Original Article

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The Impact of Pruritus on the Quality of Life of Patients with Chronic Plaque Psoriasis

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Abstract

The concept of Health related quality of life (HROQL) is important consideration in modern era and skin diseases have an definitive impact on HROQL amongst which psoriasis being an common, chronic, mamy times disfiguring and frustrating has very much negative impact on quality of life. This study was conducted keeping the same view which included the assessment of impact of pruritus on QOL with patients of chronic plaque psoriasis to introduce timely psychological support to improve QOL. Three parameters with specifies and well documented evidence were used to assess the psoriasis severity, the degree of itch and QOL and these were Psoriasis area severity index, 5D ithch scale and DQLI repectively. It was found that pruritus severity has a significant and clinically important association with poorer HRQL in patients with CPP as measured by the DLQI. We also observed that pruritus is associated with determinants to emotional well-being as measured by the DLQI and with detrmnants to other realms of mental health, including social functioning. *Study Design:* Prospective Study.

Keywords: Pruritus; Chronic; Plaque Psoriasis.

Introduction

The concept of quality of life encompasses perceptions related to almost all aspects of daily existence. In the medical community, the definition has been narrowed to health related quality of life (HRQL), which may be defined as “optimum level of mental, physical and social functioning, including relationships, and perceptions of health, fitness, life satisfaction and well-being” [1]. Appreciation of the impact of skin diseases on HRQL is relevant to the education of health professionals with reference to the importance of not only quantity but also quality of life. Thus the purpose of this study was to assess the impact of pruritus on quality of life of patients with chronic plaque psoriasis (CPP), to provide early psychological intervention with dermatological treatment for good outcomes.

Material & Methods

The study was conducted from May 2013 to July 2014, a total of 80 patients with chronic plaque soriasis were evaluated under the study in the Department of Dermatology, Venereology and leprosy, Sri Aurobindo Institute of Medical Sciences (SAIMS), Medical College, Indore (MP).

Methods of Collection of Data

1. Copy right permission, for the use of DLQI scale in our study was given by Dermatology, University of medicine Cardiff, Wales, (UK)
2. 80 patients of chronic plaque Psoriasis were evaluated under the study. Relevant history, clinical examination and necessary investigations along with PASI were done for all the patients.
3. Severity of Pruritus was measured using the 5-D Itch scale.
4. Quality of life of all chronic plaque psoriasis patients was evaluated by using Dermatology Life Quality Index (DLQI) structured questionnaire.
5. It will be a prospective study in which patients will be selected randomly and the patients enrolled will be categorized under these.

Arm 1: Patients with mild-moderate Pruritus

Arm 2: Patients with moderate-severe Pruritus

Inclusion Criteria

1. Patients with chronic plaque psoriasis between the age of 16-70 yrs.
2. Chronic plaque psoriasis patient of both sexes were to be evaluated.
3. All newly diagnosed cases, as well as old cases of psoriasis with exacerbations were evaluated under study.
4. Chronic plaque psoriasis involving a minimum 5% body surface area.
5. Chronic plaque psoriasis-associated pruritus, defined as at least 2 episodes of itch per week, the itch occurring several times a day, lasting for more than 5 minutes, being bothersome, and had been present for a minimum of 6 weeks.

Exclusion Criteria

1. All patient of psoriasis below 16 yrs were excluded from the study.
2. All patients not having a minimum 5% BSA involvement.
3. All patients not having pruritus as an accompanying symptom
4. All psoriasis patients who were handicapped or having other chronic debilitating diseases or other associated chronic skin disorders were excluded from the study.

The 5-D itch scale [2], has been developed as a brief but multidimensional questionnaire designed to be useful as an outcome measure in clinical trials.

The five dimensions are degree, duration, direction, disability and distribution.

The scores of each of the five domains are achieved separately and then summed together to obtain a total 5-D score. 5-D scores can potentially range between 5 (no pruritus) and 25 (most severe pruritus). No score of 5 is obtained because presence of pruritus was one of the entry criteria.

Single-item domain scores (duration, degree and direction) are equal to the value indicated below the response choice (range 1–5).

The disability domain includes four items that assess the impact of itching on daily activities: sleep, leisure/social activities, housework/errands and work/school. The score for the disability domain is achieved by taking the highest score on any of the four items.

