

# Quality of Life in Psoriasis Patients and Its Correlation with Disease Severity

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## ABSTRACT

**Background & Objective:** Psoriasis is a chronic and relapsing disease with a prevalence of 2%. Since it is a chronic and non-fatal skin disease, its impact on quality of life in patients is underestimated compared to other diseases. This study points out the importance of the quality of life in these patients and their correlation with disease severity.

**Materials & Methods:** Quality of life of psoriasis patients was assessed using the Dermatology Life Quality Index (DLQI) and psoriasis severity was measured, using Psoriasis Area Severity Index (PASI). DLQI were compared regarding age, gender and affected areas in patients.

**Results:** Among 135 patients, 67 (49.6%) were male and 68 (50.4%) were female. The mean age of subjects was  $41.49 \pm 15.43$  years (ranging from 17 to 83 years). The mean DLQI score was  $10.73 \pm 7.3$  (ranging from 0 to 26). Independent t-test showed that the mean DLQI score was significantly greater in women than men ( $P=0.031$ ). Spearman test showed positive correlation between DLQI and age as well as PASI and DLQI.

**Conclusion:** Results of this study showed a positive and significant correlation between PASI score and quality of life of patients, which implies that with increasing the severity of the disease, the effect of psoriasis on patients' quality of life increases as well.

**Keywords:** Psoriasis, Quality of life, Dermatology



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## Introduction

Psoriasis is a chronic relapsing skin disease, characterized by scaly red plaques that are more likely to involve the scalp, knees, and elbows (1). Chronic plaque psoriasis is the most common manifestation of this disease in such a way that almost 80% of psoriasis cases in adults are of this type (2, 3). Psoriasis not only results in physical problems for patients, but also psychological issues and social disabilities (4). It has been shown that the impact of psychological and social problems on psoriasis patients' life is underestimated (5). Psoriasis often makes patients feel embarrassed of their appearance and decreases their self-confidence. Emotional burden due to this disease can affect patients' health and wellbeing (4-6). Many psoriasis patients experience issues like self-esteem problems, poor psychological adjustment, feeling defamed, shame and embarrassment due to their appearance (6, 7). Also, it has been found that patients with psoriasis have a significant reduction in the ability to perform physical activities and this reduction is comparable with conditions such as cancer, arthritis, hypertension, ischemic heart disease, diabetes and major depressive disorder (8). It has been shown that 79% of patients believe that psoriasis had a negative impact on their lives

(9). In addition to the studies mentioned above, studies have been conducted to investigate the quality of life in patients with psoriasis and results indicated a significant impact of the disease on the quality of life in patients with psoriasis (10, 11). Abedini *et al.* showed that, psoriasis significantly impairs the quality of life, which is more pronounced in younger patients, women, and patients with a more severe disease (12). In a study by Zandi *et al.*, there was a correlation between the quality of life and disease severity in psoriasis patients (13). It seems that investigating the quality of life in psoriasis patients along with clinical severity of their disease can result in choosing the best type of treatment for these patients. This helps increase the satisfaction level of their treatment. The aim of this study was to evaluate the quality of life of psoriasis patients and its correlation with disease severity in Iran.

## Materials and Methods

### Participants

This cross-sectional study was conducted on 135 patients with chronic plaque psoriasis who referred to Ghaem dermatology clinic in Mashhad during the years

2013 to 2015. Purposive sampling method was used to collect samples. The ethics committee of Mashhad University approved the study (code: IR. MUMS. REC. 1392.33).

### Measurements

A checklist including demographic data such as age, gender, marital status, and other information like duration of disease was completed by the researcher. To evaluate the quality of life in patients, the Dermatology Life Quality Index (DLQI) was used (14-15). This questionnaire investigated various aspects of a patient's life in dermatology patients, including the patient's symptoms of the skin disease (one question), his/her feelings (one question), patient's daily activities (two questions), his/her Leisure time (two questions), the work or school environment (one question), his/her relationships (two questions), and the treatment of the disease (one question). Patients responded to these questions based on their experiences during the past seven days. Each question had four choices: very much (score 3), a lot (score 2), a little (score 1) and not at all (score 0). DLQI score was calculated by adding up the scores of each question. The DLQI score of 0 to 1 meant the disease had no effect on patient's quality of life, the score of 2 to 5 showed a small effect, the score of 6 to 10 revealed a moderate effect, the score of 11 to 20 determined a large effect, and the score of 21 to 30 meant a very large effect on the patient's quality of life (14).

