Original Article

Health Status and Quality of Life in Patients with Psoriasis: An Iranian Cross-Sectional Survey

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Abstract

Background: Psoriasis has a significant negative impact on patients' health-related quality of life (HRQOL). This study aims to evaluate HRQOL of adult patients with psoriasis in Iran, and explore the relationship between general and disease-specific outcome measures in psoriasis.

Methods: Between May and August 2013, a cross-sectional questionnaire survey of consecutive outpatients was conducted at a single clinic in Shiraz, Iran. HRQOL was assessed by the general measure EuroQol 5 dimensions (EQ-5D), visual analogue scale (EQ VAS), and the disease-specific Dermatology Life Quality Index (DLQI). Disease severity was measured by the Psoriasis Area and Severity Index (PASI).

Results: Sixty-two patients (76% males) completed the questionnaire with a mean age (SD) of 40.4 (17.5) years. Overall, 39% of the patients used only topical and 48% received systemic non-biological therapy in the past 12 months. Median EQ-5D, EQ VAS, DLQI and PASI scores were 0.73, 60, 8 and 11.75, respectively. Out of the 62 patients, 18%, 26%, 28%, 63%, and 63% reported some or severe problem in mobility, self-care, usual activities, pain/discomfort and anxiety/depression, respectively. EQ-5D and EQ VAS correlated moderately with DLQI (r_s = -0.44 for both, $p < 0.001$), but only EQ VAS correlated significantly with PASI (r_s = -0.31, $p < 0.01$).

Conclusion: This is the first study from Iran that assesses HRQOL in adult patients with psoriasis by EQ-5D and EQ VAS. Reduction in general HRQOL measured with EQ-5D and EQ-VAS is considerable, mostly in anxiety/depression and pain/discomfort dimensions. EQ-5D scores evaluated in this study provide country-specific data for economic evaluations.

Keywords: DLQI, EQ-5D, health-related quality of life, Iran, psoriasis

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Introduction

Psoriasis is a chronic, immune-mediated, inflammatory disease of the skin with a prevalence of 1.3% – 2.5% in Iran.[1,2] Most common symptoms of psoriasis are itching, irritation, burning or stinging, sensitivity, pain, and bleeding of the skin.[3] It is often associated with arthritis, cardiovascular events, diabetes, obesity, hypertension, or dyslipidemia.[4] Psoriasis is a lifelong disease, therefore the main goal of treatment is to establish disease control and prolonged periods between flares.[5] Management of psoriasis is mostly based on disease severity and encompasses various topical treatments (corticosteroids, calcipotriol, tacrolimus, tazarotene, and anthralin), phototherapy, and systemic treatments (methotrexate, cyclosporine, retinoids, and biological drugs).[5]

Psoriasis can have a major impact on patient overall health-related quality of life (HRQOL). Furthermore, most patients reported experiencing anger, helplessness, embarrassment and self-consciousness.[6] So far, both generic (e.g., SF-36) and disease-specific questionnaires (e.g., Psoriasis Disability Index - PDI, Dermatology Life Quality Index – DLQI) have been used to measure HRQOL in patients with psoriasis in Iran. However, to our knowledge, no study has assessed HRQOL of psoriasis patients with EQ-5D.[7–10] EuroQoL 5 dimensions (EQ-5D) is a widely used generic HRQOL instrument that provides HRQOL results. EQ-5D also allows the calculation of utilities that can be used later in economic evaluations of health care interventions. Policymakers can approach resource allocation decisions from this information.[11]

The primary goal of this study is to measure HRQOL of patients with psoriasis in Iran with the general measures of EQ-5D and EQ VAS as well as with several disease-specific instruments. Another goal of this study is to analyze the correlation between the outcome measures. Additionally, we compare HRQOL differences between subgroups of patients regarding treatment, clinical subtypes and localization of psoriatic lesions.

