Quality of life of psoriatic patients and their acceptance of the disease

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Background: Psoriasis and its acceptance adversely affect the patient's quality of life. This study aims to measure quality of life of psoriatic patients, psoriasis disability index and acceptance of psoriasis as a disease and their associated factors as well as their interaction.

Methods: A total of 125 psoriatic patients were included in the study. Socio-demographic and clinical data were collected. Psoriasis Area Severity Index (PASI), Psoriasis quality of life index (PQOL), Psoriasis Disability (PDI) and acceptance of psoriasis scale index (PAI) were measured using Arabic validated tools. Multivariate linear regression analysis was done to find out the independent predictors of the outcome variables.

Results: The mean overall PQOL, PDI and PAI were 14.3, 20.8 and 60.1; respectively. Compared to the moderate/severe chronic plaque psoriasis, the mild chronic plaque shows significantly lower mean PQOL, lower mean PDI and higher mean PAI. There are positive moderate significant correlations between PQOL and PDI and PASI (r = 0.59, r = 0.54; respectively). However, there is inverse correlation between PQOL and psoriasis acceptance index (r = -0.55). The linear regression revealed that the independent predictors of psoriasis quality of life are PDI, PASI and PAI. These three variables predict 0.42 of variability of PQOL.

Conclusion: Psoriasis exerts significant, negative effect on patients' quality of life. Disease disability, severity and its acceptance are independent predictors of quality of life.

Keywords: area severity index; disability; Egypt

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INTRODUCTION

Psoriasis is a chronic and disabling disease. It affects daily activities, occupational and sexual functioning, as well as social relations, with a strong negative impact on patients' quality of life and psychosocial wellbeing [1]. Various demographic and clinical disease characteristics contribute to the low psoriasis quality of life (PQOL), especially gender, age, the chronic and recurring nature of the disease, its severity and sites of lesions, comorbidities, lack of control, fear of unexpected breakouts, and feelings of hopelessness. Burden from expensive and time-consuming daily treatments also reduce the PQOL [2]. Patients with psoriasis experience social stigmatization and difficulties with body image, self-esteem and self-concept [3].

Measures of clinical severity of psoriasis may not reflect patient perceptions of the impact of the disease on their lives [4,5]. Acceptance of an illness is a problem in patients with chronic diseases and the lack of acceptance delays improvement [6]. In

the case of psoriatic patients, a higher level of acceptance of the illness is connected with a more positive assessment of the quality of life [7].

The measurement of PQOL provides valuable information about the disease burden to both clinicians and researchers. To the best of our knowledge, there are no previous Egyptian studies about patients' acceptance of psoriasis and its correlation with quality of life. This study aimed to assess the quality of life, psoriasis disability index, and acceptance of the disease among patients suffering with psoriasis in Egypt, along with the associated correlations and predictive factors.

PATIENTS AND METHODS

This cross-sectional descriptive study was conducted in the Dermatology Outpatient Clinic of Mansoura University Hospital, Egypt during the period between September 1, 2018, and August 31, 2019.

The target population included patients with typical clinical features of psoriasis aged 18 years or above with at least one-year duration of the disease. Patients with other chronic diseases that could affect quality of life were excluded (e.g., diabetes; respiratory, cardiovascular, hepatic, or collagen diseases).

The sample size was calculated using the G*power program. A pilot study on 20 patients revealed a mean PQOL score of 16.45 with a standard deviation of 7.9, effect size = 0.2, alpha error = 0.05, and study power = 0.80. Then, a sample size of 125 was calculated.

Patients were interviewed to complete an Arabic questionnaire including:

1) Socio-demographic data (e.g., age, sex, and socioeconomic status) according to the socio-economic status scale of El-Gilany *et al.* [8]. This scale includes seven domains with a total score of 84, namely education and culture, occupation, family, family possessions, economic situation, home sanitation, and healthcare.
2) Clinical data of psoriasis disease and its severity measured using the Psoriasis Area Severity Index (PASI) [9]. In this index, both the intensity and body surface area (BSA) of the psoriatic plaques are calculated separately for four anatomical regions (head, trunk, upper and lower extremities). The intensity of erythema, desquamation, and induration is rated on a five-point scale with zero indicating no involvement and one, two, three, and four indicating slight, moderate, severe, and very severe characteristics, respectively. The percentage of involvement of the four anatomical regions is assigned a numerical value of zero to six with zero indicating no involvement, 1 = 1–9%, 2 = 10–29%, 3 = 30–49%, 4 = 50–69%, 5 = 70–89%, and 6 = 90–100% BSA involvement. The PASI score varies from 0 to 72. Scores > 12, 7-12, and < 7 were considered as severe, moderate, and mild chronic plaque-type psoriasis, respectively.
3) The psoriasis quality of life index (PQOL) of Mckenna *et al.* [10] was translated into Arabic and tested for reliability. It comprises 25 items with a total score ranging from 0 to 25. Each item is scored zero for a negative answer and one for a positive answer, with a higher total score indicating poor quality of life (QOL). The pilot study revealed that the interclass correlation coefficient was 0.8 and Cronbach's alpha coefficient was 0.92.
4) The Arabic version of the Psoriasis Disability Index (PDI) validated by Zedan *et al.* [11] was used to measure disability due to psoriasis. It includes 15 questions to reflect daily activities, work, personal relationships, and treatment. Answers are recorded on a four-point scale ranging from zero to three, indicating responses from 'not at all' to 'very much'. The total score ranges from 0 to 45, with higher scores indicating greater disability caused by the disease. The interclass correlation coefficient was 0.85 and Cronbach's alpha coefficient was 0.86.
5) The acceptance of psoriasis scale index [12] was translated to Arabic and tested for reliability. It includes 20 questions to reflect adaptation to the disease, ability to deal with the disease, and satisfaction with life despite the disease burden with a four-grade scale ranging from one to four. The total scores range from 20 to 80, with higher scores indicating greater acceptance of life with the disease. The pilot study revealed that the interclass correlation coefficient was 0.8 and Cronbach's alpha coefficient was 0.93.

The study tools were translated from the original English language to Arabic by two independent bilingual translators whose native language

is Arabic. A consensus was made on the two translated versions. The synthetic Arabic version of the scale was translated back into English by two other independent qualified translators blind to the original English version. This was compared with the original version. The necessary modifications were introduced by consensus to achieve semantic, idiomatic, and equivalent texts between the original version and the target one. Consolidated Arabic versions were obtained for all translated scales.

A pilot study was done on 20 patients not included in the full-scale study to estimate the outcome of interest for sample size calculation, test clarity, and reliability of the Arabic versions of the study tools and to train the researcher for data collection. The protocol was approved by IRB, Faculty of Medicine, Mansoura University (Code no.MS/16.08.34). The study participants gave informed consent to participate in the study and data confidentiality was assured.

Data were analyzed with SPSS version 23. The normality of data was first tested with the one-sample Kolmogorov-Smirnov test. Qualitative data were described using numbers and percentages. Continuous variables were presented as mean (standard deviation) for parametric data. The independent t-test was used for comparing means between two groups. The Pearson correlation coefficient was calculated to test the correlation between two continuous variables. Multiple linear regressions were done to detect the independent predictors of outcome variables. P-values ≤ 0.05 were considered statistically significant.

RESULTS

In total, 125 psoriatic patients were included in the study. The mean age was 40.7 ± 9.6 years and the disease duration ranged from 1 to 20 years (median = 5). More than half of the patients were 40 years old or less (56%); 67% were males and 66% were professionals or semiprofessionals. Most patients (75%) had mild chronic plaque-type psoriasis.

The mean overall PQOL, PDI, and PAI scores were 14.3, 20.8, and 60.1, respectively (Table 1). Individuals with mild chronic plaque psoriasis

Table 1. Psoriasis quality of life (PQOL), psoriasis disability index (PDI), and psoriasis acceptance index (PAI) according to socio-demographic and disease characteristics among psoriatic patients

	Total	Mean (SD)		
		PQOL	PDI	PAI
Overall	125	14.3 (6.8)	20.8 (7.5)	60.1 (9.9)
Age				
≤40 yrs.	70	14.8 (6.6)	21.4 (7.4)	59.9 (9.1)
>40 yrs.	55	13.6 (7.1)	19.9 (7.7)	60.2 (10.9)
Sex				
Male	84	14.0 (6.5)	21.4 (7.7)	59.0 (9.9)
Female	41	14.8 (7.4)	19.4 (7.1)	62.1 (9.6)
Occupation				
Professional/semiprofessional	83	13.7 (6.3)	19.9 (7.4)	60.8 (9.5)
Manual workers	20	14.0 (7.5)	23.6 (6.8)	57.1 (11.1)
Others	22	16.7 (7.8)	21.1 (8.1)	60.0 (10.4)
Residence				
Rural	81	14.0 (6.9)	20.0 (7.5)	60.6 (10.4)
Urban	44	14.7 (6.6)	22.1 (7.5)	59.0 (8.9)
Socio-economic status				
Very low/low	61	13.7 (7.3)	20.9 (7.5)	60.8 (10.9)
Middle/high	64	14.8 (6.4)	20.6 (7.6)	59.4 (8.8)
Disease duration				
≤5 yrs.	70	13.8 (6.9)	20.3 (7.5)	60.3 (8.9)
>5	55	14.9 (6.7)	21.4 (7.5)	59.7 (11.1)
Plaque psoriasis grades				
Mild chronic plaque	81	11.8 (6.4)***	18.5 (6.7)**	63.1 (8.4)***
Moderate & severe chronic plaque	27	17.3 (5.3)	22.9 (7.4)	56.0 (9.9)

