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Study Of Physical And Psychological Aspects Of Quality Of Life In Of Psoriasis And Relation With Severity

Authors

Dr. Aneet Mahendra .

MD.

Dr. Sanjeev Gupta .

MD.,

Dr Yuti Mishra MD.

Department of Dermatology, MM Institute of Medical Sciences and Research, Mullana, Ambala- India .

Address for correspondence - Dr. Sanjeev Gupta, H.No. B-2, MM Medical College Residential Campus. Mullana Ambala India. Telephone No. + 91-9812017161 e- mail- sanjevguptadr@gmail.com

Abstract: All of us know, that psoriasis is a chronic disease which is not only skin deep but has a great socio- psychological impact. But, this impact has not been well studied by clinicians especially in Indian patients. So, the present study was conducted to cover the psychological along with physical aspect of disease.

Methods: This hospital-based cross-sectional study was conducted in the Department of Dermatology, Maharishi Markandeshwar Institute of Medical Sciences and Research Mullana, Ambala, India on one hundred consecutive patients of psoriasis vulgaris aged between 18 and 70 years with disease duration more than 6 months. Clinical severity, physical and psychological morbidity were measured using psoriasis area severity index (PASI), psoriasis disability index (PDI), and psoriasis life stress inventory (PLSI) scales respectively.

Result: Of the one hundred patients included in the study, majority were males, predominantly from rural background with low to middle socio economic status. The clinical PASI scores correlated significantly ($P < 0.05$) with the overall physical disability index (PDI) along with it's various components and also with the stress incurred (PLSI). The P value came out to be

<0.05.Significant impairment of quality of life was seen in females, young patients and those with recent onset of psoriasis.

Conclusion: The present study provides substantial evidence that psoriasis affects the physical quality of life and has profound impact on the psychology of the patient.

Key words: Psoriasis, Psoriasis disability index, Psoriasis life stress inventory, Quality of life

INTRODUCTION - Psoriasis is a chronic skin disease, which affects 2.5% of the world population [1], but it's effects run more than just skin deep and adversely affect a patient's feelings and behavior. It can alter one's self image and social perception. Psoriasis is linked with social stigmatization, pain, discomfort, physical disability and psychological stress that alter the Quality of Life (QoL) of patients. It affects both sexes equally and can occur at any age [2]. Several types of measurement tools for QoL scales are available. These are psoriasis specific like Psoriasis Disability Index (PDI) and Psoriasis Life Stress Inventory (PLSI), skin specific like Dermatological Life Quality Index (DLQI) and generic like SF-36, EQ- 5D or mixed that includes Salford Psoriasis Index (SPI) and Koo Meter Psoriasis Index (KMPI). QoL measurement enables evaluation of

the various consequences of a patient's medical condition and its treatment. Several scales also exist for measuring the severity of psoriasis. The degree of severity is generally based on the following factors; the proportion of body surface area affected, disease activity, response to previous therapy and the impact of the disease on the person. The psoriasis area severity index (PASI) is the most widely used measurement tool for psoriasis.

MATERIAL AND METHOD - After taking proper ethical approval from ethical committee of institute, the study was conducted on 100 consenting, consecutive patients of psoriasis, of both sexes, aged above 18 years, and with duration of the disease of at least 6 months, attending the Dermatology Out Patient Department of Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, Ambala. The psoriatic indices assessed were psoriasis area severity index (PASI) [3], psoriasis disability index (PDI) [4] and psoriasis life stress inventory (PLSI) [5] . The scales were administered using interview method by the same observer .

Assessment of Clinical severity and Quality of Life.

The extent of clinical severity of the disease was assessed by the Psoriasis Area Severity Index (PASI) [3] .The QoL was assessed by using PDI and PLSI scales that covered the physical and psychological aspects of QoL respectively. The original PDI (1990 version) questionnaire was used [4]. All the questions were related to events that had taken place in the preceding 4 weeks. By the tick box method, each question was answered on a series of four answers - not at all, little, a lot and very much. The PDI was calculated by summing the score

of each of the 15 questions. PDI was also analyzed under five subsets, namely, daily activities, work, personal relationship, leisure and treatment.

The scale used to assess the psychological aspect of QoL was PLSI. The Scores on this scale ranged from 0 to 45. After assessing the severity of psoriasis using the PASI scale and the QoL using PDI and PLSI scales, the Pearson's correlation formula was applied and the 'r' value, standard deviation, and last but not the least the 'p' value was calculated. Then the correlation between all the three variables was assessed.

