e-ISSN: 0976-822X, p-ISSN:2961-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2025; 17(12); 2767-2772

Original Research Article

Clinico-epidemiological profile of acne vulgaris among adolescents and young Adults

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Received: 28-10-2025 / Revised: 27-11-2025 / Accepted: 28-12-2025
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Conflict of interest: Nil

Abstract:

Background: Acne vulgaris is a common chronic inflammatory disorder of the pilosebaceous unit predominantly affecting adolescents and young adults, with significant clinical and psychosocial implications. Understanding its clinico-epidemiological profile is essential for early intervention and prevention of long-term sequelae.
Objectives: To study the clinico-epidemiological profile of acne vulgaris among adolescents and young adults and to assess factors associated with disease severity.

Methods: This hospital-based cross-sectional observational study was conducted in the Dermatology Outpatient Department of a tertiary care teaching hospital over a period of 12 months. A total of 148 adolescents and young adults aged 10–30 years with clinically diagnosed acne vulgaris were included using consecutive sampling. Data regarding sociodemographic characteristics, clinical features, lesion types, sites of involvement, associated features, and family history were collected using a pre-designed proforma. Acne severity was graded using a standard grading system (Grade I–IV). Data were analyzed using SPSS version 25, and associations were tested using the Chi-square test.

Results: The majority of patients were aged 16–20 years (39.2%), with a slight male predominance (55.4%). Most participants were from urban areas (64.9%). Acne onset at ≤15 years was reported by 58.1% of patients. Comedones (79.7%) and papules (68.9%) were the most common lesions, with the face being the most frequently involved site (93.2%). Grade II acne was the most common severity (37.8%). Post-inflammatory hyperpigmentation (48.6%) and acne scarring (31.1%) were frequent. Severe acne was significantly associated with male gender, longer duration (>3 years), and positive family history ($p < 0.05$).

Conclusion: Acne vulgaris predominantly affects adolescents and young adults, with most cases presenting as mild to moderate disease. Early identification of high-risk individuals is crucial to prevent complications and psychosocial morbidity.

Keywords: Acne vulgaris; Adolescents; Young adults; Clinico-epidemiology; Acne severity; Dermatology.

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Introduction

Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit, characterized by non-inflammatory lesions (open/closed comedones) and inflammatory lesions (papules, pustules, nodules/cysts), with a predilection for the face, chest, and back. It is classically considered a disease of adolescence, closely linked to pubertal hormonal changes that increase sebum production and follicular keratinization, but it frequently persists into young adulthood and may continue beyond the third decade in a substantial proportion of affected individuals. In epidemiological reviews, moderate-to-severe acne has been reported in nearly one-fifth of young people, and persistence of acne into the 20s and 30s has also been highlighted, underscoring that acne is not merely a transient teenage concern but a longer-lasting dermatosis with variable severity and outcomes. [1]

Globally, acne is among the most common skin conditions, with estimates suggesting a large burden in adolescents and young adults across diverse populations. Reviews emphasize that acne is highly prevalent in post-pubescent adolescents, with sex-related differences in pattern and severity, and that the global prevalence of acne (all ages) has been estimated around 9–10%, placing it among the most prevalent diseases worldwide. [2] A systematic

review also reiterates that acne prevalence varies widely across countries and study settings (partly due to differing diagnostic and grading criteria), but consistently peaks during the teenage years and declines with age, while remaining clinically important in young adults. [3] Analyses focusing on late adolescence note very high occurrence in the 12–25-year age group and draw attention to a growing unmet need for accessible, effective acne care globally. [4]

Beyond prevalence, acne carries substantial clinical and psychosocial morbidity. The clinical phenotype varies by age, sex, hormonal milieu, genetic predisposition, and lifestyle factors; lesion distribution, severity, post-inflammatory hyperpigmentation, and scarring are key determinants of long-term impact. Importantly, acne can adversely affect self-esteem, social functioning, academic/work performance, and interpersonal relationships, and quality-of-life impairment may not correlate perfectly with lesion counts alone—highlighting the need for holistic assessment. [5] From a public health perspective, understanding clinico-epidemiological patterns (age of onset, severity distribution, predominant lesion types, site involvement, aggravating factors, and sequelae such as scarring and pigmentary change) is essential for early recognition, risk stratification, and targeted interventions in high-risk groups.

