

Quality of life in patients with psoriasis: A cross-sectional study in a dermatology referral hospital in Tehran, Iran

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Background: Psoriasis is a chronic skin disorder that can significantly affect a patient's quality of life (QoL). The goal of this study was to determine the QoL in patients with psoriasis and to investigate the correlation between the QoL, demographic data, and clinical severity of psoriasis.

Methods: This prospective, cross-sectional study was conducted from April 2014 to January 2015. One hundred patients with plaque type psoriasis from the Phototherapy Clinic of Razi Hospital, Tehran, Iran were selected and asked to complete questionnaires. The Psoriasis Area Severity Index (PASI) to measure the severity of psoriasis, and the Dermatology Life Quality Index (DLQI) was used for the assessment of the quality of life.

Results: The total DLQI score of the all participants was between 0 and 29 with a mean score of 10.6 ± 6.4 . The DLQI scores ranged from "very large" to "extremely large" in 45% of the patients. The mean score was 9.2 ± 6.6 in the male group and 12.1 ± 5.9 in the female group, which showed a statically significant difference ($P=0.02$). Other variables associated with an impaired QoL were age ($P=0.002$) and PASI ($P=0.01$). The impact on QoL was higher in younger patients, and in patients with higher PASI scores.

Conclusion: In conclusion, although psoriasis is a benign disorder, this study confirms our initial hypothesis that psoriasis significantly impairs the QoL, which is more pronounced in younger patients, women, and patients with a more severe disease (higher PASI scores).

Keywords: psoriasis, quality of life, DLQI, PASI

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INTRODUCTION

Psoriasis is a chronic, immune-mediated polygenic skin disorder with an estimated prevalence of 0.9-8.5% worldwide ^{1,2}. Although psoriasis is a skin disease, it is accompanied by considerable physical and psychological conditions including metabolic syndrome, cardiovascular disease, psoriatic arthritis, and depression ^{3,4}.

Psoriasis can significantly affect a patient's quality of life (QoL) through visibility of the disease, the chronic and relapsing course of the

disease, and symptoms like itching and scaling that particularly affect daily activities and social functioning ^{5,6}. Visible lesions in exposed areas may cause negative psychosocial reactions, such as stigmatization and negative judgments, which can be a source of significant burden on the patients' social life ⁷. Other negative impacts of psoriasis include a reduction in productivity and social activities, sexual dysfunction, and depression ^{8,9}.

The psychosocial impact of the disease may thus explain that the physicians' and patients' assessment of the disease severity does not always

correlate⁶. On the other hand, determination of the disease severity only based on clinical features such as psoriasis area and severity index (PASI) cannot completely explain the burden of disease in a patient. Therefore, it is currently accepted that evaluation of disease severity should include clinical, psychological, and social factors in order to improve patient care and treatment management¹⁰.

The purpose of this study was to investigate the correlation between the clinical severity of psoriasis and the patient's QoL using the PASI and the Dermatology Life Quality Index (DLQI) tools in patients attending the Phototherapy Clinic of Razi Hospital, Tehran, Iran.

PARTICIPANTS AND METHODS

The study was approved by the Ethics Committee of Tehran University of Medical sciences. From April 2014 to January 2015, 100 patients with plaque type psoriasis aged 16 years and over who were selected randomly (through simple random selection using a random selection table) from the Phototherapy Clinic of Razi Hospital, Tehran, Iran were asked to complete the questionnaires.

These questionnaires consisted of two parts: the first part, which was filled by the same dermatologist, contained questions about gender, age, educational level, marital status, disease duration, number of phototherapy sessions, history of systemic therapy, location of lesions, and severity of cutaneous involvement according to the PASI, and the second part included questions for the measurement of the DLQI.

The severity of psoriasis has been measured by several tools among which the PASI is the most widely used clinical assessment tool^{11,12}. Briefly, the body is divided into four sections (head, arms, trunk, and legs). For each section, the percent area of psoriatic lesions is estimated and transformed into a score that ranges from 0 (0% of the area affected) to 6 (90-100% of the area affected). Within each area, the severity is estimated by three clinical signs, including erythema, induration, and desquamation, and is given a score of 0-4 depending on whether the feature is absent (0), mild (1), moderate (2), severe (3) or very severe (4), resulting in a final index that may theoretically range from 0 to 72¹³. For the purposes of this study, the patients were classified as having mild (PASI \leq 7), moderate (7

\leq PASI \leq 12), or severe (PASI $>$ 12) psoriasis.

The DLQI, introduced by Finlay and Khan¹⁴, is a self-explanatory survey which contains ten questions. The DLQI is calculated by summing the score of each question resulting in a range of 0 to 30. A higher score indicates more impaired QoL. The valid and reliable Persian version was used for measuring the psoriatic patients' QoL¹⁵.