For the distribution domain, the number of affected body parts is tallied (potential sum 0–16) and the sum is sorted into five scoring bins: sum of 0–2 = score of 1, sum of 3–5 = score of 2, sum of 6–10 = score of 3, sum of 11–13 = score of 4, and sum of 14–16 = score of 5.

In summary, the 5-D is a new tool that can be used to measure pruritus. The 5-D has demonstrated ease of use, content validity, test-retest reliability, internal consistency and ability to detect change in itch over [2]. The DLQI is a compact self-reported questionnaire to measure HRQOL over the previous week in patients with skin diseases. It consists of 10 items covering symptoms and feelings (items 1 and 2), daily activities (items 3 and 4), leisure (items 5 and 6), work and school (item 7), personal relationships (items 8 and 9) and treatment (item 10). Each item is scored on a four point scale, with higher scores indicating greater impairment in HRQOL [3]. The DLQI questionnaire is designed for use in adults, i.e. patients over the age of 16.

Scoring

The scoring of each question is as follows:

Very much-	scored 3
A lot-	scored 2
A little-	scored 1
Not at all-	scored 0
Not relevant-	scored 0
Question unanswered-	scored 0
Question 7(prevented work or study)	scored 3

The DLQI is calculated by summing the score of each question resulting in a maximum of 30 and a minimum of 0. The higher the score, the more quality of life is impaired. The DLQI can also be expressed as a percentage of the maximum possible score of 30.

Meaning of DLQI score:

0-1 = no effect at all on patients life

2-5 = small effect on patients life

6-10 = moderate effect on patients life

11-20 = Very large effect on patients life

21-30 = Extremely large effect on patients life

Detailed analysis of the DLQI

The DLQI can be analyzed under six headings as follows:

1. Symptoms/feelings Questions 1 and 2 Score maximum 6
2. Daily activities Questions 3 and 4 Score maximum 6
3. Leisure Questions 5 and 6 Score maximum 6
4. Work/School Question 7 Score maximum 3
5. Personal relationships Questions 8 and 9 Score maximum 6
6. Treatment Question 10 Score maximum 3

Interpretation of incorrectly completed questionnaires

There is a very high success rate of accurate completion of the DLQI. However, sometimes subjects do make mistakes.

If one question is left unanswered this is scored 0 and the scores are summed and expressed as usual out of a maximum of 30.

If two or more questions are left unanswered the questionnaire is not scored.

If question 7 is answered 'yes' this is scored 3. If question 7 is answered 'no' or 'not relevant' but then either 'a lot' or 'a little' is ticked this is then scored 2 or 1.

If two or more response options are ticked, the response option with the highest score should be recorded.

If there is a response between two tick boxes, the lower of the two score options should be recorded.

The DLQI can be analyzed by calculating the score for each of its six sub-scales (see above). When using sub-scales, if the answer to one question in a sub-scale is missing, that sub-scale should not be scored

Result

Table 1: Age-Wise Distribution

Age (in years)	Male	Female	Total	%
18-25	-	-	-	-
26-40	28 (35)	9 (11.25)	37	46.25
41-55	19 (23.75)	7 (8.75)	26	32.5
56-70	12 (15)	5 (6.25)	17	21.25
Total	59	21	80	100
SD	11.6	10.9		

T-Value = 0.73 P-Value = 0.470

In this study, out of 80 patients of chronic plaque psoriasis with associated pruritus 59 were males and 21 were females. Most number of patients showed onset of disease at 26-40 years of age. No Significant difference is observed between males and females with respect to onset age ($p>0.05$) (Table 1).

Table 2: Distribution According to Marital Status & Sex in the Study Group

Marital status	Male	Female	Total	%
Married	41 (51.25)	20 (25)	61	76.25
Unmarried	18 (22.5)	1 (1.25)	19	23.75
Total	59	21	80	100

$\chi 2$= 5.669, p-Value = 0.017 Significant

The significant value ($p<0.05$) shows that there is association between marital status and gender. Male are significantly more than female in both unmarried and married status. In this study, out of 80 patients 76% were Married and nearly 24% were unmarried (Table 2).

Table 3: Educational Qualification

Education	Male	Female	Total	%
Less than higher secondary	15 (18.75)	2 (2.5)	17	21.25
Higher secondary	18 (22.5)	7 (8.75)	25	31.25
College graduate	26 (32.5)	12 (15)	38	47.5
Total	59	21	80	100

$\chi 2$= 2.439, DF = 2, p-Value = 0.295

In this study group 26% of the males and 15% of females were college graduates and 22.5% males and neatly 9% females had cleared their higher secondary respectively. Nearly, 19% males and 2.5% females were educated less than higher secondary. There is no association between the education qualification and gender distribution (Table 3).

