Psoriasis: Targets and Therapy

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ORIGINAL RESEARCH

Predictors of Quality of Life in Psoriasis Patients: Insights from a Cross-Sectional Study

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Background: Psoriasis significantly impacts patients' mental health and social relationships, often leading to feelings of stigmatization and shame due to the visibility of skin lesions. This study aimed to identify factors influencing the quality of life in patients with psoriasis.

Methods: A cross-sectional study was conducted from November 2018 to December 2020, involving 100 patients treated for psoriasis. The research utilized the WHO Quality of Life Questionnaire (WHOQoL-Bref), the Psoriasis Area and Severity Index (PASI), the Acceptance of Illness Scale (AIS), the Hospital Anxiety and Depression Scale (HADS), and the Mini Nutritional Assessment (MNA). The analysis included demographic, clinical, and psychological variables to evaluate their impact on quality of life.

Results: The multivariate linear regression model revealed that significant independent predictors of quality of life included age ($p=0.001$), duration of disease ($p=0.004$), and nutritional status ($p=0.002$). In the physical domain, factors such as phototherapy ($r=2.46$) and anxiety levels assessed by the HADS anxiety subscale ($r=-0.23$) were particularly relevant. In the psychological domain, the presence of psoriatic arthritis ($r=1.978$), hand and foot psoriasis ($r=2.34$), and scores on the HADS anxiety ($r=-0.212$) and depression subscales ($r=-0.226$) were significant. Male gender ($r=1.632$) and depressive symptoms ($r=-0.352$) impacted the social domain. In the environmental domain, predictors included erythrodermic psoriasis ($r=1.98$), hand and foot psoriasis ($r=2.312$), phototherapy ($r=1.877$), PASI score ($r=-0.04$), and depression as measured by HADS ($r=-0.228$).

Conclusion: The primary predictors of quality of life in patients with psoriasis are the type of psoriasis, the presence of anxiety and depressive disorders, and treatment with phototherapy. However, the study's single-center design and relatively small sample size may limit the generalizability of the findings. Further multi-center studies are needed to confirm these results and broaden their applicability.

Keywords: quality of life, psoriasis, disease acceptance, anxiety, depression, nutritional status

Introduction

Quality of life (QoL) has become a subject of interest for researchers across various scientific disciplines.[1] The incorporation and acceptance of QoL in medical research was facilitated by the establishment of the International Society for Quality of Life Research in 1977 and the inclusion of the term "quality of life" in the Index Medicus by the US National Library of Medicine.[2] The World Health Organization (WHO) initiated studies on health-related QoL (HRQoL), which was defined by the WHOQOL Group as

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> Individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns; it is a broad-ranging concept affected in a complex way by the individual's physical health, psychological state, level of independence, and their relationships to salient features of their environment.[3,4]

Psoriasis is a chronic dermatosis characterized by periods of exacerbation and remission.[5] It can manifest at any age, with prevalence varying according to geography, ethnicity, and race. Globally, psoriasis affects approximately 2–3% of the population, and in the US, more than 8 million people are affected by this condition.[6,7] Psoriasis prevalence has been reported to be higher in populations of European descent compared to other ethnic groups.[8] In Poland, about 1 million people suffer from psoriasis, representing to 3% of the population.[9] Alongside atopic dermatitis, psoriasis is one of the most common dermatological disorders. Chronic systemic inflammation associated with psoriasis is linked to the development of cardiovascular diseases and metabolic syndrome.[10] Moreover, obesity and diabetes are more prevalent in psoriatic patients compared to the general population.[11] Recent studies suggest that hormonal fluctuations, particularly variations in estrogen and progesterone levels, play a crucial role in modulating psoriasis severity in female patients. Low estrogen levels, as observed during menstruation and menopause, have been linked to exacerbations of psoriatic symptoms, whereas elevated estrogen levels, such as those occurring during pregnancy, may contribute to symptom alleviation in some individuals[12]. Considering the complex interplay between psoriasis and systemic factors, including hormonal influences, further research is warranted to explore their potential role in shaping patients' quality of life.