Methods and Materials

Study design

A cross-sectional questionnaire survey of consecutive patients with psoriasis from May to August 2013 was conducted at Moradi Skin Laser Clinic in Shiraz, Iran. All outpatients of one physician were invited to participate. We used a questionnaire that included self-designed items, validated HRQOL and disease severity mea-

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sures.[12,13,14] The questionnaire consisted of two parts; the first was filled out by the patients, and the second part was completed by their dermatologist. Patients were asked about demographic data (age, sex, marital status, weight and height) and medical history (disease duration, family history and affected body sites). Quality of life was assessed using EQ-5D, EQ VAS, DLQI, as well as by self-assessed disease severity, and visual analogue scale. Patients were managed by one dermatologist, who provided data on treating different clinical types of psoriasis in the past 12 months. Moreover, the dermatologist completed PASI (or Body Surface Area % where not applicable), and physician's global assessment of disease activity visual analogue scale (PGA VAS) regarding each patient.

Outcome measures

EQ-5D is a commonly used generic questionnaire which assesses functions along five domains including mobility, self-care, usual activities, pain/discomfort and anxiety/depression.[11] Each dimension is evaluated on a three-level scale (1, no problems; 2, some or moderate problems; 3, severe problems). The validated Farsi version of the EQ-5D was used in this study. Due to the absence of local value set, the UK weights were applied to calculate EQ-5D scores (i.e. utilities) that can range from -0.59 to +1 (higher scores refer to better quality of life).[15] EQ-5D is accompanied by a Visual Analogue Scale (EQ-VAS) in which patients were asked to provide a self-assessment of their own health in a range from 0 (worst imaginable health state) to 100 (best imaginable health state).

Psoriasis Area and Severity Index (PASI) is a gold standard to measure the severity of psoriasis.[16] PASI-72 (hereinafter PASI) combines the assessment of the severity of lesions and the area affected into a single score in the range 0 (no disease) to 72 (maximal disease). The score is estimated by three clinical signs: erythema, induration and desquamation. Severity parameters are measured on a scale of 0 (none) to 4 (maximum), from none to maximum; and the extent of involvement of each body region is scored from 0 (none) to 6 (maximum). Dermatology Life Quality Index (DLQI) is the most commonly used dermatology-specific HRQOL questionnaire.[17,18] It consists of 10 questions covering symptoms, feelings, daily activities, leisure, work and school, personal relationships and treatment side effects that assess patients' perception of the impact of skin disease on aspects of HRQOL during the past week. Each question is scored on a 4-point Likert scale (0, not at all/not relevant; 1, a little; 2, a lot; 3, very much). DLQI score is calculated by summing up the score of each question, and therefore, total scores range between 0 (least impact on HRQOL) and 30 (maximum impact on HRQOL).

Physician's global assessment visual analogue scale (PGA VAS) is a 100-mm-long visual instrument that allows dermatologists to easily evaluate the current disease activity of the patient. Self-assessed disease severity visual analogue scale is basically similar to PGA VAS, however it is scored by patients.

Statistical methods

Data analysis was performed using SPSS version 20.0 (SPSS Inc., Chicago, IL, USA). At first, descriptive statistics were performed. Data were not normally distributed, therefore, the non-parametric Mann-Whitney U-test or Kruskal-Wallis test was then used to test for differences in EQ-5D, EQ VAS, DLQI and PASI within subgroups of patients. Spearman's correlation was applied to evaluate the relationship between the outcome measures.

Results

Patients

Out of 71 patients who were invited to participate, 62 agreed to complete the questionnaire. The mean age of the 62 patients was 40.40 (SD 17.53), with 75.8 % males (Table 1). The mean disease duration was 13.60 (SD 11.37) years. Twenty-four (38.7%) participants were normoweight, 25 (40.3%) were overweight and five (8.1%) were indicated obese based on their Body Mass Index (BMI) score. Regarding the number of affected body sites, 30 (48.4%), 17 (27.4%) and 14 (22.6%) patients reported involvement of 1 – 3, 4 – 5 and 6 – 8 regions, respectively. Most common localizations were ankles (38.7%), elbows (38.7%), scalp 22 (35.5%), knees (33.9%), forearms (33.9%), feet/legs (32.3%), face (27.4%), hands/palms (24.2 %), neck/décolletage (22.6 %), and nails (19.4%).

