Also significant correlations were found between PASI scores and intensity of itching.[(15)] The presence of skin lesions on the forearms, upper chest and nail changes were found to be associated with higher DLQI score in the current study but after multiple linear regression, PASI was found to be the only significant predictor to DLQI. Some studies point out that exacerbation in emotionally charged body regions such as head, scalp, hands, nails, and/or genitals may impair the quality of life.[(14)]

Conclusion

Psoriasis Area Severity Index remains the single most important predictor of the dermatology quality of life of patients with psoriasis. But other factors like presence of pruritus, nail changes and presence of skin lesions in emotionally charged body regions may also be taken into account while assessing the quality of life. Dermatologists must give equal importance to both the physical and the psychological burden of the disease and this approach may render the treatment more effective.

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