



ORIGINAL ARTICLE

Internalized Stigma in Pediatric Psoriasis: A Comparative Multicenter Study

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Background: Internalized stigma, adoption of negative attitudes and stereotypes of the society regarding persons' illness, has not been studied previously in pediatric psoriasis patients. **Objective:** We aimed to investigate the internalized stigma in pediatric psoriasis patients and to determine differences according to factors affecting internalized stigma compared to adult psoriasis patients. **Methods:** This multicenter,

cross-sectional, comparative study included 125 pediatric (55 female, 70 male; mean age \pm standard deviation [SD], 14.59 ± 2.87 years) and 1,235 adult psoriasis patients (577 female, 658 male; mean age \pm SD, 43.3 ± 13.7 years). Psoriasis Internalized Stigma Scale (PISS), Dermatology Life Quality Index (DLQI), Perceived Health Status (PHS), and the General Health Questionnaire (GHQ)-12 were the scales used in the study. **Results:** The mean PISS was 58.48 ± 14.9 in pediatric group. When PISS subscales of groups were compared, the pediatric group had significantly higher stigma resistance ($p = 0.01$) whereas adult group had higher scores of alienation ($p = 0.01$) and stereotype endorsement ($p = 0.04$). There was a strong correlation between mean values of PISS and DLQI ($r = 0.423$, $p = 0.001$). High internalized stigma scores had no relation to either the severity or localization of disease in pediatric group. However, poor PHS ($p = 0.007$) and low-income levels ($p = 0.03$) in both groups, and body mass index ($r = 0.181$, $p = 0.04$) in the pediatric group were related to high PISS scores. **Conclusion:** Internalized stigma in pediatric patients is as high as adults and is related to poor

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quality of life, general health, and psychological illnesses. Unlike adults, internalized stigma was mainly determined by psoriasis per se, rather than disease severity or involvement of visible body parts, genitalia or folds. (**Ann Dermatol 32(3) 181 ~ 188, 2020**)

-Keywords-

Child, Inflammation, Psoriasis, Quality of life, Stigmatization

INTRODUCTION

The skin and adnexa, as significant features of our external appearance, contribute to our social standing. Diseases localized to the visible or special body parts (e.g. genitalia) can lead to significant psychosocial problems, including stigmatization. Psoriasis, being the most common systemic inflammatory disease, causes psychosocial morbidity and cumulative disability over a patient's lifetime¹. Psoriatic lesions often affect visible parts of the body that may discriminate the individual from others, in other words, stigmatize the patient². Internalized stigma, another dimension of the stigma, is the feeling of stigma experienced by the individual even though he or she is not stigmatized by the society. The individual accepts negative stereotypes about the illness created by society and withdraws himself/herself from society with emotions such as worthlessness and shame. The patient presumes that other people have a reaction towards his/her illness and eventually withdraws him/herself from the social life ending up with decreased self-esteem and life-satisfaction, increased depression and suicidality as well as difficulty in coping with the illness. The internalized stigma may affect the quality of life and treatment response negatively³.

Current knowledge on internalized stigma in patients with psoriasis is extremely limited. Our recent study¹ has shown that psoriasis patients experience high levels of internalized stigma, which is associated with disease severity, poorer quality of life, negative perceptions of general health and psychological illnesses. The internalized stigma was more pronounced in patients with involvement of visible body parts, genital organs, folds or joints. In line with our findings, a recent study by van Beugen et al.⁴ who investigated the predictor variables for perceived stigmatization using 6-item subscale of the Impact of Chronic Skin Disease on Daily Life Questionnaire revealed 73% of patients to experience some degree of stigmatization. The authors reported an association with a higher impact on daily life, lower education, higher disease visibility, severity, and duration, higher levels of social inhibition and

having a Type D personality (personality composed of two traits: negative affect and social inhibition; experiencing negative emotions and abstain from sharing these emotions with others due to anxieties concerning their potential response and fears over how they will be perceived)^{5,6}. Since both studies focused on internalized stigma in adult psoriasis patients, data on internalized stigma in the pediatric group was lacking. Therefore, we aimed to investigate the internalized stigma state in pediatric psoriasis patients and to determine whether there are differences according to factors affecting internalized stigma compared to adult psoriasis patients.

