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Original Research Article

Pattern, Severity, and Quality-of-Life Impact of Acne Vulgaris Among Adolescents and Young Adults Attending a Dermatology Outpatient Department

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Abstract:

Background: Acne vulgaris is a common inflammatory dermatosis in adolescents and young adults and may significantly affect psychosocial well-being in addition to producing visible skin lesions.

Objective: To assess the pattern and clinical severity of acne vulgaris and to evaluate its impact on quality of life (QoL) among adolescents and young adults attending the outpatient department.

Methods: This prospective hospital-based observational study was conducted at KIMS, Amalapuram, from September 2025 to February 2026 among 180 patients with acne vulgaris. Demographic and clinical details were recorded using a predesigned proforma. Acne pattern was assessed by site and lesion type, severity was graded using standard clinical criteria, and QoL was measured using DLQI/CDLQI. Data were analysed using SPSS 21.0. Chi-square test, t-test, ANOVA, and correlation analysis were applied, with $P < 0.05$ considered significant.

Results: Moderate acne was the commonest grade (41.1%). Comedones (84.4%), papules (78.9%), and pustules (52.2%) were the predominant lesions. Scarring and post-inflammatory hyperpigmentation were observed in 28.3% and 41.7%, respectively. Mean DLQI scores increased significantly with acne severity ($P < 0.001$), and acne grade showed strong positive correlation with QoL impairment ($r = 0.71$, $P < 0.001$).

Conclusion: Acne vulgaris caused substantial psychosocial burden, particularly in patients with moderate-to-severe, persistent, and scarring disease, highlighting the need for comprehensive clinical and psychosocial management.

Keywords: Acne vulgaris, Adolescents, Young adults, Quality of life.

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Introduction

Acne vulgaris is one of the commonest chronic inflammatory dermatoses affecting adolescents and young adults, with lesions distributed predominantly over cosmetically sensitive areas such as the face, chest, and back, thereby influencing appearance, self-confidence, social interaction, and emotional well-being [1]. Recent Indian evidence shows that acne in young adults is associated with measurable impairment in dermatology-specific QoL scores, and this burden tends to increase with greater lesion extent, persistence, and severity [1]. A contemporary Indian study further highlighted that acne-related disability extends beyond cutaneous symptoms and affects daily activities, self-image, and psychosocial adjustment, while earlier South Indian data demonstrated that even patients with apparently mild clinical grades may report substantial QoL disturbance [2, 3]. Because pattern and severity do not always parallel psychosocial burden, outpatient assessment should include both objective grading and patient-reported outcomes. Against this background, the present study aimed to evaluate the pattern and clinical severity of acne vulgaris and to assess its impact on quality of life (QoL) among adolescents and young adults attending the outpatient department.

Methods

This prospective hospital-based observational study was conducted in the department of Dermatology, Venereology and Leprology at KIMS, Amalapuram, over a period of six months from September 2025 to

February 2026. The study included adolescents and young adults attending the dermatology outpatient department with a clinical diagnosis of acne vulgaris. Consecutive eligible patients were recruited during the study period after obtaining written informed consent. For participants below 18 years of age, assent was obtained along with consent from a parent or guardian. The study protocol was undertaken after approval from the Institutional Ethics Committee and was carried out in accordance with standard ethical principles for human research. Patients with other significant dermatological disorders affecting the face, those receiving systemic therapy for severe psychiatric illness, and those unwilling to participate were excluded. A predesigned and pretested case record form was used to record demographic details such as age, gender, residence, educational status, and duration of acne, along with relevant clinical history including family history, aggravating factors, menstrual history in female, cosmetic use, and previous treatment history.

