

# Relationships between the acceptance of illness, quality of life and satisfaction with life in psoriasis

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## Abstract

**Introduction:** Since the skin plays a pivotal role in interpersonal relationships, a chronic dermatological condition (psoriasis), may have a profound effect on the psychological status of patients.

**Aim:** To analyse the effects of skin lesions on satisfaction with life, acceptance of illness and quality of life in psoriasis.

**Material and methods:** The study included psoriatics recruited at the Dermatology Outpatient Unit of the Regional Hospital in Lomza, Dermatology Outpatient Clinic in Siemiatycze and Dermatology and Medical Cosmetology Centre in Białystok. The study patients were examined with a demographic survey prepared by the authors, as well as with three validated scales: AIS, SWLS and DLQI. A total of 263 questionnaire sets were handed out to the participants of the study; this pool included 200 questionnaires with complete data that were eventually included in the analysis.

**Results:** Acceptance of Illness Scale scores of the study participants ranged between 8 and 40 pts. Mean AIS scores for female and male psoriatics were similar, 23 and 25 pts, respectively. Based on the distribution of Satisfaction with Life Scale scores, 42 of the study patients presented with high levels of satisfaction with life, whereas 37 and 21 showed moderate and low satisfaction levels, respectively. Quality of life turned out to be the best among 20- to 30-year-old respondents as up to 74.19 of them had Dermatology Life Quality Index scores no greater than 10 pts.

**Conclusions:** Psoriatics with higher levels of illness acceptance also presented with greater satisfaction with life.

**Key words:** quality of life, patient, psoriasis, Satisfaction with Life Scale, Acceptance of Illness Scale.

## Introduction

Skin is an important medium to express and perceive emotions. Since the skin plays a pivotal role in interpersonal relationships, a chronic dermatological condition, such as psoriasis, may have a profound effect on the psychological status of patients. Thus, psoriasis, especially if it affects large areas of the skin visible to others, may be detrimental to the patient's body image, self-esteem, interpersonal and family relationships [1].

Psoriasis is diagnosed in both women and men of all ages, with a peak incidence at pubertal age and after 50 years of age. The prevalence of psoriasis in the European population is estimated at 2–4 [2, 3].

The clinical course of psoriasis is known to correlate strongly with the psychological condition of the patient.

Emotional stress, especially chronic one, as well as various crises, may lead to exacerbation of the disease. However, psoriasis can also have a devastating effect on the patient's psychological status. Psoriatics are not infrequently partially or entirely rejected by their communities. They may have lowered self-esteem, problems with finding intimate partners and maintaining close relationships. Psoriasis has a large impact on the patient's functioning, psychological development, choice of profession and family life. Considering all of the above, this disease can be regarded as a model example of a severe, albeit non-morbid condition with an unfavourable effect on the quality of life [4].

The degree to which psoriasis affects patients' quality of life depends on a number of factors, including sex, du-

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ration of the disease and location of skin lesions. Lesions covering small areas of the skin (e.g. elbows and knees), although with no doubt harmful, have a definitively lesser impact on the quality of life than those which spread onto larger areas visible to others, and as such, may interfere with professional activity and social relations of patients. Furthermore, many psoriatics believe that their bodies are impure, and some laymen consider psoriasis a contagious disease, which eventually results in social stigmatization of the patients. Psoriasis also has a significant impact on social relations of patients. Many of them refrain from swimming and sunbathing, do not practice sports, buy new clothing, use public transportation or even visit a hairdresser [1].

It needs to be emphasized that despite the negative impact on the patient's life, psoriasis may also have some positive effects, being a source of social (compassion, empathy, support) or economic benefits (disability pension) for both affected persons and their family members.

### Aim

The aim of the study was to analyse the effects of skin lesions on satisfaction with life, acceptance of illness and quality of life in psoriasis.