The questions can be classified under 6 headings: symptoms and feelings (questions 1- 2), daily activities (questions 3- 4), leisure (questions 5- 6), and personal relationships (questions 8- 9), each with a maximum score of 6. Work and school (question 7) and treatment (question 10) have a maximum score of 3¹⁴.

In order to help with clinical interpretation of the DLQI scores, a banding system has been validated. According to this system, a DLQI score of 0-1, 2-5, 6-10, 11-20, and 21-30 indicates no affect at all, small effect, moderate effect, very large effect, and extremely large effect on the patient's quality of life.

SPSS (SPSS Inc., Chicago, IL, USA) version 16 was used for statistical analysis. Continuous variables are presented as mean and standard deviation (SD). Categorical variables are reported as frequency and percentage. For comparison of continuous variables between two and more than two groups, we used independent samples *t*-test for normally distributed data and one way analysis of variance (ANOVA), respectively. A multivariate analysis was performed to identify variables associated with QoL impairment. Non-parametric Mann-Whitney U test was used for variables showing skewed distribution. The correlation between continuous variables was assessed using the Pearson's correlation coefficient. A two-tailed $P < 0.05$ was considered statistically significant.

RESULTS

One hundred psoriatic patients (50 men and 50 women) with a mean age of 44.0 ± 15.5 years (16 to 85 year) participated in this cross-sectional study. The mean disease duration was 3.2 ± 1.2 years (Table 1).

Nearly half of the patients (47%) were receiving topical treatments and 53% were using conventional systemic treatments (methotrexate, cyclosporine) along with phototherapy. The mean PASI score

Table 1. Basic characteristics of psoriasis patients.

	N (%)
Sex	
Male	50 (50%)
Female	50 (50%)
Age* (years)	44.0 ± 15.5
<40	44 (44%)
40-60	42 (42%)
>60	14 (14%)
Disease duration (years)	
<5	33 (33%)
5-10	20 (20%)
>10	47 (47%)
Educational level	
Under diploma	45 (45%)
≥diploma	55 (55%)
Marital status	
Single	24 (24%)
Married	76 (76%)
Nail involvement	
Yes	13 (13%)
No	87 (87%)
Disease location	
Face	9 (9%)
Scalp	24 (24%)
Dorsal hands	11 (11%)
Upper extremities	43 (43%)
Lower extremities	45 (45%)
Trunk	30 (30%)
Genital	3 (3%)
Treatment	
Topical	47 (47%)
Systemic	53 (53%)
Phototherapy	100 (100%)
PASI*	6.0 ± 4.77
<7	67 (67%)
7-12	25 (25%)
>12	8 (8%)

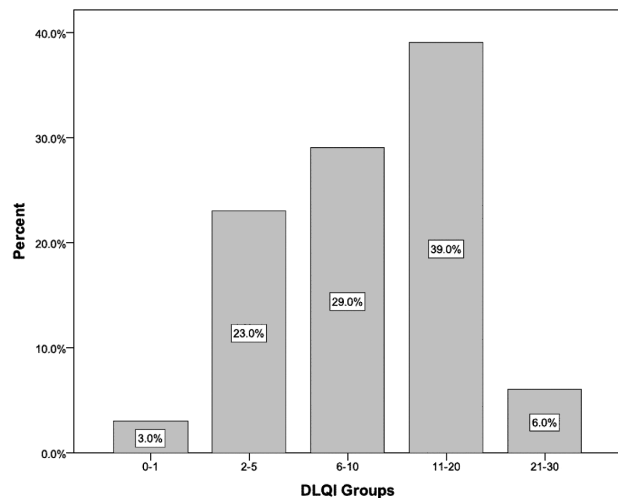
*Mean ± SD

was 6.0 ± 4.8 (0.6 to 25.1) and a PASI score >12 was recorded in only 8 patients.

The total DLQI score of the all participants was between 0 and 29 with a mean score of 10.6 ± 6.4 (Table 2). The distribution of patients according to the DLQI banding system is shown in Figure 1.

The mean score was 9.2 ± 6.6 in the male group and 12.1 ± 5.9 in the female group which showed a significant difference ($P=0.02$). Other variables associated with an impaired QoL were age ($P=0.002$) and PASI ($P=0.01$). The impact on the QoL was higher in younger patients, and in patients with higher PASI scores (Table 2).

