

## Psychopathology and alexithymia in patients with psoriasis\*

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**Abstract:** BACKGROUND: Psoriasis is a chronic, inflammatory, relapsing skin disease that has a psychosocial impact on the patients' life.

OBJECTIVE: This study aimed to investigate psychopathology in patients with psoriasis based on a valid psychometric instrument, as well as on the relationship between psychopathology and alexithymia.

METHODS: 108 patients with psoriasis were included in the study. Psychopathology was evaluated with the Symptom Checklist-90-Revised (SCL-90-R) and alexithymia with the Toronto Alexithymia Scale (TAS-20). Disease severity was clinically assessed using the Psoriasis Area and Severity Index.

RESULTS: As regards the psychopathological dimensions, female patients presented with statistically significant higher somatization, depression, anxiety, phobic anxiety, and psychoticism than males. Patients with alexithymia presented with statistically significant higher somatization, interpersonal sensitivity, anxiety, and phobic anxiety than non-alexithymic patients. Alexithymia positively correlated with somatization ( $r = 0.26$ ,  $p < 0.01$ ), interpersonal sensitivity ( $r = 0.24$ ,  $p < 0.05$ ), depression ( $r = 0.27$ ,  $p < 0.01$ ), anxiety ( $r = 0.26$ ,  $p < 0.01$ ), and phobic anxiety ( $r = 0.26$ ,  $p < 0.01$ ). In addition, alexithymia also contributed to the prediction of these conditions.

STUDY LIMITATIONS: A larger study sample could yield safer generalized results. Nevertheless, to the best of our knowledge, this was the first study to investigate various psychopathological dimensions in patients with psoriasis.

CONCLUSIONS: Our study results indicate that alexithymia and female sex were associated with several psychopathological dimensions in patients with psoriasis. It may be suggested that alexithymia constitutes an important factor in the development of mental disorders among patients with psoriasis.

**Keywords:** Anxiety; Depression; Expressed emotion; Psoriasis; Psychopathology

### INTRODUCTION

Psoriasis is a chronic, inflammatory, relapsing skin disease. Both genetic and environmental factors are believed to play an important role in the pathogenesis of the disorder.<sup>1</sup> Psychological factors such as anxiety and depression might be involved in the onset and exacerbation of psoriasis and may interfere with its treatment.<sup>2,3</sup> Furthermore, certain aspects of personality, such as alexithymia, are considered to act as triggering factors of general susceptibility to the disease among other variables, although contradicting studies also exist.<sup>4</sup>

Alexithymia is a personality trait that consists of reduced symbolic thought, restricted and defective fantasy life, difficulty in distinguishing feelings from bodily sensations, and inadequacy in intuition and empathy.<sup>5</sup> Although not all patients with psoriasis are alexithymic, the majority of studies have found a significant difference in the levels of alexithymia between patients with psoriasis and healthy individuals.<sup>6-8</sup> Moreover, many studies have shown that depression and anxiety are associated with alexithymia.<sup>6,9-11</sup> Nevertheless, the assessment of psychopathology in previous studies was

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based mainly on questionnaires evaluating anxiety and depression symptoms, apart from a study that used the Symptom Checklist-90-Revised (SCL-90-R) to investigate emotional distress regarding pruritus perception in patients with psoriasis.<sup>12,13</sup>

The purposes of the current study were to investigate (1) psychopathology based on a valid psychometric instrument and (2) to analyze the relationship between psychopathology and alexithymia in patients with psoriasis. To the best of our knowledge, this was the first study to investigate various psychopathological dimensions among patients with psoriasis.