The clinical presentation of psoriasis varies by subtype, with plaque psoriasis being the most common form, affecting approximately 80–90% of patients.[13] Characteristic lesions include well-demarcated erythematous plaques covered with silvery scale, typically found on the scalp, trunk, lumbar area, and extensor surfaces such as the elbows and knees. Other forms include guttate psoriasis, inverse psoriasis, and pustular psoriasis.[14] Nail involvement, such as onycholysis, oil-drop discoloration, nail bed hyperkeratosis, and pitting, is common and correlates with a higher prevalence of psoriatic arthritis.[15] Psoriatic arthritis affects about 30% of psoriasis patients and is diagnosed based on CASPAR criteria. All patients with plaque psoriasis should be monitored annually for joint symptoms.[16] Disease severity ranges from isolated lesions to erythrodermic psoriasis, characterized by inflammation involving over 90% of the body surface area, which constitutes a dermatological emergency requiring hospitalization.[17]

Efforts to establish objective methods for assessing psoriasis severity are ongoing, particularly to guide therapeutic approaches. Commonly used clinical tools include the Psoriasis Area and Severity Index (PASI), Body Surface Area (BSA), and the Dermatology Life Quality Index (DLQI).[16] Studies have highlighted the emotional and spiritual suffering experienced by psoriasis patients.[18] Regardless of the severity of skin lesions, the disease significantly reduces patients' QoL, particularly in social and professional contexts. Many patients face social rejection, leading to avoidance of interpersonal interactions.[19] Psoriasis has considerable socioeconomic implications, including substantial financial burdens associated with care and treatment. Frequent absences from work due to disease exacerbations reduce productivity and may result in job loss.[20–22]

The disease impacts multiple dimensions of life, causing pain, weakness, and disability. Patients must redefine their identity and adopt new behaviors and hygiene practices. Psoriasis also has material and social ramifications.[23] Treatment costs often lower patients' living standards and may affect family income.[20] Research into psoriasis and its relationship with QoL is essential for evaluating health interventions. Assessing QoL enables the selection of treatment methods that yield optimal health outcomes.[24,25]

The objective of this study was to assess the QoL of patients with psoriasis and identify the most significant factors influencing its level. Identifying these predictors will allow for a rapid QoL evaluation and facilitate addressing key issues affecting patients' daily lives.

Materials and Methods

Study Design, Settings, and Participants

This was an observational, cross-sectional, single-center study conducted among 100 patients (51 women and 49 men) aged 25–77 years (mean age: 48.51 years) treated at the Clinic of Dermatology, Venereology, and Allergology in Wrocław between November 2018 and December 2020. A convenience sampling method was used, including all eligible patients who sought treatment during the study period and met the inclusion criteria. Participants were patients diagnosed with psoriasis who provided written consent to participate in the study. Exclusion criteria included refusal to consent and the presence of psychiatric or other conditions that would prevent completion of the questionnaires.

Ethical Statements

All respondents received questionnaires accompanied by written information about the study, which emphasized its voluntary nature. The questionnaires were completed in the presence of the investigator. The study was conducted in accordance with the Declaration of Helsinki and the guidelines of Good Clinical Practice. Written informed consent was obtained from all participants. The study protocol was approved by the Bioethics Committee of the Medical University of Wrocław (approval number: KB 23/2018).

Data Collection and Instruments

Sociodemographic data, including gender, age, and place of residence, were collected for all participants. The study utilized medical record analysis to determine the clinical condition of the patients and gather disease-related data based on their medical history. Additionally, standardized questionnaires and scales were employed, including the World Health Organization Quality of Life Instrument, Short Form (WHOQOL-BREF), the Psoriasis Area and Severity Index (PASI), the Acceptance of Illness Scale (AIS), the Hospital Anxiety and Depression Scale (HADS), and the Mini Nutritional Assessment (MNA).

World Health Organization Quality of Life Instrument

The WHOQOL-BREF questionnaire assesses psychometric QoL across four domains: physical health, psychological well-being, social relationships, and environment. It also includes two independently analyzed questions: one addressing general QoL perception and the other assessing self-rated health. The questionnaire consists of 26 questions, each rated on a 5-point Likert scale (1 – very dissatisfied, 5 – very satisfied). Higher scores correspond to better QoL.[26,27]

Psoriasis Area and Severity Index

The PASI evaluates three characteristics of psoriatic lesions: erythema, scaling, and plaque thickness. These parameters are calculated separately for each body region: head, trunk, upper limbs, and lower limbs, taking into account the severity and percentage of affected area. The severity of each parameter (erythema, scaling, and thickness) is scored on a scale from 0 (no symptoms) to 4 (very severe), while the affected area is rated from 0 to 6. PASI scores range from 0 (no disease activity) to 72 (severe disease).[28]