** & *** indicate significant differences between categories by the t-test at P≤ 0.01 & 0.001, respectively.

had significantly lower PQOL and PDI scores but higher PAI scores than those with moderate/severe chronic plaque psoriasis (11.8 vs. 17.3, 18.5 vs. 22.9, and 63.1 vs. 56.0, respectively).

Table 2 shows that there were positive, moderate, significant correlations between the PQOL and each of the PDI and PASI (r = 0.59 and r = 0.54, respectively). However, there was an inverse, moderate, significant correlation between the PQOL and the PAI (r = -0.55). Furthermore, there was a positive, moderate, significant correlation between the PDI and the PASI (r = 0.53). There were inverse, moderate, significant correlations between the PAI and PDI and between the PDI and PASI (r = -0.52 and -0.45, respectively).

Table 3 reveals that the independent predictors of the PQOL were the PDI, PASI, and PAI. These three variables predicted 42% of the variability of the PQOL.

The independent predictors of the PDI were the PQOL and PAI. These two variables predicted 37% of the variability of the PDI. The independent predictors of the PAI were the PQOL, PDI, and PASI, which together predicted 39% of the variability of the PAI.

Table 2. Correlation between psoriasis quality of life (PQOL), psoriasis disability index (PDI), and psoriasis acceptance index (PAI) and different variables among psoriatic patients

	PQOL	PDI	PAI
	r	r	R
PDI	0.59***		
PAI	-0.55***	-0.52***	
Age	-0.21*	-0.19*	0.10
Disease Duration	0.02	0.04	-0.01
PASI	0.54***	0.53***	-0.45***

r = Pearson Correlation Coefficient
PASI = Psoriasis Area Severity Index
* & *** indicate significant differences between categories by the t-test at P≤ 0.05 & 0.001, respectively.

DISCUSSION

The current study revealed that the mean PQOL and PDI scores were 14.3 and 20.76, respectively, denoting considerable impairment. These are considered higher than the mean PQOL scores in Serbia and Korea (10.5 and 12.4, respectively) [13,14] and greater than the mean PDI of 16.9 in Serbia [15]. Previous studies have reported that only in 5.6% of Malaysian and 15.2% of German patients, psoriasis had no effect on QOL [16,17]. This difference could be attributed to differences in tools, sample sizes, cultures, population characteristics, and access to care.

This study revealed that the mean scores of both the PQOL and PDI showed no statistically significant differences with the socio-demographic features of patients (sex, occupation, and economic status) and disease duration. Previous studies reported the same findings regarding PQOL [7,18,19] and PDI [13] in different countries. The disease duration had no correlation with QOL measures, demonstrating that patients do not necessarily adapt to their disease over time [1].

Several studies have shed evidence regarding a higher deficit in PQOL among females in different countries [2,14,20-22]. This could be due to the nature of women in that they are more likely to feel distressed or embarrassed. By contrast, an Iranian study showed that the negative impact of psoriasis on QOL was greater for men [23].

The present study reported a moderately positive correlation between PQOL and PDI, which is in line with previous findings in different countries [5,13,21]. This correlation suggests that both instruments cover similar areas of difficulty associated with psoriasis.

This study revealed significant, inverse

Table 3. Linear regression analysis of independent predictors of psoriasis quality of life (PQOL), psoriasis disability index (PDI), and psoriasis acceptance index (PAI)

	PQOL			PDI			PAI		
	b	Added R^2	*P*	b	Added R^2	*P*	b	Added R^2	*P*
PQOL				0.43	0.30	≤0.001	-0.32	0.03	0.03
PDI	0.30	0.3	≤0.001				-0.35	0.26	0.006
PASI	0.46	0.1	0.006				-0.71	0.1	0.003
PAI	-0.148	0.03	0.026	-0.24	0.07	≤0.001			
Constant		14.1			28.5			75.86	
Model F		24.75, ≤0.001			31.21, ≤0.001			21.76, ≤0.001	
Total R^2		0.417			0.37			0.39	

Variables entered in the models: age, PQOL, PDI, PASI and PAI.

correlations between both PQOL and PDI scores and age. This is in agreement with previous studies [22,24,25]. The stigma associated with psoriasis exerts its greatest impact in early adulthood when an individual is starting his/her career and is establishing new social relationships. On the other hand, many researchers have reported that the impact of psoriasis is severer for older patients, while younger patients less frequently complain of physical symptoms [7,20]. However, a Serbian study did not observe any statistical correlation between patient age and PQOL measures [13].