In total, 66.1% of the patients were diagnosed with chronic plaque psoriasis followed by palmoplantar involvement 27.4%, inverse psoriasis 25.8% and guttate psoriasis 19.4%. Overall, 30 (48.4%) patients used only topical therapy in the past 12 months and 24 (38.7%) patients received systemic non-biological therapy, of whom 16 patients also applied topicals (Table 2).

Quality of life and disease severity

Median EQ-5D, EQ VAS, DLQI and PASI scores were 0.73, 60, 8 and 11.75, respectively (Table 1). Average PGA VAS was found significantly lower than self-assessed disease severity VAS (34.66 vs 53.60, $p < 0.001$). Out of the five dimensions of EQ-5D, 17.7%, 25.8%, 27.5%, 62.9%, and 62.9% marked having some or severe problem with mobility, self-care, usual activities, pain/discomfort and anxiety/depression, respectively (Figure 1).

Quality of life and disease severity results of subgroups are presented in Table 3. No significant HRQOL difference was noted based on gender or clinical types. Patients with lesions on more body sites reported significantly decreased HRQOL. To focus on localization of psoriatic lesions, patients with neck/décolletage involvement showed significantly higher HRQOL reduction in either instrument. Besides, patients with scalp psoriasis indicated significantly higher disease severity compared to the other clinical types (PASI = 17.05, $p < 0.05$). However, all patients with scalp involvement, had skin lesions on at least two more body sites. Also, 41 % of them had psoriasis in at least 4 other body sites that explains the higher median PASI scores of this group. Also psoriasis of feet/legs was related to fairly low median EQ-5D and high PASI scores (0.62 and 15.8).

Patients who received only topical therapy reported better health status in any outcome measure, however, statistical significance revealed only for PASI scores (Table 3).

Relationships between the outcome measures

Correlations between EQ-VAS, DLQI, PASI, PGA VAS and self-assessed disease severity VAS are described in Table 4. Both EQ-5D and EQ VAS showed a moderate negative correlation with DLQI ($r_s = -0.44$ for both, $p < 0.001$), and PGA VAS as well as self-assessed disease severity VAS ($r_s = -0.35$ for both, $p < 0.01$). Only EQ VAS was significantly associated with PASI ($r_s = -0.31$, $p < 0.01$), however no significant association was reported with EQ-5D. Moderate positive correlations were found between DLQI, PASI, PGA VAS, and self-assessed disease severity VAS. This relationship was shown to be stronger compared to those with either EQ-5D or EQ VAS.

Table 1. Demographics, medical history and quality of life of patients (n = 62)

	N (%) or mean (SD)	Median	Range (min.–max.)
Demographics			
Males (n, %)	47 (75.8%)	- - -	- - -
Age, years (mean, SD)	40.40 (17.53)	34	16–86
Medical history			
Psoriasis duration, years (mean, SD)	13.60 (11.37)	12	2–64
Body mass index - BMI, kg/m^2 (mean, SD)	25.66 (3.29)	25.38	19.81–33.25
Quality of life and disease severity (mean, SD)			
EQ-5D score (–0.59 to 1)	0.62 (0.37)	0.73	-0.59–1
EQ VAS (0–100)	60.18 (27.26)	60	1–100
DLQI (0–30)	10.19 (6.46)	8	0–30
PASI (0–72)	12.94 (8.28)	11.75	0.2–39.2
PGA VAS (0–100 mm)	34.66 (22.63)	30	0–100
Self-assessed disease severity VAS (0–100 mm)	53.60 (26.72)	52.5	0–100

Table 2. Clinical characteristics of the patients (n = 62)