Acceptance of Illness Scale

The AIS comprises eight statements describing the negative consequences of poor health. Greater acceptance of illness is associated with better adaptation and reduced psychological discomfort. Responses are ranked on a scale from 1 (“strongly agree”) to 5 (“strongly disagree”). A total score of 8 indicates poor adaptation to the illness, while a score of 40 reflects full acceptance. The total score (8–40) serves as a general measure of the level of illness acceptance.[29]

Hospital Anxiety and Depression Scale

The HADS includes three independent subscales—depression, anxiety, and aggression—comprising a total of 16 items, each rated from 0 to 3 points. The subscales are structured as follows: the depression subscale (7 items, maximum score 21), the anxiety subscale (7 items, maximum score 21), and the aggression subscale (2 items, maximum score 6). The cumulative scores are categorized as follows: 0–16 points indicate no disorder, 17–22 points indicate borderline states, and 23–48 points indicate the presence of a disorder.[30]

Mini Nutritional Assessment

The MNA evaluates nutritional status based on factors such as gender, age, height, weight, and changes in body mass over time. The mini-version focuses on factors limiting food intake, mobility, neuropsychological disorders, stress events, and the diagnosis of severe illness in the past three months. The screening results classify nutritional status into three categories: normal nutrition, risk of malnutrition, or malnutrition. The MNA is characterized by high sensitivity (96%) and specificity (98%) in identifying malnourished individuals and those at risk of malnutrition.[31]

Statistical Analyses

Quantitative variables (expressed numerically) were analyzed by calculating the mean, standard deviation, median, and quartiles. Qualitative variables (non-numerical) were analyzed by calculating the frequency and percentage of each value. Comparisons of quantitative variables between two groups were conducted using the Mann–Whitney *U*-test. Comparisons among three or more groups were performed using the Kruskal–Wallis test. In cases where statistically significant differences were identified, post hoc analysis was conducted using Dunn's test to determine which groups differed significantly. Correlations between quantitative variables were assessed using Spearman correlation coefficient. A multivariate analysis of the influence of multiple variables on a quantitative outcome was performed using linear regression. Results are presented as regression model parameters with corresponding 95% confidence intervals. The significance level for all statistical tests was set to 0.05. R 4.2.2 was used.[32]

Results

Characteristics of the Study Group

The sociodemographic and clinical characteristics of the study participants are presented in Table 1. Most participants had mild to moderate psoriasis severity, with an average PASI score of 28.57 (SD = 19.39), ranging from 0.6 to 72. The majority of respondents (87%) were well-nourished; 12 participants (12%) were at risk of malnutrition, and only one

Table 1 Sociodemographic and Clinical Characteristics of the Study Group (N=100)

Parameter		**N (%)**
Age	Mean ± SD	48.51±14.06
	Median	48
	Quartiles	38.75–59.25
Sex	Female	51 (51%)
	Male	49 (49%)
Place of Residence	Regional city	22 (22%)
	County Town	35 (35%)
	Smaller Town	14 (14%)
	Rural area	29 (29%)
Type of Psoriasis	Plaque (ordinary)	62 (62%)
	Guttate	14 (14%)
	Psoriatic Arthritis	7 (7%)
	Erythrodermic Psoriasis	13 (13%)
	Hand and Foot Psoriasis	3 (3%)
	Missing Data	1 (1%)
Disease Onset	After 40 years of age	18 (18%)
	Before 40 years of age	81 (81%)
	Missing Data	1 (1%)
Stosowane leczenie	Topical	100 (100%)
	Topical	11 (11%)
	Phototherapy	9 (9%)
	Creams	79 (79%)
	Ointments	85 (85%)
	Oils	24 (24%)

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participant (1%) was classified as malnourished. The median Body Mass Index (BMI) score was 34 for patients under 21 years old, 44.5 for those aged 21–23 years, and 50 for participants over 23 years old. The average acceptance of illness score was 28.97 (M = 28.97; SD = 7.98), indicating that respondents generally accepted their condition. Regarding the HADS scale, 61 participants (61%) showed no anxiety disorders, 22 participants (22%) exhibited significant anxiety disorders, and 17 participants (17%) were in a borderline state. In terms of depression, 75 respondents (75%) showed no depressive disorders, 15 (15%) were in a borderline state, and 10 (10%) had significant depressive symptoms.

