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Original Research Article

Clinicoepidemiological Profile of Acne Vulgaris in a Dermatology Outpatient Department

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ABSTRACT
Background: Acne vulgaris is a common inflammatory dermatosis in adolescents and young adults, with variable clinical presentation and frequent residual sequelae such as scarring and post-inflammatory hyperpigmentation.
Objectives: To assess the clinicoepidemiological profile of acne vulgaris among patients attending a dermatology outpatient department.
Methods: This descriptive cross-sectional study included 90 patients with acne vulgaris attending the dermatology outpatient department. Data on demographic profile, duration, family history, distribution, lesion morphology, Global Acne Grading System (GAGS) score, severity, seasonal variation, scarring, and post-acne hyperpigmentation were recorded and analyzed using descriptive statistics.
Results: The mean age was 20.11±4.38 years. Females constituted 63.3% of the study population. Most patients were from urban areas (67.8%), and students formed the largest occupational group (45.6%). The mean duration of acne was 22.77±17.64 months, and 57.8% had a positive family history. Papules were the commonest predominant lesion (41.1%). Moderate acne was the most frequent severity category (34.4%), followed by mild acne (33.3%). The mean GAGS score was 24.94±11.57. Post-acne scarring and post-acne hyperpigmentation were observed in 27.8% and 35.6% of patients, respectively.
Conclusion: Acne vulgaris in this cohort predominantly affected young individuals, especially females, and was commonly associated with moderate disease, positive family history, and residual pigmentary or scarring changes. Early evaluation and timely treatment may help reduce long-term sequelae.

Keywords: Acne vulgaris, clinicoepidemiological profile, GAGS, scarring, post-inflammatory hyperpigmentation.

INTRODUCTION

Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit and remains one of the most prevalent skin diseases seen during adolescence and early adulthood [1]. Although often dismissed as a self-limited problem of puberty, its epidemiology is broader and more persistent than that stereotype suggests. Population-based work has shown that acne continues well beyond the teenage years in a considerable proportion of patients, with important variation by sex, age, ethnicity, and health-care setting [1, 2].

From a public-health perspective, acne matters because common diseases create heavy cumulative morbidity. Global burden analyses have consistently placed skin disorders among the leading causes of non-fatal disease burden, and acne contributes substantially to that load because of its early onset, chronicity, recurrence, and psychosocial visibility [3]. The clinical picture is also heterogeneous. Comedones, papules, pustules, nodules, and cysts do not occur in the same proportions in every cohort, and the balance between inflammatory and non-inflammatory lesions reflects differences in disease activity, care-seeking, and prior treatment exposure [4].

For clinical work, a simple descriptive profile of patients still carries practical value. Knowing the usual age distribution, common lesion morphology, extent of facial and truncal involvement, family history pattern, and frequency of post-acne sequelae helps frame both treatment intensity and counselling. Severity grading systems such as the Global Acne Grading System (GAGS) allow this profile to be standardized and communicated more

consistently across studies and routine practice [5].

Current management guidance emphasizes early assessment of severity, recognition of truncal involvement, and attention to scarring and pigmentary change because these sequelae often outlast active lesions [6,7]. In Indian outpatient settings, this becomes especially relevant, as patients often present after months of fluctuating disease, self-medication, dietary restriction, and cosmetic experimentation. The present study was therefore undertaken to describe the clinicoepidemiological profile of acne vulgaris in a dermatology outpatient cohort and to examine selected associations with acne severity.

MATERIALS AND METHODS

Study Design and Setting

This was a cross-sectional observational study carried out in the dermatology outpatient department of a tertiary care hospital.

Study Population

The analysis included 90 patients diagnosed with acne vulgaris.

Data Collection

The variables recorded for each patient were age, gender, residence, occupation, duration of acne, family history, dietary habits, anatomical sites involved, predominant lesion type, seasonal variation, post-acne scarring, and post-acne hyperpigmentation.