RESULTS - Out of one hundred patients enrolled in the study 76% were males and 24% were females. The mean age of presentation was 37.42 years. Majority of the patients (32%) were in the age group of 20 to 29 years. The mean duration of disease was 8.16 years. Most of the males were semi- skilled workers (35.53%). Amongst females maximum (62.50%) were housewives. Scalp was the site most commonly involved, with 38% of patients reporting scalp as the first site involved. The results are shown in **Table I**. The mean PASI was 9.17 in total population, 8.97 in males and 9.78 in females. According to the PASI score the study population was divided into two groups; group 1 with PASI <11 and group 2 with PASI >11.Most of the patients (74%) in group1 had comparatively low PDI scores as well as low PLSI scores. (**Table II**) . The response pattern of the patients of psoriasis to the PDI questionnaire is shown in the **Table III.** Of the five components of the PDI score, the daily activities (33.33%), of the psoriatic patients was affected the most followed by leisure activities (26.67%), at work/home (20%), personal relationships (13.33%). The burden of treatment affecting the QoL was least (6.67%) as is depicted in **Graph 1**. The mean total

PDI score was 6.85. In males 6.26, while in females it was 8.17. The mean PDI in group 1(PASI<11) is 3.35 as against 3.69 in group 2 (PASI>11).

Similarly, the response pattern of patients to the PLSI questionnaire is shown in **Table IV.** The mean total PLSI score was 7.37, in males it was 6.97 while in females it was 8.58. On the basis of PLSI scores the patients were divided into low (PLSI score <10) and high (PLSI score >10) stressor groups. The patients in less stressor group had low PASI scores while those in high stressor group had higher PASI scores.

On application of Pearson's correlation, it was seen that there was significant correlation between the 3 scales. The total PASI score significantly correlated with the total PDI ($r = 0.397$; $p < 0.001$) and with the total PLSI score ($r = 0.440$; $p < 0.001$). The total PDI significantly correlated with PLSI ($r = 0.866$; $p < 0.001$). Thus, we observed highly significant correlation between PASI, PDI, and PLSI **(Table V)**

DISCUSSION- Psoriasis is a common skin disease associated with considerable physical and psychological impairment. Various scales have been used for the assessment of the severity of disease as well as it's impact on QoL. PASI has been the most common scale used for assessment of the disease extent and severity. The psycho-social and occupational impact of psoriasis is as important as traditional physical parameters such as PASI [6]. Out of the different available tools for QoL assessment, PDI and PLSI are popularly used all over the world [8,5]· The mean PASI scores in various studies [9,11, 13, 24,25] were in between 5.5 to 22.23, while in the present study was 9.17, with slightly higher scores in female population. In the study by Rakesh S.V et al [20] the mean PASI was 22.23 which is considerably higher than most of the studies. The reason for higher PASI may be attributable to the use of the

questionnaires that were modified according to the Indian population, whereas the other studies used the questionnaires as such without any modifications.

In our study, we had divided patients into 2 groups with PASI < 11 having a milder disease and those with PASI > 11 having moderate to severe disease. This division was put forward by Feldman SR et al [10] who argued that for clinical trial criteria there should be PASI >11. In our study 74% of patients came under group 1(PASI<11) and 26% came under group 2(PASI>11). The mean of the PDI and its subdivisions and the PLSI in each of the severity groups were then compared. They were found to be positively correlated as can be seen in **Table II**. Similarly Pakran et al [9] divided the patients into two groups based on clinical severity; group 1 PASI <11 (68%), group 2 PASI >11 (32%) [18] . The finding in his study was similar to that of ours.

The PDI score had been calculated by tick box method or expressed as a percentage of maximum possible score of 45**.** In the present study the PDI score was calculated in total by the tick box method and then divided into five components. The mean total PDI score was 6.85. Out of the various components of the PDI score of our study, the daily activities (33.33%) of the psoriatic patients were affected the most, followed by leisure activities (26.67%), at work/home (20%), personal relationships (13.33%). The burden of treatment affecting the QoL was least (6.67%). Most of the other authors, Manjula et al [2], Fortune et al [11], and Rakesh SV et al [12] also

found, that out of the different components of PDI, daily activity was most affected. However Pakran et al [9] and Finlay et al [8] concluded differently and found that in their study group patients were worried more about the questions related to treatment as compared to those related to daily activity, at work, leisure and personal.