### Material and methods

The study included psoriatics recruited at the Dermatology Outpatient Unit of the Regional Hospital in Lomza, Dermatology Outpatient Clinic in Siemiatycze and Dermatology and Medical Cosmetology Centre in Białystok. The study patients were examined with a demographic survey prepared by the authors, as well as with three validated scales: AIS (Acceptance of Illness Scale), SWLS (Satisfaction with Life Scale) and DLQI (Dermatology Life Quality Index). A total of 263 questionnaire sets were handed out to the participants of the study; this pool included 200 questionnaires with complete data that were eventually included in the analysis. The response and rejection rates were 78.50 (200 survey packs) and 31.50 (63 survey packs), respectively.

Acceptance of Illness Scale – AIS (Felton, Revenson and Hinrichsen, adapted by Juczyński), assesses the degree of illness acceptance. It consists of eight statements describing negative consequences of a poor health condition, which are reduced to recognition of limitations imposed by the illness, lack of self-efficacy, sense of dependence on other people, and decreased self-esteem. The respondent determines his/her present condition on a five-degree scale: from 1 – “I definitely agree” to 5 – “I definitely disagree.” The result is calculated by summing up all scores. The scores can range between 8 pts and 40 pts, with higher values corresponding to greater acceptance and better ability to cope with the illness. The scores below 20 pts correspond to a low level of illness

acceptance or complete lack thereof, whereas the results greater than 30 pts reflect a high or full acceptance of the disease. The reliability of the Polish version of the test approximates the reliability of its original version: Cronbach's  $\alpha$  amounts to 0.82, whereas the test-retest stability coefficient over seven months – 0.69 (32) [5].

The global feeling of satisfaction with life was evaluated using the SWLS by Diener, Emmons, Larsen and Griffin [6], in the Polish adaptation by Juczyński [5]. SWLS was developed for individual and group examination of healthy and diseased adults. This scale includes five statements. A participant scores each statement with regard to its consistency with his/her entire life. The scale ranges between 1 and 7, with 1 corresponding to “I completely disagree”, and 7 to “I absolutely agree”. The overall raw score expresses the global level of satisfaction with life, which can range between 5 and 35 points; for the analysis, the result is converted into the sten score, from 1 to 10. The sten scores between 1 and 4 correspond to low, and those between 7 and 10 to high levels of satisfaction with life. Higher scores suggest a greater satisfaction with life [5, 6].

Moreover, the study patients were surveyed with the Dermatology Life Quality Index (DLQI), a standardized scale to measure the influence of skin lesions on QOL, developed by Finley and Khan [7], in the Polish adaptation by Szepietowski *et al.* [8]. DLQI is designated to be used in both inpatient and outpatient setting, and measures to the impact of the skin disease on the respondent's life over the previous week. The survey centres around the QOL in the following domains: symptoms and feelings related to the disease, activities of daily living (ADLs), leisure time, work or study, interpersonal relationships and treatment. Particular emphasis is put on the assessment of disability and impaired functioning due to the dermatological disease, whereas emotional effects of the condition are addressed by only one out of ten statements included in the DLQI [7, 8]. DLQI consists of ten statements, each scored on a four-item scale (0 – no impact, 1 – small impact, 2 – large impact, and 3 – maximum impact on the patient's QOL). The global DLQI score may range between 0 and 30 points and is interpreted as follows: no effect on patient's QOL (0–1 pts), small effect on patient's QOL (2–5 pts), moderate effect on patient's QOL (6–10 pts), very large effect on patient's QOL (11–20 pts), and extremely large effect on patient's QOL (21–30 pts) [7, 8].

### Ethics

The study protocol was approved by the Local Bioethical Committee at the Medical University of Białystok.

### Statistical analysis

The results were subjected to statistical analysis with Statistica 7 package (StatSoft Poland). Statistical

**Table 1.** Distribution of AIS scores

Sex	Women	Men
N	142	58
Mean	23	25
Median	22	26
Mode	Multiple	Multiple
Minimum	8	8
Maximum	40	40
Lower quartile	15	14
Upper quartile	33	36
Range	32	32
Variance	102.42	125.94
Standard deviation	10.12	11.22

characteristics of discrete variables are presented as percentages, whereas the characteristics of quantitative variables are shown as descriptive statistics (arithmetic means, standard deviations, medians, lower and upper quartiles, minimum and maximum values) for analysed groups. Relationships between normally distributed variables were analysed with the Student *t*-test, and Pearson's linear correlation analysis was used to study the associations of the quality of life, illness acceptance and satisfaction with life with other analysed variables expressed on a quotient scale. The threshold of statistical significance for all analyses was set at  $p < 0.05$ .