## METHODS

### Sample and procedure

We used the list of scheduled appointments of the dermatology clinic at "Attikon" University General Hospital to recruit 108 patients with a confirmed diagnosis of chronic plaque psoriasis, with a minimum of 6 years of education and ability to comprehend the Greek language. The Toronto Alexithymia Scale (TAS-20) and the Symptom Checklist Rating scale 90-R (SCL-90-R) were administered to the patients. We also collected demographic and clinical data. The main exclusion criteria included co-morbidity with a diagnosed physical or psychiatric disorder and use of medication that could have affected patients' mental condition, including illegal substances and alcohol.<sup>14,15</sup>

Patient participation was voluntary, without any financial compensation. The research protocol was approved by the ethics committee of the "Attikon" University General Hospital. All participants provided written informed consent, and the study was carried out in accordance with the declaration of Helsinki.

### Assessment instruments

Alexithymia was assessed using the 20-item self-report Toronto Alexithymia Scale (TAS-20). The items are rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).<sup>14</sup> The total score of the scale ranges from 20-100. The TAS-20 was translated into Greek and validated.<sup>16</sup> According to the Greek validation, a total score above 49 indicates alexithymia. SCL-90-R is a psychiatric self-report questionnaire. The scale includes 90 items, which are scored on a 5-point Likert scale, ranging from 0 (none) to 4 (extreme) indicating the occurrence rate of the symptom during the time reference. It is intended to measure symptom intensity on nine different subscales, namely Somatization, Obsessive-compulsive, Interpersonal sensitivity (i.e. feelings of personal inadequacy in comparisons with others), Depression, Anxiety, Hostility, Phobic anxiety, Paranoid ideation, and Psychoticism. Moreover, we highlight three suggested global indices: the Global Severity Index (GSI) – that is suggested to be the most sensitive single quantitative indicator concerning the respondent's psychological distress status –; the Positive Symptom Distress Index (PSDI) – that assesses the response style of the patient –; and the Positive Symptoms Total (PST) – that represents the number of symptoms scored above 0. SCL-90-R has been shown to have good reliability. The questionnaire was also translated into Greek and validated.<sup>15,17</sup> Psoriasis severity was assessed by a dermatologist according to the Psoriasis Area and Severity Index (PASI score).<sup>18</sup> The PASI incorporates the clinical extent of psoriasis (surface area of skin affected) and clinical severity of its manifestations (erythema, desquamation, and

induration). In the present study, we considered a score above 10 to diagnose severe psoriasis. Mild or moderate form of psoriasis is given a score of less than 10.

### Statistical analyses

Normality was assessed by the Kolmogorov-Smirnov test. Although normality was not confirmed in all cases, we presented the parametric test results because they did not differ from the non-parametric results. Furthermore, according to the central limit theorem, as the size of a random sample increases, its distribution approaches that of a normal distribution. Descriptive statistics were measured and presented as mean  $\pm$  standard deviation. The significance of the differences was examined using Student's *t* test for independent samples. Correlations between quantitative variables were measured by Pearson's *r* correlation coefficient. A series of linear regression analyses was conducted in order to examine the possible prediction of the psychopathological dimensions of alexithymia. The statistical significance level was set at  $p < 0.05$  and statistical analyses were conducted using SPSS for Windows (Version 20.0, Armonk, NY: IBM Corp).

## RESULTS

The current study included 108 patients with psoriasis; 52 (48.1%) male patients with a mean age of  $54.83 \pm 17.46$  years (age range, 18-83) and 56 (51.9%) female patients with a mean age of  $50.39 \pm 15.23$  years (age range, 20-78). We observed no statistically significant differences between male and female patients with regard to age ( $t = 1.41, p > 0.05$  NS).

SCL-90-R scores (mean  $\pm$  standard deviation) of the total sample are presented in Table 1. Female patients with psoriasis ( $0.99 \pm 0.59$ ) had a higher mean global severity index (GSI) in comparison to male patients ( $0.74 \pm 0.38, p < 0.01$ ). Similarly, female patients ( $42.45 \pm 47.49$ ) presented a higher mean positive symptoms total (PST) than males ( $33.17 \pm 12.79, p < 0.01$ ). According to other studies examining psychopathological dimensions, female patients scored higher in dimensions as somatization, depression, anxiety, phobic anxiety, and psychoticism (Table 1).