Localization of psoriatic lesions	**n (%)**
Ankles	24 (38.7%)
Armpits	11 (17.7%)
Elbows	24 (38.7%)
Face/forehead	17 (27.4%)
Forearms	21 (33.9%)
Feet/legs	20 (32.3%)
Groin	11 (17.7%)
Hand/palm	15 (24.2%)
Inframammary fold	3 (4.8%)
Knees	21 (33.9%)
Nails	12 (19.4%)
Neck/décolletage	17 (22.6%)
Scalp	22 (35.5%)
Number of body sites affected*	
1–3	30 (48.4%)
4–5	17 (27.4%)
6–9	14 (22.6%)
Clinical types**	
Chronic plaque psoriasis	41 (66.1%)
Erythrodermic psoriasis	3 (4.8%)
Inverse psoriasis	16 (25.8%)
Guttate psoriasis	12 (19.4%)
Palmoplantar psoriasis	17 (27.4%)
Psoriatic arthritis	3 (4.8%)
Pustular psoriasis	2 (3.2%)
Treatment in the past 12 months	
Systemic non-biological*	**24 (38.7%)**
Methotrexate	21 (33.9%)
Retinoid	4 (6.5%)
Only topical*	**30 (48.4%)**
Corticosteroid	30 (48.4%)
Calcipotriol	8 (12.9%)
Salicylic acid	1 (1.6%)
None	**8 (12.9%)**

*One patient did not have any symptoms at the time of the survey; **Combinations are possible within the subgroup

Discussion

The present study was undertaken to assess HRQOL of adult patients with psoriasis from Iran applying general and disease-specific HRQOL instruments. To our knowledge, this is the first study from Iran that measured HRQOL with EQ-5D and EQ VAS. Considerable general HRQOL impairment experienced by patients with psoriasis was expressed either in EQ-5D (0.73) or in EQ VAS (60).

Previous studies from Iran have mainly used non-preference-based outcome measures. These instruments with the exception of SF-36 are not feasible to calculate utilities that can be used in economic evaluations. In their survey involving 100 psoriasis patients with a mean age of 36.2 years, Ghajarzadeh, et al. reported SF-36 and DLQI scores of 59.8 (SD 19.8) and 12.8 (SD 6.1), respectively.[7] Ansar, et al. reported mean SF-36 score 65.05 (SD:15.51) of 100 psoriasis patients with a mean age of 40.45 years.[8] However, none of these two studies calculated utilities from SF-36 scores. Aghaei, et al.