A detailed dermatological examination was performed in all participants under adequate illumination. The pattern of acne vulgaris was documented based on site of involvement, type of lesions, and distribution. Lesions were categorized as comedones, papules, pustules, nodules, cysts, post-inflammatory hyperpigmentation, and scarring. The areas commonly affected, including the face, chest, shoulders, and upper back, were examined systematically. Clinical severity was graded using a standard acne grading system such as mild, moderate, severe, and very severe, based on lesion morphology, number, and extent of involvement. The predominant clinical pattern and associated sequelae were recorded. To assess the psychosocial burden of acne, QoL was evaluated using a validated questionnaire, preferably the Dermatology Life Quality Index (DLQI) or Children's Dermatology Life Quality Index (CDLQI) as appropriate for age [1]. Each participant completed the questionnaire in their understandable, with assistance provided when necessary without influencing responses. The total score was calculated and interpreted according to standard scoring guidelines to classify the effect on QoL as no effect, small effect, moderate effect, very large effect, or extremely large effect.

The collected data were entered into Microsoft Excel and analysed using SPSS software version 21.0. Continuous variables such as age, duration of acne, and QoL scores were expressed as mean ± standard deviation or median with range, depending on distribution. Categorical variables such as gender, lesion type, site of involvement, acne grade, and QoL categories were presented as frequencies and percentages. Associations between acne severity and categorical clinicodemographic variables were analysed using the chi-square test or Fisher's exact test wherever appropriate. Comparison of mean QoL scores between two groups was performed using the independent samples t-test, while differences across more than two severity grades were assessed using one-way analysis of variance (ANOVA). Correlation between acne severity and QoL score was assessed using Pearson's or Spearman's correlation coefficient based on data normality. A p value of less than 0.05 was considered statistically significant.

Results

A total of 180 adolescents and young adults with acne vulgaris were enrolled during the study period. The majority belonged to the 18–21 years group (38.9%), followed by 14–17 years (28.9%). Females constituted a slight predominance (56.1%). Facial involvement was universal, while extension to the back and chest was observed in 36.7% and 21.1%, respectively. The most frequent lesion types were comedones (84.4%), papules (78.9%), and pustules (52.2%). Post-acne hyperpigmentation and scarring were noted in 41.7% and 28.3% of participants, respectively. Based on clinical grading, mild acne was seen in 30.0%, moderate acne in 41.1%, and severe/very severe acne in 28.9%. QoL assessment revealed that only 13.3% had no or small effect, whereas 46.1% had a moderate effect and 40.6% had a very large to extremely large effect on QoL. Mean DLQI scores increased significantly with acne severity, from 4.8 ± 2.1 in mild acne to 15.9 ± 3.8 in severe/very severe acne ($F = 156.42$, $P < 0.001$). A strong positive correlation was observed between acne grade and DLQI score ($r = 0.71$, $P < 0.001$). Female, duration of acne >1 year, presence of scarring, and truncal involvement showed significant association with moderate-to-severe acne.

Discussion

Acne vulgaris in adolescents and young adults is far more than a cosmetic disorder, because it occurs at a stage of life when physical appearance, peer acceptance, self-image, and emotional stability are especially important. In the present study, most participants belonged to the late adolescent and early young adult age group, females were slightly predominant, facial lesions were universal, and moderate acne formed the largest clinical category. In addition, a substantial proportion had truncal involvement, post-inflammatory hyperpigmentation, scarring, and moderate-to-severe impairment of QoL. These findings are clinically relevant because they show that acne presenting to outpatient settings is not merely a mild, self-limiting condition, but a chronic inflammatory disorder with visible physical sequelae and measurable psychosocial consequences. Indian studies have consistently shown that acne

predominantly affects adolescents and young adults, commonly involves the face, and often produces disability out of proportion to lesion counts alone [2 – 5]. Recent Indian work has also reiterated that QoL impairment is especially marked in persistent, extensive, and severe acne, supporting the need for integrated clinical and psychosocial assessment [1].

