Body Dysmorphic Disorder, Psychiatric Symptoms, and Quality of Life in Female Dermatological Patients

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Purpose: To examine the relationships of body dysmorphic disorder (BDD) with psychiatric symptoms and quality of life in dermatological patients.

Patients and Methods: A total of 154 female patients with dermatological disease underwent a comprehensive clinical assessment that included the Body Dysmorphic Disorder Examination-Self Report (BDDE-SR), Symptom Checklist 90-Revised (SCL-90-R), and Skindex-29. Dermatological disease was categorized as follows: inflammatory dermatoses (reference category), isolated lesions, and unclassified dermatoses. The BDDE-SR and SCL-90-R scores were used to evaluate BDD and psychiatric symptoms, respectively. Dermatological quality of life was measured with the Skindex-29.

Results: The BDDE-SR score was significantly associated with the SCL-90-R and Skindex-29 total and subscores, even after controlling for age, body mass index, and dermatological diagnosis. The variables that contributed most to the BDDE-SR score were the SCL-90-R depression score and Skindex-29 emotion scores. Additional analyses revealed that the BDDE-SR score was higher in participants with unclassified dermatoses, but neither the SCL-90-R score nor Skindex-29 score was related to any dermatological diagnosis.

Conclusion: The BDD symptoms were especially prominent in the unclassified dermatoses group and were highly related to psychiatric symptoms and a poor quality of life in our dermatological patients. Further research including studies involving psychiatric interviews to confirm the BDD diagnosis and symptoms will improve our understanding of BDD in dermatological patients.

Keywords: body dysmorphic disorder, psychiatric symptoms, quality of life: dermatological disease, unclassified dermatoses

Introduction

Body dysmorphic disorder (BDD) is a mental disorder characterized by an obsession with some aspect of one’s own body or appearance perceived to be severely flawed, and therefore warranting exceptional measures to hide or fix.1 The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) defines BDD as a preoccupation with an imagined or trivial defect in appearance causing social or occupational dysfunction, and not better explained as another disorder.2 The DSM-5 includes BDD in a new category (obsessive-compulsive spectrum) and adds operational criteria (such as repetitive behaviors or intrusive thoughts) and a new subtype of dysmorphia (muscle dysmorphia; belief that one’s body is too small, or insufficiently muscular or lean).3
Most BDD patients seen in psychiatric settings have other mental disorders. Several studies have reported that major depressive disorder is the most common comorbid disorder, with the largest study reporting a current and lifetime rates of 58% and 76%, respectively.\(^5\) Obsessive-compulsive disorder, substance use disorder, social phobia, and avoidant personality disorder also commonly co-occur with BDD.\(^5\) BDD patients experience unusually high levels of perceived stress and a poor quality of life.\(^5\)–\(^7\) Health-related quality of life is a multi-dimensional construct reflecting overall wellbeing that includes aspects of physical and mental health and is self-defined according to the perceived ability to achieve and maintain a level of overall functioning that allows the patient to reach life goals.\(^8\),\(^9\) In a study assessing health-related quality of life using the Short Form Health Survey, outpatients with BDD had worse scores in all mental health domains than the general population and patients with depression.\(^7\) More severe BDD symptoms were associated with poorer mental health-related quality of life.\(^5\)

Empirical studies suggest that the prevalence of BDD among dermatology and plastic surgery patients is higher than in the general population.\(^10\),\(^11\) In total, 12% of dermatology patients screened positive for BDD,\(^10\) compared to 7–8% of cosmetic surgery and in cosmetic surgery patients.\(^11\) According to Phillips et al,\(^10\) dermatologists may be the physicians most often seen by these patients. BDD seems to be more prevalent among dermatology and cosmetic surgery patients, thus showing the importance of professionals with knowledge of the clinical aspects of BDD.

We first aimed to examine the relationships of BDD with psychiatric symptoms and quality of life in dermatological patients. We secondly assessed the relationship between stratified dermatologic diagnosis and BDD, psychiatric symptoms, or quality of life.

**Patients and Methods**

**Participants**

A total of 154 female outpatients with a dermatological disease who visited to the dermatology outpatient clinic of a university hospital were enrolled in this study. The study protocol was approved by the Institutional Review Board of Chungnam National University Hospital, Daejeon, Republic of Korea. The study was conducted in accordance with the Declaration of Helsinki. All participants provided written informed consent.