MATERIALS AND METHODS

This multicenter, prospective cross-sectional, the comparative study included 125 pediatric (55 female, 70 male; mean age \pm standard deviation [SD], 14.59 ± 2.87 years) and 1,235 adult psoriasis patients (577 female, 658 male; mean age \pm SD, 43.3 ± 13.7 years) from 18 study centers from different geographic regions of Turkey between 2014 and 2016. In order to ensure homogeneous distribution of patients in the centers, the ratio of pediatric/adult patients taken from each center was planned to be 1/10. This study used some of the questionnaires to determine internalized stigmatization in psoriasis, and part of this data has been used in a previous article¹. The ages of pediatric psoriasis patients ranged from 10 to 18 years. Patients who did not have any previously diagnosed psychiatric disease and willing to participate in the study were included. Informed consent was obtained from all the patients or his/her guardians, and the study was conducted according to the Declaration of Helsinki Principles. The study was approved by the Ethics Committee of Akdeniz University School of Medicine (no. 70904504/215). The sociodemographic characteristics of the patients and other parameters, which may influence internalized stigma and quality of life (age, sex, duration of disease and age at onset, history of psoriasis in the family, comorbid diseases, income level, education level, previous hospitalization for her/his illness, active treatment during the study) were recorded. The subtype of psoriasis has been defined and body mass index (BMI) was calculated. Active involvement of scalp, face, hands, genital area, folds (inverse psoriasis), fingernails, and/or joints were recorded. Nail Psoriasis Severity Index (NAPSI; in all fingernails) was calculated. Physician's Global Assessment (PGA) has been used as an alternative severity scale when Psoriasis Area Severity Index (PASI) did not function well (palmoplantar plaque psoriasis [PP], inverse psoriasis [IP], palmoplantar pustular psoriasis [PPP]). PGA was used to assess the most severely

involved hand, foot or folded areas.

Data collection scales

1) Internalized stigma scale

Internalized stigma scale (ISS) was developed by Ritsher et al.⁷ for mental illnesses and has been adapted for many diseases other than psychological disorders. Likert scale is the most commonly used rating scale to measure respondents' agreement level. It is an ordinal scale used by respondents to express how much they agree or disagree with a particular statement. ISS is also a Likert-type scale composed of 29 items measuring the internalization of stigma experienced by the patients. It has five dimensions; alienation (6 items; measuring the subjective experience of being less than a full member of society)^{7,8}, stereotype endorsements (7 items; measuring the degree to which they agree with common stereotypes about people with mental illness), perceived discrimination (5 items; capturing their perception of the way that they currently tend to be treated by public), social withdrawal (6 items; capturing their degree of avoidance from personal interactions and public) and stigma resistance (5 items; trying to capture the experience of resisting or being unaffected by internalized stigma^{7,9}. ISS values range from 4 to 91. High ISS score points out more severe internalized stigma. In our country, the reliability and validity study of the ISS for mental illnesses has been carried out¹⁰. ISS in dermatological diseases was first studied in psoriasis and has been shown to be a reliable and valid scale in identifying internalized stigma¹¹.

2) Perceived Health Status

Perceived Health Status (PHS) is a five-point Likert-type scale measuring general health with a single question. In the analysis, Likert scorings are classified as 1, 2, 3: "worse than good" and 4 and 5: "good". PHS has been widely used in the evaluation of health problems, the burden of diseases and health needs at the population level since it is often difficult and expensive to determine objective measures of health status¹².

3) General Health Questionnaire-12

General Health Questionnaire (GHQ)-12 has been developed by David Goldberg in order to define mental status in public and in primary healthcare establishments¹³. Being a quick, reliable and valid questionnaire, GHQ-12 is ideal for research studies. It has a high sensitivity and specificity. Although GHQ-12 has been developed to distinguish general mental disorders, it contains items questioning basic symptoms of depression including enjoyment,

sense of calm, distractibility and sleeplessness. For this reason, it has been noted that GHQ-12 can also be used in screening of depression in centers where psychiatrists are not available¹⁴. Validity and reliability of Turkish version has been shown¹⁵. On the day of enrollment, PASI and Body Surface Area (BSA) were calculated by the physician. At the same time, all patients were asked to complete ISS adapted to psoriasis (PISS), Dermatology Life Quality Index (DLQI), PHS and GHQ-12 forms.

This study enrolled only patients who admitted to specialized centers and used self-reported questionnaires. Thus, this could create a potential bias and limitation when generalizing the results of this study to the entire population.