Concerning psoriasis severity, patients with a high PASI score ( $11.36 \pm 5.28$ ) presented higher levels of interpersonal sensitivity compared to patients with low PASI scores ( $7.71 \pm 5.87, p < 0.05$ ). We found no statistically significant differences in relation to the other dimensions, as shown in Table 2.

Patients with alexithymia displayed higher PST scores ( $40.85 \pm 16.40$ ) compared with patients without alexithymia ( $34.11 \pm 14.83, p < 0.05$ ). Concerning the dimensions of psychopathology, alexithymic patients presented higher somatization, interpersonal sensitivity, anxiety, and phobic anxiety than non-alexithymic patients (Table 3).

With a view to exploring whether alexithymia is associated with psychopathology and age, we used the Pearson's *r* correlation coefficient. Alexithymia was significantly and positively correlated with somatization ( $r = 0.26, p < 0.01$ ), interpersonal sensitivity ( $r = 0.24, p < 0.05$ ), depression, ( $r = 0.27, p < 0.01$ ), anxiety ( $r = 0.26, p < 0.01$ ), phobic anxiety ( $r = 0.26, p < 0.01$ ), GSI ( $r = 0.27, p < 0.01$ ), and PST ( $r = 0.28, p < 0.01$ ). On the other hand, none of the dimensions of psychopathology were correlated with age (Table 4).

TABLE 1: Descriptive statistics and comparisons between male and female patients with psoriasis

	Total Sample	Sex		t
		Male	Female	
Somatization	10.30 ± 8.06	7.29 ± 4.71	13.09 ± 9.45	-4.08***
Obsessive-compulsive	11.11 ± 6.69	10.31 ± 5.75	11.86 ± 7.43	-1.21
Interpersonal sensitivity	8.56 ± 5.92	7.67 ± 5.88	9.38 ± 5.89	-1.50
Depression	14.20 ± 9.17	12.10 ± 7.85	16.16 ± 9.92	-2.35*
Anxiety	9.31 ± 6.86	7.54 ± 5.17	10.96 ± 7.80	-2.67**
Hostility	5.06 ± 4.47	5.52 ± 4.90	4.63 ± 4.03	1.04
Phobic anxiety	3.14 ± 4.15	2.19 ± 3.39	4.02 ± 4.61	-2.36*
Paranoid ideation	5.40 ± 4.62	4.65 ± 3.96	6.09 ± 5.09	-1.63
Psychoticism	4.74 ± 5.01	3.42 ± 3.84	5.96 ± 5.66	-2.75**
Global Severity Index (GSI)	0.87 ± 0.51	0.74 ± 0.38	0.99 ± 0.59	-2.66**
Positive Symptom Distress Index (PSDI)	1.98 ± 0.50	1.95 ± 0.49	2.01 ± 0.52	-0.59
Positive Symptoms Total (PST)	37.98 ± 16.04	33.17 ± 12.79	42.45 ± 47.49	-3.16**

Independent t tests in order to determine possible differences in SCL-90-R between the mean scores of male and female patients with psoriasis

Values are presented as mean ± SD, \* p < 0.05, \*\* p < 0.01, \*\*\*p < 0.001

TABLE 2: Descriptive statistics and comparisons between psoriatic patients with low and high PASI scores

	PASI		t
	Low	High	
Somatization	10.24 ± 8.49	10.48 ± 6.57	-0.13
Obsessive-compulsive	10.76 ± 6.66	12.28 ± 6.80	-1.00
Interpersonal sensitivity	7.71 ± 5.87	11.36 ± 5.28	-2.79*
Depression	13.51 ± 8.86	16.52 ± 9.98	-1.45
Anxiety	9.37 ± 7.12	9.12 ± 6.02	0.16
Hostility	4.95 ± 4.48	5.40 ± 4.51	-0.44
Phobic anxiety	3.08 ± 4.29	3.32 ± 3.86	-0.26
Paranoid ideation	5.10 ± 4.66	6.40 ± 4.41	-1.24
Psychoticism	4.63 ± 5.26	5.12 ± 4.17	-0.43
Global Severity Index (GSI)	0.84 ± 0.53	0.97 ± 0.44	-1.17
Positive Symptom Distress Index (PSDI)	1.94 ± 0.53	2.12 ± 0.34	-1.98
Positive Symptoms Total (PST)	37.19 ± 16.57	40.60 ± 14.10	-0.93