The other scale used to study psychological aspect of QoL was PLSI. The mean PLSI score in the present study was 7.37. The PLSI scores were more for females 8.58 as compared to that of males 6.97, suggesting that the disease affected the female's psychology more than males. The patients in our study were divided into two groups; low stressors with patients score less than 10 and high stressors with patient score more than or equal to 10, as in the study by Gupta M et al [5]. Total numbers of patients with PLSI score less than 10 were 82 while those with PLSI more than 10 were 18. In the study by Rakesh et al [12] ,12% of patients belonged to low stressor group while 88% belonged to high stressor group that was similar to our study finding.

For proper assessment of the disease, just calculation of disease severity using PASI is not sufficient. There has to be a holistic approach towards the disease with special attention to the Physical and Psychological aspects of the QoL with the help of various scales available.

Different authors have used different scales, that are psoriasis specific (PDI, PLSI), skin specific (DLQI) and generic (SF-36, EQ-5D) or mixed (SPI, KMPI) and have arrived at conflicting results. The present study showed a positive correlation between the severity of disease using PASI and the physical and psychological aspects of the quality of life (using PDI and PLSI scales) as was shown in the **Table V.**

Till date, very few studies were done, using the PDI and PLSI scales and then comparing the severity of disease with the quality of life. Rakesh S.V et al [12] did a study using the same scales and concluded a positive correlation ($r = 0.529$; $p < 0.001$)) between the disease severity and the stress incurred by the patient. However, Fortune [11] used the same scales but could not find any significant correlation between PASI and quality of life. On closer examination of Fortune's[11] study, we noted that most of his patients had low clinical

severity scores and the patients had milder disease and so had not much effect on the quality of life.Aschrof [17] and Gefland 18] , have demonstrated moderate co relation between extend of disease and physical disability Manjula et al[2] used PASI and PDI scales in her study and concluded that the quality of life was affected in 75% of patients with alterations in their daily activities. There was no association between QoL and age or gender. Positive correlation between disease severity and quality of life has also been concluded in studies by Mattoo et al [19], Pakran et al [9], and Finlay et al [20].the scales used by them were PASI, and PDI. However, Yang[13] and Shankar et al [21] could not find any significant correlation between PASI and quality of life. The scales used by them were PASI and PDI, PASI and KMPI respectively. In the study by Pakran et al [9], a younger age onset was associated with greater physical disability. Ginsburg et al [14] ,in her study of stigmatization found that being older at onset of psoriasis protects people against anticipating rejection , feeling sensitive to opinion of others, feeling of guilt and shame, and secretiveness. Our study is in concordance with these findings. In the present study, the female's QoL is affected more than that of males, but at workplace males are affected more. It was also seen in the study that the disease severity was more in females (PASI for females was 9.78 as against 8.97 in males) which may be responsible for increased impairment in QoL, as was seen in the study by Koo et al[16]. Similar results were also seen in the studies by Pakran et al [9], and Gupta et al[15].

In the study by Gupta et al[15], she concluded that Psoriasis has a greater impact upon the quality of life of adults in the 18 to 45 year age range, a life-stage when the individual is usually expected to be the most productive, both occupationally and socially; however, although psoriasis affects the socialization of both sexes equally, men face greater

work-related stresses as a result of their psoriasis. The findings highlight the importance of assessing the psychosocial impact of psoriasis within a developmental and social context[14]. In the present study 51% of the population was in between 20 to 40 year age range and had higher QoL scores as compared to the rest of the study group.

According to Pakran et al [9], surprisingly duration of disease had no significant impact on the mean PASI or PDI scores. This suggests that the range of impact of psoriasis is not simply reducible to the chronicity of the disease. Comparative assessment of various studies has been

tabulated in **Table**

VI.

Psoriasis is a chronic skin disorder which is not just skin deep but has a major impact on the lifestyle and psychology of the patient. Clinical severity alone is not sufficient to assess the burden of disease. It is the inner world of the patient that clinicians need to assess[9]. Therefore, QoL measures are being assigned increasing important in the evaluation of health care outcomes [25]. There are various scales available for measurement of QoL which are disease specific, skin specific, generic and mixed. In the present study there was a strong correlation between disease severity and the quality of life that affected the routine activities as well as the psychology of the patient. But, of all the QoL scoring systems none is available that can fully cover the QoL aspects in an Indian scenario.