The study group included 142 women and 58 men. Based on the demographic survey, the respondents were classified into four age groups: 20–30 years, 31–40 years, 41–50 years and 51–60 years of age. Mean duration of psoriasis was 155 months, which corresponded to approximately 13 years, with individual values ranging between 12 months (1 year) and 576 months (48 years).

Psoriatics whose disease lasted less than 200 months constituted 83 of the study group. In the remaining 17 of participants, psoriasis lasted 200–300 months (7), 300–400 months (4), 400–500 months (4) or more than 500 months (2).

When asked about family history of psoriasis, half of the respondents declared that the disease also occurred in their parents (mothers in 31 and fathers in 19); other family members with a history of psoriasis included patients' siblings (29) and other close relatives, such as grandparents, aunts, uncles and cousins (21).

## Results

AIS scores (Table 1) of the study participants ranged between 8 and 40 pts. AIS scores greater than 25 pts were recorded in 43.66 of women and 51.72 of men.

A significant, moderately strong correlation was found between the age of the study patients and their AIS scores ( $r = -0.42$ ,  $p = 0.001$ ). The correlation was

inverse suggesting that AIS scores, and hence, also the level of illness acceptance, decreased with age.

Moreover, a significant, moderately strong correlation was observed between the education level of the study participants and their AIS scores ( $r = 0.47$ ,  $p = 0.001$ ). The AIS scores increased with education level, which implies that better-educated patients showed greater acceptance of their illness. In line with this observation, the portion of psoriatics with AIS scores of 35–40 pts among patients with higher education (50) was larger than in the groups with primary and vocational education.

The relationship between the location of psoriatic lesions and the level of illness acceptance has been analysed as well. The proportion of patients with the highest AIS scores, between 35 and 40 pts, turned out to be the highest among persons with psoriatic lesions on the head, followed by those with lesions on the arms, legs and trunk. The group of patients in whom psoriatic lesions involved the trunk also contained the largest proportion of persons with the lowest AIS scores (no greater than 20 pts), and hence, with the lowest level of disease acceptance (51.06). The proportions of patients with AIS scores  $\leq 20$  pts in other groups were similar, no greater than 40.

Based on the SWLS scores, 42.50 of the study patients presented with high levels of the satisfaction with life; moderate and low levels of this trait were found in 20.50 and 37 of the respondents, respectively. When the results were stratified according to the respondents' sex, women's scores centred around the low and high values (only 18.13 of female psoriatics had moderate SWLS scores). Meanwhile, a tendency for high SWLS scores was documented among men (48.28 of the respondents with high scores).

After stratifying the results according to age, the largest proportion of psoriatics with high SWLS scores was found among the respondents aged 20–30 years (80.65), followed by the patients between 31 and 40 years of age (32). The proportion of patients with high scores decreased considerably with age, down to 21–32. Patients from the older age groups presented primarily with low SWLS scores (42 among 31- to 40-year-old respondents, 42.11 and 54 among the respondents aged 41–50 and 51–60 years, respectively). The largest proportion of patients with moderate SWLS scores was found among the respondents aged 41–50 years (36.84), followed by those between 31 and 40 (26) and 51–60 years of age (24).

Statistically significant correlations were found between the level of satisfaction with life measured with the SWLS, age ( $r = 0.39$ ,  $p < 0.001$ ) and education of the study patients ( $r = 0.47$ ,  $p < 0.001$ ).

Up to 83.33 of the respondents with higher education presented with high SWLS scores. In contrast, the majority of patients with secondary, vocational and primary education (44, 55.56 and 100, respectively) had low SWLS scores.

