

Psychosocial Impact of Acne Vulgaris on Quality of Life and Self-esteem: A Cross-sectional Study

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ABSTRACT

Introduction: Acne vulgaris is a common inflammatory dermatological condition that may affect psychological well-being as well as physical appearance. Despite increasing recognition of the psychosocial burden associated with acne, quality-of-life and self-esteem assessment is not routinely incorporated into dermatology practice.

Aim: To assess quality of life and self-esteem among patients with acne vulgaris attending a tertiary care hospital.

Materials and Methods: The present hospital-based cross-sectional study was conducted in the Dermatology Outpatient Department of Dhiraj General Hospital (affiliated with Sumandeep Vidyapeeth Deemed to be University), a tertiary-care teaching hospital in Vadodara, Gujarat, India, from June 2023 to September 2023. A total of 108 patients aged 15-45 years with clinically diagnosed acne vulgaris were included. Acne severity was graded using a simple clinical grading system. Quality of life was assessed using the Dermatology Life Quality Index (DLQI), while self-esteem was evaluated using Rosenberg's Self-Esteem

Scale (RSES). Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 25.

Results: The mean age of participants was 22.24±4.47 years. The study included 56 (51.9%) females and 52 (48.1%) males. Grade II acne was the most common clinical presentation and was observed in 50% of participants. The mean DLQI score was 5.79±5.62, suggesting mild to moderate impairment in quality of life. Overall, 82 (75.9%) participants demonstrated some degree of quality-of-life impairment, while 20 (18.6%) participants experienced very large to extremely large impairment. The mean RSES score was 19.74±4.87, and low self-esteem was observed in 13 (12.03%) participants. Female participants demonstrated slightly lower mean RSES scores compared to males (19.31±4.41 vs. 20.19±5.34, respectively); however, the difference was not statistically significant ($p=0.62$).

Conclusion: Acne vulgaris was associated with impairment in quality of life and self-esteem among affected individuals. Recognising the psychosocial burden associated with acne may help clinicians adopt a more holistic and patient-centred approach to acne management.

Keywords: Dermatology life quality index, Psychodermatology, Rosenberg self-esteem scale, Self-image

INTRODUCTION

Acne vulgaris is one of the most common dermatological disorders globally, affecting a large proportion of adolescents and young adults and remaining a frequent reason for consultations in dermatology Outpatient Department (OPD)s [1]. The Global Burden of Disease Study indicated that acne is the 8th most prevalent disease globally in 2010, and it was the 2nd most common reason for referral to dermatologists [2,3]. This condition is decreasing due to improvements in acne treatment protocols, however, it is still one of the most prevalent chronic diseases, especially among adolescents and teenagers affecting >95% of teenage boys and 85% of teenage girls [3]. In psychological research, the period of adolescence and young adulthood has been shown to be a critical period for development of self-esteem, i.e., one's evaluative judgement about oneself or one's overall feelings of worth or value as a person [4].

In clinical practice, dermatologists often focus on lesion severity and treatment response. However, clinical severity does not take into account the patient's subjective experience of the condition [5]. In modern times, Quality-of-life assessment has therefore become an important component of dermatological research. The DLQI is widely used to evaluate the impact of skin diseases on daily activities, relationships and emotional well-being [6].

An expanding body of literature suggests that acne may also be associated with psychological distress and reduced quality of life. Previous studies have reported higher levels of anxiety, depressive symptoms, and social discomfort among individuals with acne [7,8]. These observations about the association

between increasing psychological distress and dermatological conditions, and vice versa, have contributed to the development of psychodermatology, which examines the interaction between dermatological conditions and psychological factors [9]. The biopsychosocial model of acne and psychological impact has been shown in [Table/Fig-1] present study was therefore conducted to evaluate the impact of acne vulgaris on quality of life and self-esteem among patients attending a tertiary care hospital.

MATERIALS AND METHODS

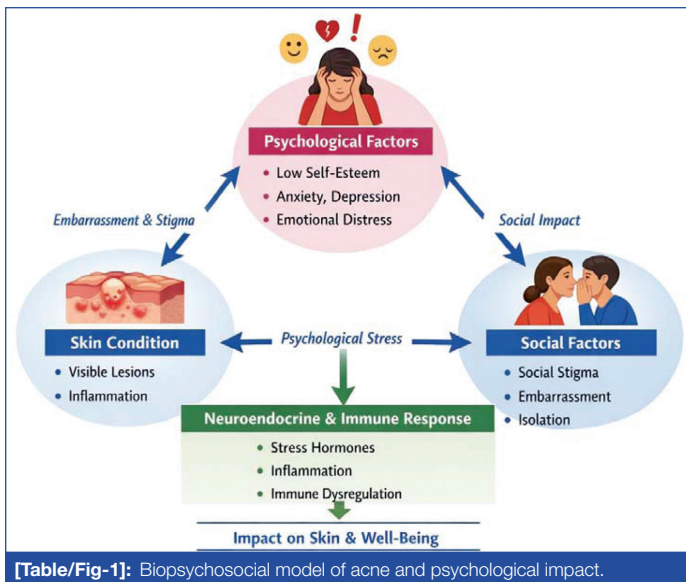
The present hospital-based cross-sectional study was conducted in the Dermatology Outpatient Department of Dhiraj General Hospital (affiliated with Sumandeep Vidyapeeth Deemed to be University), a tertiary-care teaching hospital in Vadodara, Gujarat, from June 2023 to September 2023. Ethical approval was obtained from the Institutional Ethics Committee (SVIEC/ON/Medi/SRP/June/23/102).