Table 4: Gender Wise Occupation in Study Group

Occupation	Male	Female	Total
Farmer	23	2	25
Office job	19	1	20
Student	6	1	7
Laundry worker	1	-	1
Electrician	4	-	4
House-wife	-	17	17
Cook	1	-	1
Mechanic	1	-	1
Shopkeeper	1	-	1
Construction worker	3	-	3
Total	59	21	80

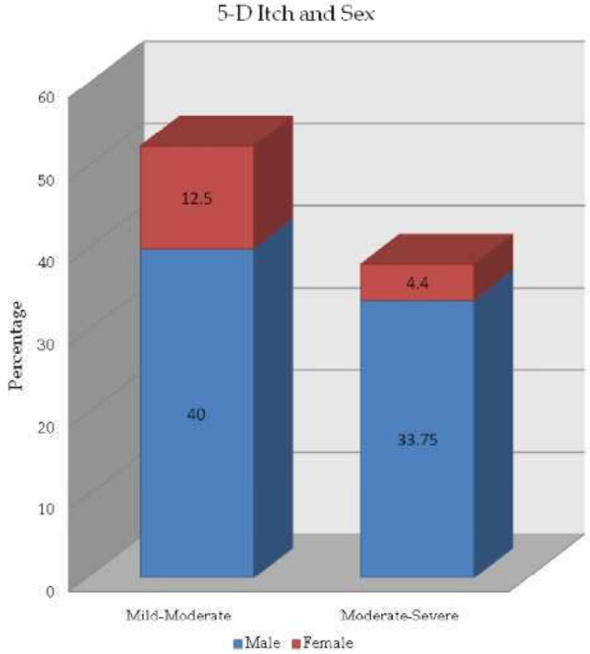
Table 5: Distribution According to 5D-Itch Scale & Sex in the Study Group

5D-ITCH Scale	Male	Female	Total	%
Mild-Moderate	32 (40)	10 (12.5)	42	52.5
Moderate-Severe	27 (33.75)	11 (13.75)	38	47.5
Total	59	21	80	100

$\chi 2 = 0.272$, p-Value = 0.602

$p > 0.05$ hence non-significant

In the study group of 80 patients, 40% males and 13% females were in the Mild to moderate group and 34% and 14% were in the moderate to severe group respectively according to the 5-D itch score (Table 4 and 5).



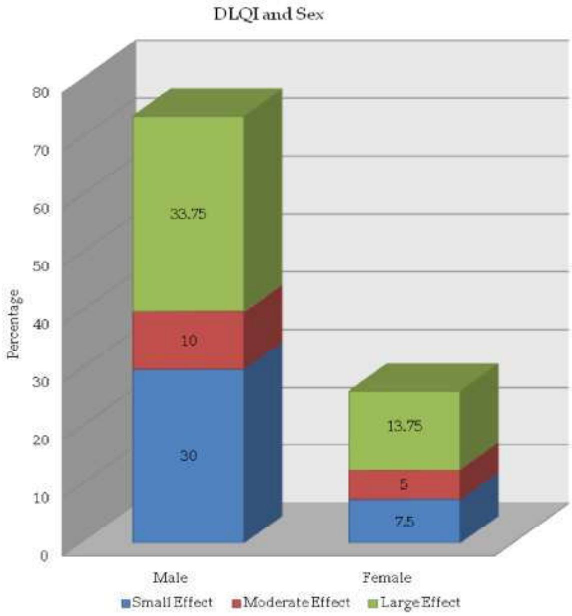
Graph 1: Distribution According to 5D-Itch Scale & Sex in the Study Group

Table 6: Gender Wise Distribution of Dermatology Life Quality Index (DlQI) According to Score

Effect on patients life	DLQI Score range	Male	Female	Total	%
No effect	0-1	-	-	-	
Small effect	2-5	24 (30)	6(7.5)	30	37.5
Moderate effect	6-10	8(10)	4(5)	12	15
Very large effect	11-20	18(22.5)	8(10)	26	32.5
Extremely large effect	21-30	9(11.25)	3(3.75)	12	15
Total				80	100

$\chi 2 = 6.017$, p-Value = 0.011

$p < 0.05$ there is significant association between the effects on patients quality of life in both males and females. Out of the 80 patients, Pruritus had small effect on quality of life in 37% patients, moderate effect on 15% patients and severe effect on 47.5% patients (Table 6).