Severity Assessment

Severity was assessed using the Global Acne Grading System, and patients were categorized as having mild, moderate, severe, or very severe acne.

Statistical Analysis

Continuous variables were summarized as mean with standard deviation or median with interquartile range, as appropriate. Categorical variables were expressed as frequency and percentage. Associations between categorical variables were examined using the chi-square test. Mean GAGS scores across age groups were compared using one-way analysis of variance. A p-value <0.05 was considered statistically significant.

RESULTS

Ninety patients with acne vulgaris were analysed. The mean age was 20.1±4.4 years, with an age range of 13 to 30 years. Females accounted for 57 (63.3%) patients, while 61 (67.8%) were urban residents. Students formed the largest occupational group (41, 45.6%). The mean duration of acne was 22.8±17.6 months, and 52 (57.8%) reported a family history of acne. These baseline characteristics are summarized in Table 1.

Almost half of the cohort belonged to the ≤19-year age group (43, 47.8%), followed by 20–24 years (30, 33.3%) and 25–30 years (17, 18.9%). Age-group distribution is shown in Figure 1.

Based on GAGS severity categorization, acne was mild in 30 (33.3%) patients, moderate in 31 (34.4%), severe in 11 (12.2%), and very severe in 18 (20.0%). Thus, mild-to-moderate acne constituted 61 (67.8%) of the study population. Severity distribution is shown in Figure 2.

Face involvement was seen in all patients. Extra-facial disease was also frequent, with back involvement in 27 (30.0%), chest involvement in 25 (27.8%), and shoulder involvement in 16 (17.8%). Overall, 51 (56.7%) had acne extending beyond the face. Papules were the predominant lesion in 37 (41.1%) patients, followed by pustules in 20 (22.2%). Clinical profile details are presented in Table 2. The pattern of site involvement is depicted in Figure 3, and predominant lesion morphology is shown in Figure 4.

When severity was analysed across age group and gender, no statistically significant association was found for age group (chi-square $p=0.181$) or gender (chi-square $p=0.971$) (Table 3). Similarly, severity did not vary significantly by residence (chi-square $p=0.101$) or family history (chi-square $p=0.779$).

Predominant lesion morphology showed a clear gradient across severity categories, with comedonal and papular lesions clustering within milder disease and nodulocystic lesions within severe disease (chi-square $p<0.001$) (Table 4). Mean GAGS scores differed significantly across age groups, being highest in patients aged 20–24 years (27.8 ± 12.5; one-way ANOVA $p=0.041$).

No seasonal variation was reported by 49 (54.4%) patients, whereas 34 (37.8%) described summer exacerbation and 7 (7.8%) winter exacerbation. Post-acne scarring was present in 25 (27.8%) patients and post-inflammatory hyperpigmentation in 32 (35.6%). These sequelae did not show a statistically significant association with severity

category (scarring: chi-square p=0.737; hyperpigmentation: chi-square p=0.363).

Variable	Category	Value, n (%) / summary
Age (years), mean ± SD	20.1 ± 4.4	
Age range (years)	13–30	
Duration of acne (months), mean ± SD	22.8 ± 17.6	
Median duration (IQR), months	17.5 (10.2–30.2)	
GAGS score, mean ± SD	24.9 ± 11.6	
Gender	Male	33 (36.7)
	Female	57 (63.3)
Residence	Urban	61 (67.8)
	Rural	29 (32.2)
Occupation	Student	41 (45.6)
	Unemployed	25 (27.8)
	Housewife	9 (10.0)
	Professional	7 (7.8)
	Service	4 (4.4)
	Self-employed	4 (4.4)
Family history	Present	52 (57.8)
	Absent	38 (42.2)
Dietary habits	Vegetarian	30 (33.3)
	Mixed/High glycemic	44 (48.9)
	Non-vegetarian/Dairy heavy	16 (17.8)

Table 1. Sociodemographic and Baseline Clinical Characteristics of Patients with Acne Vulgaris (N=90)

Values Are Presented As Number (Percentage) Unless Otherwise Specified.