The predominance of facial lesions and the high frequency of comedones, papules, and pustules in our study are in accordance with Indian clinical literature describing the face as the principal site of involvement because of the density and activity of pilosebaceous units. Adityan et al. reported a similar hospital-based profile from South India, where facial acne predominated and inflammatory as well as non-inflammatory lesions commonly coexisted [6]. Likewise, Khunger and Kumar, in their clinico-epidemiological analysis of adult acne, emphasized that acne in Indian patients frequently persists beyond adolescence and may differ in aggravating factors and clinical expression, particularly in females [7]. Our observation that moderate acne was the commonest grade is also comparable with Indian outpatient studies in which mild-to-moderate cases predominate numerically, while severe cases contribute disproportionately to distress, scarring, and care-seeking behavior [2,3,6]. This pattern is important because it suggests that OPD populations represent not only severe disease but also individuals whose psychosocial burden motivates consultation. Therefore, grading acne only by lesion morphology may underestimate the actual disease burden experienced by patients.

Table 1: Baseline demographic and clinical characteristics of the study participants (n = 180)

Variable	Number	%
Age group (years)		
14–17	52	28.9
18–21	70	38.9
22–25	38	21.1
26–30	20	11.1
Mean age ± SD	20.1 ± 3.8 years	
Gender		
Male	79	43.9
Female	101	56.1
Residence		
Urban	112	62.2
Rural	68	37.8
Duration of acne		
<6 months	34	18.9
6–12 months	58	32.2
>12 months	88	48.9
Family history of acne	74	41.1
Previous treatment history	96	53.3

Table 2: Pattern and distribution of acne vulgaris

Clinical parameter	Number	%
Site of involvement		
Face only	93	51.7
Face + back	48	26.7
Face + chest	17	9.4
Face + back + chest	22	12.2
Lesion type*		
Comedones	152	84.4
Papules	142	78.9
Pustules	94	52.2
Nodules	31	17.2
Cysts	9	5
Post-inflammatory hyperpigmentation	75	41.7
Scarring	51	28.3
*Multiple responses present.		

Table 3: Severity of acne and QoL impairment			
Acne severity	**Number (%)**	**Mean DLQI ± SD**	**QoL category predominantly observed**
Mild	54 (30.0)	4.8 ± 2.1	Small effect
Moderate	74 (41.1)	9.7 ± 3.0	Moderate effect
Severe/Very severe	52 (28.9)	15.9 ± 3.8	Very large effect
Statistical analysis: One-way ANOVA F = 156.42, P <0.001. Correlation between acne severity grade and DLQI score: r = 0.71, P <0.001			

Table 4: Association of selected factors with moderate-to-severe acne				
Variable	**Acne**		χ^2	**P value**
	Mild	**Moderate-to-severe**		
Gender	30	49	4.62	0.032
Female	24	77		
Duration >1 year	17	71	10.84	0.001
Family history present	15	59	6.14	0.013
Truncal involvement present	13	74	18.57	<0.001
Scarring present	6	45	17.92	<0.001

A major finding of the present study was the substantial effect of acne on QoL, with worsening scores across increasing severity categories. This agrees with Indian studies by Durai and Nair [3], Gupta et al. [4] and Singh et al. [2] all of which documented measurable impairment in daily functioning, emotions, embarrassment, and social interaction among acne patients. Durai and Nair found significant associations between acne-related QoL scores and several demographic as well as treatment-related factors, and highlighted the value of combining dermatology-specific and acne-specific tools [3]. Gupta et al. also demonstrated significant QoL disturbance, although the relationship between objective severity and subjective impairment was not always linear [4]. Singh et al. similarly reported that females and those with acne scars had significantly worse HRQoL scores, reinforcing that visible sequelae matter as much as active lesions [2]. In our study, mean QoL scores rose significantly with clinical severity, suggesting that for our population, disease extent and lesion grade were closely reflected in psychosocial burden. Even so, the Indian literature makes it clear that some patients with apparently mild acne may still experience marked embarrassment, reduced self-esteem, and social inhibition. Thus, routine use of validated QoL instruments in acne clinics can help identify patients whose distress might otherwise go unrecognized.