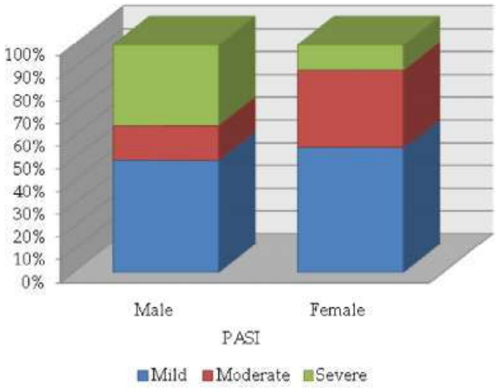
Graph 2: Gender Wise Distribution of Dermatology Life Quality Index (DLQI) According to Score

Table 7: Distribution According to PASI & Sex in the Study Group

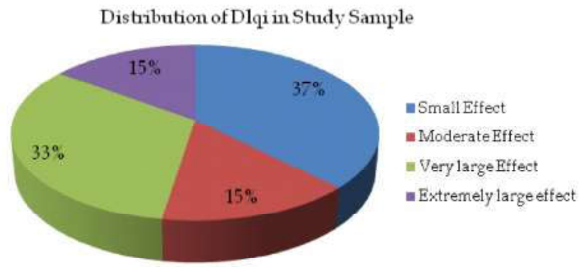
PASI	Male	Female	Total	%
Mild	29 (36.25)	8 (10)	37	46.25
Moderate	9 (11.25)	5 (6.25)	14	17.50
Severe	21 (26.25)	8 (10)	29	36.25
Total	59	21	80	100

$\chi 2 = 1.084$, DF = 2, p-Value = 0.582

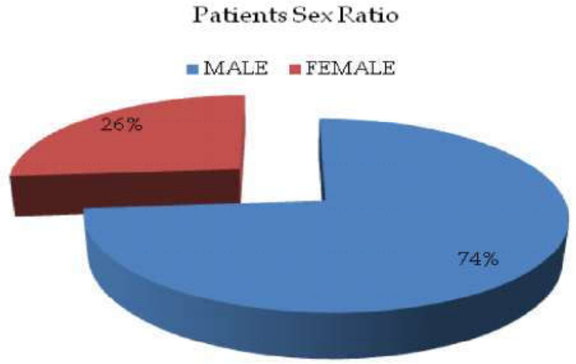
Out of the 80 patients, 46% had mild psoriasis, 17% had moderate psoriasis and around 36% patients had severe psoriasis. $p > 0.05$, hence there was no significant difference in PASI scores and Sex in the study group (Table 7).



Graph 3: Distribution According to PASI & Sex in the Study Group



Graph 4: Distribution Of DLQI In Study Sample



Graph 5: Patients Sex Ratio

Table 8: Correlation Matrix in Study Group

Correlation	5-D ITCH Scale R (P-value)	DLQI Score R (P-value)	PASI Score R (P-value)
5-D Itch Scale	1	0.939 (0.0001)	0.881 (0.0001)
DLQI Score	0.939 (0.0001)	1	0.899 (0.0001)
PASI Score	0.881 (0.0001)	0.899 (0.0001)	1
N	80	80	80

There is a significantly positive ($p<0.05$) correlation between 5-D Itch score and DLQI score, 5-D Itch score and PASI score as well as the DLQI and PASI score (Table 8).

Table 9: Descriptive Statistics

	Mean	Standard Deviation	N
5-D ITCH Scale	13.45	5.930	80
DLQI Score	10.75	7.641	80
PASI Score	19.85	10.177	80

Difference of Levels	T-Value	P-Value
DLQI Score - 5-D Itch Score	-1.95	0.128
PASI - 5-D Itch score	5.20	0.000
PASI - DLQI Score	7.15	0.000

The difference levels of DLQI and the 5-D Itch score was $p>0.05$ hence non-significant where as that of PASI with 5-D Itch score and DLQI respectively was $p<0.05$ hence significant. (Table 9).

Table 10: Comparision of Mean Age in Mild-Moderatand Moderate-Severe Pruritus Cases

Age (Years)	Pruritus	N	Mean	Standard Deviation
Mean Age	Mild-Moderate	42	44.3	11.1
	Moderate-Severe	38	44.5	11.8

T-Value = -0.08, p-Value = 0.934

There is no significant difference in mean age of mild and severe pruritus patients (Table 10).