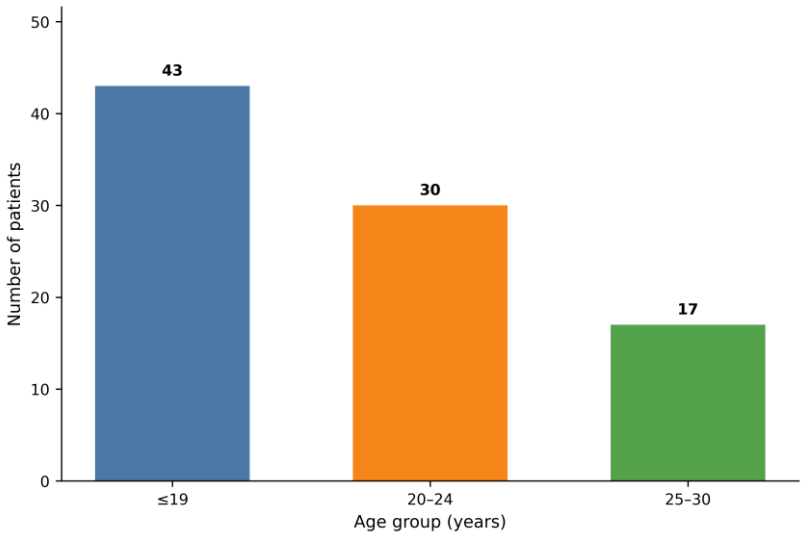

Figure 1. Age-Group Distribution of the Study Population.

Bar chart shows the number of patients in each age group; values above bars indicate counts.

Variable	Category	n (%)
Anatomical involvement	Face	90 (100.0)
	Chest	25 (27.8)
	Back	27 (30.0)
	Shoulders	16 (17.8)
	Face only	39 (43.3)
	Face with extra-facial	51 (56.7)

	involvement	
Predominant lesion	Comedones	10 (11.1)
	Papules	37 (41.1)
	Pustules	20 (22.2)
	Nodules	12 (13.3)
	Cysts	11 (12.2)
Acne severity	Mild	30 (33.3)
	Moderate	31 (34.4)
	Severe	11 (12.2)
	Very severe	18 (20.0)
Seasonal variation	No variation	49 (54.4)
	Summer exacerbation	34 (37.8)
	Winter exacerbation	7 (7.8)
Post-acne sequelae	Scarring present	25 (27.8)
	Hyperpigmentation present	32 (35.6)

Table 2. Clinical Pattern of Acne Vulgaris in the Study Cohort (N=90).

Anatomical site frequencies are not mutually exclusive because many patients had involvement at more than one site.

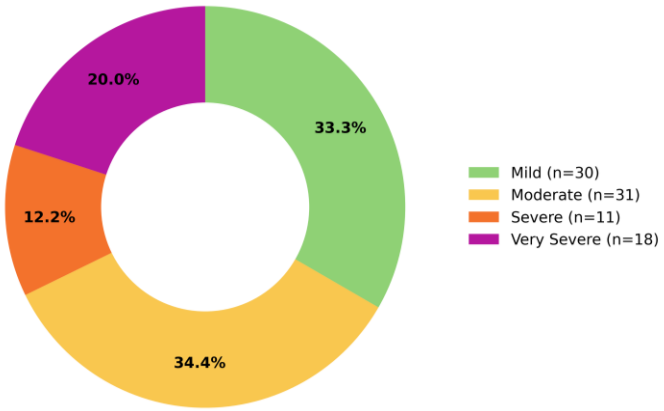

Figure 2. Distribution of Acne Severity Based On GAGS Categorization.

Donut chart displays the proportion of patients with mild, moderate, severe, and very severe acne; counts are shown in the legend.

