

Psoriasis and Emotional Dysregulation: A Multicenter Analysis of Psychodermatology Outcomes

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ABSTRACT Introduction: Psychological symptoms associated with psoriasis include depression, anxiety, and social phobia, often exacerbated by high rates of alexithymia. Treatment decisions should consider not only clinical severity but also patient characteristics and quality of life. However, the psychosocial burden of psoriasis may not always align with clinical severity.

Objectives: This study aimed to assess emotional regulation difficulties in outpatients with psoriasis, comparing these difficulties to those of the general population and examining associations with socio-demographic factors, comorbidities, and treatment options.

Methods: A cross-sectional, multicenter study enrolled 107 consecutive patients with psoriasis from dermatological centers in Lazio, Italy. For every patient the Psoriasis Area Severity Index (PASI), Investigator's Global Assessment (IGA), and Difficulties in Emotional Regulation scale (DERS) were recorded.

Results: Analysis revealed that patients with psoriasis reported significantly higher emotional regulation difficulties compared to the general Italian population, even those with mild disease. A significant association was found between psoriasis severity and emotional regulation difficulties, particularly in patients with higher PASI scores. Biological treatments were associated with lower levels of emotional regulation difficulties.

Conclusions: This study corroborates the existing literature on the association between psoriasis severity and emotional regulation difficulties. However, it diverges from prior findings regarding the association between body mass index (BMI) and emotional dysregulation. Assessing emotional regulation difficulties may aid clinicians in identifying vulnerable patients and optimizing treatment decisions to improve overall quality of life and treatment adherence. Further research is needed to validate these findings and to explore longitudinal associations between emotional regulation and psoriasis outcomes.

Introduction

Psoriasis is a chronic, inflammatory skin disease based on a polygenic vulnerability, with relevant cutaneous and systemic manifestations [1]. The burden of disability of psoriasis has been estimated to be equal to other major chronic diseases [2, 3]. Several studies highlight that patients with psoriasis may experience severe psychological symptoms related to their skin condition [4]; moreover, the high prevalence of alexithymia suggests that labelling and regulating inner states and emotions may be not easy for these patients [5].

The guidelines for clinicians recommend biological therapies as second-line treatment for patients with moderate-to-severe psoriasis (Psoriasis Area Severity Index, PASI \geq 10) [6].

In real-life experiences, patients categorized with high disease severity and low illness perception had a higher chance of receiving biological treatment compared to those with low disease activity and high illness perception.

Furthermore, the perceived psychosocial burden due to psoriasis is often not consistent with the severity of the disease as assessed by clinicians [8-10]; this may highlight that even patients with mild-to-moderate disease severity experience relevant levels of psychological distress [11].

Various psychosocial interventions have been tested to improve dermatologic patients' mental health, with encouraging results [12], although more rigorous studies are still needed to assess feasibility procedures [13].

A key role for better mental health is played by emotional regulation skills [14, 15].

Emotional regulation is a construct that refers to the processes by which individuals appraise, label, regulate, display, and experience their emotions [16]; the absence of any of these skills may indicate difficulties in emotional regulation [14].

Recent studies have identified a high risk of emotional dysregulation [17-21] and a low ability to process emotional information (i.e., emotional awareness) in patients with psoriasis [19, 22]. These psychological difficulties could be risk factors for exacerbation and persistence of psychopathology as well as an obstacle to therapeutic adherence [23], to providing emotional support, and to sustaining mental health in these patients. Moreover, emotional dysregulation may affect the patient's illness perception, which may, in turn, contribute to the mismanagement of chronic diseases [24-27]. The perception of overwhelming emotional demands drains the psychological resources needed for everyday self management of chronic diseases like psoriasis, contributing to poor health outcomes [28], and may lead to an increase in perceived illness severity in these patients [17].

Patients with psoriasis frequently report several psychological conditions associated with the presence of difficulties in emotional regulation, independently from their disease severity. Thus, we hypothesized that outpatients, even those with mild-to-moderate levels of psoriasis, may have difficulties in understanding and regulating their inner states and emotions, with serious consequences to their mental health and treatment satisfaction. Consistently with this hypothesis, we aimed to describe difficulties in emotion regulation in outpatients affected by plaque psoriasis, comparing these scores with normative

values provided in the Italian adaptation of the Difficulties in Emotional Regulation Scale (DERS) derived from the general Italian population, and to detail these difficulties in terms of sociodemographic features and treatment options.