**Dermatological Diagnoses**

All participants were diagnosed with a dermatological disease based on a clinical examination by a dermatologist. The dermatological disease categories were inflammatory dermatoses (reference category), isolated lesions, and unclassified dermatoses, as per previous studies.\(^12\)–\(^14\)

**Assessments of BDD, Psychiatric Symptoms, and Quality of Life**

All participants with dermatological disease underwent a comprehensive clinical assessment that included the Body Dysmorphic Disorder Examination-Self Report (BDDE-SR), Symptom Checklist-90-Revised (SCL-90-R), and Skinindex-29; these instruments were used to evaluate BDD, psychiatric symptoms, and quality of life, respectively.

**BDDE-SR**

The BDDE-SR is a 30-item self-report questionnaire that determines the extent of dissatisfaction with body parts within the past month.\(^15\),\(^16\) Each question (except for questions 16a and b, which are answered “yes” or “no”) is answered on a 6-point Likert scale. The total score ranges from 0 to 168. Higher scores reflect more severe symptoms. The Korean version of the BDDE-SR has been tested in adolescents,\(^17\) and college students.\(^18\)

**SCL-90-R**

The SCL-90-R is a self-report instrument comprising 90 items that psychological distress and current psychiatric symptoms (somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism).\(^19\) Respondents provide answers based on the symptoms in the past week, including the day of the test, using a 5-point Likert scale. Higher scores mean higher level of symptoms. The Korean version of the SCL-90-R has been tested for reliability and validity.\(^20\)

**Skindex-29**

The Skindex-29\(^21\) is a 29-item self-administered questionnaire that assesses the health-related quality of life of patients with skin diseases. It covers three domains: degree of symptoms, psychosocial functioning, and emotional status.\(^22\) The questions are answered using a 5-point Likert scale, and mean scores for all items and individual domains are calculated (total and domain score, respectively), and higher scores mean higher level of symptoms. The Korean version of the Skindex-29 has been tested for reliability and validity.\(^23\)
**BMI Assessment**

Body mass index (BMI) was calculated as weight in kilograms divided by the height in meters squared. Research nurses measured the height and body weight of all participants and calculated the BMI. BMI was categorized underweight (<21 mg/kg²), healthy weight (21–25 mg/kg²) or overweight (>25 mg/kg²) in accordance with a previous report.²⁴

**Statistical Analysis**

Demographic and clinical variables were compared among groups using analysis of variance for continuous variables and the χ² test for categorical variables. To examine the relationship of BDD with psychiatric symptoms or quality of life, multiple linear regression analysis with BDDE-SR score as the independent variable and SCL-90-R and Skindex-29 scores as the dependent variables were performed, including an analysis stratified according to dermatological diagnosis using inflammatory dermatoses as the reference (inflammatory dermatoses vs isolated lesions and inflammatory dermatoses vs unclassified dermatoses). Three models were devised: the first included no covariates, the second included age as a covariate, and the third included age, BMI, and the dermatological diagnosis as covariates. Furthermore, to identify variables contributing to BDD, stepwise multiple linear regression analyses with the SCL-90-R and Skindex-29 subscores as independent variables and the BDDE-SR score as the dependent variable was conducted. Statistical analyses were performed using IBM SPSS Statistics software (ver. 24.0; IBM Corp., Armonk, NY, USA). A p-value < 0.05 was considered significant.

**Results**

**Participant Characteristics**

The demographic and clinical characteristics of the participants are presented in Table 1. Among the total 154 female participants with a dermatological diagnosis, 96 had inflammatory dermatoses [acne, n = 38; atopic (eczematous) dermatitis, n = 22; allergic contact dermatitis, n = 12; urticaria, n = 6; seborrheic dermatitis, n = 5; psoriasis, n = 5; xerodermia, n = 2; Behçet’s disease, n = 1; ringworm, n = 1; herpes zoster, n = 1; candidiasis, n = 1; folliculitis, n = 1; mycosis fungoides, n = 1]; 28 had isolated lesions (melasma, n = 11; freckles, n = 5; warts, n = 3; blemishes, n = 3; solar lentigo, n = 2; syringoma, n = 1; dermatofibroma, n = 2; or spots, n = 1), and 30 had unclassified dermatoses (alopecia, n = 23; vitiligo, n = 3; facial flushing, n = 2; telogen effluvium, n = 1; trichotillomania, n = 1) (Table 1).

