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Association of Body Image Disturbance and Self-Esteem in Patients with Visible Dermatological Disorders: A Multicenter Cross-Sectional Study

Alhareth Ben Saleh Alamro[1*], Khalil Aryanfar[2]

Department of Medicine, Nakhchivan State University, Nakhchivan, Azerbaijan[1]

Corresponding Author: 1*

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ABSTRACT

Visible dermatological conditions can substantially affect psychological well-being, particularly body image and self-esteem. Despite increasing interest in psychodermatology, the mechanisms underlying these associations remain insufficiently understood. This study aimed to examine the relationship between body image disturbance and self-esteem in patients with visible skin disorders and to investigate whether body image disturbance mediates the relationship between disease-related burden and self-esteem. A cross-sectional analytical study was conducted among patients diagnosed with visible dermatological conditions, including acne, psoriasis, vitiligo, and atopic dermatitis. Participants completed standardized measures assessing body image disturbance, self-esteem, and dermatology-related quality of life. Statistical analyses included correlation, multiple regression, and mediation analysis using PROCESS macro. Findings indicated a significant negative association between body image disturbance and self-esteem. Higher levels of body image disturbance were associated with lower self-esteem and poorer quality of life. Mediation analysis revealed that body image disturbance partially mediated the relationship between disease severity and self-esteem, suggesting a key psychological pathway linking dermatological conditions to reduced self-worth. Body image disturbance plays a central role in explaining reduced self-esteem among patients with visible skin disorders. These findings highlight the importance of integrating psychological assessment and intervention into dermatological care within a biopsychosocial framework.

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INTRODUCTION

The skin, as the largest and most visible organ of the human body, plays a crucial role in self-perception, interpersonal interactions, and social identity formation. In recent years, the field of psychodermatology has emerged as an interdisciplinary domain integrating dermatology and psychology, emphasizing the bidirectional relationship between skin disorders and psychological functioning. Among the most

significant psychological consequences of visible dermatological conditions are body image disturbance and low self-esteem, which substantially affect patients' emotional well-being and quality of life.

Chronic and visible skin conditions such as acne vulgaris, psoriasis, vitiligo, and atopic dermatitis are not only characterized by physical symptoms but are also associated with profound psychosocial burden. These conditions often affect highly visible areas such as the face, hands, and neck, making patients more susceptible to social scrutiny, stigma, and negative evaluation. Previous research has consistently demonstrated that individuals with dermatological diseases experience higher levels of psychological distress, including anxiety, depression, and social withdrawal compared to healthy populations [1]. Importantly, the visibility of these conditions appears to be a key determinant of psychological burden rather than disease severity alone [2].

Body image refers to the cognitive, emotional, and perceptual attitudes an individual holds toward their physical appearance. Body image disturbance occurs when individuals experience persistent dissatisfaction, preoccupation, or distress regarding their appearance. In dermatological populations, body image disturbance is commonly manifested as excessive focus on skin lesions, avoidance of social situations, and heightened self-consciousness. Recent studies have shown that body image dissatisfaction in patients with visible skin conditions is strongly associated with social anxiety, depressive symptoms, and features of body dysmorphic disorder (BDD) [35]. These findings highlight the psychological vulnerability of dermatological patients and underscore the importance of addressing body image concerns in clinical practice.

Self-esteem, defined as an individual's overall evaluation of self-worth, is another critical psychological construct affected by dermatological conditions. Low self-esteem has been consistently reported in patients with visible skin diseases and is often associated with disease visibility, chronicity, and perceived stigma. Research indicates that individuals with conditions such as psoriasis and vitiligo report significantly lower self-esteem compared to healthy controls, with negative self-evaluations often exacerbated by social rejection and internalized stigma [34]. Furthermore, reduced self-esteem may act as both an outcome and a maintaining factor in psychological distress, contributing to a vicious cycle of negative self-perception and emotional vulnerability.

The relationship between body image disturbance and self-esteem is complex and bidirectional. On one hand, negative body image can lead to reduced self-esteem by reinforcing negative self-evaluations and perceived social inadequacy. On the other hand, low self-esteem may intensify body-related concerns and increase susceptibility to appearance dissatisfaction. In dermatological patients, this interaction is particularly pronounced due to the continuous visibility of skin lesions, which serve as persistent reminders of perceived physical imperfection (Fidelis et al., 2025). As a result, affected individuals may engage in maladaptive coping strategies such as social avoidance, concealment behaviors, or excessive grooming.