CONCLUSION - Questions relating to marriage, transmission of disease in next generation, and various myths related to the disease are not considered in any of the questionnaires. Thus, on detailed study of the affect of psoriasis on patient's overall health, we have concluded that

the need of the hour is a multidimensional approach towards the patients suffering from psoriasis. Apart from treating the disease, the associated psychological morbidity has to be taken care of, as stress itself is a precipitator of the disease.

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Table 1: Characteristics of the respondents

Respondent Characteristics	Values
Total number of respondents	100
Number of Males (%)	76
Number of Females (%)	24
Mean age in years	37.42
Mean age in years (Males)	37.87
Mean age in years (Females)	36
Mean age at onset	28.85
Mean age at onset (Males)	29.57
Mean age at onset (Females)	26.54
Mean Duration of disease in years	8.16
Mean PASI Score	9.17
Mean PASI Score (Males)	8.97
Mean PASI Score (Females)	9.78
Mean PDI Score	6.85
Mean PDI Score (Males)	6.26
Mean PDI Score (Females)	8.71
Mean PLSI Score	7.37
Mean PLSI Score (Males)	6.97
Mean PLSI Score (Females)	8.58

TableII: Comparison of the mean score of the total PDI and PLSI between two clinical severity groups; group 1: PASI < 11, Group 2: PASI ≥ 11.

	PASI <11 (N=74)		PASI≥11 (N=26)			
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**	**r value**	**p value**
PDI (Total)	3.35	3.27	3.69	4.02	0.397	0.0004*
Daily Activities	0.71	0.75	0.95	0.80		
At Work/Home	0.21	0.49	0.29	0.59		
Personal	0.09	0.37	0.1	0.30		
Leisure	0.27	0.57	0.38	0.67		
Treatment	0.8	0.73	1.2	0.85		
PLSI	6.44	3.73	9.53	3.27	0.44	0.00005*

*P value <0.0001 is highly significant.

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Table III: Response pattern of patients of psoriasis to the PDI questionnaire.