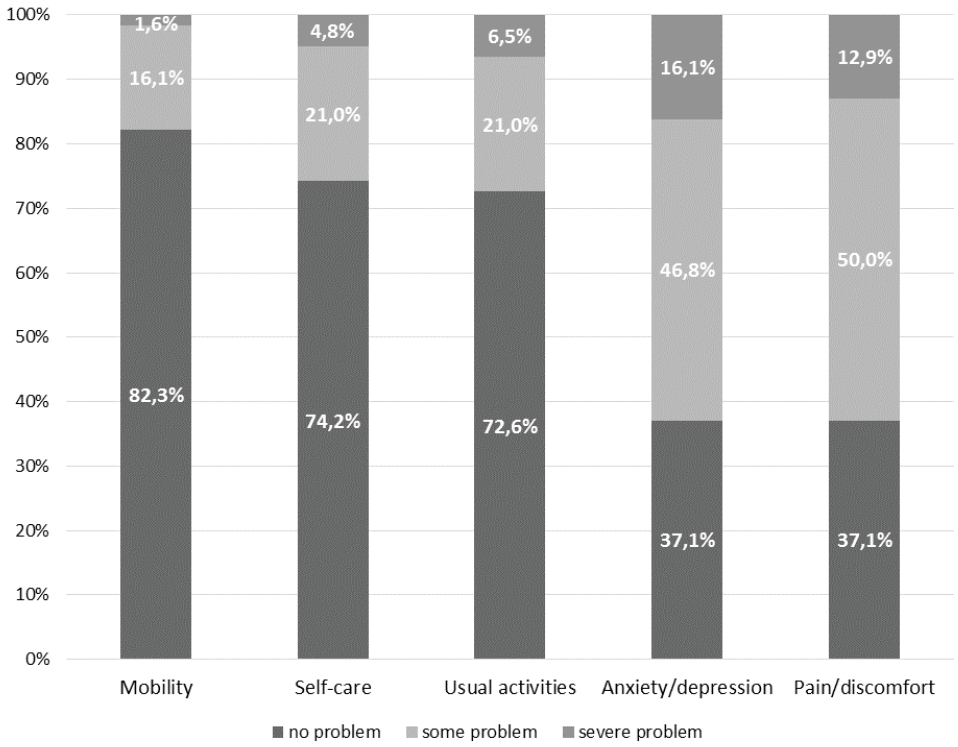

Figure 1. Proportion of the patients reporting problem in EQ-5D domains

Table 3. Quality of life and disease severity within the subgroups

	EQ-5D		EQ VAS		DLQI		PASI	
	Median	**IQR**	**Median**	**IQR**	**Median**	**IQR**	**Median**	**IQR**
Total sample	**0.73**	**0.50**	**60.00**	**38.00**	**8.00**	**9.00**	**11.75**	**11.20**
Sex								
Female	0.73	**0.16**	50.00	**35.00**	7.00	**5.00**	12.30	**7.20**
Male	0.73	**0.71**	65.00	**46.00**	11.00	**9.00**	11.20	**14.00**
Clinical type								
Chronic plaque psoriasis	0.73	**0.45**	70.00	**35.00**	9.00	**9.00**	12.60	**10.80**
Inverse psoriasis	0.73	**0.62**	55.00	**54.00**	12.00	**9.00**	14.50	**13.30**
Guttate psoriasis	0.73	**0.80**	50.00	**50.00**	13.00	**10.00**	15.05	**14.30**
Palmoplantar psoriasis	0.73	**0.68**	80.00*	**30.00**	11.00	**14.00**	14.10	**10.70**
Number of localizations								
1–3	0.75	**0.41**	77.50	**31.00**	7.00	**5.00**	8.20	**8.90**
4–5	0.80	**0.30**	65.00	**60.00**	10.00	**11.00**	13.00	**17.10**
6–9	0.41§	**0.66**	50.00§	**43.00**	15.00§	**10.00**	19.15§	**8.30**
Localizations								
Ankles	0.73	**0.71**	65.00	**65.00**	11.50	**10.00**	13.75	**12.70**
Armpits	0.69	**0.77**	40.00	**50.00**	13.00	**13.00**	14.10	**10.20**
Elbows	0.73	**0.59**	50.00	**50.00**	10.50	**10.00**	16.70	**15.30**
Face/forehead	0.73	**0.63**	60.00	**53.00**	11.00	**8.00**	15.00	**12.80**
Feet/legs	0.62*	**0.60**	50.00	**45.00**	10.00	**9.00**	15.80*	**16.00**
Forearms	0.69	**0.83**	50.00	**63.00**	11.00	**12.00**	16.60*	**10.60**
Groin	0.73	**0.38**	60.00	**40.00**	7.00	**8.00**	8.80	**9.40**
Hands/palms	0.78	**0.75**	65.00	**40.00**	15.00	**14.00**	14.10	**12.40**
Knees	0.71	**0.73**	60.00	**53.00**	10.00	**10.00**	12.30	**11.30**
Nails	0.43	**0.65**	50.00	**40.00**	12.50	**10.00**	15.00	**15.00**
Neck/décolletage	0.62*	**0.74**	45.00*	**55.00**	15.00*	**11.00**	20.50*	**9.00**
Scalp	0.71	**0.71**	60.00	**58.00**	11.50	**12.00**	17.05*	**13.50**
Treatments								
Topical	0.73	**0.46**	60.00	**43.00**	8.50	**9.00**	12.45*	**12.10**
Systemic non-biological	0.57	**0.85**	60.00	**55.00**	13.50	**13.00**	17.65*	**15.40**

*Mann-Whitney U test $p < 0.05$; § Kruskal-Wallis test $p < 0.05$. For EQ-5D and EQ-VAS '0' and for all other measures, the highest value is the worst possible outcome. IQR = interquartile range