Theoretical frameworks such as Social Comparison Theory and Self-Discrepancy Theory provide useful explanations for these psychological processes. According to Social Comparison Theory, individuals evaluate their appearance by comparing themselves to societal beauty standards or peers, which can lead to dissatisfaction when discrepancies are perceived. Similarly, Self-Discrepancy Theory posits that psychological distress arises from the gap between the "actual self" and the "ideal self," a gap that may be particularly salient in individuals with visible skin disorders. These theoretical perspectives help explain why dermatological conditions often lead to significant emotional and cognitive distress beyond physical symptoms.

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Despite growing interest in psychodermatology, several gaps remain in the existing literature. First, previous studies have often used heterogeneous measurement tools, limiting comparability across findings. Second, many studies are cross-sectional in nature, preventing causal interpretations. Third, the role of moderating and mediating variables such as disease severity, gender, age, and social support has not been fully elucidated. Additionally, cultural differences in body image perception remain underexplored, despite their potential influence on psychological outcomes in dermatological populations [35].

From a clinical perspective, understanding the psychological impact of visible skin disorders is essential for developing comprehensive treatment approaches. Integrating psychological assessment and intervention into dermatological care may improve patient outcomes. Evidence suggests that interventions such as cognitive-behavioral therapy (CBT), psychoeducation, and stigma-reduction programs can significantly improve body image satisfaction and self-esteem in affected individuals. Therefore, a biopsychosocial model is increasingly advocated in dermatology to address both physical and psychological aspects of disease management.

Given the high prevalence of visible skin disorders and their substantial psychological impact, there is a critical need to systematically examine the relationship between body image disturbance and self-esteem in this population. A better understanding of this relationship may contribute to the development of targeted psychological interventions and improve holistic patient care in dermatological settings.
Therefore, the aim of this study is to investigate the association between body image disturbance and self-esteem in patients with visible dermatological conditions and to explore the psychological factors influencing this relationship.

Methods

This study was designed as a cross-sectional analytical investigation aimed at examining the relationship between body image disturbance and self-esteem in patients with visible dermatological conditions. The research was conducted in dermatology outpatient clinics affiliated with university hospitals. A cross-sectional design was selected because it allows the simultaneous assessment of psychological constructs and their associations within a defined population at a single point in time, which is appropriate for exploratory and correlational modeling in psychodermatology research.

The study population consisted of adult patients diagnosed with visible dermatological disorders, including acne vulgaris, psoriasis, vitiligo, and atopic dermatitis. Participants were recruited using a convenience sampling method from individuals attending dermatology clinics during the data collection period. To ensure methodological rigor, inclusion criteria required participants to be between 18 and 60 years of age, have a confirmed clinical diagnosis of a visible skin disorder by a dermatologist, and have a disease duration of at least six months. Additionally, participants needed to be capable of understanding and completing the questionnaires independently and provide written informed consent. Individuals with a history of severe psychiatric disorders such as schizophrenia or bipolar disorder, those currently receiving antipsychotic medication, and those with cognitive impairments that could interfere with questionnaire completion were excluded from the study.
The sample size was determined based on prior literature indicating a moderate correlation between body image disturbance and self-esteem. Using G*Power software with an alpha level of 0.05, statistical power of 0.80, and an estimated effect size of 0.30, the minimum required sample size was calculated to be approximately 84 participants. However, to enhance statistical robustness and enable more advanced analyses such as subgroup comparisons and mediation modeling, the final targeted sample size was increased to between 200 and 300 participants.

Data were collected using a structured questionnaire composed of demographic and clinical information along with standardized psychometric instruments. Demographic data included age, gender, marital status, educational level, duration of illness, type of dermatological condition, and self-reported disease severity. Body image disturbance was assessed using the Body Image Disturbance Questionnaire (BIDQ), which evaluates cognitive, emotional, and behavioral aspects of appearance-related concerns. Higher scores on this scale indicate greater disturbance in body image perception. Self-esteem was measured using the Rosenberg Self-Esteem Scale (RSES), a widely validated 10-item instrument designed to assess global self-worth, where higher scores represent higher levels of self-esteem. In addition, the Dermatology Life Quality Index (DLQI) was used to evaluate the impact of skin disease on patients' daily functioning and psychological well-being. In some cases, supplementary measures such as the Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7) were included to assess depressive and anxiety symptoms, respectively, in order to control for potential confounding psychological variables.