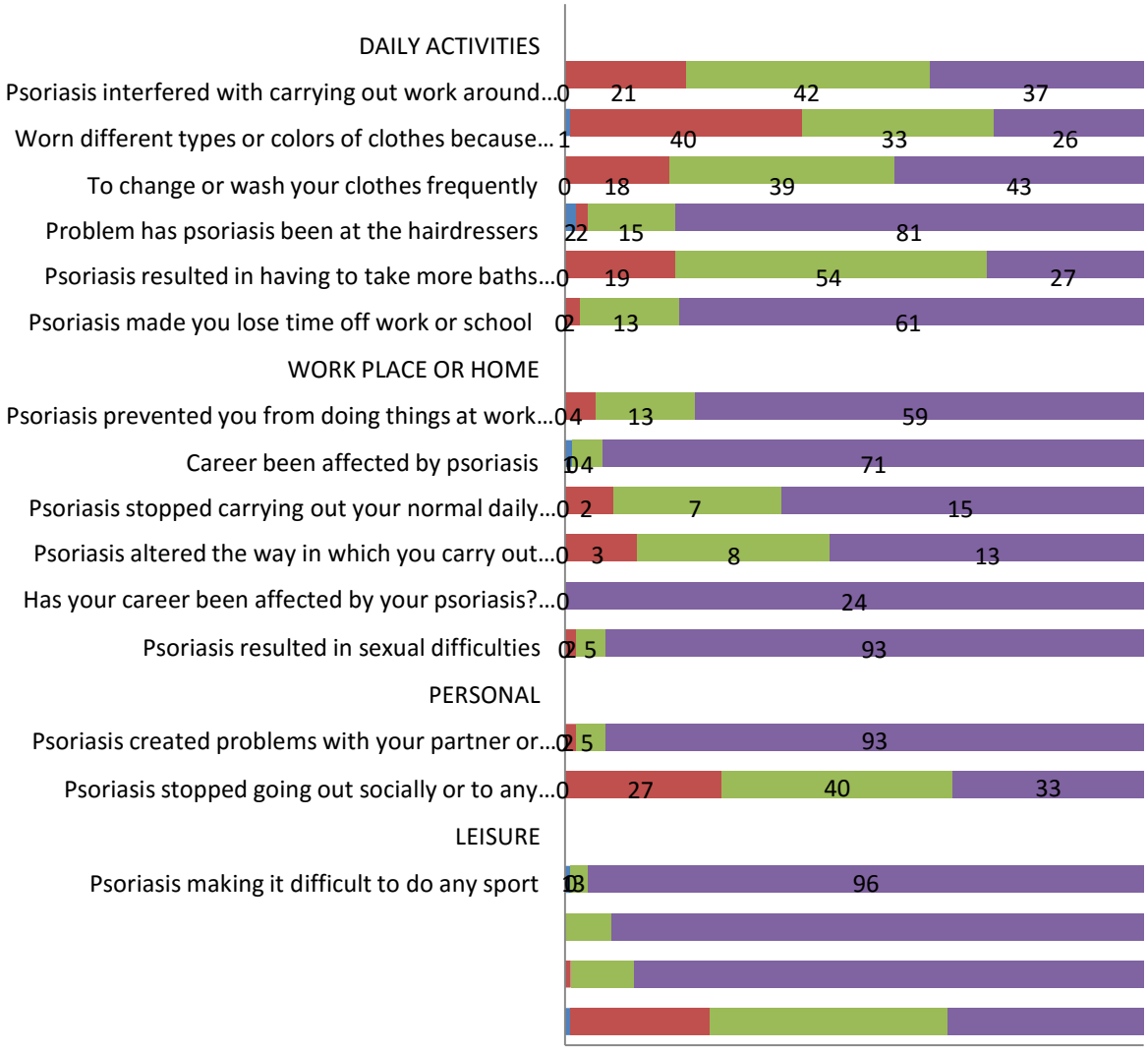

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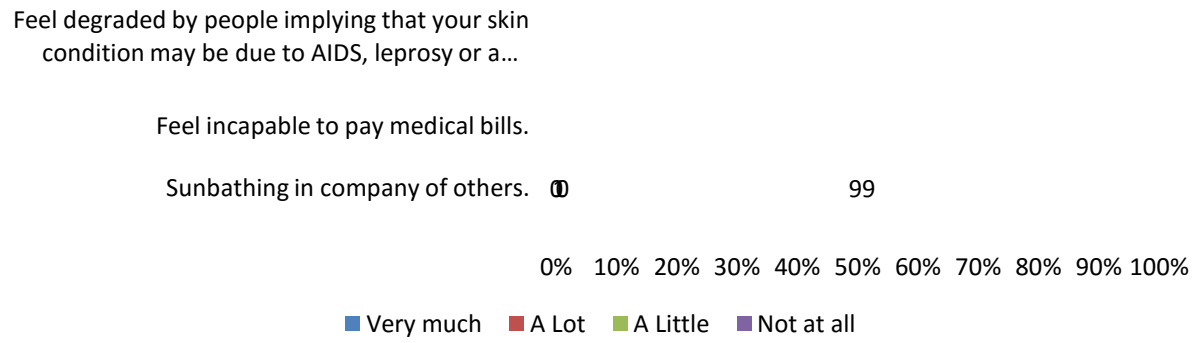
Table IV: Response pattern of patients of psoriasis to the PLSI questionnaire.


Feel degraded by people implying that your skin condition may be due to AIDS, leprosy or a…
Feel incapable to pay medical bills.
Sunbathing in company of others.
0
99
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Very much
A Lot
A Little
Not at all

17

Table V: Comparsion of Pearson's correlation coefficient 'r' to evaluate the relation between PASI scores and PDI scores, PASI and PLSI scores and PLSI and PDI scores.

	Number of Subjects	**Mean**	**Standard Deviation**	**r value**	**P value**
PASI	100	9.17	6.53	0.397	0.0001*
PDI	100	6.85	3.97		
PASI	100	9.17	6.53	0.440	0.0001*
PLSI	100	7.37	3.85		
PLSI	100	7.37	3.85	0.776	0.0001*
PDI	100	6.85	3.97		

* P value <0.0001 is highly significant.