In India, adolescents and young adults represent a major at-risk population due to awareness, cosmetic concerns, changing dietary/lifestyle patterns, and care-seeking behavior. School- and hospital-based studies from North India demonstrate a high prevalence of acne among adolescents and provide insights into severity profiles and associated factors, but findings vary by geography, sampling frame, and measurement methods. [6] Therefore, a clinico-epidemiological study among adolescents and young adults is relevant to characterize the local burden, common clinical patterns, and potential determinants of acne vulgaris in the study setting. Such evidence can support earlier diagnosis and appropriate counseling, optimize resource allocation, and inform preventive and therapeutic strategies aimed at reducing complications such as scarring and psychosocial sequelae. [1,5]

Materials and Method

This was a hospital-based cross-sectional observational study conducted to assess the Clinico-epidemiological profile of acne vulgaris among adolescents and young adults.

The study was carried out in the Dermatology Outpatient Department (OPD) of Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar a tertiary care teaching hospital over a period of 12 months.

The study population included adolescents and young adults aged 10–30 years attending the dermatology OPD with clinical features suggestive of acne vulgaris.

Inclusion Criteria

- Patients aged 10–30 years.
- Clinically diagnosed cases of acne vulgaris
- Both males and females.
- Patients who provided written informed consent (and assent with parental consent for minors).

Exclusion Criteria

- Patients with acneiform eruptions due to drugs (e.g., steroids, antiepileptics).
- Patients with secondary acne due to endocrine disorders (e.g., Cushing's syndrome).
- Patients with severe systemic illness.
- Patients unwilling to participate in the study.

The sample size consisted of 148 consecutive eligible patients fulfilling the inclusion criteria during the study period, using consecutive sampling method.

Method

Data were collected using a pre-designed, pre-tested structured proforma through direct interview and clinical examination. The proforma included:

- **Sociodemographic details**: age, sex, residence, educational status
- **Clinical history**: age of onset, duration of acne, family history, aggravating factors (diet, stress, cosmetics, menstrual irregularities), seasonal variation
- **Clinical examination**: type of lesions (comedones, papules, pustules, nodules), site of involvement (face, chest, back), presence of post-inflammatory hyperpigmentation and scarring
- **Severity grading of acne** was done using a standard acne grading system (Grade I–IV)

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Categorical variables were expressed as frequencies and percentages, while continuous variables were summarized as mean ± standard deviation (SD). The association between acne severity and selected clinico-epidemiological variables was assessed using the Chi-square test. A p-value < 0.05 was considered statistically significant.

Ethical approval was obtained from the Institutional Ethics Committee prior to the commencement of the study.

Observation and Results

Table 1: Distribution of study participants according to sociodemographic characteristics (n = 148)

Variable	Frequency (n)	Percentage (%)
Age Group (Years)		
10–15 Years	34	23
16–20 Years	58	39.2
21–25 Years	38	25.7
26–30 Years	18	12.1
Gender		
Male	82	55.4
Female	66	44.6
Residence		
Urban	96	64.9
Rural	52	35.1

Table 1 shows the sociodemographic profile of the 148 study participants. The majority of patients belonged to the 16–20 years age group (39.2%), followed by those aged 21–25 years (25.7%), indicating that acne vulgaris was most prevalent in late adolescence and early young adulthood. Males constituted a slightly higher proportion of cases (55.4%) compared to females (44.6%). Most participants were from urban areas (64.9%), suggesting a higher healthcare-seeking behavior or greater exposure to urban lifestyle-related risk factors among urban residents.