Another important observation in our study was the strong relationship of moderate-to-severe acne with truncal involvement, longer duration, and scarring. These findings are biologically plausible and clinically meaningful. Persistent inflammation, delayed treatment, recurrent lesions, and mechanical manipulation contribute to both post-inflammatory pigmentation and permanent scarring. Agrawal et al. demonstrated that post-acne scarring in Indian patients has distinct morphological patterns and bears a close relation to acne severity and treatment delay [8]. More recently, Mahajan et al. showed that acne scars are strongly associated with depression, disturbed body image, and impaired QoL, underlining that scars are not merely residual marks but chronic psychosocial injuries [9]. The 2024 Indian expert article on acne scar management further emphasized that scars are common long-term complications that significantly affect patients' QoL and therefore warrant early prevention and timely intervention [10]. Our findings support this view: patients with scarring had significantly greater odds of belonging to the moderate-to-severe group, suggesting that aggressive disease control at an earlier stage may prevent both cutaneous and psychological morbidity.

The psychosocial implications of acne observed in our study are further supported by Indian psychiatric and psychosocial research. Sood et al. reviewed the growing evidence that acne is associated with social dysfunction, psychiatric symptoms, and educational impairment, and stressed the importance of screening for depression in dermatology settings [11]. Bondade et al. found that undesirable life events and psychiatric comorbidity were significantly more common in acne patients than in controls, indicating that acne exists within a broader biopsychosocial context [12]. Hosthota et al. also showed that acne adversely affects both QoL and self-esteem [13]. In the Indian setting, where marriage-related concerns, examination stress, appearance consciousness, and social stigma may intensify self-scrutiny, the emotional burden of acne can be particularly pronounced. Therefore, the significance of our findings lies not only in documenting reduced QoL, but also in reinforcing that dermatological care should include reassurance, counselling, expectation management, and, when required, psychiatric referral. A purely lesion-centered therapeutic approach may not adequately address the total burden of disease.

Our study also found female predominance and greater psychosocial burden in patients with more persistent and visible disease. This is in line with Indian evidence suggesting that gender, cosmetic concerns, social exposure, and post-acne marks may amplify perceived disability [2, 7]. George and Sridharan highlighted several aggravating factors in Indian adults, including stress, cosmetics, sweating, and menstrual influences, which may partly explain persistence and recurrence in some subgroups [14]. Ansari et al. further showed that many Indian patients continue to hold incomplete knowledge, myths, and misconceptions regarding acne causation and treatment, which may delay effective care and worsen outcomes [15]. Podder et al. reported a moderate QoL impact in acne patients and advocated additional psychosocial counselling as part of management [5]. Taken together, these observations suggest that acne management in Indian OPDs should be multidimensional: accurate grading, identification of aggravating factors, patient education, prevention of scarring, and routine assessment of emotional impact. The present study adds to the available Indian literature by evaluating pattern, severity, and QoL simultaneously in adolescents and young adults attending a tertiary-care outpatient service. The significant association between severity and QoL impairment seen in our cohort indicates that early recognition and timely treatment of clinically meaningful acne may reduce long-term sequelae, improve psychosocial well-being, and strengthen patient-centered dermatologic care.

Conclusion

Acne vulgaris among adolescents and young adults attending OPD showed a predominantly moderate clinical profile, with frequent facial involvement, inflammatory lesions, truncal extension, scarring, and considerable impairment in QoL. Increasing severity was significantly associated with higher DLQI scores, indicating that psychosocial burden rises with clinical progression. Early identification, severity-based treatment, counselling, and prevention of scarring are therefore essential in routine dermatology practice. The study was limited by its single-centre design, modest sample size, hospital-based recruitment, and cross-sectional assessment of QoL, which may limit generalizability and preclude causal inference or long-term outcome evaluation.

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