| Characteristics                  | Overall       | Inflammatory Dermatoses | Isolated Lesions | Unclassified Dermatoses | χ² or F | P     |
|----------------------------------|---------------|-------------------------|-----------------|-------------------------|--------|-------|
| n, %                             | 154           | 96 (62.3)               | 28 (18.2)       | 30 (19.5)               | 11.94  | <0.001|
| Age, y                           | 34.85 (9.2)   | 32.35 (8.0)             | 40.75 (8.5)     | 37.33 (10.4)            | 4.097  | 0.019 |
| BMI, kg/m²                       | 21.55 (2.6)   | 21.09 (2.5)             | 22.15 (2.6)     | 22.48 (2.6)             | 2.130  | 0.122 |
| BDD global score                 | 69.27 (23.9)  | 67.57 (23.3)            | 66.54 (20.6)    | 77.23 (27.2)            | 0.574  | 0.565 |
| SCL-90-R                         |               |                         |                 |                         |        |       |
| Total score                      | 437.61 (107.8)| 433.76 (93.6)           | 430.64 (143.6)  | 456.43 (115.2)          | 0.574  | 0.565 |
| Somatization score               | 43.06 (7.8)   | 43.15 (7.7)             | 42.04 (8.8)     | 43.77 (7.3)             | 0.366  | 0.694 |
| Obsessive-compulsive score       | 43.41 (9.2)   | 43.49 (8.3)             | 41.46 (11.1)    | 44.97 (9.8)             | 1.067  | 0.347 |
| Interpersonal sensitivity score  | 44.13 (9.9)   | 43.59 (9.0)             | 43.32 (11.4)    | 46.60 (11.0)            | 1.177  | 0.311 |
| Depression score                 | 42.71 (9.0)   | 42.59 (8.2)             | 41.36 (10.1)    | 44.33 (10.3)            | 0.806  | 0.449 |
| Anxiety score                    | 41.90 (7.4)   | 41.81 (7.2)             | 41.32 (7.8)     | 42.73 (7.8)             | 0.282  | 0.755 |
| Hostility score                  | 45.20 (8.7)   | 45.06 (7.9)             | 45.11 (11.0)    | 45.73 (8.8)             | 0.070  | 0.933 |
| Phobia score                     | 44.11 (7.5)   | 43.61 (6.1)             | 45.04 (10.9)    | 44.83 (7.6)             | 0.565  | 0.570 |
| Paranoid score                   | 43.64 (8.6)   | 43.07 (7.4)             | 44.61 (11.7)    | 44.57 (9.1)             | 0.555  | 0.575 |
| Psychosis score                  | 42.72 (7.4)   | 41.98 (5.5)             | 43.43 (11.0)    | 44.43 (8.6)             | 1.406  | 0.248 |
| General symptom index score      | 46.72 (42.0)  | 45.40 (36.7)            | 44.96 (54.6)    | 54.47 (44.9)            | 0.669  | 0.514 |
| Skindex-29                       |               |                         |                 |                         |        |       |
| Total score                      | 57.72 (62.1)  | 56.31 (61.0)            | 50.37 (65.3)    | 69.11 (63.0)            | 0.724  | 0.487 |
| Symptom score                    | 19.85 (20.6)  | 19.11 (21.0)            | 17.63 (21.6)    | 24.27 (18.1)            | 0.914  | 0.403 |
| Function score                   | 13.91 (19.7)  | 12.96 (18.6)            | 13.99 (22.3)    | 16.88 (20.7)            | 0.452  | 0.638 |
| Emotion score                    | 23.97 (26.0)  | 24.25 (26.0)            | 18.75 (23.4)    | 27.96 (28.3)            | 0.923  | 0.300 |