Table 2: Clinical characteristics of acne vulgaris among study participants

Variable	Frequency (n)	Percentage (%)
Age of onset		
≤15 years	86	58.1
>15 years	62	41.9
Duration of acne		
<1 year	54	36.5
1–3 years	68	45.9
>3 years	26	17.6
Family history of acne		
Present	64	43.2
Absent	84	56.8

Table 2 describes the clinical characteristics of acne vulgaris among the study population. More than half of the participants (58.1%) reported onset of acne at or before 15 years of age, highlighting the strong association of acne with pubertal changes. Nearly half of the patients (45.9%) had acne for a duration of 1–3 years, while 17.6% reported disease persistence beyond three years. A positive family history of acne was noted in 43.2% of cases, indicating a possible genetic predisposition.

Table 3: Distribution of lesion type and site of involvement

Variable	Frequency (n)	Percentage (%)
Type of lesions		
Comedones	118	79.7
Papules	102	68.9
Pustules	56	37.8
Nodules	18	12.2
Site of involvement		
Face	138	93.2
Back	46	31.1
Chest	28	18.9

Table 3 presents the distribution of lesion types and sites of involvement. Comedones were the most common lesion type (79.7%), followed by papules (68.9%) and pustules (37.8%), while nodules were seen in a smaller proportion (12.2%). The face was the most frequently involved site (93.2%), followed by the back (31.1%) and chest (18.9%). This pattern reflects the predominance of acne lesions in sebaceous gland–rich areas.

Table 4: Distribution of acne severity among participants

Acne severity grade	Frequency (n)	Percentage (%)
Grade I (Comedonal)	44	29.7
Grade II (Papular)	56	37.8
Grade III (Pustular)	34	23
Grade IV (Nodulocystic)	14	9.5
Total	148	100

Table 4 illustrates the severity grading of acne vulgaris among participants. Grade II (papular acne) was the most common presentation (37.8%), followed by Grade I (comedonal acne) in 29.7% of cases. Moderate-to-severe forms, namely Grade III and Grade IV acne, were observed in 23.0% and 9.5% of participants respectively, indicating that a considerable proportion of patients presented with inflammatory and potentially scarring forms of acne.

Table 5: Associated clinical features

Feature	Present n (%)	Absent n (%)
Post-inflammatory hyperpigmentation	72 (48.6)	76 (51.4)
Acne scars	46 (31.1)	102 (68.9)
Seborrhea	88 (59.5)	60 (40.5)

Table 5 highlights the associated clinical features of acne vulgaris. Post-inflammatory hyperpigmentation was present in nearly half of the patients (48.6%), while acne scarring was observed in 31.1%, underscoring the chronic and recurrent nature of the disease. Seborrhea was noted in 59.5% of participants, reflecting increased sebum production as a key pathogenic factor in acne vulgaris.

Table 6: Association between acne severity and selected variables

Variable	Mild (Grade I–II) n=100	Severe (Grade III–IV) n=48	χ^2 value	p-value
Sex				
Male	50	32	4.21	0.040*
Female	50	16		
Duration >3 years	10	16	9.34	0.002*
Family history present	34	30	6.78	0.009*

Table 6 depicts the association between acne severity and selected clinico-epidemiological variables. Severe acne (Grade III–IV) was significantly more common among males compared to females (p = 0.040). A longer duration of acne (>3 years) showed a strong association with severe disease (p = 0.002). Additionally, participants with a positive family history of acne had a significantly higher proportion of severe acne (p = 0.009). These findings suggest that male gender, chronicity of disease, and genetic predisposition are important determinants of acne severity.

Discussion

In the present hospital-based cross-sectional study (n = 148), acne vulgaris was most commonly observed in late adolescence and early young adulthood, with the highest proportion in the 16–20-year age group (39.2%), followed by 21–25 years (25.7%). This age pattern is consistent with established epidemiology, where acne peaks during adolescence and remains common in young adults due to ongoing androgen-driven sebaceous activity and inflammatory mechanisms. [1,4] Similar age clustering has also been reported in Indian adolescent populations, supporting that late teenage years are a high-burden period for acne-related consultations. [6]