The clinical severity of psoriasis was investigated by Psoriasis Area and Severity Index (PASI). In this method, the whole body was divided into four parts: body (10% of total body surface area), trunk (30% of total body surface area), upper extremities (20% of total body surface area) and lower extremities (40% of total body surface area). Within each part, the erythema, induration, itching, and desquamation of the affected areas were scored from 0 to 4. Also the percentage of skin involvement in each of the four areas was transformed into a grade as follows: 0) 0% of area involved, 1) 1-9% of area involved, 2) 10-29% of area involved, 3) 30-49% of area involved, 4) 50-69% of area involved, 5) 70-89% of area involved, and 6) 90 to 100% of area involved (15).

The validity and reliability of the Persian versions of these questionnaires were investigated and proven in previous studies (15, 16).

### Statistical Analysis

The obtained data was analyzed using SPSS 11.5 (SPSS Inc., Chicago, IL., USA). Quantitative Data was reported as mean  $\pm$  standard deviation. Independent T-test and Kruskal-Wallis was used to determine statistical differences and the Spearman's test was used to evaluate the correlation between variables. The significance level was considered as P-value  $<0.05$  in all tests.

### Results

Among the 135 patients, 67 (49.6%) cases were male and 68 (50.4%) were female. The mean age of subjects was  $41.49 \pm 15.43$  years (ranging from 17 to 83 years). The mean DLQI score was  $10.73 \pm 7.3$  (ranging from 0 to 26). The frequency of involved areas in this study was as follows: hands and feet were involved in 17 patients (12.6%), extensor areas were involved in 54 patients (40%), 12 patients had involvement of trunk and the head and neck (8.9%), and 52 patients has disseminated psoriasis (38.5%). The mean severity score among patients was  $5.8 \pm 8.71$  (ranging from 1.0 to 72).

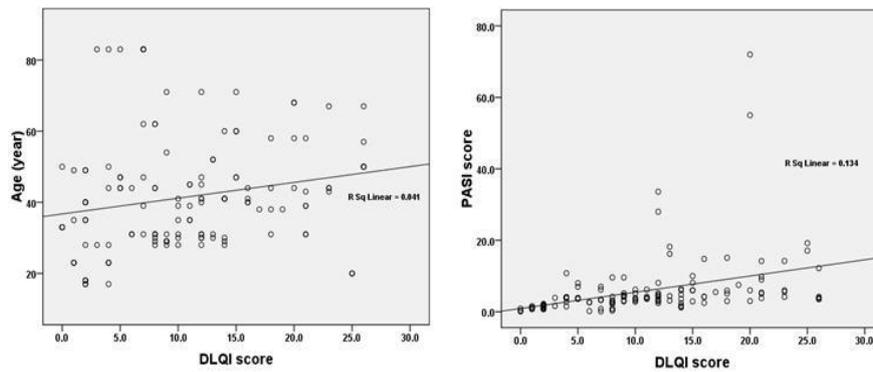
Independent t-test showed that the mean DLQI score was significantly greater in women than men ( $P=0.031$ ). Also Kruskal-Wallis test showed that the mean score of the DLQI in patients with involvement of various areas is significantly different ( $P<0.001$ ) in a way that the highest mean of DLQI was observed in patients with trunk, head and neck involvement and the lowest mean of DLQI was observed in patients with hands and feet involvement (Table 1).

To compare the mean DLQI score in patients of different ages, patients were divided into age groups of 10 years. As illustrated in Table 2, the frequency of patients was higher in the age group of 41 to 50 years, and the highest mean score of DLQI was observed in the age group of 61 to 70 years. The Kruskal-Wallis test showed that the mean DLQI score in different age groups was significantly different ( $P=0.003$ ).

Spearman test was used to investigate the correlation between age and DLQI score in patients and the test showed a positive and significant correlation between these two variables ( $r=0.262$ ,  $P=0.002$ ). Similarly, the Spearman test was used to investigate the correlation between PASI score and DLQI score and these variables were also correlated positively and significantly as shown in Table 3 and Figure1 ( $r=0.617$ ,  $P<0.001$ ).