Evolution of QoL

The average QoL score reported by respondents was 3.56 (SD = 0.82), indicating that participants rated their QoL as between good and average (neither good nor bad). Similarly, the perception of their health averaged 2.73 (SD = 0.94), reflecting a self-assessment between unsatisfactory and average (neither satisfactory nor unsatisfactory). Respondents rated their social QoL highest, followed by psychological QoL (mean = 14.71, SD = 2.52) and environmental QoL (mean = 14.47, SD = 2.38). Physical QoL received the lowest ratings (mean = 13.17, SD = 2.97). Detailed information is presented in Table 2.

The study found that gender significantly predicted social QoL among psoriasis patients ($p<0.05 p < 0.05 p<0.05$), with men scoring higher (mean = 16.04, SD = 2.97). Spearman correlation analysis revealed that older age was associated with worse QoL ($r<0;p<0.05r < 0; p < 0.05r<0;p<0.05$). According to the Kruskal–Wallis test, QoL varied by psoriasis type. Perceived QoL was significantly better among individuals with plaque psoriasis, pustular psoriasis, or hand and foot psoriasis compared to those with psoriatic arthritis ($p=0.046p = 0.046p=0.046$). Psychological QoL was significantly higher in patients with hand and foot psoriasis compared to others and better in patients with plaque psoriasis compared to those with erythrodermic psoriasis ($p=0.008p = 0.008p=0.008$). Social QoL was significantly higher in patients with hand and foot psoriasis compared to those with pustular psoriasis or erythrodermic psoriasis, and in patients with plaque psoriasis compared to those with erythrodermic psoriasis ($p=0.042p = 0.042p=0.042$). The Mann–Whitney *U*-test indicated that physical ($p=0.011p = 0.011p=0.011$), social ($p=0.035p = 0.035p=0.035$), and environmental QoL ($p=0.012p = 0.012p=0.012$) were significantly better in patients receiving phototherapy. Spearman correlation analysis revealed that higher psoriasis severity (PASI) was associated with worse QoL across all domains ($p<0.05p < 0.05p<0.05$), as detailed in Table 3.

Table 2 Results of Quality of Life Domain Assessment (WHOQOL-BREF)

WHOQoL BREF	N	Missing Data	Mean	SD	Median	Min	Max	Q1	Q3
Physical health domain	100	0	13.17	2.94	13	6	18	11	15
Psychological domain	100	0	14.71	2.52	15	8	20	13	17
Social relationships domain	99	1	15.39	3.29	16	5	20	13	17
Environment domain	99	1	14.47	2.38	14	10	19	12	16

Table 3 Correlation Results Between WHOQOL-BREF and PASI Score

WHOQoL BREF	Spearman Correlation Coefficient (PASI)
Perception of QoL	r=−0.265, p=0.008*
Overall perception of health	r=−0.203, p=0.044*
Physical health domain	r=−0.39, p<0.001*
Psychological domain	r=−0.449, p<0.001*
Social relationships domain	r=−0.332, p=0.001*
Environment domain	r=−0.374, p<0.001*

Note: *Statistically significant correlation (p < 0.05).
Abbreviations: WHOQOL-BREF, World Health Organization Quality of Life - Short Form; PASI, Psoriasis Area and Severity Index; QoL, Quality of Life.

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Multivariate Linear Regression

The multivariate linear regression model identified independent predictors of QoL (p<0.05p < 0.05p<0.05), including age, disease duration, and nutritional status (MNA score). Statistical analysis showed that each additional year of life reduced QoL by an average of 0.023 points (β=−0.023\beta = −0.023β=−0.023). Psoriasis onset before the age of 40 reduced QoL by an average of 0.727 points compared to onset after 40 (β=−0.727\beta = −0.727β=−0.727). Each point on the MNA scale increased QoL by an average of 0.107 points (β=0.107\beta = 0.107β=0.107).

In the self-perception of health domain, independent predictors included psoriatic arthritis (r=−1.085r = −1.085r= −1.085), hand and foot psoriasis (r=−1.238r = −1.238r=−1.238), phototherapy (r=0.765r = 0.765r=0.765), and illness acceptance (r=0.028r = 0.028r=0.028). Detailed data are provided in Table 4.