Materials and Methods

Study Design, Setting, and Participants

This work was a cross-sectional multicenter descriptive study approved by the Ethics Committee of the IDI-IRCCS (protocol number: 682/1). From October 2022 to April 2023, we recruited 107 consecutive patients with a diagnosis of psoriasis, admitted in 10 dermatological centers in Lazio, Italy. In order to participate in the study, the inclusion criteria were: 1) age ≥ 18 years, both sexes; 2) having a diagnosis of plaque psoriasis; 3) requiring pharmacological intervention (i.e., topical or systemic); 4) PASI $\neq 0$; 5) to be able to understand the Italian language and to have signed the informed consent and accepted to participate in the study. The exclusion criteria were: 1) suffering from a diagnosed psychopathology; 2) having undergone psychopharmacological treatment or psychotherapy in the previous year.

Measures

In this study the extent and severity of psoriasis were evaluated by PASI; the other tool used to assess psoriasis severity was the 6-point Investigator Global Assessment (IGA) [29]. Sociodemographic and clinical features were collected and analyzed as means and standard deviation for continuous variables and as frequencies and percentages for categorical variables.

Difficulties in emotional regulation were assessed by the Difficulties in Emotional Regulation scale (DERS) [30] in its Italian adaptation provided by Sighinolfi et al. [31]; this self-report questionnaire [32] makes it possible to obtain measurements regarding the presence of potential difficulties in the following dimensions: (1) Nonacceptance (non-acceptance of emotional responses); (2) Goals (difficulty in adopting goal-oriented behaviors); (3) Impulse (difficulty in controlling impulses); (4) Awareness (lack of emotional awareness); (5) Strategies (limited access to emotional regulation strategies); (6) Clarity (lack of emotional clarity).

Data Collection Procedures and Statistical Analysis

The study sample corresponds to the actual number of outpatients seen during the study period who agreed to participate in the study; no sample size calculation was performed. Sociodemographic information was summarized in frequency distributions, and the patient-reported outcomes as means and standard deviation. Cronbach's alpha was calculated to evaluate the reliability and internal consistency of DERS subscales in this sample. All sociodemographic and clinical

variables were used as independent variables in the multiple linear regression models, with DERS subscale scores as the criterion. The associations were reported as standardized beta coefficients (β) and their p-values. All analyses were performed using the Statistical Package for the Social Sciences (IBM SPSS Statistics for Windows, Version 28.0.1.0).

Results

Our sample included 107 patients (55.2% women), aged from 18 to 81 years (Table 1). The Cronbach's alpha for the subscales of the DERS in the current sample were as follows: Nonacceptance of emotional responses: $\alpha = 0.76$; Goals: $\alpha = 0.77$; Impulse: $\alpha = 0.63$; Awareness: $\alpha = 0.72$; Strategies: $\alpha = 0.87$; Clarity: $\alpha = 0.67$, DERS Total score: $\alpha = 0.95$. No significant difference was found in difficulties in emotional dysregulation for sex, age, BMI, biological treatment, or comorbidity, whilst participants with mild-to-severe PASI had higher scores in the Goals and Impulse DERS subscales (Goals $P < 0.02$; Impulse $P < 0.03$). Also, a higher level of disease severity measured by IGA and lower level of educational attainment (< 13 years) were found to be associated with higher scores in DERS Acceptance subscale ($P < 0.04$ and $P < 0.01$, respectively). Comparing DERS subscale scores obtained by people recruited in our sample with the normative values provided by Sighinolfi et al. [31] for the Italian adaptation of the tool, except for the "Goals" subscale, all mean differences for each subscale were found to be statistically significant, with higher scores recorded in our patient sample (Table 2). Linear regression analyses were performed to investigate whether sociodemographics and clinical variables were significant predictors of DERS mean scores. Each DERS subscale score was tested as dependent variable, with sex, age, BMI, PASI, education level, biological treatment, and numbers of comorbidities as independent variables (Table 3). No sociodemographics or clinical variable was found to be significantly associated with DERS "Awareness" subscale. BMI was negatively associated with "Goal" subscales ($P = 0.006$). PASI scores were found to be positively associated with "Acceptance" and "Goal" mean scores ($P = 0.007$ and $P = 0.026$, respectively). Education level was found to be negatively associated with "Acceptance" mean scores ($P = 0.026$). Biological treatments were found to be negatively associated with "Goal" mean scores and with "Strategy" mean scores ($P = 0.02$ and $P = 0.04$, respectively). Finally, comorbidities were found to be positively associated with "Goal" and "Strategy" subscales ($P = 0.004$).