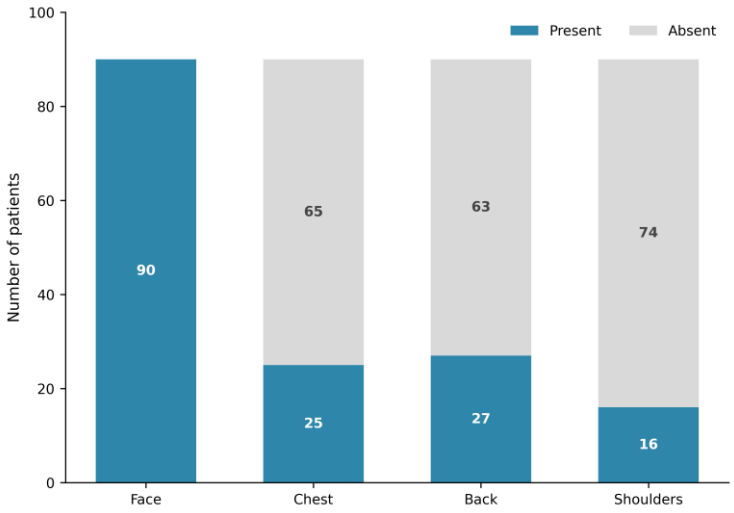

Figure 3. Anatomical Distribution of Acne Involvement.

Stacked bars show the number of patients with and without involvement at each anatomical site.

Group	Mild	Moderate	Severe	Very Severe	Total
Age group					
≤19	14	14	7	8	43
20–24	9	9	2	10	30
25–30	7	8	2	0	17
Gender					
Male	10	12	4	7	33
Female	20	19	7	11	57
Table 3. Distribution of Acne Severity According To Age Group and Gender.					

Chi-square test for age group vs severity: p=0.181. Chi-square test for gender vs severity: p=0.971.

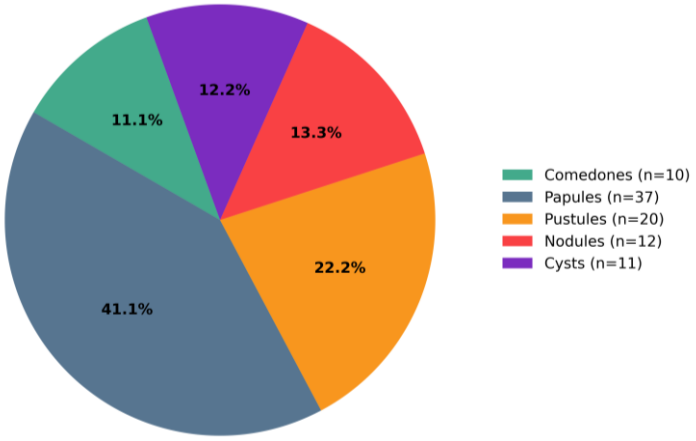

Figure 4. Distribution of Predominant Lesion Morphology.

Pie chart shows the proportion of patients classified according to the predominant lesion type recorded at presentation.

Predominant lesion	Mild	Moderate	Severe	Very Severe	Total
Comedones	10	0	0	0	10
Papules	20	17	0	0	37
Pustules	0	14	1	5	20
Nodules	0	0	5	7	12
Cysts	0	0	5	6	11
Table 4. Predominant Lesion Morphology across Severity Categories and Mean GAGS Score by Age Group. Panel A. Predominant Lesion Morphology versus Acne Severity					

Chi-square test for predominant lesion versus acne severity: p<0.001.

Age group	Mean ± SD GAGS	n
≤19	25.3 ± 11.2	43
20–24	27.8 ± 12.5	30
25–30	19.1 ± 9.0	17
Panel B. Mean GAGS Score by Age Group		

One-way analysis of variance comparing mean GAGS scores across age groups: p=0.041.