**Note:** Unless otherwise indicated, data are expressed as mean (standard deviation).

**Abbreviations:** BMI, body mass index; BDD, body dysmorphic disorder; SCL-90-R, Symptom Checklist 90-Revised.
Table 2 Results of Multiple Linear Regression Analyses for Assessing the Relationship Between BDD-SR and SCL-90-R Scores in Dermatological Patients

|                         | B    | 95% CI             | P     |
|-------------------------|------|--------------------|-------|
| **SCL-90-R total score**|      |                    |       |
| Model 1                 | 2.245| 1.585 to 2.906     | <0.001|
| Model 2                 | 2.266| 1.602 to 2.930     | <0.001|
| Model 3                 | 2.249| 1.563 to 2.935     | <0.001|
| **SCL-90-R somatization score** |      |                    |       |
| Model 1                 | 0.115| 0.064 to 0.166     | <0.001|
| Model 2                 | 0.119| 0.068 to 0.170     | <0.001|
| Model 3                 | 0.122| 0.070 to 0.175     | <0.001|
| **SCL-90-R obsessive-compulsive score** |      |                    |       |
| Model 1                 | 0.183| 0.126 to 0.241     | <0.001|
| Model 2                 | 0.182| 0.124 to 0.239     | <0.001|
| Model 3                 | 0.181| 0.122 to 0.241     | <0.001|
| **SCL-90-R interpersonal sensitivity score** |      |                    |       |
| Model 1                 | 0.200| 0.141 to 0.260     | <0.001|
| Model 2                 | 0.203| 0.143 to 0.262     | <0.001|
| Model 3                 | 0.193| 0.133 to 0.254     | <0.001|
| **SCL-90-R depression score** |      |                    |       |
| Model 1                 | 0.193| 0.138 to 0.248     | <0.001|
| Model 2                 | 0.194| 0.138 to 0.250     | <0.001|
| Model 3                 | 0.191| 0.133 to 0.248     | <0.001|
| **SCL-90-R anxiety score** |      |                    |       |
| Model 1                 | 0.121| 0.073 to 0.169     | <0.001|
| Model 2                 | 0.125| 0.077 to 0.172     | <0.001|
| Model 3                 | 0.132| 0.083 to 0.181     | <0.001|
| **SCL-90-R hostility score** |      |                    |       |
| Model 1                 | 0.161| 0.106 to 0.216     | <0.001|
| Model 2                 | 0.160| 0.105 to 0.215     | <0.001|
| Model 3                 | 0.156| 0.100 to 0.212     | <0.001|
| **SCL-90-R phobia score** |      |                    |       |
| Model 1                 | 0.120| 0.071 to 0.169     | <0.001|
| Model 2                 | 0.125| 0.077 to 0.173     | <0.001|
| Model 3                 | 0.128| 0.078 to 0.178     | <0.001|
| **SCL-90-R paranoid score** |      |                    |       |
| Model 1                 | 0.146| 0.092 to 0.200     | <0.001|
| Model 2                 | 0.144| 0.090 to 0.199     | <0.001|
| Model 3                 | 0.139| 0.083 to 0.196     | <0.001|
| **SCL-90-R psychosis score** |      |                    |       |
| Model 1                 | 0.126| 0.079 to 0.174     | <0.001|
| Model 2                 | 0.128| 0.080 to 0.175     | <0.001|
| Model 3                 | 0.125| 0.075 to 0.174     | <0.001|
| **SCL-90-R general symptom index score** |      |                    |       |
| Model 1                 | 0.880| 0.622 to 1.137     | <0.001|

Table 2 (Continued).

|                         | B    | 95% CI             | P     |
|-------------------------|------|--------------------|-------|
| Model 2                 | 0.887| 0.629 to 1.146     | <0.001|
| Model 3                 | 0.882| 0.615 to 1.149     | <0.001|

**Note:** Model 1 did not include any covariates, model 2 included age as covariate, and model 3 included all potential covariates, including age, body mass index, and dermatologic diagnosis.

**Abbreviations:** BDD-SR, Body Dysmorphic Disorder Examination-Self Report; SCL-90-R, Symptom Checklist 90-Revised; CI, confidence interval.

### Association Between BDD and Psychiatric Symptoms

The BDDE-SR score was significantly associated with the SCL-90-R total and subscores after adjusting for all potential covariates (Table 2).