Table 4 Results of Multivariate Analysis of Perception of QoL and Self-Perceived Health in the WHOQOL-BREF Questionnaire

Feature		Perception of QoL				Self-Perception of Health			
		Parameter	95% CI		p	Parameter	95% CI		p
Sex	Female	ref.				ref.			
	Male	−0.323	−0.679	0.034	0.08	−0.317	−0.756	0.121	0.16
Age		−0.023	−0.036	−0.01	0.001*	0.007	−0.008	0.023	0.353
Place of Residence	Regional City	ref.				ref.			
	County Town	−0.183	−0.618	0.252	0.412	−0.345	−0.881	0.191	0.212
	Smaller Town	−0.21	−0.732	0.312	0.433	−0.321	−0.964	0.322	0.332
	Rural Area	0.083	−0.349	0.515	0.708	−0.35	−0.882	0.183	0.202
Type of Psoriasis	Plaque	ref.				ref.			
	Guttate	0.29	−0.164	0.745	0.214	0.003	−0.557	0.563	0.992
	Psoriatic Arthritis	−0.635	−1.286	0.017	0.06	−1.085	−1.888	−0.282	0.01*
	Erythrodermic Psoriasis	−0.509	−1.105	0.087	0.098	0.375	−0.359	1.11	0.32
	Hand and Foot Psoriasis	0.472	−0.391	1.335	0.287	−1.238	−2.302	−0.174	0.025*
Disease Onset	After 40 years	ref.				ref.			
	Before 40 years	−0.727	−1.203	−0.251	0.004*	−0.365	−0.952	0.222	0.227
Treatment Type	No	ref.				ref.			
	Yes	0.493	−0.085	1.07	0.099	0.579	−0.133	1.291	0.115
Phototherapy	No	ref.				ref.			
	Yes	0.191	−0.383	0.765	0.517	0.765	0.057	1.473	0.038*
Creams	No	ref.				ref.			
	Yes	0.02	−0.374	0.414	0.921	0.246	−0.24	0.732	0.325
Ointments	No	ref.				ref.			
	Yes	0.078	−0.386	0.542	0.744	0.257	−0.315	0.829	0.381
Oils	No	ref.				ref.			
	Yes	−0.051	−0.432	0.329	0.792	−0.32	−0.789	0.148	0.185
PASI		0.004	−0.008	0.016	0.478	−0.006	−0.021	0.009	0.426
MNA		0.107	0.043	0.17	0.002*	−0.023	−0.101	0.055	0.568
HADS: Anxiety		−0.039	−0.091	0.013	0.146	−0.064	−0.128	0	0.053
HADS: Depression		0.002	−0.057	0.061	0.946	0.003	−0.069	0.076	0.926
AIS		0.012	−0.008	0.032	0.244	0.028	0.003	0.053	0.029*

Note: *Statistically significant relationship ($p < 0.05$).

Abbreviations: WHOQOL-BREF, World Health Organization Quality of Life - Short Form; PASI, Psoriasis Area and Severity Index; MNA, Mini Nutritional Assessment; HADS, Hospital Anxiety and Depression Scale; AIS, Acceptance of Illness Scale; CI, Confidence Interval; p, multivariate linear regression.

In the physical QoL domain, independent predictors included phototherapy (r=2.46r = 2.46r=2.46) and anxiety disorders (r=−0.23r = −0.23r=−0.23). In the psychological QoL domain, predictors were psoriatic arthritis (r=1.978r = 1.978r=1.978), hand and foot psoriasis (r=2.34r = 2.34r=2.34), anxiety disorders (r=−0.212r = −0.212r=−0.212), and depressive disorders (r=−0.226r = −0.226r=−0.226). Results are shown in Table 5. Social QoL predictors included male gender (r=1.632r = 1.632r=1.632) and depressive disorders (r=−0.352r = −0.352r=−0.352). In the environmental domain, independent predictors were erythrodermic psoriasis (r=1.98r = 1.98r=1.98), hand and foot psoriasis (r=2.312r = 2.312r=2.312), phototherapy (r=1.877r = 1.877r=1.877), psoriasis severity (r=−0.04r = −0.04r=−0.04), and depressive disorders (r=−0.228r = −0.228r=−0.228). Details are presented in Table 6.