When the SWLS scores were stratified according to the location of psoriatic lesions, the largest proportions of patients with high levels of satisfaction with life were found among those with the involvement of arms (59.09), followed by those with lesions on the legs (50.00), head (42.86) and trunk (31.91). While the fractions of respondents with the lesions on upper limbs or legs and low levels of satisfaction with life were relatively small (10), considerably higher percentages of patients with the lower satisfaction levels, 23.81 and 27.66, respectively, were found among those with the involvement of the head and trunk. The SWLS scores in the latter two groups were distributed quite evenly, with a slight predominance of patients presenting with moderate levels of satisfaction with life (33.33 and 40.43 of persons with psoriatic lesions on the head and trunk, respectively). The proportions of patients with moderate levels of satisfaction with life among those with psoriatic lesions on the arms and legs were 31.82 and 40, respectively.

No statistically significant relationship was observed between the location of psoriatic lesions and the level of satisfaction with life according to the SWLS ( $r = 0.16$ ,  $p = 0.085$ , a weak correlation).

The level of satisfaction with life according to the SWLS correlated significantly with the level of illness acceptance ( $r = 0.89$ ,  $p = 0.001$ , a strong correlation). The correlation between the two variables was positive; the higher the level of illness acceptance measured with the AIS, the greater the satisfaction with life expressed on the SWLS.

Minimum DLQI score of the study participants was 3 pts regardless of sex, whereas the maximum scores were 30 and 27 pts in women and men, respectively (Table 2).

Based on DLQI scores, the study group did not contain any patients whose quality of life remained unaffected by the disease. Psoriasis contributed to a various degree of deterioration of the quality of life in all the respondents. Severe or very severe deterioration in the quality of life was observed in 62 of the study patients. Only 7 of the respondents, among them 13.79 of men and only 4.23 of women, showed only a mild deterioration in the quality of life. Quality of life among women turned out to be worse than in men ( $r = 0.15$ ,  $p = 0.040$ ) (Table 3).

A significant correlation was found between the age of the study patients and their DLQI scores ( $r = 0.44$ ,  $p < 0.001$ ); the older the respondents, the higher their DLQI scores, and hence, the worse their quality of life.

Quality of life was the best among the respondents aged 20–30 years; up to 16.13 of patients from this group presented with only a mild deterioration of the quality of life, and the quality of life in another 58.06 was moderately deteriorated. Approximately two-thirds of patients from other age groups had severely or very severely deteriorated quality of life. The most evident worsening of the quality of life was observed among 51- to 60-year-old respondents; the DLQI scores for up to 50 of patients from this age group corresponded to a very severely deteriorated quality of life.

Moreover, the DLQI scores correlated significantly with the education of the study patients ( $r = 0.50$ ,  $p < 0.001$ ); the better educated the patients, the lower their DLQI scores, and hence, the better their quality of life.

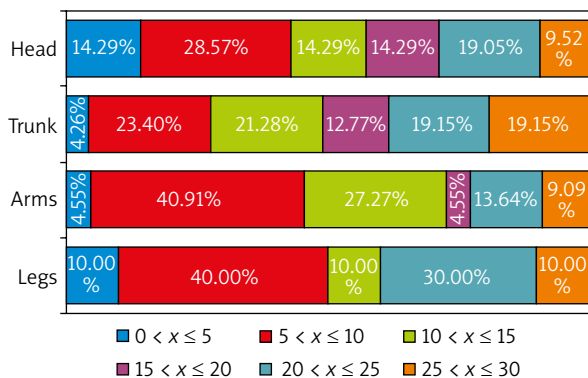
In all patients with no more than primary education, the DLQI scores corresponded to a severe deterioration of the quality of life. The proportions of patients with a severe or very severe decline in the quality of life among the respondents with vocational and secondary

**Table 2.** Distribution of DLQI scores

Sex	Women	Men
<i>N</i>	142	58
Mean	16	13
Median	15	12
Mode	6	6
Minimum	3	3
Maximum	30	27
Lower quartile	9	6
Upper quartile	24	21
Range	27	24
Variance	64.96	66.60
Standard deviation	8.06	8.16

**Table 3.** Distribution of DLQI scores according to respondents' sex

Quality of life	Women		Men		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Normal	0	0	0	0	0	0
Mildly deteriorated	6	4.23	8	13.79	14	7.00
Moderately deteriorated	42	29.58	20	34.48	62	31.00
Severely deteriorated	43	30.28	16	27.59	59	29.50
Very severely deteriorated	51	35.92	14	24.14	65	32.50
<b>Total</b>	<b>142</b>	<b>100</b>	<b>58</b>	<b>100</b>	<b>200</b>	<b>100</b>



**Figure 1.** Distribution of DLQI scores according to the location of psoriatic lesions

education were 84.13 and 78.66, respectively. In contrast, severely or very severely deteriorated quality of life was found in only 16.67 of the patients with higher education.