Table 3 Results of Multiple Linear Regression Analyses for Assessing the Relationship Between BDDE-SR Score and Skindex-29 Score in Dermatological Patients

|                         | B    | 95% CI             | P     |
|-------------------------|------|--------------------|-------|
| **Skindex-29 total score** |      |                    |       |
| Model 1                 | 1.249| 0.866 to 1.631     | <0.001|
| Model 2                 | 1.269| 0.886 to 1.652     | <0.001|
| Model 3                 | 1.278| 0.883 to 1.673     | <0.001|
| **Skindex-29 symptom score** |      |                    |       |
| Model 1                 | 0.347| 0.214 to 0.479     | <0.001|
| Model 2                 | 0.352| 0.219 to 0.485     | <0.001|
| Model 3                 | 0.343| 0.206 to 0.479     | <0.001|
| **Skindex-29 function score** |      |                    |       |
| Model 1                 | 0.385| 0.265 to 0.506     | <0.001|
| Model 2                 | 0.395| 0.275 to 0.514     | <0.001|
| Model 3                 | 0.403| 0.279 to 0.527     | <0.001|
| **Skindex-29 emotion score** |      |                    |       |
| Model 1                 | 0.517| 0.356 to 0.678     | <0.001|
| Model 2                 | 0.522| 0.361 to 0.684     | <0.001|
| Model 3                 | 0.532| 0.365 to 0.699     | <0.001|

**Note:** Model 1 did not include any covariates, model 2 included age as covariate, and model 3 included all potential covariates, including age, body mass index, and dermatologic diagnosis.

**Abbreviations:** BDDE-SR, Body Dysmorphic Disorder Examination-Self Report; CI, confidence interval.

### Association Between BDD and Quality of Life

The BDDE-SR score was significantly associated with the Skindex-29 total and subscores after adjusting for all potential covariates (Table 3).
Variables Contributing to BDD

The variables that contributed most to the BDDE-SR score were the SCL-90-R depression score and Skindex-29 emotion score (Table 4 and Figure 1).

Association Among BDD, Psychiatric Symptoms, and Quality of Life Stratified by Dermatological Diagnosis

The BDDE-SR scores were highest in the unclassified dermatoses group, but neither the SCL-90-R nor Skindex-29 score were related to any dermatological diagnosis after adjusting for the covariates (Table 5 and Figure 2).

Discussion

The results of this study showed that BDD was associated with psychiatric symptoms and low quality of life in adult females with a dermatological disease. Furthermore, BDD symptoms were more severe in the unclassified dermatoses group, but neither psychiatric symptoms nor a low quality of life was related to any dermatologic diagnosis. To our knowledge, this is the first study to investigate the relationships among BDD, global psychiatric symptoms, and quality of life via analyses stratified by dermatological diagnosis.

Our findings were consistent with previous studies regarding the relationships of BDD with depression and quality of life.7,25 One study reported that participants with skin diseases had more severe BDD score and depression, while those with a skin disease and severe BDD had high depression scores.25 In another study, BDD was frequently accompanied by major depression, earlier-onset depression and longer-duration depressive episodes, and also tended to co-occur with atypical depression.26 Another study on the relationship between BDD and quality of life showed that the BDD severity was correlated with quality of life even after adjusting for the severity of depression.7

Within our unclassified dermatoses group, and particularly among the patients with hair-related concerns, BDDE-SR scores were higher than those of the inflammatory dermatoses group, although neither psychiatric symptoms nor the quality of life was related to any dermatological diagnosis. One study reported that the incidence of BDD was about 10 times higher

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Table 4 Results of Stepwise Multiple Linear Regression Analyses for Assessing Variables Contribute to BDDE-SR Score in Dermatological Patients

| Model | B     | SE   | 95% CI          | P     | R²   |
|-------|-------|------|-----------------|-------|------|
| 1     | SCL-90-R depression score | 1.324 | 0.186 | 0.958 to 1.691 | <0.001 | 0.251 |
| 2     | SCL-90-R depression score | 0.928 | 0.204 | 0.525 to 1.330 | <0.001 | 0.321 |
|       | Skindex-29 emotion score | 0.279 | 0.071 | 0.139 to 0.419 | <0.001 |      |

Abbreviations: BDDE-SR, Body Dysmorphic Disorder Examination-Self Report; SCL-90-R, Symptom Checklist 90-Revised; CI, confidence interval.