Table 5 Results of Multivariate Analysis for the Physical and Psychological Domains in the WHOQOL-BREF Questionnaire

Feature		**Physical Domain**				**Psychological Domain**			
		Parameter	**95% CI**		**p**	**Parameter**	**95% CI**		**p**
Sex	Female	ref.				ref.			
	Male	−0.102	−1.332	1.128	0.871	0.401	−0.498	1.3	0.385
Age			−0.071	0.017	0.23	−0.008	−0.04	0.024	0.626
Place of Residence	Regional City	ref.				ref.			
	County Town	0.491	−1.011	1.993	0.523	−0.232	−1.33	0.866	0.681
	Smaller Town	−0.813	−2.615	0.989	0.379	0.084	−1.233	1.402	0.9
	Rural Area	0.09	−1.402	1.582	0.906	−0.177	−1.267	0.914	0.752
Type of Psoriasis	Plaque	ref.				ref.			
	Guttate	−0.587	−2.156	0.983	0.466	−0.109	−1.256	1.038	0.852
	Psoriatic Arthritis	−0.57	−2.819	1.68	0.621	1.978	0.334	3.622	0.021*
	Erythrodermic Psoriasis	1.176	−0.882	3.234	0.266	0.215	−1.289	1.719	0.78
	Hand and Foot Psoriasis	1.345	−1.636	4.326	0.379	2.34	0.16	4.519	0.039*
Disease Onset	After 40 years	ref.				ref.			
	Before 40 years	0.035	−1.61	1.68	0.967	−0.687	−1.889	0.516	0.267
TreatmentType	No	ref.				ref.			
	Yes	−0.475	−2.47	1.52	0.642	−0.426	−1.885	1.032	0.568
Phototherapy	No	ref.				ref.			
	Yes	2.46	0.477	4.443	0.017*	1.328	−0.122	2.778	0.077
Creams	No	ref.				ref.			
	Yes	−0.49	−1.852	0.871	0.483	−0.381	−1.376	0.614	0.456
Ointments	No	ref.				ref.			
	Yes	0.645	−0.958	2.247	0.433	0.93	−0.241	2.101	0.124
Oils	No	ref.				ref.			
	Yes	−0.775	−2.089	0.539	0.252	−0.138	−1.099	0.823	0,779
PASI			−0,08	0.002	0.068	−0.018	−0.048	0.012	0.235
MNA			−0,111	0.328	0.335	−0.009	−0.169	0.152	0.916
HADS: Anxiety			−0,41	−0.051	0.014*	−0.212	−0.343	−0.08	0.002*
HADS: Depression			−0,284	0.122	0.436	−0.226	−0.374	−0.08	0.004*
AIS			−0,133	0.005	0.072	0.002	−0.048	0.053	0.924

Note: *Statistically significant relationship ($p < 0.05$).

Abbreviations: WHOQOL-BREF, World Health Organization Quality of Life - Short Form; PASI, Psoriasis Area and Severity Index; MNA, Mini Nutritional Assessment; HADS, Hospital Anxiety and Depression Scale; AIS, Acceptance of Illness Scale; CI, Confidence Interval; p, multivariate linear regression.

Table 6 Results of Multivariate Analysis for Social and Environmental Domains in the WHOQOL-BREF Questionnaire

Feature		**Social Domain**				**Environmental Domain**			
		Parameter	**95% CI**		**p**	**Parameter**	**95% CI**		**p**
Sex	Female	ref.				ref.			
	Male	1.632	0.167	3.096	0.032*	−0.351	−1.285	0.584	0.464
Age			−0.104	0.001	0.056	−0.004	−0.037	0.03	0.838
Place of Residence	Regional City	ref.				ref.			
	County Town	0.728	−1.073	2.53	0.431	0.323	−0.826	1.472	0.583
	Smaller Town	1.347	−0.784	3.479	0.219	0.28	−1.079	1.64	0.687
	Rural Area	0.749	−1.021	2.52	0.409	0.105	−1.024	1.235	0.855
Rodzaj łuszczycy	Plaque	ref.				ref.			
	Guttate	−0.475	−2.333	1.382	0.617	0.605	−0.58	1.79	0.32
	Psoriatic Arthritis	2.163	−0.499	4.824	0.116	1.361	−0.337	3.059	0.121
	Erythrodermic Psoriasis	−0.353	−2.784	2.079	0.777	1.98	0.429	3.532	0.015*
	Hand and Foot Psoriasis	1.543	−2.004	5.091	0.397	2.312	0.048	4.575	0.049*
Disease Onset	After 40 years	ref.				ref.			
	Before 40 years	−1.328	−3.31	0.654	0.193	−0.068	−1.332	1.197	0.917
Treatment Type	No	ref.				ref.			
	Yes	−0.868	−3.231	1.495	0.474	−0.002	−1.509	1.506	0.998
Phototherapy	No	ref.				ref.			
	Yes	−0.379	−2.728	1.969	0.752	1.877	0.379	3.375	0.016*
Creams	No	ref.				ref.			
	Yes	0.06	−1.552	1.673	0.942	−0.319	−1.347	0.71	0.545
Ointments	No	ref.				ref.			
	Yes	−0.763	−2.661	1.135	0.433	0.644	−0.567	1.855	0.301
Oils	No	ref.				ref.			
	Yes	−0.393	−1.948	1.162	0.622	0.111	−0.881	1.103	0.827
PASI			−0.086	0.011	0.138	−0.04	−0.071	−0.009	0.014*
MNA			−0.119	0.406	0.288	0.146	−0.022	0.313	0.093
HADS: Anxiety			−0.148	0.276	0.554	−0.071	−0.206	0.064	0.306
HADS: Depression			−0.594	−0.111	0.006*	−0.228	−0.382	−0.074	0.005*
AIS			−0.095	0.068	0.753	−0.037	−0.089	0.015	0.168