Table 4. Spearman's correlations between the outcome measures

	EQ-5D (-0.59-1)	EQ VAS	DLQI	PASI	PGA VAS
EQ VAS (0–100)	0.41*	- - -	-0.44*	-0.31*	-0.51*
DLQI (0–30)	-0.44*	-0.44*	- - -	0.58*	0.61*
PASI (0–72)	-0.12	-0.31*	0.58*	- - -	0.58*
PGA VAS (0–100 mm)	-0.35*	-0.51*	0.55*	0.58*	- - -
Self-assessed disease severity VAS (0–100 mm)	-0.35*	-0.54*	0.48*	0.48*	0.55*
*Spearman's rho significant $p < 0.05$. For EQ-5D and EQ-VAS the lowest value, whereas for all other measures the highest value is the worst possible outcome.					

Table 5. Comparison of the relationship between EQ-5D, DLQI and PASI with previous studies

Author, year	Country	N (mean age)	HRQOL and disease severity (mean)	Correlations				
				EQ-5D & PASI	EQ VAS & PASI	EQ-5D & DLQI	EQ VAS & DLQI	PASI & DLQI
This study, 2014	Iran	62 (40.4 years)	EQ-5D= 0.62 EQ VAS=60.18 DLQI=10.19 PASI=12.94	-0.12	-0.31*	-0.44*	-0.44*	0.58*
Herédi et al.[13] 2014**	Hungary	200 (51.2 years)	EQ-5D=0.69 EQ-VAS=64.43 DLQI=6.29 PASI=8.01	-0.43*	-0.42*	-0.48*	-0.43*	0.81*
Blome et al.[22] 2012	Germany	Development database: 1,511 (50.5 years)	EQ-5D=77.1 EQ VAS=64.4 DLQI=8.6 PASI=11.4	-0.17*	-0.24*	- - -	- - -	- - -
		Cross-validation database: 2,009 (51,5 years)	EQ-5D=n.a. EQ-VAS=64.5 DLQI=7.5 PASI=10.1					
Norlin et al.[21] 2011	Sweden	2,450 (54 years§)	EQ-5D=0.77§ DLQI=4§ PASI=4.7§	-0.25*	- - -	-0.55*	- - -	0.51*
Hjortsberg et al.[24] 2011**	Sweden	163 (51 years)	EQ-5D=0.75 DLQI=6.8	- - -	- - -	-0.52*	-0.50*	- - -
	Finland	110 (53 years)						
§ median; * significant correlation at $p < 0.05$; ** rate of patients who received biologicals during the past 12 months: Herédi, et al.: 51.5%, Hjortsberg, et al.: 13.5%; n.a.= not available								

described HRQOL of mean 28 (SD 10.66), 10.3 (SD 5.2), and 11.35 (SD 6.00) scores on PDI (ranges from 0 to 45, where higher score refers to worse HRQOL), DLQI, and PASI, respectively in 125 patients with chronic plaque psoriasis.[9] In a study of Zandi, et al. 97 psoriasis patients with a mean age of 35.3 years, mean DLQI and PASI scores were 14.1 and 18.6, respectively.[10]

Among the 5 dimensions beyond the EQ-5D score, 62.9% patients reported having some or severe problems with anxiety/depression and pain/discomfort (Figure 1). This seems consistent with earlier evidences that found a prevalence of clinical depression be 69.4% among Iranian patients with psoriasis.[19] This is also consistent with those of Ghajarzadeh, et al. who found the average Beck Depression Scale (BDI) score (ranges from 0 to 63, where higher score refers to worse depression state) of patients with psoriasis is 17.1 (SD 12.3), which approximates the borderline between mild and moderate depression.[7]