Inclusion criteria: Patients aged 15-45 years with acne vulgaris diagnosed clinically by a dermatologist based on the presence of comedones, papules, pustules, or nodulocystic lesions on the face were included after obtaining written informed consent [10].

Exclusion criteria:

Patients were excluded if they:

- were younger than 15 years or older than 45 years;
- were pregnant or lactating;
- were unwilling to participate;



Sample size calculation: The sample size was calculated using the formula:

$$n = Z^2 P(1-P)/d^2$$

Where $Z=1.96$ for a 95% confidence interval, P =expected prevalence of significant psychosocial impairment among acne patients, and d = allowable error.

Pandey P et al., in a cross-sectional study using DLQI assessment among patients with acne vulgaris, reported very large quality-of-life impairment in approximately 29% of participants. [11] This prevalence was used to estimate the sample size. Based on this estimate, the minimum calculated sample size was 81 participants. To improve the reliability of the results, a total of 108 patients were included in the study.

Study Procedure

Data were collected using a structured questionnaire including demographic details, duration of acne, and clinical characteristics.

Acne severity was graded using a simple clinical grading system described in standard dermatology literature [10].

Grade 1: Comedones, occasional papules.

Grade 2: Papules, comedones, few pustules.

Grade 3: Predominant pustules, nodules, abscesses.

Grade 4: Mainly cysts, abscesses, widespread scarring.

Assessment of QoL: Quality of life was assessed using the DLQI developed by Finlay AY and Khan GK [6]. The DLQI consists of 10 questions assessing symptoms, daily activities, leisure, work or school, personal relationships, and treatment-related difficulties. Each item is scored from 0 to 3, with total scores ranging from 0 to 30. Higher scores indicate greater impairment in quality of life [6,11].

DLQI scores were interpreted as:

0-1: No effect

2-5: Small effect

6-10: Moderate effect

11-20: Very large effect

21-30: Extremely large effect

Assessment of self-esteem: Self-esteem was assessed using RSES. Total scores range from 0 to 30, with lower scores indicating lower self-esteem. Scores below 15 were considered suggestive of low self-esteem, based on the methodology used in previous acne-related self-esteem study [12].

Outcomes: The primary outcomes measured were:

- Impairment in quality of life using DLQI;
- Self-esteem using RSES.

Secondary outcomes included:

- Relationship between duration of acne and DLQI/RSES scores.

STATISTICAL ANALYSIS

Data were entered into Microsoft Excel and analysed using Statistical Package for Social Sciences (SPSS) trial version 25. Quantitative variables were expressed as mean±Standard Deviation (SD), while categorical variables were expressed as frequency and percentage. Associations between categorical variables were analysed using chi-square test. Mean scores between two independent groups were compared using independent sample t-test. A p-value <0.05 was considered statistically significant.

RESULTS

A total of 108 patients with acne vulgaris were included in the study. The mean age of participants was 22.24±4.47 years. The study included 56 females (51.9%) and 52 males (48.1%) [Table/Fig-2].

Variables	n (%)
Male	52 (48.14)
Female	56 (51.85)
15-20 years	31 (28.7)
21-25 years	57 (52.8)
26-30 years	14 (12.9)
31-35 years	4 (3.7)
36-45 years	2 (1.9)

[Table/Fig-2]: Demographic Characteristics of study participants (N=108).

Grade II acne was the most common clinical presentation and was observed in 54 participants (50%) [Table/Fig-3].

Acne grade	Description	n (%)
Grade I	Comedones with occasional papules	30 (27.8)
Grade II	Papules, comedones, few pustules	54 (50.0)
Grade III	Predominant pustules, nodules	21 (19.4)
Grade IV	Cysts, abscesses, scarring	3 (2.8)

[Table/Fig-3]: Distribution of Acne Severity (Simple Grading System).

The mean DLQI score among participants was 5.79±5.62, indicating mild-to-moderate quality-of-life impairment [Table/Fig-4].