Note:*Statistically significant relationship ($p < 0.05$).

Abbreviations: WHOQOL-BREF, World Health Organization Quality of Life - Short Form; PASI, Psoriasis Area and Severity Index; MNA, Mini Nutritional Assessment; HADS, Hospital Anxiety and Depression Scale; AIS, Acceptance of Illness Scale; CI, Confidence Interval; p, multivariate linear regression.

Discussion

In this study, the WHOQoL-BREF questionnaire was used to evaluate QoL across six domains. The analysis revealed that patients generally perceived their health positively. The highest QoL scores were observed in the social domain, encompassing personal relationships, social support, and sexual activity. Slightly lower scores were noted in the psychological and environmental domains. The psychological domain assessed positive feelings, thinking, memory, concentration, body image, and negative emotions, while the environmental domain included questions on physical safety, home environment, financial resources, healthcare access, social care, opportunities to acquire new skills, transportation, and the physical environment (eg, noise, pollution, traffic, and climate). The lowest scores were reported in the physical domain, reflecting pain, energy, fatigue, and sleep/rest disturbances.

Age negatively impacted QoL across all domains, with older patients reporting lower scores. These findings align with research by Bronikowska-Kolasa et al, which highlighted age and gender as significant predictors of QoL. Additionally, the severity of psoriasis, the presence of psoriatic arthritis, and obesity were associated with poorer QoL.[33] Conversely, studies by Basińska and Kasprzak suggested that longer disease duration improved adaptation to the illness, a finding not supported by our analysis. Instead, prolonged disease duration was associated with decreased QoL.[34]

Patients with plaque psoriasis, pustular psoriasis, and hand and foot psoriasis reported better QoL compared to those with psoriatic arthritis. Phototherapy users had higher QoL scores than those relying on topical treatments. Psoriasis significantly impacts self-esteem and body image, often leading to negative self-perceptions.[35]

Nutritional status, as assessed by the MNA, emerged as a crucial QoL determinant. Among participants, 85% were well-nourished. Older patients with higher BMI were at greater risk for cardiovascular diseases despite adequate nutritional health. Psoriasis is often accompanied by chronic conditions such as ulcerative colitis, diabetes, hypertension, and metabolic syndrome.[36] Chronic inflammation, a hallmark of psoriasis, plays a central role in vascular inflammatory changes, glucose metabolism disturbances, and accelerated atherosclerosis development.[37] Dietary guidelines for individuals with psoriasis emphasize the importance of a low-calorie diet, particularly in cases of obesity, and increasing the consumption of omega-3 fatty acids, antioxidants (such as vitamins A, C, E, and selenium), and fresh vegetables and fruits. These dietary interventions have been shown to alleviate psoriatic symptoms, reduce systemic inflammation, and lower the risk of comorbidities, such as metabolic syndrome and cardiovascular diseases[38,39]. Better nutritional status was correlated with higher QoL.