Statistics

Descriptive statistics such as mean, standard deviation and percentage were used as statistical methods. In the analysis of the data, the significance test of the difference between the two means was used. Additionally, the correlation has been applied for correlation detecting statistics. The analyses were performed using IBM SPSS Statistics ver. 22.0 (IBM Corp., Armonk, NY, USA), and *p*-values of less than 0.05 was considered statistically significant.

RESULTS

The mean age of the pediatric patient group was 14.59 ± 2.87 years (10~18 years) and the mean age at onset of the disease was 9.68 ± 4.1 years (1~17 years). The mean age of the adult patient group was found to be 43.34 ± 13.7 years (19~85 years) and the onset age of the disease, 29.96 ± 14.67 years (1~84 years). Male patients were 56.0% of all pediatric patients, and 35.2% of them had a family history of psoriasis. Chronic plaque psoriasis (80.0%) was the most common psoriasis type. PHS score was defined as "bad" in 45.6% of all patients. Only 3.2% of the patients were receiving local and/or systemic psoriasis treatment during the study. The rest of the socio-demographic and clinical features of pediatric psoriasis patients are presented in Table 1. Male patients were 46.7% of adult patients, and 34.1% of them had a family history of psoriasis. Chronic plaque psoriasis (73.4%) was the most common psoriasis type. PHS score was defined as "bad" in 59.2% of all patients. During the course of the study, 85.7% of the patients were receiving local and/or systemic psoriasis treatment(s).

There was no significant difference in the mean values of PISS between pediatric and adult psoriasis patients (58.48 ± 14.9 vs. 60.6 ± 15.0 , respectively; *p*=0.13). The lowest value among the five subscales of PISS was the perceived discrimination whereas the highest value belonged to stigma

Table 1. Sociodemographic and clinical characteristics of the pediatric psoriasis patients

Variable	Value
Sex	
Male	70 (56.0)
Female	55 (44.0)
Income level	
Low (income is less than the expense)	61 (48.8)
Moderate (income is equal to expense)	22 (17.6)
High (income is over the expense)	42 (33.6)
Education	
Primary school graduate	27 (21.6)
Secondary school graduate	50 (40.0)
High school graduate	46 (36.8)
Postgraduate	1 (0.8)
Faculty	1 (0.8)
Comorbidity	
No	121 (96.8)
Yes	4 (3.2)
Perceived health status	
Very good	1 (0.8)
Good	11 (8.8)
Moderate	38 (30.4)
Bad	57 (45.6)
Very bad	18 (14.4)
Face involvement	
No	102 (81.6)
Yes	23 (18.4)
Scalp involvement	
No	53 (42.4)
Yes	72 (57.6)
Hand involvement	
No	101 (80.8)
Yes	24 (19.2)
Genital area involvement	
No	112 (89.6)
Yes	13 (10.4)
Inverse involvement	
No	115 (92.0)
Yes	10 (8.0)
Nail involvement	
No	104 (83.2)
Yes	21 (16.8)
Articular involvement	
No	124 (99.2)
Yes	1 (0.8)
Clinical*	
Chronic plaque psoriasis	100 (80.0)
Guttate psoriasis	28 (22.4)
Palmoplantar psoriasis	1 (0.8)
Pustular psoriasis	8 (6.4)
Family history	
No	81 (64.8)
Yes	44 (35.2)
Inpatient treatment [†]	
No	106 (84.8)
Yes	19 (15.2)

Table 1. Continued

Variable	Value
Active Treatment [†]	
No	121 (96.8)
Yes	4 (3.2)
Disease severity	
PASI	125 (5.2±5.4)
BSA	125 (9.6±8.1)

Values are presented as number (%) or number (mean±standard deviation). PASI: Psoriasis Area Severity Index, BSA: Body Surface Area. *More than one option has been marked. [†]'Inpatient treatment' describes patients with a history of treatment at an inpatient dermatology clinic during the whole period of their diseases. [†]'Active treatment' describes patients who were on therapy of any kind during the study period.

resistance in pediatric patients. In the adult patients, the lowest value belonged to the perceived discrimination subscale, while the highest value belonged to the subscale of stereotype endorsement. Of the PISS subscales, stigma resistance in the pediatric patients (13.4 ± 3.9 , 11.9 ± 3.2 , $p=0.01$), and alienation (12.9 ± 4.4 , 11.7 ± 3.9 , $p=0.01$) and stereotype endorsement (13.4 ± 3.9 , 12.7 ± 4.2 , $p=0.04$) in adult psoriasis patients were significantly higher when compared with each other (Table 2). When we evaluated the relationship between mean PISS scores and sex, there was no significant difference in pediatric (female, 56.1 ± 13.2 ; male, 60.3 ± 16.1 ; $p=0.121$) and adult patients (female, 60.1 ± 15.0 ; male, 61.1 ± 15.0 ; $p=0.296$).