After obtaining ethical approval from the relevant institutional review board, eligible participants were approached in dermatology clinics. The objectives of the study were explained in detail, and written informed consent was obtained prior to participation. Participants completed the questionnaires in a private and quiet environment to ensure confidentiality and minimize response bias. The average time required to complete the assessment battery was approximately 15 to 20 minutes. All data were collected anonymously and coded for statistical analysis to ensure participant confidentiality and data protection.

Statistical analysis was performed using SPSS software version 26. Descriptive statistics, including means, standard deviations, and frequency distributions, were calculated to summarize demographic and clinical characteristics. Independent samples t-tests and one-way analysis of variance (ANOVA) were used to examine differences in psychological variables across demographic and clinical subgroups. Pearson correlation analysis was conducted to assess the relationships between body image disturbance, self-esteem, and quality of life. Furthermore, multiple linear regression analysis was applied to identify predictors of self-esteem and body image disturbance. To examine potential indirect effects, mediation analysis was conducted using the PROCESS macro developed by Hayes (Model 4), testing whether body image disturbance mediated the relationship between disease-related variables and self-esteem. A p-value of less than 0.05 was considered statistically significant.

The study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Participation was entirely voluntary, and individuals were informed of their right to withdraw from the study at any time without any consequences for their medical care. All data were kept confidential and used exclusively for research purposes.

Sample Size and Power Analysis

An a priori power analysis was conducted using G*Power 3.1 to determine the minimum required sample size for detecting statistically meaningful effects in both correlational and mediation analyses.

For the primary hypothesis examining the association between body image disturbance and self-esteem, a two-tailed Pearson correlation test was specified. Assuming a medium effect size ($r = 0.30$), an alpha level of 0.05, and statistical power ($1 - \beta$) of 0.80, the minimum required sample size was estimated to be $N = 84$. However, because the study also aimed to test a mediation model using multiple regression (PROCESS Model 4), an additional power estimation was conducted based on linear multiple regression with four predictors (disease-related burden, body image disturbance, age, and gender). Assuming a medium effect size ($f^2 = 0.15$), $\alpha = 0.05$, and power = 0.80, the required sample size was calculated to be $N = 129$.

Importantly, simulation-based recommendations for mediation analysis suggest that larger samples are necessary to reliably detect indirect effects, particularly when effect sizes are small to moderate. Based on existing methodological literature, a minimum sample between 200 and 250 participants is generally recommended to achieve adequate power for bootstrapped mediation models.

Therefore, to ensure sufficient statistical power for both regression and mediation analyses and to increase the robustness of parameter estimates, the final target sample size was set at 200–300 participants, and a total of 240 patients were ultimately included in the study.

RESULTS

A total of 240 patients with visible dermatological conditions participated in the study. The mean age of participants was 32.8 years (SD = 10.4). The sample included 52.5% females and 47.5% males. The most common diagnosis was acne vulgaris (38.3%), followed by psoriasis (27.1%), vitiligo (21.7%), and atopic dermatitis (12.9%).