Independent t tests in order to determine possible differences in SCL-90-R between the mean scores of low and high PASI of patients with psoriasis

Values are presented as mean ± SD, \*p < 0.01

A series of linear regression analyses were computed in order to examine the capacity of alexithymia to predict psychopathologies. We observed that alexithymia contributed significantly to the prediction of somatization (explaining a 7% score variation), interpersonal sensitivity (6% score variation), depression (7% score variation), anxiety (7% score variation), phobic anxiety (7% score variation), GSI (7% score variation), and PST (8% score variation). On the other hand, the remaining psychopathological dimensions were independent of alexithymia (Table 5).

## DISCUSSION

The present study assessed psychopathologies in a sample of patients with psoriasis taking into consideration the role of alexithymia as a psychosomatic factor as well as demographic and clinical factors.

Regarding the evaluation of psychopathology, it seems that women with psoriasis differed significantly from men in most of its dimensions. Specifically, female patients presented with higher somatization, depression, anxiety, phobic anxiety, and psychoticism. Meanwhile, the global severity index – which is suggested to be the most sensitive single quantitative indicator concerning the respon-

TABLE 3: Descriptive statistics and comparisons between alexithymic and non alexithymic patients with psoriasis

	Alexithymia†		t
	No	Yes	
Somatization	8.39 ± 6.42	11.71 ± 8.88	-2.15*
Obsessive-compulsive	11.22 ± 5.72	11.03 ± 7.38	0.142
Interpersonal sensitivity	7.30 ± 4.97	9.48 ± 6.42	-1.99*
Depression	12.50 ± 7.14	15.47 ± 10.30	-1.77
Anxiety	7.61 ± 5.14	10.58 ± 7.69	-2.27*
Hostility	4.74 ± 4.43	5.29 ± 4.52	-0.63
Phobic anxiety	2.15 ± 3.22	3.87 ± 4.62	-2.16*
Paranoid ideation	5.17 ± 4.63	5.56 ± 4.64	-0.43
Psychoticism	4.28 ± 4.80	5.08 ± 5.17	-0.82
Global Severity Index (GSI)	0.77 ± 0.39	0.94 ± 0.58	-1.90
Positive Symptom Distress Index (PSDI)	1.98 ± 0.47	1.98 ± 0.53	-0.01
Positive Symptoms Total (PST)	34.11 ± 14.83	40.85 ± 16.40	-2.20*

Independent *t* tests in order to determine possible differences in SCL-90-R between the mean scores of alexithymic and non-alexithymic patients with psoriasis †TAS>49: Existence of alexithymia, Values are presented as mean ± SD, \* *p* < 0.05.

TABLE 4: Correlations between SCL-90-R and TAS and SCL-90-R and age

	TAS (r)	Age (r)
Somatization	0.26**	0.04
Obsessive-compulsive	0.09	0.08
Interpersonal sensitivity	0.24*	-0.03
Depression	0.27**	0.07
Anxiety	0.26**	-0.06
Hostility	0.14	-0.09
Phobic anxiety	0.26**	-0.10
Paranoid ideation	0.19	0.09
Psychoticism	0.12	-0.11
Global Severity Index (GSI)	0.27**	0.01
Positive Symptom Distress Index (PSDI)	0.11	0.08
Positive Symptoms Total (PST)	0.28**	-0.03

Correlations by Pearson's *r* correlation coefficient, \**p* < 0.05, \*\* *p* < 0.01

dent's psychological distress status – was higher for women than for men. Other studies have also reported that women with psoriasis present with higher depression and anxiety rates than men.<sup>10</sup> Moreover, female patients appeared to somatize more and develop higher phobic anxiety, which could be attributed to the fact that women are less likely to accept their disease as it affects significantly their image and contributes negatively to their overall situation, thus leading to somatic complaints and to an increase of negative feelings. As a result, they feel undesired in their interaction with others and are led to isolation from social events.<sup>19</sup> In addition, in our sample, female patients showed elevated levels of psychoticism.