The distribution of the DLQI scores was also analysed according to the location of psoriatic lesions. The most severe deterioration of the quality of life was associated with the presence of psoriatic lesions on the arms, followed by the head and trunk lesions. The occurrence of psoriatic lesions on the legs was associated with a slightly less evident decline in the quality of life (Figure 1).

A significant association was found between the quality of life measured with the DLQI and the level of satisfaction with life according to the SWLS ( $r = 0.94$ ,  $p < 0.001$ ). The correlation between the two variables was positive, which means that the higher the satisfac-

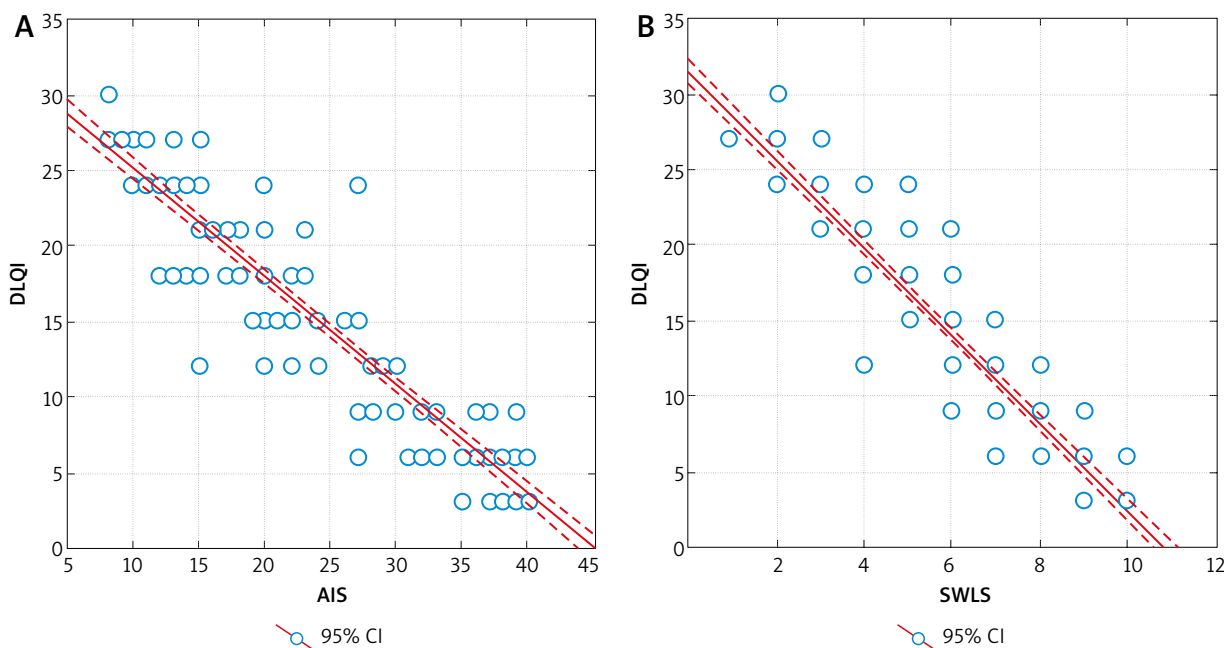
tion with life in psoriatics, the better their quality of life (Figure 2).

Moreover, a significant correlation was observed between the quality of life measured with the DLQI and the level of illness acceptance determined with the AIS ( $r = 0.92$ ,  $p < 0.001$ ). Similar to the one mentioned above, this relationship was also positive, which means that greater acceptance of illness was associated with a better quality of life in psoriasis (Figure 2).