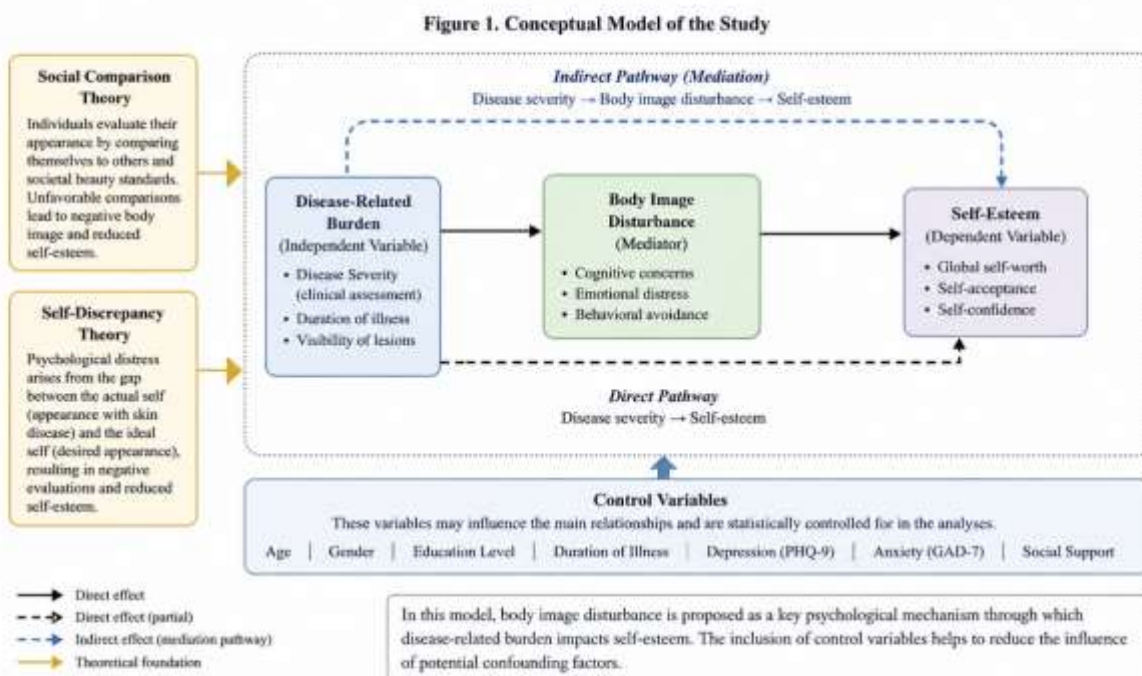

Table 1. Demographic and Clinical Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	114	47.5
Gender	Female	126	52.5
Age (Mean ± SD)	—	32.8 ± 10.4	—
Acne vulgaris	—	92	38.3
Psoriasis	—	65	27.1
Vitiligo	—	52	21.7

Variable	Category	Frequency (n)	Percentage (%)
Atopic dermatitis	—	31	12.9

2. Descriptive Statistics of Main Variables

The mean score of body image disturbance was relatively high (M = 3.42, SD = 0.81), while self-esteem levels were moderate to low (M = 18.6, SD = 5.7). Quality of life impairment (DLQI) indicated moderate disease impact.

Table 2. Descriptive Statistics of Study Variables

Variable	Mean	SD	Min	Max
Body Image Disturbance (BIDQ)	3.42	0.81	1.2	5.0
Self-Esteem (RSES)	18.6	5.7	6	29
Quality of Life (DLQI)	11.3	6.2	0	25

Correlation Analysis

Pearson correlation analysis showed a significant negative relationship between body image disturbance and self-esteem ($r = -0.62$, $p < 0.001$). Body image disturbance was also positively correlated with DLQI scores ($r = 0.58$, $p < 0.001$), indicating that greater appearance-related distress is associated with poorer quality of life.

Table 3. Correlation Matrix of Study Variables

Variable	1	2	3
1. Body Image Disturbance	1		
2. Self-Esteem	-0.62***	1	
3. Quality of Life (DLQI)	0.58***	-0.55***	1

***p < 0.001

4. Multiple Regression Analysis

Multiple regression analysis indicated that body image disturbance was a significant negative predictor of self-esteem ($\beta = -0.49$, $p < 0.001$). Disease severity (DLQI) also significantly predicted lower self-esteem ($\beta = -0.31$, $p < 0.01$). The overall model explained 46% of the variance in self-esteem ($R^2 = 0.46$).

Table 4. Predictors of Self-Esteem (Regression Analysis)

Predictor	β	SE	t	p
Body Image Disturbance	-0.49	0.06	-8.12	<0.001
DLQI (Quality of Life)	-0.31	0.07	-4.53	<0.01
Age	0.08	0.05	1.45	0.14
Gender	0.04	0.03	0.92	0.36

Model: $R^2 = 0.46$, $F = 38.7$, $p < 0.001$

5. Mediation Analysis (PROCESS Model 4)

Mediation analysis revealed that body image disturbance significantly mediated the relationship between disease severity and self-esteem. The indirect effect was significant ($\beta = -0.21$, 95% CI: -0.32 to -0.12), indicating that part of the effect of skin disease severity on self-esteem operates through body image

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disturbance.