According to a study, psoriatic patients appear to have higher scores of psychoticism compared to patients with other skin diseases.<sup>20</sup>

Patients with severe psoriasis had higher interpersonal sensitivity scores than patients with mild or moderate psoriasis (PASI). It is possible that patients with severe psoriasis feel greater stigmatization, which may lead them to avoid social situations.<sup>19</sup>

As regards the role of alexithymia, psoriatic patients with alexithymia presented with higher somatization scores compared with patients without alexithymia. According to the psychosomatic theory, it is suggested that due to the lack of emotional awareness – originating from alexithymia – emotions are expressed through physical symptoms, especially psoriasis.<sup>13,21</sup> Anxiety and phobic anxiety scores were also higher in patients with alexithymia. A possible explanation could be that the internal stress of alexithymic patients cannot be reduced – as it would normally do – through emotional expression. Thus, they become more vulnerable to stress.<sup>13,22</sup> Patients with alexithymia also presented with higher interpersonal sensitivity. It is likely that the difficulty to identify and express their feelings might lead to relationships problems, as well as to feelings of failure, inferiority, and self-underestimation.

Alexithymia was positively correlated with somatization, interpersonal sensitivity, anxiety, phobic anxiety, and depression. Therefore, it also contributed to their prediction. The association of alexithymia with anxiety and depression has been confirmed by other studies as well, while its relationship with depression has also been referred as alexithymic depression.<sup>23,24</sup> Moreover, according to Kim and colleagues, alexithymic patients with depression are in a higher risk of developing even more severe depressive symptoms, as well as phobic symptoms.<sup>25</sup>

We acknowledge some limitations of our study. Despite the fact that the present study used a rather high sample in comparison with previous ones, a larger sample could yield safer generalized

TABLE 5: Linear regression analyses for the prediction of psychopathology dimensions from alexithymia

Dependent Variables	R <sup>2</sup>	F (1,106)	β
Somatization	0.07	7.88**	0.26
Obsessive-compulsive	0.01	0.87	0.09
Interpersonal sensitivity	0.06	6.31*	0.24
Depression	0.07	8.10**	0.27
Anxiety	0.07	7.86**	0.26
Hostility	0.02	2.02	0.14
Phobic anxiety	0.07	7.81**	0.26
Paranoid ideation	0.01	1.51	0.12
Psychoticism	0.01	1.43	0.12
Global Severity Index (GSI)	0.07	8.15**	0.27
Positive Symptom Distress Index (PSDI)	0.01	1.27	0.11
Positive Symptoms Total (PST)	0.08	8.69**	0.28

Independent variable: Alexithymia (method: enter), \* p < 0.05, \*\* p < 0.01

results. Another limitation is that we conducted no follow-up meetings or repeated examination.

## CONCLUSIONS

Our study showed that female patients with psoriasis had higher somatization, depression, anxiety, phobic anxiety, and psychoticism scores compared to male patients. Moreover, patients with severe psoriasis had higher interpersonal sensitivity scores than patients with mild or moderate psoriasis. The significance of alexithymia emerged since alexithymic patients presented with higher

somatization, interpersonal sensitivity, anxiety, and phobic anxiety levels than non-alexithymic patients. Furthermore, alexithymia was correlated with the aforementioned dimensions of psychopathology and contributed to their prediction. It may be suggested, therefore, that alexithymia constitutes an important factor in the development of mental disorders among patients with psoriasis.

Further studies should be conducted in order to assess and better understand psychopathology in patients with psoriasis, comparing them with patients suffering from other dermatological diseases or healthy control groups. □

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