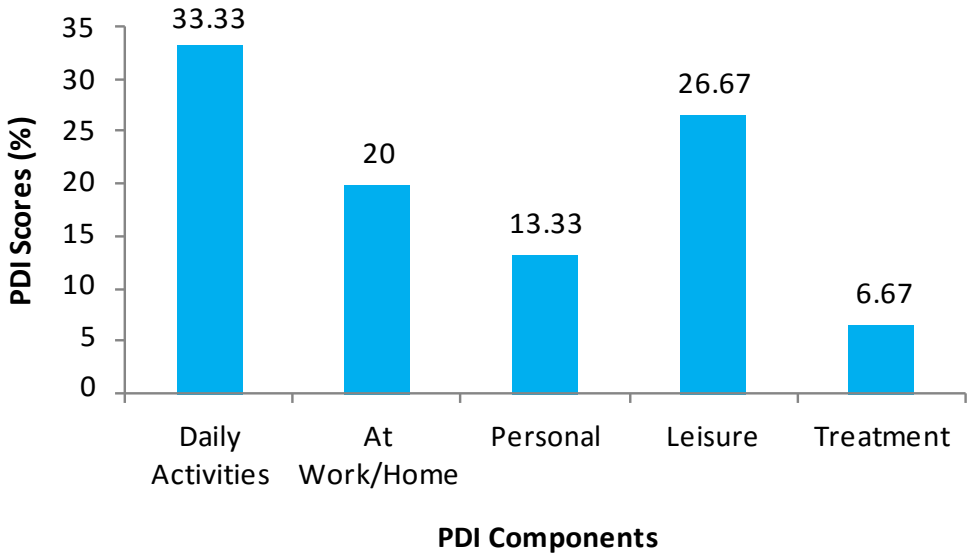
Table VI: Comparative assesment of various studies.

STUDY TITLE	AUTHOR	Mean PASI	Mean PDI	Mean PLSI	RESULTS
The effect of severe psoriasis on the quality of life of 369 patients. 1995	Finlay AY, Coles EC	5.5	38%		The study compared QoL of patients with psoriasis with that of other diseases. There was substantial correlation (0.48) between PDI scores and the amount the patient indicated they would pay for a cure.
An index of the stress associated with the impact of Psoriasis on the Quality of Life. 1995	Madhulika A gupta				Patients with high (>10) PLSI scores had greater overall psoriasis severity (P=0.007) and greater psoriasis severity (P<0.05) affecting body regions that led to greatest cosmetic disfigurement.
Quality Of Life In Patients With Psoriasis: The Contribution Of Clinical Variables And Psoriasis-Specific Stress. 1997	Fortune DG, Main CJ, O'sullivan TM, Griffiths CE.	8.8	11.4	20.1	The severity of disease is not related with the duration of disease while it has minimal correlation (P<0.05) with other aspects of QoL.

Psoriasis On Quality Of Life. The Psoriasis Disability Index In Chinese Patients: Contribution Of Clinical And Psychological Variables. 2005	Yong Yang, David Koh, Lawrence Khoo, Shwe Zin Nyunt, Vivian Ng, Chee Leok Goh.	10	37.4		Psoriasis patients with cosmetic involvement had higher levels of anxiety and depression, but clinical severity of psoriasis was not associated with psychological and PDI scores.
Quality Of Life In Psoriasis: A Study From South India. 2008	Rakesh SV, Mariette D'souza, Ajith Sahai.	22.23	17.6	26.72	The clinical PASI scores in 50 patients correlated ($P<0.05$) significantly with the overall physical disability, individual aspects of PDI and measurement of stress incurred.
Determinants Of Quality Of Life In Psoriasis Patients:A Cluster Analysis Of 50 Patients. 2011	Jaheersha Pakran, NajeebaRiyaz, G Nandakumar	11.76	9.38		There was significant correlation between severity of psoriasis and extend of impact of psoriasis on physical disability as measured by PDI. Younger age at onset and self reported stress exacerbators suffer greater disability.

A Study Of Psoriasis And Quality Of Life In Sa Tertiary Care Teaching Hospital Of Kottayam, Kerala. 2011	.Manjula VD, Sreekiran S, SurendranSaril, Sreekanth MP.	14.5	14.5		Out of total 32 patients, QoL was affected in 75% of psoriasis patients and there was no association between QoL and age or gender.

Graph 1: Summary of Psoriasis Disability Index (PDI).



LEGENDS TO TABLES AND GRAPHS

Table I: Characteristics of the respondents.

Table II: Comparison of the mean score of the total PDI and PLSI between two clinical severity groups; group 1: PASI < 11, Group 2: PASI ≥ 11.

Table III: Response pattern of patients of psoriasis to the PDI questionnaire**.**

Table IV: Response pattern of patients of psoriasis to the PLSI questionnaire.

Table V: Comparison of Pearson's correlation coefficient 'r' to evaluate the relation between PASI scores and PDI scores, PASI and PLSI scores and PLSI and PDI scores.

Table VI: Comparative assessment of various studies.

Graph 1: Summary of Psoriasis Disability Index (PDI).