To evaluate the criterion validity of PISS, the relationships between PISS and DLQI, PASI, and BSA were examined. In the pediatric patient group, a statistically significant correlation was found between the mean values of PISS and DLQI ($r=0.423$, $p=0.001$). However, there was no statistically significant correlation between the PASI (5.2 ± 5.4) and PISS values ($r=0.122$, $p=0.192$). There was a weak but statistically significant relationship between BSA (9.6 ± 8.1) and PISS only on the alienation subscale ($r=0.207$, $p=0.03$). In the adult patient group, we also observed a significant positive correlation between PISS (13.3 ± 17.1) and DLQI values ($r=0.418$, $p=0.001$). There was no significant difference between pediatric psoriasis and adult psoriasis patients in terms of DLQI (10.4 ± 8.9 and 11.2 ± 8.9 , $p=0.36$, respectively). Unlike pediatric patients, significant differences were also found between mean total PISS values and PASI ($r=0.214$, $p=0.001$) and BSA ($r=0.233$, $p<0.01$) in adult patients (Table 3).

A statistically significant correlation was found between GHQ-12 and mean total PISS values ($r=0.342$, $p=0.01$), BSA ($r=0.100$, $p<0.001$) and DLQI ($r=0.306$, $p<0.001$). There was no significant difference between pediatric

Table 2. PISS subscales in pediatric and adult psoriasis patients

PISS and its subscales	Pediatric psoriasis (n=125)	Adult psoriasis (n=1,235)	p-value
PISS	58.48 ± 14.9 (32~91)	60.6 ± 15.0 (29~91)	0.13
Alienation	11.7 ± 3.9 (6~23)	12.9 ± 4.4 (6~24)	0.01
Stereotype endorsement	12.7 ± 4.2 (7~27)	13.4 ± 3.9 (7~28)	0.04
Perceived discrimination	9.5 ± 3.0 (5~20)	9.7 ± 3.4 (5~41)	0.27
Social withdrawal	11.4 ± 4.1 (6~24)	12.5 ± 4.6 (6~24)	0.07
Stigma resistance	13.4 ± 3.9 (5~23)	11.9 ± 3.2 (5~57)	0.01

Values are presented as mean ± standard deviation (range). PISS: Psoriasis Internalized Stigma Scale.

Table 3. Correlation coefficient between PISS subscales and DLQI, PASI, BSA, and GHQ-12 in pediatric and adult psoriasis patients

PISS and its subscales	Pediatric psoriasis (n=125)				Adult psoriasis (n=1,235)			
	DLQI	PASI	BSA	GHQ-12	DLQI	PASI	BSA	GHQ-12
Alienation	0.304	0.175	0.207	0.275	0.371	0.230	0.251	0.376
p-value	0.01	0.57	0.03	0.05	0.001	0.001	0.001	0.001
Stereotype endorsement	0.405	0.073	0.073	0.352	0.397	0.166	0.170	0.339
p-value	<0.001	0.44	0.44	0.03	0.001	0.001	<0.001	0.001
Perceived discrimination	0.387	0.144	0.159	0.358	0.363	0.204	0.233	0.303
p-value	<0.001	0.12	0.09	0.01	0.001	0.001	0.001	0.001
Social withdrawal	0.304	0.144	0.128	0.254	0.359	0.211	0.216	0.337
p-value	0.01	0.119	0.175	0.03	0.001	0.001	0.001	0.001
Stigma resistance	0.228	-0.015	-0.26	0.039	0.040	-0.023	0.014	-0.050
p-value	0.01	0.868	0.786	0.67	0.597	0.450	0.641	0.001

PISS: Psoriasis Internalized Stigma Scale, DLQI: Dermatology Life Quality Index, PASI: Psoriasis Area Severity Index, BSA: Body Surface Area, GHQ-12: General Health Questionnaire-12.

psoriasis and adult psoriasis patients in terms of GHQ-12 (2.7 ± 2.3 and 2.6 ± 2.5 ; $p = 0.79$, respectively) (Table 3).