### Discussion

Quality of life is defined as self-perception of one's experiences within the current cultural context and system of values, adjusted for individual lifestyle, problems, expectations and goals. Evaluation of health-related quality of life includes those aspects of the quality of life that can be modulated by the patient's health. Information about the health-related quality of life adds to other objective measures of disease progression, allowing for a more comprehensive assessment of effects exerted by the illness and its treatment [9].

Due to impaired aesthetic, communicative and perceptual functions of the skin, psoriatics are particularly prone to distortion of their body image. The patients have a sense of being stigmatized, not infrequently are rejected by others, and assess their quality of life as considerably lower. As demonstrated by Zarek [10], Zacharie *et al.* [11], Kowalewska *et al.* [12], Hrehorów *et al.* [13] and Türel Ermertcan *et al.* [14], diseases of the skin may exert a substantial effect in all areas of life, including professional and social activities, interpersonal and intimate



**Figure 2.** Relationships between the quality of life, illness acceptance and satisfaction with life

relationships. Additionally, Dauendorffer *et al.* [15] reported on a potential effect of psoriatic lesions on male sexuality.

Quality of life in psoriasis is modulated by many factors, including demographic variables, such as age, sex, education, and social characteristics, such as problems in interpersonal and intimate relationships, social functioning and access to public facilities (fitness centres, swimming pools, beaches, hairdresser shops) [9, 14, 16–18]. The results of our present study are consistent with those findings as the quality of life in psoriatics turned out to be modulated primarily by their age, sex and education.

In the study conducted by Bronikowska-Kolasa *et al.* [19], quality of life was influenced by patient sex. Our findings, albeit obtained with a different instrument, support this observation as they imply that psoriasis had a more devastating effect on the quality of life in women than in men. Also, Martinez-Ortega *et al.* [18] and Petraškieienė *et al.* [20] demonstrated that women with psoriasis had worse quality of life than male psoriatics. The more profound effect of psoriasis on the quality of life in women might be a consequence of high standards of female image and beauty imposed by mass-media.

However, it needs to be stressed that some studies did not show a significant effect of patient sex on the quality of life in psoriasis [21].

An interesting observation about the quality of life in psoriasis was reported by Martinez-Gracia *et al.* [22]; those authors demonstrated that the disease had an unfavourable effect on the quality of life not only in psoriatics but also in their spouses.

Bronikowska-Kolasa *et al.* [19] found an inverse correlation between age and the quality of life in the Physical Health domain and its certain subscales (pain and discomfort, energy and fatigue, sleep and rest), as well as in the Environment domain and the Level of Independence domain and its subscales (mobility, dependence on medical substances and medical aids, work capacity). Probably, the burden associated with physical symptoms of psoriasis increased with age, which was reflected by the worsened quality of life. However, the same study found no tendency to worse psychosocial functioning among older psoriatics, which could be associated with a gradual acceptance of the disease with time since the diagnosis. Quality of life was the best among the respondents aged 20–30 years; up to 16.13 of patients from this group presented with only a mild deterioration of the quality of life, and the quality of life in another 58.06 was moderately deteriorated. Approximately two-thirds of patients from other age groups had severely or very severely deteriorated quality of life.

One of the risk factors of psoriasis is a family history of this condition. In the case of our patients with a family history of psoriasis, this disease was most common among mothers (31), followed by grandmothers (11.2)

and aunts (1.4). In the study conducted by Kanikowska [23], a family history of psoriasis was found in 40 of the patients. According to Augustin *et al.* [24], 39.3 out of 1,151 psoriatics who participated in their study had a close relative suffering from this disease. The history of psoriasis was found in 36 out of 5,197 families included in the study conducted by Swanback *et al.* [25]. According to Podolec *et al.* [26], family history of psoriasis was found in 21.5 of the patients, most often in siblings (76.9), parents (71.0), grandparents (2.9) and other more distant relatives (31.2).

Aside from the demographic factors, also the visibility and extent of psoriatic lesions are the key determinants of illness acceptance. Our present study demonstrated a significant relationship between the age of psoriatics and their AIS scores, with lower levels of illness acceptance observed among the older respondents. Interestingly, a similar relationship was not observed in a previous study conducted by Zielińska-Więczkowska and Pietrzak [27].