**Table 1. Comparison of the DLQI score in patients with different gender and involved areas**

		Frequency	Percentage	DLQI Mean	Standard deviation	P-value
Gender	Male	67	49.6	9.41	6.79	=0.031
	Female	68	50.4	12.03	7.08	
Involved area	Hands and feet	17	12.6	7.88	3.82	<0.001
	Extensor areas	54	40.0	8.07	6.60	
	Trunk and head and neck	12	8.9	14.33	9.21	
	Disseminated	52	38.5	13.59	6.34	



**Figure 1. Correlation between variables in study and DLQI Score**

**Table 2. Comparison of the DLQI score in patients with different age groups**

Age Group (years)	Frequency of Patients	Mean DLQI Score	Standard Deviation	P-value
0-20	8	8.00	10.52	=0.003
21-30	26	7.85	4.31	
31-40	37	10.00	6.67	
41-50	38	12.26	7.50	
51-60	10	16.40	4.90	
61-70	7	16.00	8.06	
70 and older	9	7.67	3.84	

**Table 3. Correlation between variables in study and DLQI Score**

Variables	DLQI	R	P-value
Age		=0.262	=0.002
PASI score		=0.617	<0.001

## Discussion

Psoriasis is a chronic and relapsing disease that does not have a definite and proven treatment. It can have a significant impact on patients' physical and mental health. Previous studies have shown that psoriasis has greater effect on the mental health and quality of life of patients than any other chronic diseases such as cancer, hypertension, myocardial infarction, arthritis, type 2-diabetes and major depressive disorder (8). So far, several studies have reviewed the factors affecting the quality of life in psoriasis patients; however, these studies did not have identical results.

In the present study, the comparison of the DLQI score in patients with different gender showed that this disease has a greater effect on women's quality of life. Most of the previous studies also indicated that the effect of this disease on quality of life is greater in women. Gelfand *et al.*, Sampogna *et al.*, as well as Mabuchi *et al.* have reported this subject in the same way in their studies (17-19). To explain this finding, it can be stated that women care more about their appearance and are more

dependent on social relationships. Thus, a chronic disease like psoriasis that affects the appearance of patients can reduce the quality of life in women more than men.

In addition, this study shows that the chronic plaque psoriasis of trunk, head, and neck and the disseminated form of chronic plaque psoriasis have a greater effect on patients' quality of life in comparison with chronic plaque psoriasis of hands and feet and extensor areas. The chronic plaque psoriasis of trunk, head and neck and disseminated form of chronic plaque psoriasis are the more exposed to public view, so their lesions have further impact on patients' beauty and self-esteem. As a result, in case of psoriasis in these areas, we expect a greater effect on patients' quality of life.

Also, this study shows that by increasing age, the effect of psoriasis on patients' quality of life increases, where a positive correlation was observed between age and DLQI score. Studies have reported different results about the impact of psoriasis on quality of life in patients

with different ages. Lin *et al.* and Lundberg *et al.* showed that the effect of psoriasis on patients' quality of life was greater in young people (20, 21). On the other hand, in the present study as well as the study by Samponga *et al.*, it was observed that the impact of psoriasis on quality of life in older patients was greater (19). This difference might be the result of cultural differences in different countries (20). In a systematic review by Mattei *et al.*, mean PASI and DLQI correlated predictably in patients with chronic moderate-to-severe plaque psoriasis under treatment with biological agents (22).

In a study by Rencz *et al.* in 2018 in Hungary, a high rate of 'non-relevant' response (NRR) on DLQI of psoriasis was demonstrated in patients especially among less educated and elderly women (22). As a result, reconsidering the usage of the DLQI for medical and financial decision-making in psoriasis patients was suggested (23). Another study by Rencz *et al.* published in 2018 proposed a new scoring formula, DLQI-R that adjusts the total score to the number of NRRs (24). Further studies are needed to investigate this issue.

## Conclusion

The results of this study showed a positive and significant correlation between PASI score and quality of life of patients with psoriasis in Iran. As the severity of the disease increases, the effect of psoriasis on patients' quality of life increases too.

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## Conflict of Interest

Authors declare no conflict of interests with respect to the present paper.

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