Forty-eight (48%) patients had lesions in exposed areas; However, the mean DLQI score in this group showed no significant difference with patients without involvement of these regions ($P=0.21$)

**Figure 1.** Distribution of patients according to DLQI banding system.

while it was significantly different in the item of symptom and feelings ($P=0.03$), especially in female patients ($P=0.007$).

The total DLQI score did not differ between two groups in variables including disease duration, history of previous courses of phototherapy or systemic drugs for psoriasis, marital status, disease location, and nail involvement ($P>0.05$).

DISCUSSION

Psoriasis is a chronic skin disorder with a negative effect on the patient's well-being and the range of burden of this disease in patients is similar to the range of other chronic diseases such as cardiovascular diseases, diabetes, end-stage renal diseases, liver diseases, cancer, and visual disorders^{16,17}.

This study highlights the impact of psoriasis on the patient's QoL, especially severe cases, and the importance of psychological evaluation of these patients. The total DLQI score of all participants was between 0 and 29 with a mean of 10.6 ± 6.4 , indicating the very large effect of psoriasis on the patient's life.

The total DLQI score was 4.5 ± 0.4 in a study by Mabuchi *et al.*¹³ and 4.17 ± 4.51 in a study by Fernandez-Torres *et al.*¹⁷, which are different from our findings. They believed that the lower DLQI score in their study was due to the fact that a significant percentage of their patients were using systemic and biologic drugs, which represent treatments associated with a lower impact on the

Table 2. Associations between the DLQL dimensions and total scores, and demographic/clinical characteristics in psoriatic patients.

	Symptom and feelings	Daily activities	Leisure	Personal relationships	Work and school	Treatment	Total score
Sex							
Male	2.4±1.3	1.7±1.5	2.1±1.7	1.1±1.5	0.78±1.2	1.1±0.9	9.2±6.6
Female	3.1±1.6	2.5±1.5	2.5±1.9	2.1±2.0	0.36±1.0	1.4±0.9	12.1±5.9
<i>P</i>	0.01	0.01	0.34	0.005	0.07	0.1	0.02
Age ¹ (years)	-0.20	-0.30	-0.34	-0.17	-0.15	0.03	-0.30
<i>P</i>	0.04	0.002	0.001	0.08	0.12	0.75	0.002
PASI ¹	0.39	0.18	0.22	0.02	0.05	0.19	0.24
<i>P</i>	<0.001	0.06	0.02	0.81	0.56	0.055	0.01
Relapse ¹	0.15	0.16	0.18	0.08	0.14	0.02	0.18
<i>P</i>	0.14	0.11	0.06	0.4	0.15	0.84	0.06
Disease duration ² (years)							
<5	2.9±1.5	1.9±1.5	2.0±1.8	1.5±1.8	0.5±1.1	1.3±0.9	10.3±6.2
5-10	2.3±1.9	2.2±1.6	2.3±1.5	1.6±2.0	0.5±1.1	1.3±1.1	10.2±6.8
>10	2.8±1.3	2.1±1.6	2.5±2.0	1.7±1.8	0.6±1.2	1.2±0.9	11.1±6.4
<i>P</i>	0.28	0.78	0.58	0.86	0.83	0.85	0.81
History of systemic therapy							
Yes	2.6±1.4	2.0±1.6	2.3±1.9	1.9±1.9	0.7±1.2	1.2±0.9	10.8±6.4
No	2.9±1.6	2.1±1.6	2.2±1.7	1.3±1.7	0.4±1.0	1.3±0.9	10.5±6.4
<i>P</i>	0.25	0.60	0.83	0.13	0.17	0.34	0.84
History of phototherapy ³							
Yes	2.9±1.6	2.5±1.8	2.6±2.1	1.6±1.9	0.7±1.2	1.5±0.9	12.1±7.0
No	2.7±1.4	1.9±1.4	2.1±1.8	1.6±1.8	0.5±1.1	1.1±0.9	10.1±6.1
<i>P</i>	0.52	0.09	0.24	0.89	0.44	0.054	0.17
Educational level							
Under diploma	2.7±1.4	1.7±1.5	1.8±1.8	1.4±1.7	0.31±0.9	1.3±0.9	9.3±5.8
≥diploma	2.8±1.5	2.3±1.6	2.7±1.7	1.8±1.9	0.8±1.3	1.2±0.9	11.8±6.7
<i>P</i>	0.83	0.055	0.01	0.29	0.03	0.8	0.056
Marital status							
Single	3.2±1.5	2.3±1.9	2.7±1.7	1.3±2.0	0.9±1.3	1.3±0.9	12.1±7.1
Married	2.6±1.4	2.0±1.5	2.1±1.9	1.7±1.8	0.4±1.1	1.2±0.9	10.2±6.1
<i>P</i>	0.055	0.41	0.16	0.42	0.11	0.6	0.19
Disease location							
Exposed	3.1±1.6	2.3±1.8	2.6±2.0	1.6±1.8	0.6±1.1	1.2±1.0	11.5±7.1
Non-exposed	2.4±1.3	1.8±1.4	2.0±1.7	1.6±1.8	0.6±1.1	1.3±0.8	9.9±5.6
<i>P</i>	0.03	0.16	0.09	0.94	0.95	0.68	0.21
Disease location in females							
Exposed	3.8±1.6	2.9±1.9	3.0±2.1	2.2±1.9	0.4±1.1	1.4±1.1	13.9±6.8
Non-exposed	2.6±1.3	2.1±1.1	2.1±1.8	2.1±2.1	0.3±0.9	1.4±0.7	10.7±4.7
<i>P</i>	0.007	0.11	0.13	0.81	0.68	0.94	0.06
Nail involvement ⁴							
Yes	2.9±1.8	2.1±2.1	3.3±1.7	1.2±1.8	0.7±1.3	1.2±1.1	11.5±7.7
No	2.7±1.4	2.1±1.5	2.1±1.8	1.7±1.8	0.6±1.1	1.2±0.9	10.5±6.2
<i>P</i>	0.78	0.78	0.04	0.27	0.73	0.74	0.85