Discussion

Pruritus is a common and potentially debilitating symptom associated with considerable psychiatric morbidity, sleep disturbances, and an overall reduced health-related quality of life [4,5,6,7,8]. However, there is minimal literature evaluating the overall effect of pruritus on HRQL. In the current study, the 5D-Itch scale score was used to assess the severity of pruritus, PASI score was used to assess the severity of the disease and the DLQI scale was used for assessing the quality of life of chronic plaque psoriasis patients.

1. *Pruritus in CPP patients:*

In this study 100% of patients complained of pruritus. Of whom 52.5% had mild-moderate pruritus and 47.5% had moderate-severe pruritus. Changs S E et al. [9] in their study reported that 73.7% of their psoriasis patients complained of pruritus.

Hanan M. Saleh et al. [10] in their study reported that 50% of their psoriasis patient had pruritus.

The increased incidence and degree of pruritus in patients with psoriasis is strongly correlated to anxious and depressive psychopathology.

Almost one-fourth the subjects in the study were females. Females being housewives and most of the men who were manual labourers who were more stressogenic might have complained of increased pruritus.

Correlation b/w PASI and DLQI scores:

In our study significant correlation was found between the PASI score and the DLQI. Increase in the PASI score was associated with increased affection on quality of life.

Koo et al. [11] in their study showed that there was significant correlation between PASI and DLQI.

Sampogna et al. [12] in their study reported that quality of life instruments like DLQI and Skindex correlated with the PASI and SAPASI scores.

2. Correlation b/w 5-D Itch scale scores and DLQI scores:

Out of 80 patients, psoriasis associated pruritus had small effect on quality of life in 37.5% of the patients, moderate effect on 15% of patients and severe effect on 47.5% of patients. So Psoriasis with associated pruritus affected the QOL in 100% of the patients.

In our study significant correlation was found between the 5-D Itch scale score and the DLQI.

The mean DLQI score was significantly higher in the moderate-severe pruritus group than in the mild-moderate pruritus group. The mean difference between the two groups remained significant ($p<0.0001$).

Sampogna, Picardi et al [13] in their study compared 25 dermatological conditions and showed that pruritus was one of the four deemed to have greatest effect on HRQL.

The results are in agreement with reported assessments in patients with cholestatic liver diease (Younossi et al.) [14], chronic venous insufficiency (Duque et al.) [15], and post renal transplantation (Moloney et al.) [16]: these studies demonstrated pruritus was significantly associated with poorer HRQL using the SF-36, a modified Skindex-16, and the DLQI, respectively.

Thus our study outcomes are similar to the above mentioned study.

Limitations of the Study

1. A larger sample size would have allowed us to gather more data pertaining to this and hence improving results.
2. Other associated questionnaires of Psoriasis with psychiatric co-morbidity especially, anxiety and depression could have given a better outlook on quality of life.

Summary & Conclusion

This study concludes that, pruritus has a significant negative impact on physical, emotional and psychological wellbeing of the affected patients, thus causing a substantial impact on the Quality of life of patients with CPP. There is a significant correlation between pruritus and the QOL. There is also an association of Psoriasis with psychiatric co-morbidity especially, anxiety and depression. The magnitude of this anxiety and depression can be influenced by variables like age, gender, marital status and duration of disease.

We demonstrated that pruritus severity has a significant and clinically important association with poorer HRQL in patients with CPP as measured by the DLQI. The relationship between pruritus and mental health is less clear, however, as we could not demonstrate an association of pruritus severity with the HADS. Further research is warranted in this context since our findings are not in keeping with previous literature suggesting pruritus affects mental health. Further, we observed that pruritus is associated with determinants to emotional well-being as measured by the DLQI and with detriments to other realms of mental health, including social functioning.

In view of this, it is very important to evaluate pruritus and quality of life of psoriasis patients and also screen the patients for associated psychiatric co-morbid conditions like anxiety and depression, before making therapeutic decision.

Many more studies are needed in large group of patients with psoriasis to evolve comprehensive treatment guidelines involving the treatment of pruritus associated with psoriasis in the overall successful management of psoriasis.

Based on this study, we conclude that pruritus which may be underestimated & unaddressed in clinical practice at times, is a potentially serious and debilitating symptom that warrants medical attention and treatment, and further research investment.

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