Psoriasis severity was positively associated with anxiety and depressive symptoms. Patients with psoriatic arthritis experienced more severe symptoms compared to those with plaque psoriasis. Increased disease severity was linked to higher depression levels. Studies suggest that depressive disorders are more common in dermatological patients compared to the general population and those with somatic conditions.[40]

Acceptance of illness is another key factor influencing QoL. Studies by Uchmanowicz et al demonstrated that higher disease acceptance correlates with improved QoL, particularly in chronic conditions.[41–43] In our study, most psoriasis patients showed acceptance of their disease, consistent with findings by Sakson-Obada et al, who highlighted the strong relationship between disease acceptance and QoL.[44] Almeida et al noted that body image perception mediates the relationship between disease severity, acceptance, and disability in psoriasis patients.[45]

Based on the findings of Martínez-Ortega et al, depressive symptoms were identified as a significant factor associated with reduced mental QoL in psoriasis patients, particularly among women and those with genital or articular lesions. Their study highlighted a strong correlation between higher psoriasis severity, increased levels of anxiety and depression, and poorer overall QoL.[46] Using the HADS, our study found that anxiety severity affected physical and psychological QoL, while depressive severity impacted psychological, social, and environmental domains. These results align with Bakar et al, who reported that psoriasis patients frequently exhibited depression and anxiety, which compromised QoL and necessitated therapeutic interventions.[47]

Older patients exhibited lower QoL scores and disease acceptance levels, as shown by WHOQoL-BREF findings. Psoriasis significantly affects physical, psychological, environmental, and social domains of life. Higher QoL and disease acceptance were observed in patients undergoing phototherapy. Evaluating QoL is increasingly important in healthcare decision-making for psoriasis patients, aiding in treatment choices and optimizing care plans. Pharmacological interventions should be complemented by patient education and family support. Treatment strategies should focus on restructuring negative thoughts about the disease and encouraging patients to seek social support.

Study Limitations

This study has both limitations and strengths. The limitations include the extended duration of data collection, the recruitment of patients from a single research center, and the focus on a single region of Poland. Additionally, this study did not examine systemic comorbidities such as cardiovascular disease or metabolic disorders, which are known to impact quality of life in psoriasis patients. The study also did not assess the effects of systemic treatments, including biologic therapies, which are increasingly used and may significantly influence patient-reported outcomes. Furthermore, the potential role of hormonal fluctuations, particularly in female patients at different life stages such as menopause, was not analyzed, despite evidence suggesting their impact on disease severity and quality of life. Moreover, socioeconomic factors, including financial status and access to healthcare, were not considered, even though they may play a crucial role in treatment adherence and overall well-being. Finally, while this study provides valuable insights, its single-center and single-region sample may limit the generalizability of findings to broader populations with different healthcare systems and cultural contexts. A significant strength of this analysis is the use of standardized questionnaires, which serve as reliable and valid tools for assessing QoL in patients with psoriasis.

Conclusions

The QoL of patients with psoriasis was found to range from good to average, with the highest scores observed in the social domain and the lowest in the physical domain. Lower psoriasis severity was associated with better QoL across all domains. Phototherapy was particularly effective in improving QoL in the physical, social, and environmental domains compared to other treatments. Key independent predictors of QoL included disease type, severity, and the presence of anxiety and depressive disorders.

These findings have significant clinical implications. Identifying anxiety and depression as key determinants of QoL highlights the necessity of incorporating mental health assessment into routine dermatological care. Integrating psychological support, such as cognitive-behavioral therapy or counseling, may help mitigate the emotional burden of psoriasis. Furthermore, recognizing the impact of different psoriasis subtypes on QoL supports the need for a more personalized approach to treatment, optimizing the use of phototherapy and systemic therapies to address both physical and psychosocial aspects of the disease. Clinicians should prioritize holistic, patient-centered management strategies to improve adherence, enhance treatment satisfaction, and ultimately achieve better long-term outcomes.

While this study provides valuable insights, its single-center design necessitates further validation in larger, more diverse cohorts. Expanding research to multi-center studies involving different populations and healthcare systems will help confirm the generalizability of these findings and refine QoL-driven treatment strategies. Future studies should also investigate the role of additional factors, such as systemic comorbidities and access to care, in shaping patient outcomes.

This study highlights the multifaceted impact of psoriasis on patients' lives, emphasizing the importance of addressing both physical and psychological components of care. Understanding patient perceptions of QoL is crucial for tailoring effective treatment strategies. Interventions should incorporate patient education, emotional support, and treatments targeting both dermatological and psychological symptoms. Future research should explore multi-center studies to generalize findings and refine care approaches for diverse patient populations.

Data Sharing Statement

All relevant data are included within the article. If necessary, it is possible to contact the corresponding author to request additional materials.

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Disclosure

The authors declare that they have no competing interests in this work.

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