1. Pearson correlation was used; 2. One way ANOVA was used; 3. History of previous courses of phototherapy; 4. Mann-Whitney *U* test was used.

QoL. According to a study by Ghajarzadeh *et al.*¹⁸ in 100 psoriatic patients in Iran, the total DLQI score was 12.8 which is close to our finding but higher than the previous studies, suggesting that our patients suffered from the disease more than those in other clinical settings. It may be explained by the fact that in our society, diseases like psoriasis are considered contagious, especially in low socioeconomic groups of the society, and patients have many problems for their communication with other people. These results highlight the

importance of psychological evaluation in our patients and we need to increase the awareness of our patients, their families, and the community about these diseases.

Various skin diseases have been recognized as having a detrimental effect on the patient's QoL. As for comparison with other dermatological disorders, Karelson *et al.* compared QoL impairment between adults with vitiligo, psoriasis patients, and unaffected controls; patients with psoriasis (13.1) had more disability and showed more severe QoL

impairment as compared with patients with vitiligo (4.7) and healthy controls (0.6)¹⁹. These findings suggest that life is impaired in psoriasis at the same or even higher level than other disfiguring disorders such as vitiligo. In another study to evaluate the associations between chronic inflammatory skin conditions and patients' emotional state and QoL, the authors compared 40 patients with psoriasis, 40 with eczema, 40 with acne, 15 with seborrheic dermatitis, and 40 healthy controls. Patients with chronic skin diseases had lower DLQI and lower RAND-36 physical functioning scores, more perceived physical limitations and pain, and lower emotional well-being and general health ratings compared with the control group²⁰.

Several studies have determined factors worsening the QoL in psoriatic patients; but their results are contradictory. We found that QoL was more impaired in younger patients and women; this finding is consistent with previous studies. Moreover, the mean DLQI score in patients with lesions in the exposed area (face and hand) was not statically different from patients without the involvement of these regions ($P= 0.21$) but it was significantly different in the item of symptom and feelings ($P= 0.03$), especially in female patients ($P= 0.007$). This gender-specific effect is not only limited to psoriasis, but it has also been observed in other dermatological diseases such as hand eczema²¹. Finzo *et al.* reported that a possible explanation for this effect could be that women usually tend to report more psychological disturbances than men²².

Another factor that was associated with impaired QoL was disease severity (PASI score); patients with higher PASI scores had more impairment in the total DLQI. Previous studies have reported contradictory results. For example, Pereira da Silva *et al.* found no correlation between the PASI and DLQI; they attributed this finding to the chronic history of the disease, which implies better acceptance of the disease and is related to the low income and social profile of their patients¹⁰.

In the present study, the impact of psoriasis on the QoL was not found to be related to disease duration or treatment type; this finding is different from the results of previous studies that showed a longer disease course was associated with lower impairment in the QoL and systemic and biologic treatments were associated with a better QoL. In one study, the main predictor of the QoL was the time

patients spent on psoriasis treatment every day²³. We selected our patients from the Phototherapy Clinic of Razi Hospital, and the treatment type may be another factor contributing to the high DLQI score of our patients in comparison with other studies.

In conclusion, although psoriasis is a benign disorder, this study confirms our initial hypothesis that psoriasis significantly impairs the QoL, which is more pronounced in younger patients, women, and patients with a more severe disease (higher PASI scores).

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