A very similar questionnaire to this survey was used to assess HRQOL of Hungarian patients with moderate-to-severe psoriasis by Herédi, et al.[13] therefore, we can compare some main findings of these two studies. First of all, it should be highlighted, that 51.5% of the Hungarian patients used systemic biological therapy in the past 12 months, but none in the Iranian study. In both researches, psoriatic lesions on the neck/décolletage were associated with the highest HRQOL impairment. In our study, a very likely explanation for this is that out of the 14 patients with neck/décolletage involvement, 10 reported skin lesions in 6 – 9 body sites. Compared to the Hungarian study, our patients with palmoplantar psoriasis experienced much better HRQOL, particularly measured with EQ VAS, whereas patients with nail psoriasis reported worse HRQOL.[13] In an earlier Iranian study conducted by Zandi, et al. erythrodermic and pustular types of psoriasis were predictors of the greatest HRQOL impairment measured by DLQI (22.3 and 20.8 scores). However, the comparison of our results with these evidences is hampered by the very small numbers of patients in these subgroups of our study.[10]

In Iran, patients who received only topical therapy in the past 12 months, reported better HRQOL, compared to those of systemic non-biological treatment. While in Hungary, patients on biological treatment reported the best HRQOL.[13] Females of our survey showed better HRQOL measured with EQ-5D, DLQI or PASI, but not significantly. In contrast, a recent study from Iran showed that female patients reported significantly lower scores in SF-36 than males.[8]

Interestingly, compared to other body sites, psoriasis on the face and/or forehead was not accompanied by significantly worse HRQOL. However, this finding does not support the previous Iranian research, which argued that patients with facial psoriasis had significantly higher PASI scores compared to those without facial involvement.[20]

Analyzing the correlations between the outcome measures revealed a moderate correlation between the general measure of EQ-5D and EQ VAS and disease-specific DLQI and PASI. Disease-specific tools (DLQI, PASI, PGA VAS, self-assessed disease severity VAS) had a stronger correlation with each other, than with EQ-5D or EQ VAS. The relationship between DLQI and PASI in psoriasis was discussed in a prior study from Iran.[10] This investigation found that lower DLQI scores were related to higher PASI scores ($p < 0.001$) but authors did not report correlation coefficient between these two measures.[10]

It is notable that average PGA VAS was found to be significantly lower than self-assessed disease severity VAS (34.66 vs 53.60, $p < 0.001$), which suggests an immense discrepancy in disease perception between patients and their physician. Thus, more attention should be paid to the assessment of patients' HRQOL that might also support the finding of optimal treatment choices.

We compared our findings with the results of earlier cross-sectional studies regarding the relationships between the investigated HRQOL measures (Table 5). DLQI and PASI were moderately correlated with the value of $r_s = 0.58$ and also, Norlin, et al. found similar result in Sweden.[21] In line with all of the previous studies, we identified a similar moderate correlation between DLQI and both EQ-5D and EQ VAS. According to Iranian studies, there is no significant association between the severity (measured by PASI) and the general quality of life (measured by EQ-5D), however other countries report a week or moderate correlation.[21,22] Therefore, our results suggest that disease severity, treatments, and culture or country-specific differences might lead to variations in the relationship between the outcome measures used in psoriasis. Some limitation of this study should be noted. The first limitation with this study is the sample size, which was quite small. Only a few patients involved with rare clinical types, e.g., pustular and erythrodermic psoriasis; and all the patients treated by one physician at a clinic in Shiraz, Iran. The second limitation was that there were no inclusion criteria for this survey, therefore patients regardless of disease severity were allowed to participate. And finally, none of the patients in this study received biological therapies; however, infliximab, etanercept, and adalimumab have a legal license for distribution in Iran.[23] Further research is required to measure HRQOL with EQ-5D in a larger sample and explore more variables that influence HRQOL of Iranian patients with psoriasis.

In conclusion, this is the first study from Iran that assesses HRQOL of patients with psoriasis by EQ-5D and EQ VAS. HRQOL impairment measured with either EQ-5D or EQ-VAS is considerable; some or severe problems were most frequently present in anxiety/depression and pain/discomfort dimensions. Moreover, EQ-5D scores evaluated in this study provide country-specific data for cost-utility analyses.

Authors Contribution

Mahshid Moradi and Fanni Rencz have contributed equally to this work.

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