When the PHS were assessed, the mean PISS scores of those patients with a PHS of "worse than good" were significantly higher than that of those with a PHS of "good" in both pediatric (62.4 ± 13.7 vs. 55.5 ± 15.1 ; $p = 0.007$) and adult patients (64.3 ± 15.0 vs. 55.2 ± 13.4 ; $p = 0.001$). Similarly, the mean DLQI score of those patients with a PHS of "worse than good" was found to be significantly higher than that of those with a PHS of "good" in both pediatric (13.4 ± 8.0 vs. 8.5 ± 7.0 ; $p = 0.003$) and adult patients (12.9 ± 8.5 vs. 8.7 ± 9.1 , $p = 0.001$).

There was no significant relationship in terms of scales used in the study when the pediatric patients were compared to each other according to the different age groups (10~14 vs. 15~18).

Significantly higher PISS scores were observed in the group of patients with low-income level (patients whose monthly income do not cover their expense) in both pediatric (63.4 ± 14.1 , 57.2 ± 14.7 , $p = 0.03$) and adult patients (63.3 ± 15.7 , 58.7 ± 14.3 , $p = 0.01$). There was no significant difference in both groups ($p = 0.82$).

No significant correlation was found between the mean

disease duration (4.8 ± 3.2 years) and mean PISS values in the pediatric patients ($r = 0.29$, $p = 0.749$). However, there was a weak but significant relationship between the mean duration of illness (13.3 ± 11.1) and mean PISS values in adult patients ($r = 0.077$, $p = 0.008$). When the relationship between the history of psoriasis in the family and mean PISS values was evaluated, no significant difference was found in either group. A weak but statistically significant relationship was found between BMI and mean PISS values in the pediatric patient group ($r = 0.181$, $p = 0.04$), however, there was no similar relationship in adult patients ($r = 0.046$, $p = 0.118$).

When we evaluated the relationship between psoriasis clinical subgroups and the mean total PISS score in pediatric patients, psoriasis vulgaris patients showed significantly higher PISS values than guttate psoriasis patients (58.9 ± 15.0 , 56.9 ± 14.4 , $p = 0.042$, respectively). In adult patients, mean PISS values were significantly higher in erythrodermic psoriasis (75.1 ± 11.8) and generalized pustular psoriasis (70.2 ± 11.6) than guttate psoriasis (56.1 ± 14.3) and palmoplantar psoriasis (56.4 ± 15.2 , $p < 0.05$).

The mean PISS score in patients with nail involvement in pediatric patients was not statistically significantly different

from those without nail involvement. Similarly, there was no statistically significant difference between patients with and without involvement in other visible areas of the body, such as the scalp, face, and hand. There was no significant difference between patients with IP and genital area involvement and those without. On the other hand, the mean PISS values of adult patients with the active scalp, face, hand, genital organs and fingernails and IP patients were significantly higher than those without (Table 4).

DISCUSSION

In this multicenter study, comparing 125 pediatric and 1,235 adult psoriasis patients, we found high levels of internalized stigma state in the pediatric group showing a parallel course with the poor quality of life, general health status, and psychological disorders. These findings are concordant with two previous studies which included only adult psoriasis patients^{1,4}. In addition to causing significant psychosocial impairment, internalized stigma has negative effects on the utilization of health care and treatment compliance, subsequently increased disease severity^{16,17}. Therefore, it can be proposed that internalized stigma may have an effect on disease severity in psoriasis patients. However, in pediatric psoriasis patients, unlike adults, there was no relationship between high levels of internalized stigma and the severity of the disease. This finding may have a few explanations. Having a chronic disease which can be perceived by others may suffice a child to develop significant stigmatization independent from severity. The main cause of stigma could be due to multiple hospital admissions accompanied by parents.

Another interesting finding in our study was that besides extensiveness and/or severity of psoriasis, the involvement of visible body parts, genital area or folds were not found to be related with the high levels of internalized stigma in pediatric psoriasis patients. Regarding the mean age of our pediatric group, this finding may be explained by the lack

of importance of genitalia involvement in sexually inactive young children. Also, pediatric cases may have better motivation for the use of medications because of relatively short disease duration compared to adults. In fact, adults may get tired of using medications on long-term basis¹⁸.

We did not find a significant correlation between mean disease duration and PISS in the pediatric patients, while there was a significant relationship in the adult patients. As expected, the duration of the disease is longer in adult patients (13.3 ± 11.1 vs. 4.8 ± 3.2). This result is consistent with our previous study, and the internalized stigma increases as the disease duration increases¹.