Figure 1 Scatter plots of the relationships of the BDDE-SR score with (A) the SCL-90-R depression score and (B) Skindex-29 emotion score.
in patients complaining of hair loss compared to general dermatology patients.\(^{27}\) That study emphasized that awareness of BDD and referral of selected patients to mental health professionals are crucial. Furthermore, many studies have reported that hair-related concern, and especially hair loss, is the most common BDD symptom.\(^{28–30}\)

Among BDD patients receiving surgical and non-psychiatric medical treatment, treatment outcomes are

**Table 5** Results of Multiple Linear Regression Analyses for Assessing the Relationship Between Stratified Dermatological Diagnoses and BDD-SR, SCL-90-R, or Skindex-29 Scores in Dermatological Patients

| Stratified Dermatological Diagnoses | Inflammatory Dermatoses | B (95% CI) | p   | Isolated Lesions | B (95% CI) | P   | Unclassified Dermatoses | B (95% CI) | P   |
|------------------------------------|-------------------------|------------|-----|------------------|------------|-----|-------------------------|------------|-----|
| BDD-SR score                       |                         |            |     |                  |            |     |                         |            |     |
| Model 1                            | Reference               | -0.519 (-10.610 to 9.571) | 0.919 | 10.762 (0.812 to 20.713) | 0.034 |
| Model 2                            | Reference               | 1.901 (-8.765 to 12.567)  | 0.725 | 12.338 (2.152 to 22.524) | 0.018 |
| Model 3                            | Reference               | 1.490 (-9.097 to 12.078)  | 0.781 | 10.440 (0.134 to 20.745) | 0.047 |
| SCL-90-R score                     |                         |            |     |                  |            |     |                         |            |     |
| Model 1                            | Reference               | -8.453 (-55.612 to 38.707) | 0.724 | 18.595 (-21.909 to 60.099) | 0.431 |
| Model 2                            | Reference               | -10.173 (-60.331 to 39.985) | 0.689 | 17.475 (-30.427 to 65.377) | 0.472 |
| Model 3                            | Reference               | -12.029 (-61.863 to 37.805) | 0.634 | 8.890 (-39.618 to 57.399) | 0.718 |
| Skindex-29 score                   |                         |            |     |                  |            |     |                         |            |     |
| Model 1                            | Reference               | -7.786 (-34.813 to 19.241) | 0.570 | 9.612 (-36.263 to 61.299) | 0.477 |
| Model 2                            | Reference               | -11.701 (-40.384 to 16.982) | 0.421 | 7.063 (-20.330 to 34.456) | 0.611 |
| Model 3                            | Reference               | -12.617 (-41.195 to 15.961) | 0.384 | 2.827 (-24.991 to 30.644) | 0.841 |

**Note:** Model 1 did not include any covariates, model 2 included age as covariate, and model 3 included all potential covariates, including age, body mass index, and dermatologic diagnosis.

**Abbreviations:** BDD-SR, Body Dysmorphic Disorder Examination-Self Report; SCL-90-R, Symptom Checklist 90-Revised; CI, confidence interval.
rarely satisfactory (although they may be successful from a physician’s point of view) because the treatments do not alleviate BDD symptoms. \(^{31,32}\) In a survey of cosmetic surgeons, 84% reported that they had operated on BDD patients, but only 1% of the cases resulted in complete remission of symptoms. \(^{33}\) Moreover, 40% of the respondents stated that BDD patients had threatened them with legal action, and/or physically. \(^{33}\) These findings suggest assessment for BDD may be needed before surgical and non-psychiatric medical treatments are provided.

The present study had several limitations. First, as this was a cross-sectional study, we could not make inferences regarding causality with respect to BDD symptoms, psychiatric symptoms, and quality of life. Further long-term follow-up studies are thus required. Second, this study was conducted in a dermatology clinic in South Korea, and the findings may not be generalizable to other clinical settings or countries. Last, we used self-report questionnaires for assessing BDD, psychiatric symptoms, and quality of life, rather than clinical diagnoses or interviews by psychiatrists. However, the Korean questionnaires used have high reliability and validity.

**Conclusions**

BDD symptoms were especially prominent in the unclassified dermatoses group and were highly related to psychiatric symptoms and low quality of life in our dermatological patients. Studies including psychiatric interviews to confirm the BDD diagnosis and symptoms will improve our understanding of BDD in dermatology patients.

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**Disclosure**

The authors report no conflicts of interest in this work.

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