The present study revealed that there were moderately positive, significant correlations between the PASI and both the PQOL and PSI scores. This could be due to the fact that if a greater body surface area is affected, the patient would spend more money and time on treatment, and, with time, the disease would become more visible. There is a controversial association between the PASI and the PQOL. Previous studies in the USA, India and Egypt reported that more severe psoriasis was associated with lower QOL [1,20,25]. However, a weak association between clinically assessed severity and QOL was reported in other studies [4,21]. Furthermore, studies in the USA, Singapore and Italy [1,18,24] reported no correlation between PASI and QOL. This lack of correlation is acceptable as it is well known that the physicians' judgments of the clinical severity of the disease may not be in accordance with patient perceptions; the impact of psoriasis on the individual goes beyond the apparent severity of skin lesions.

Positive, moderate, significant correlations between PDI and PASI have been reported in Poland and Serbia [6,7]. This can be explained by the presence of psoriatic patients with extensive skin lesions who seem not to be bothered by their disease and are socially active. On the other hand, there are patients with minute skin lesions who seem to be devastated by their disease and become socially withdrawn. On the other hand, another study in Serbia found a weak correlation between PDI and PASI [19].

Our study revealed a moderate, negative correlation between PQOL and PAI. This was in line with a study in Poland [7], which found the better the disease acceptance was, the better the reported QOL. In fact, patients who accept their disease and its constraints on everyday life reported fewer physical complaints and negative emotions, more rewarding social interactions, and better daily functioning.

In the present study, linear regression revealed that the independent predictors of the PQOL were the PAI, PDI and PASI. This is while, Miniszewska *et al.* [7] in Poland found that the predictors of PQOL were coping with stress, somatic symptoms, acceptance, PASI, and age. Also, studies in Egypt and Germany [25,26] have revealed that the disease severity measured by the PASI was a relevant predictor of QOL. On the other hand, the predictors of the PDI were PQOL and acceptance of psoriasis, while a study in Serbia revealed that PASI improvements, sex, age, and disease duration were the predictors of PDI [15].

In the present study, the mean score of acceptance of the disease was 60.1, which is much higher than 26.5 reported in Poland [6]. This could be due to different degrees of disease severity. Zalewska *et al.* [6] found that better acceptance was associated with severe plaque psoriasis. Our findings also conveyed that psoriasis acceptance scores showed no significant differences with age, socio-economic status, and sex. These results are in agreement with a Polish study [27] except in terms of socio-economic status, which was reported to fulfill an important role in disease acceptance as it determined the process of coping with the disease and affected the ability to seek medical and cosmetic skincare. Furthermore, it was reported that older patients and males had higher levels of acceptance [6]. This could be due to better knowledge of the problem and a more effective habituation process.

The current study revealed that there was a moderate, inverse correlation between the PASI and the PAI. On the other hand, the Polish study reported better acceptance with greater disease severity (graded according to the PASI) [6]. It is possible that patients with greater disease severity receive more attention and thus are better cared for.

Linear regression in the present study revealed that predictors of disease acceptance were disability index, PASI, and PQOL. In a previous regression study [27], it was found that the main predictors of acceptance were appearance satisfaction, acceptance of biological sex, and social support, while Zalewska *et al.* [6] reported that the PASI score and other factors like optimism and concentration

on emotions were predictors of disease acceptance, though different scales were used.

Psoriatic patients require more attention and care to facilitate improved quality of life and to minimize disability related to the disease. The clinicians need to be empathetic and educate patients about psoriasis. They should make it clear to the patient that the primary goal of treatment is disease control rather than cure. Social awareness toward psoriasis is advocated as social support plays an important role in the acceptance of the disease. Population studies, nevertheless, offer a general insight into the PQOL and factors affecting it.

CONCLUSION

The results of the study suggest that psoriasis exerts a significant, negative impact on patients' QOL, which could be predicted by disease disability, severity, and acceptance. The main study limitation was its small-scale, single-center, cross-sectional nature, meaning that its results cannot be generalized to patients in other hospitals or in the community; complementary studies are indicated.

Conflict of interest: None declared.

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