Moreover, we found a significant association between illness acceptance and education. The higher the education level, the higher the AIS scores; furthermore, the group of respondents with higher education included a larger proportion of patients with the highest AIS scores, between 35 and 40 pts (50), than the groups of participants with primary or vocational education.

A relationship between the education level and illness acceptance in psoriasis was also examined by Bronikowska-Kolasa *et al.* [19]. Surprisingly, however, those authors did not find statistically significant associations between the education level of psoriatics and their AIS and SF-36 scores.

Miniszewska and Adamska [28] analysed a link between illness acceptance and disease perception among psoriatics. The study showed that perception of psoriasis as a threat, harm or obstacle was associated with its lesser acceptance, whereas more internalized locus of health control predisposed to greater acceptance of the illness. In other words, the more the patients convinced about having control over their health, the greater their illness acceptance.

When the results obtained with the SWLS scale were stratified according to the respondents' age, the largest proportion of the highest scores was found among patients aged 20 to 30 years (80.65). The proportion of patients with high scores decreased considerably with age, down to 21–32. Patients from the older age groups presented primarily with low SWLS scores (42 among 31- to 40-year-old respondents, 42.11 and 54 among the respondents aged 41–50 and 51–60 years, respectively). Statistically significant correlations were found between the level of satisfaction with life measured with the SWLS, age ( $r = 0.39$ ,  $p < 0.001$ ) and education of the study patients. In line with these findings, a statistically significant correlation was found between the age of the study patients and their level of satisfaction with life

measured with the SWLS. These observations were consistent with the results obtained with the DLQI. Quality of life was the best among the respondents aged 20–30 years; up to 16.13 of patients from this group presented with only a mild deterioration of the quality of life, and the quality of life in another 58.06 was moderately deteriorated.

The level of satisfaction with life in psoriatics was also analysed by Jankowiak *et al.* [29]. According to those authors, female and male psoriatics presented with similar mean SWLS scores, 18.92 and 18.69 pts, respectively, which corresponded to a moderate level of satisfaction with life. However, the relationship between the age of the patients and their SWLS scores differed slightly from that observed in our present study; regardless of sex, the highest levels of satisfaction of life were found among 50- to 60-year-old respondents and the lowest among those aged 30–39 years. When the results were stratified according to sex, the lowest levels of satisfaction of life were found among women older than 60 years and in 40- to 49-year-old men.

According to Berth-Jones [30], the most common locations of psoriatic lesions include the scalp, elbows, knees, belly button, genitals, sacrum and calves. In our present study, psoriatic lesions were most often found on the trunk (47), followed by the arms (22), head (21) and legs (10). After stratifying the results obtained with the SWLS according to the location of psoriatic lesions, the largest proportions of the highest scores were found in patients in whom the disease was limited to arms (59.09) or legs (50.00). Furthermore, both these groups included the smallest, approximately 10, fractions of patients with the lowest SWLS scores. The SWLS scores of patients with psoriatic lesions on the head and trunk were distributed evenly, with the tendency for a more frequent representation of moderate levels of satisfaction with life. The smallest proportion of patients with high levels of satisfaction with life (31.91) was found among persons with psoriatic lesions on the trunk.

A significant association between the body surface area involved by psoriatic lesions and satisfaction of life was also reported by Basińska and Drozdowska [31].

The analysis of the DLQI scores according to the location of skin lesions demonstrated that the results below 15 pts were more common among patients in whom psoriasis was limited to the arms (72.73), followed by those with head (57.15), leg (50.00) and trunk lesions (48.94).

## Conclusions

The following conclusions can be formulated based on the results of the present study: Psoriasis had a detrimental effect on the quality of life of the study patients, which was shown to decrease with age. Patients with psoriatic lesions on the arms presented with the lowest levels of the quality of life. Psoriatics with higher levels

of illness acceptance also presented with greater satisfaction with life. Greater satisfaction with life was also associated with a better quality of life in psoriasis. Acceptance of illness was shown to be lower among women and to decrease with age, regardless of patient sex.

## Conflict of interest

The authors declare no conflict of interest.

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