We also observed some differences in the PISS subscales. Alienation and stereotype endorsement were significantly higher in adult patients. We can propose that, similar to the society, adult psoriasis patients also have some prejudice about the disease, leading to internalized negative stereotype judgments of the society for themselves. On the other hand, stigma resistance subscale was significantly higher in the pediatric group. In contrast to the other four subscales, the resistance to stigma subscale assesses the individual's ability to cope with illness and resistance to stigmatization. These findings may implicate pediatric cases to be insufficient for developing coping strategies. As internalized stigma may cause a vicious cycle, reducing patients' resistance to stigmatization, management of pediatric psoriasis patients may include educational approaches focusing enhancement of coping strategies and diminishing stigmatization. Such programs may reduce the level of internalized stigma and provide better compliance and effective use of healthcare. It can be speculated that such an approach may be even more effective in pediatric patients, which already have a higher resistance to stigmatization than the adult ones.

DLQI is a valid and reliable scale for psoriasis patients and frequently used as a major criterion for the introduction of systemic anti-psoriatic medications¹⁹. In our study, there was a strong positive correlation between the mean values

Table 4. Relationship of mean Psoriasis Internalized Stigma Scale (PISS) with psoriasis localizing on the visible parts of body, nail, genital area or mucosa, inverse and articular psoriasis in pediatric and adult psoriasis patients

Clinical features	Pediatric psoriasis (n=125)			Adult psoriasis (n=1,235)		
	Yes	No	p-value	Yes	No	p-value
Scalp involvement	58.6 ± 14.5	58.3 ± 15.6	0.905	62.1 ± 15.1	58.7 ± 14.7	<0.01
Face involvement	56.1 ± 15.2	59.0 ± 14.9	0.395	64.9 ± 15.0	59.7 ± 14.9	<0.01
Hand involvement	59.0 ± 14.3	58.3 ± 15.2	0.841	62.4 ± 15.3	59.4 ± 14.7	<0.01
Nail involvement	57.2 ± 12.9	58.7 ± 15.4	0.688	62.4 ± 15.1	59.5 ± 14.9	<0.01
Genital organ involvement	60.1 ± 13.1	58.3 ± 15.1	0.699	64.3 ± 15.3	59.8 ± 14.9	<0.01
Inverse psoriasis	56.6 ± 17.4	58.6 ± 15.1	0.679	65.0 ± 15.5	59.8 ± 14.8	<0.01

Values are presented as mean ± standard deviation.

of PISS and DLQI. This may indicate internalized stigma to influence the quality of life significantly. Thus, in addition to disease control, coping with stigmatization may be required for improvements in quality of life.

The mean PISS scores of those patients with a PHS of “worse than good” were significantly higher than that of those with a PHS of “good” in both pediatric and adult psoriasis patients. Similarly, there was a statistically significant correlation between the mean values of GHQ-12 and the PISS. All these results indicate that internalized stigma, general health, and mental illnesses tend to be parallel to each other, and this is compatible with the results in mental illnesses²⁰. Taken together, these findings suggest that strategies for correcting internalized stigma may be effective in improving the quality of life and negative health outcomes in psoriasis patients. Studies conducted in psychiatric disorders¹⁷ support that such initiatives can positively affect treatment outcomes and quality of life.

In both groups, PISS scores were significantly higher in those with lower income. This, in accordance with prior studies, indicates that patients with higher income levels can cope better with internalized stigma and, in general, with illnesses¹⁷.

Our study also had some limitations. Because of the cross-sectional study design, causality could not be established. Another general limitation of the study was the use of self-reported questionnaires. Also, we enrolled only patients who admitted to specialized centers. Therefore, this should be taken into account when generalizing the results of this study to the entire population. On the other hand, the major strengths of our study were to study a large nationwide sample of pediatric and adult psoriasis patients and to investigate internalized stigma with clinical and quality of life correlations.

In conclusion, our study shows that pediatric psoriasis patients internalize the negative stereotype judgments of the society for themselves which may be related with their quality of life, general health status, and psychological well-being. Therefore, it would be useful to develop strategies to ameliorate the internalized stigma and improve psychosocial health in psoriasis patients. The high levels of internalized stigma show a parallel course with the patient's self-efficacy and self-esteem reduction, which affects the patient's adherence to treatment negatively. The inclusion of educational approaches to the treatment plans as well as psychotherapy in selected patients that address the internalized stigma may be expected to increase treatment compliance. Educational studies conducted through written and visual media tools are of great importance in the fight against stigmatization in society.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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