DLQI score range	Interpretation	n (%)
0-1	No effect	26 (24.1)
2-5	Mild effect	37 (34.3)
6-10	Moderate effect	25 (23.1)
11-20	Very large effect	18 (16.7)
21-30	Extremely large effect	2 (1.9)

[Table/Fig-4]: Distribution of Dermatology Life Quality Index (DLQI) Scores.

Mean DLQI score=5.79±5.62

The mean Rosenberg Self-Esteem Scale score was 19.74±4.87. Low self-esteem (RSES score <15) was observed in 13 participants (12.03%) [Table/Fig-5].

Female participants demonstrated slightly lower mean RSES scores compared to males; however, the difference was not statistically significant [Table/Fig-6].

Category	n (%)
Low self-esteem (RSES score <15)	13 (12.03%)
Normal self-esteem (RSES score ≥15)	95 (87.97%)

[Table/Fig-5]: Distribution of self-esteem (Rosenberg's Self-Esteem Scale).

Mean RSES score=19.74±4.87

Gender	Mean RSES Score $\pm$ SD
Male	20.19 $\pm$ 5.34
Female	19.31 $\pm$ 4.41

[Table/Fig-6]: Comparison of mean rosenberg self-esteem scale scores between genders
Statistical test: Independent-samples t-test
p=0.62 (Not statistically significant)

Participants with acne duration of less than six months (n=40) demonstrated a mean RSES score of 20.48 $\pm$ 5.71, whereas those with acne duration of six months or more (n=68) demonstrated a mean RSES score of 19.31 $\pm$ 4.29. This difference was also not statistically significant (p=0.27).

DISCUSSION

In the present study, acne vulgaris was associated with measurable impairment in both quality of life and self-esteem. The mean DLQI score observed in the present study was 5.79 $\pm$ 5.62, indicating mild-to-moderate quality-of-life impairment among participants. Comparable findings have been reported in previous Indian and international studies. Raghavon UN et al., in a tertiary care study from the Saurashtra region of Gujarat, India, reported a mean DLQI score of 5.59 among acne patients, with embarrassment and self-consciousness reported by nearly 84% of participants [13]. Similarly, Hazarika N and Rajaprabha RK observed that 91% of patients had elevated DLQI scores, with mild effect (scores 2-5) being the most common (33.3%) [14].

In the present study, 75.9% of participants demonstrated some degree of impairment in quality of life, while 18.6% experienced very large to extremely large impairment. Pandey P et al., in a cross-sectional study among Indian acne patients using DLQI assessment, reported moderate impairment in quality of life in 38.7% of participants and very large impairment in approximately 29% of patients [11].

Female participants in the present study had slightly lower mean self-esteem scores than males, although the difference was not statistically significant. Dalgard FJ et al., reported a prevalence of acne of 13.5%. Girls and boys with acne had significantly more depressive symptoms, lower self-attitude, more feelings of uselessness, fewer feelings of pride, lower self-worth, and lower body satisfaction than those without acne. In a regression model adjusting for body mass index and depressive symptoms, acne explained significantly poor self-attitude for boys only {odds ratio 2.07 {confidence interval 1.10; 3.88}} and poor self-worth for girls only {odds ratio 1.88 (confidence interval 1.23; 2.88)} [15].

Tayel K et al., found that, among the acne group, low self-esteem was more prevalent among females (67.0%) than males (45.0%, p=0.004) [16]. These findings may reflect greater sociocultural emphasis on facial appearance and body image among women and adolescent girls.

Participants with acne duration of six months or more demonstrated slightly lower self-esteem scores despite somewhat lower DLQI scores, although these differences were not statistically significant. Although not statistically significant, this trend may suggest partial psychological adaptation to chronic acne over time.

Morshed ASM et al., in a recent psychodermatology-oriented study using DLQI, RSES, DASS-21, and World Health Organisation Quality of Life (WHOQoL) measures, demonstrated significant associations between acne severity and depression, anxiety, stress, impaired self-esteem, and reduced quality of life. The study reported positive correlations between acne severity and depression (r=0.630), anxiety (r=0.661) and stress (r=0.758) [7].

From a clinical perspective, these findings highlight the importance of adopting a more holistic approach while evaluating patients with acne vulgaris. Simple screening tools such as the DLQI may therefore help identify individuals experiencing significant quality-of-life impairment. In selected cases, counselling or psychological support may also be beneficial as part of comprehensive acne management.

Limitation(s)

The present study has certain limitations. The cross-sectional design limits causal interpretation, and the study was conducted in a single tertiary care centre. Psychiatric disorders were not formally assessed using structured diagnostic instruments. Future studies involving larger multicentric samples and formal psychiatric evaluation may further clarify the relationship between acne vulgaris and psychological morbidity.

CONCLUSION(S)

Acne vulgaris can significantly affect quality of life and self-esteem. Recognising the psychosocial burden associated with acne may help dermatologists adopt a more holistic and patient-centred approach to acne management.

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