Discussion

The first aim of the present work consisted in detailing the difficulties in emotional regulation, as measured by DERS,

Table 1. Sociodemographic and clinical features of the sample, with DERS subscale mean scores (N=107).

Variable	Levels	N*	%	Awareness	Acceptance	Goal	Impulse	Strategy	Clarity
Overall		107		6.7	13.7	12.3	12.3	18.7	11.2
Sex	Male	47	44.8	6.7	13.8	12.2	12.7	18.9	11.0
	Female	58	55.2	6.7	13.7	12.3	12.0	18.5	11.4
Age (years)	<40	37	34.9	6.5	13.1	12.8	12.0	18.9	11.2
	40-59	44	41.5	7.0	14.0	12.2	12.3	17.9	10.9
	60+	25	23.6	6.5	14.5	11.9	12.8	19.6	11.7
BMI	<25	50	50.0	6.6	14.4	12.8	12.8	19.2	11.1
	25-29	34	34.0	6.6	13.8	12.0	12.5	18.4	11.7
	30+	16	16.0	7.2	12.2	10.5	11.2	18.3	11.0
PASI	<6	41	43.2	6.5	12.3	10.7	10.9	17.6	10.7
	6 to 9	19	20.0	5.9	14.3	13.5	13.8	19.8	11.2
	10+	35	36.8	7.5	15.4	13.7	13.9	20.5	12.0
			<i>P-value</i>			0.017	0.032		
IGA	<3	52	58.4	6.4	13.0	11.9	12.2	18.8	11.2
	3+	37	41.6	7.3	15.7	13.8	13.8	20.4	11.8
			<i>P-value</i>		0.036				
Education	<HS	18	19.1	6.7	17.1	12.6	13.7	20.0	12.5
	HS+	76	80.9	6.7	13.0	12.1	12.0	18.5	10.9
			<i>P-value</i>		0.012				
Biological treatment	No	42	60.9	6.5	13.6	13.2	13.3	19.5	11.3
	Yes	27	39.1	6.9	12.5	10.8	11.1	18.3	10.6
Comorbidity	No	29	32.6	6.6	13.5	10.9	11.9	17.7	11.0
	Yes	60	67.4	6.8	14.6	13.0	12.9	19.6	11.4

Abbreviations: DERS = Difficult of Emotional Regulation Scale; BMI = Body Mass Index; PASI = Psoriasis Area Severity Index; IGA = Investigator Global Assessment; HS = High School Diploma. P-values <0.050 are in bold.

Table 2. Comparisons between DERS mean scores in our sample and normative Italian values.

DERS subscales	Total sample	Normative Values	mean differences	SE	95% CI _{df 295}	P
	(N=107) mean (SD)	(N=190) mean (SD)				
Acceptance	13.70 (6.02)	11.59 (4.89)	-2.11	0.64	-3.38 – -0.84	0.001
Goals	12.22 (5.14)	12.83 (4.61)	0.61	0.58	-0.53 – 1.75	0.295
Awareness	6.70 (2.75)	5.80 (2.76)	-0.90	0.33	-1.55 – -0.24	0.007
Strategies	18.69 (6.45)	10.89 (3.71)	-7.80	0.59	-8.96 – -6.64	<0.001
Clarity	11.22 (4.15)	5.80 (2.80)	-3.17	0.41	-3.97 – -2.37	<0.001
Impulse	12.31 (5.14)	10.55 (4.52)	-1.76	0.58	-2.91 – -0.61	0.002
Total DERS score	75.12 (24.59)	61.38 (15.37)	-13.74	2.32	-18.31 – -9.17	<0.001

Abbreviations: DERS: Difficulties in Emotion Regulation Scale; SD: Standard Deviation; SE: Standard Error; 95%CI: 95% Confidence Intervals; df. degree of freedom; Acceptance: Difficulties in accepting emotional responses; Goals: Difficulty in engaging in goal-directed behavior; Awareness: Lack of emotional awareness; Strategies: lack of emotion regulation strategies; Clarity: Lack of emotional clarity; Impulse: Difficulty in controlling impulses when experiencing negative emotions.