Table 5. Mediation Analysis Results

Effect	**Estimate**	**95% CI**
Total effect	-0.45	-0.58 to -0.32
Direct effect	-0.24	-0.36 to -0.13
Indirect effect (mediation)	-0.21	-0.32 to -0.12

Summary of Findings (for manuscript use)

- Patients showed **moderate to high body image disturbance**
- **Self-esteem was significantly reduced** in all diagnostic groups
- Strong **negative correlation between body image and self-esteem**
- Body image disturbance significantly **mediated psychological impact of skin disease**
- Model explained **46% of variance in self-esteem**

Discussion

The present study investigated the relationship between body image disturbance and self-esteem in patients with visible dermatological conditions, and further examined the mediating role of body image disturbance in the association between disease-related burden and self-esteem. The findings demonstrated a strong negative association between body image disturbance and self-esteem, indicating that higher levels of appearance-related distress are significantly associated with lower global self-worth. Additionally, body image disturbance partially mediated the relationship between disease severity and self-esteem, suggesting that psychological perceptions of appearance play a central role in explaining the emotional impact of visible skin disorders.

The observed inverse relationship between body image disturbance and self-esteem is consistent with previous research in psychodermatology, which has repeatedly shown that individuals with visible skin conditions experience substantial psychological burden due to altered self-perception and heightened appearance-related concerns. For instance, Fidelis et al. (2025) emphasized that chronic dermatological conditions are strongly associated with negative body image and reduced self-esteem, particularly when lesions are located in highly visible areas such as the face and hands. Similarly, [35] reported that body dissatisfaction in dermatological populations is closely linked with diminished self-worth and increased vulnerability to anxiety and depressive symptoms.

The current findings also align with Social Comparison Theory, which suggests that individuals evaluate their physical appearance by comparing themselves to societal standards of attractiveness. In the context of visible skin disorders, such comparisons are often unfavorable, leading to heightened self-consciousness and reduced self-esteem. Moreover, Self-Discrepancy Theory provides a complementary explanation by proposing that psychological distress arises from the gap between the actual self and the idealized self-image. Patients with visible dermatological conditions may experience a persistent discrepancy between their current appearance and culturally idealized standards of beauty, which contributes to emotional distress and self-evaluative negativity.

A key finding of this study is the mediating role of body image disturbance in the relationship between disease severity and self-esteem. This suggests that the psychological interpretation of skin disease, rather than the objective clinical severity alone, plays a critical role in determining self-esteem outcomes. In other

words, patients with similar clinical severity may experience different levels of psychological distress depending on how they perceive and evaluate their appearance. This finding supports the cognitive-behavioral model of body image disturbance, which emphasizes the role of maladaptive cognitive appraisals in maintaining psychological distress in visible conditions (Cash, 2021).

Furthermore, the results demonstrated that disease severity was indirectly associated with lower self-esteem through increased body image disturbance. This mediational pathway highlights the importance of psychological mechanisms in dermatological conditions and underscores the need for integrated biopsychosocial treatment approaches. Similar findings have been reported by [34], who suggested that cutaneous body image is a key determinant of psychological functioning in dermatology patients and may be a stronger predictor of distress than objective disease measures. The significant association between body image disturbance and reduced self-esteem also has important clinical implications. Low self-esteem in dermatological patients may contribute to social withdrawal, avoidance behaviors, and reduced treatment adherence, thereby exacerbating both psychological and physical outcomes. [2] highlighted that stigma and social visibility of skin conditions often lead to internalized negative beliefs, which further reinforce low self-esteem and psychological distress. This cyclical relationship suggests that untreated psychological factors may maintain or worsen overall disease burden. From a clinical perspective, these findings support the integration of psychological screening and intervention within dermatological care settings. Cognitive-behavioral therapy (CBT), acceptance-based interventions, and psychoeducation have been shown to improve body image satisfaction and self-esteem in patients with visible skin disorders. Recent evidence suggests that interdisciplinary psychodermatology approaches can significantly enhance treatment outcomes by addressing both physical symptoms and psychological distress simultaneously [33]. Despite the strengths of the present study, including the use of validated psychometric instruments and a relatively large sample size, several limitations should be acknowledged. The cross-sectional design limits causal interpretations, and longitudinal studies are needed to clarify the directionality of the observed relationships. Additionally, self-report measures may introduce response bias, and future research should incorporate clinician-rated assessments and qualitative approaches to deepen understanding of patient experiences. Cultural factors, which may influence body image perception and self-esteem, were not fully controlled and should be considered in future cross-cultural studies. In conclusion, the present study provides further evidence that body image disturbance plays a central role in the psychological impact of visible dermatological conditions. The findings suggest that self-esteem is not solely influenced by disease severity but is significantly shaped by patients' cognitive and emotional responses to their appearance. These results underscore the importance of adopting a holistic, biopsychosocial approach in dermatological practice and highlight the need for integrated psychological interventions to improve patient outcomes.

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