DISCUSSION

The present series places acne vulgaris largely within the expected age band of adolescence and young adulthood, with a mean age of 20.1 years and nearly four-fifths of patients below 25 years. That pattern is consistent with the wider epidemiology of acne, which shows peak frequency during the second and early third decades, even though persistence into adulthood is increasingly recognized [8,9]. The female predominance in this cohort also fits with contemporary clinical experience, where

care-seeking among young women and persistence of acne beyond adolescence are both common [10,11].

Face involvement was universal in this study, while more than half of the patients also had extra-facial extension. This matters clinically. Truncal disease is easy to miss unless specifically examined, yet it often changes treatment decisions and may partly explain why some patients appear to have more chronic or extensive disease than facial inspection alone would suggest [6,7]. The frequencies of chest and back involvement observed here are close to those reported from other Indian hospital-based studies, including South Indian cohorts in which facial lesions predominated but trunk involvement was still substantial [8,10].

Papules formed the most common predominant lesion, followed by pustules, while nodules and cysts together accounted for roughly one-quarter of cases. This suggests that inflammatory acne constituted a major part of the outpatient burden in the present setting. The marked association between lesion morphology and severity is not surprising, yet it remains clinically useful because it shows how rapidly the burden shifts once nodulocystic lesions begin to dominate. That progression mirrors the known inflammatory biology of acne, where follicular hyperkeratinization, sebum dysregulation, microbial colonization, and immune activation interact rather than operate in isolation [4].

Family history was present in more than half of the cohort. Even though severity did not differ significantly by family history in this sample, that proportion supports the long-recognized familial tendency of acne [1]. Dietary exposure was also notable, with almost half reporting a mixed or high-glycemic dietary pattern. This cannot be treated as causal evidence, but it does reflect what clinicians hear in routine practice. Indian adult data have likewise shown that patients frequently identify food items, cosmetics, and environmental triggers as aggravating factors, while reviews on acne-related myths remind us that patient beliefs about diet and skin care are often strong even when the evidence is uneven [12,13].

Post-acne scarring and post-inflammatory hyperpigmentation were present in 27.8% and 35.6% of patients, respectively. These are not minor add-ons to active disease. They are often the reason patients seek treatment late but demand faster improvement once they present. Earlier Indian work by Adityan and Thappa reported a high burden of both scarring and pigmentary change, while classic clinical work has long shown that scars may occur even when the current lesion count does not appear dramatic [8,14]. In darker skin types, pigmentary sequelae further amplify visibility and psychological distress, which makes early control of inflammation especially important [15].

Although quality-of-life assessment was not part of the present study, the pattern seen here has obvious psychosocial implications. Young age at presentation, facial visibility, chronic duration, and the presence of scarring or hyperpigmentation are all features known to worsen the lived experience of acne [9,16]. That should shift the clinical conversation away from judging acne only by lesion count. In practice, a patient with moderate inflammatory acne and persistent pigmentation may experience a disease burden out of proportion to what appears on quick examination.

The study has limitations. It was outpatient-based and therefore reflects a care-seeking population rather than community prevalence. The design was cross-sectional, so temporal relationships cannot be inferred. Several potentially relevant modifiers, such as hormonal factors, cosmetic use, self-medication, prior treatment, and formal quality-of-life scores, were not available for analysis. Despite these limits, the study still offers a clinically usable snapshot of how acne is presenting in a routine dermatology outpatient setting.

CONCLUSION

Acne vulgaris in this outpatient cohort predominantly affected adolescents and young adults, with a clear female preponderance. Papular and pustular lesions formed the bulk of presentations, while extra-facial involvement, scarring, and post-inflammatory hyperpigmentation were common enough to carry practical treatment significance. Most patients had mild-to-moderate disease, but one-third already belonged to severe or very severe categories. These findings support early severity-based assessment and timely intervention aimed not only at controlling active lesions, but also at limiting avoidable long-term sequelae.

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