Table 3. Linear Regression Analysis with sociodemographic and clinical features predicting DERS mean scores.

	Acceptance		Goal		Strategy		Clarity	
	β	P-value	β	P-value	β	P-value	β	P-value
Sex								
Age					-0.352	0.023		
BMI			-0.380	0.006				
PASI	0.376	0.007	0.286	0.026				
Education	-0.329	0.026					-0.357	0.029
Biol. Treatment			-0.287	0.018	-0.278	0.043		
Comorbidities			0.378	0.004	0.279	0.051		

Abbreviations: DERS = Difficult of Emotional Regulation Scale; BMI= Body Mass Index; PASI= Psoriasis Area Severity Index. Note: No significant association was observed for the “Awareness” and “Impulse” subscales – these scales are not shown. P-values and beta coefficients are shown only when P<0.060. P-values <0.050 are in bold.

according to sociodemographic features, comorbidity, and treatment options. The findings regarding other predictors examined in the study, instead, align with the existing literature: patients with higher levels of education tended to exhibit less difficulty in terms of awareness and comprehension of experienced emotions as well as in distinctly discerning the emotions they are experiencing; older patients tended to experience less difficulty in accessing emotional regulation strategies [33]. Moreover, the use of biological treatments appeared to be associated with a lower level of difficulties in emotional regulations, particularly for the “Goal” and “Strategy” subscales. These data could complement the findings of the systematic review by Fleming et al. [34], which states that the use of biologic drugs (tumor necrosis factor inhibitors [TNFi] or interleukin 12/23 inhibitors [IL-12/23i]) in patients with psoriasis were associated with statistically significant reductions in depressive symptom scores. On the

other hand, predictors of lower emotional regulation efficiency include having a higher PASI score, which indicates greater disease severity, and the presence of comorbidities. Individuals with higher PASI scores may experience greater levels of pain, itching, and discomfort, which can contribute to heightened emotional distress and difficulty in regulating emotions effectively. Instead, contrary to the findings previously reported in the literature, no statistically significant difference was observed in difficulties in emotional regulation concerning BMI [35]. Therefore, findings obtained in clinical samples indicate that patients with psoriasis who report difficulties in identifying and managing their emotions may show an abnormal eating pattern in response to food cravings, with a consequent increase in BMI [18]. Furthermore, in linear regression analysis, BMI emerged as a predictor of lower levels of emotional dysregulation. The other aim of the present work was to compare the difficulties in

emotional regulation mean scores in a sample of patients who suffered from plaque psoriasis with normative values derived from the Italian sample provided by Sighinolfi et al. [31]. Compared to healthy population samples, individuals who suffered from psoriasis, even those with mild levels of the disease, reported significantly higher scores on five out of six subscales and on DERS total score (Table 2). These data are consistent with results found by Fino et al. [20] and by Innamorati et al. [18] on individuals with mild levels of disease severity. Patients experiencing difficulties in managing their emotions may be less likely to adhere to treatment regimens, leading to poorer clinical outcomes and increased healthcare utilization. By identifying individuals at risk of emotional dysregulation, healthcare providers can tailor interventions to improve treatment adherence and optimize health outcomes. Our findings should be interpreted by considering various limitations that may affect their applicability to broader contexts. Firstly, the study's constraints include a small sample size and a cross-sectional design, which hinder the capacity to establish causality. Furthermore, the utilization of self-report measures introduces the potential for bias due to social desirability. Thirdly, the reliability values of two DERS subscales (i.e., Impulse and Clarity) are relatively low. In conclusion, these results provide further evidence that assessing levels of emotional dysregulation may help clinicians to identify patients who are most vulnerable to the cumulative impact of psoriasis, thus guiding them to the best treatment choice, and better adherence to scheduled follow-up visits as well as to the prescribed therapy.

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