A slight male predominance (55.4%) was observed in our study. This finding aligns with several clinic-based studies where males often present more frequently and/or with relatively more inflammatory disease, potentially reflecting biological factors (higher androgen effect) as well as care-seeking differences. [1,4] However, sex patterns can vary by setting; for example, community-based adolescent studies may show comparable prevalence between sexes or higher self-reporting in females in some contexts, indicating that sample frame and health-seeking behavior influence observed sex distribution. [4,6]

Most participants were from urban areas (64.9%). Urban predominance in hospital OPD studies is commonly attributed to better access to dermatology care, higher cosmetic concern, and potential lifestyle-related contributors such as use of

cosmetics, dietary transitions, and psychosocial stress, although causality cannot be inferred in a cross-sectional design. [1,6] This highlights the importance of considering access and referral patterns while interpreting clinico-epidemiological profiles from tertiary centers.

Regarding disease chronology, 58.1% reported onset at ≤15 years, and nearly half had disease duration of 1–3 years (45.9%), while 17.6% had acne persisting for >3 years. This supports the concept that acne frequently begins around puberty and may persist into young adulthood, as emphasized by epidemiological reviews describing persistent acne beyond adolescence in a substantial subset. [1,4] Persistence is clinically relevant because prolonged disease increases cumulative inflammation and the risk of sequelae such as scarring and post-inflammatory dyspigmentation. [1]

Clinically, comedones (79.7%) and papules (68.9%) were the most frequent lesions, and the face was the predominant site (93.2%), with additional involvement of the back (31.1%) and chest (18.9%). This pattern is consistent with the pathophysiology of acne in sebaceous gland–rich areas and mirrors typical distributions described across populations. [1,4] Indian observational studies among adolescents similarly report facial predominance and frequent comedonal and papular lesions, although the proportion of inflammatory lesions varies with severity spectrum and sampling. [6]

In our study, Grade II acne was most common (37.8%), followed by Grade I (29.7%), whereas Grades III and IV constituted 23.0% and 9.5%, respectively. The predominance of mild-to-moderate acne aligns with broader literature indicating that most patients fall into these categories, while a smaller yet clinically important fraction present with moderate-to-severe inflammatory acne that carries higher risk of scarring. [1] In an Indian study of adult acne, grade II and grade III disease were also prominent, with inflammatory papules/pustules forming a major component of the clinical picture—supporting that inflammatory lesions are common in clinic attendees and may be more frequent in persistent/acquired adult patterns. [7] Differences across studies may reflect age-mix (adolescent vs adult), referral bias (tertiary care), and grading systems used. [1,7]

With respect to complications and associated features, post-inflammatory hyperpigmentation (PIH) was present in 48.6% and acne scars in 31.1%, while seborrhea was observed in 59.5% of participants. PIH and scarring rates are especially relevant in skin of color and in patients with delayed treatment or recurrent inflammatory lesions. Reviews highlight that acne sequelae contribute substantially to disease burden and quality-of-life impairment, often disproportionate to current lesion counts. [1,5] Indian QoL research also underscores that acne and its sequelae can significantly affect emotional and social domains, supporting early, appropriate therapy and counseling to prevent long-term psychosocial impact. [5]

Importantly, severe acne (Grade III–IV) showed statistically significant associations with male sex ($p = 0.040$), longer duration >3 years ($p = 0.002$), and positive family history ($p = 0.009$). These associations are biologically plausible. Male sex is often linked to more severe inflammatory acne due to androgenic influences on sebum production and follicular biology. [1,4] Longer duration likely reflects cumulative inflammatory activity and delayed effective management, increasing the probability of progression to more severe grades. [1] A positive family history supports a genetic contribution to acne susceptibility and severity, as repeatedly discussed in epidemiological reviews. [1,4] Together, these findings suggest that males, patients with prolonged disease, and those with a family history represent higher-risk groups who may benefit from early escalation of evidence-based therapy and focused counseling to reduce sequelae.

Conclusion

Acne vulgaris was found to be highly prevalent among adolescents and young adults, with a peak occurrence in late adolescence and a slight male predominance. The majority of patients presented with mild to moderate acne, predominantly involving the face with comedonal and papular lesions. However, a considerable proportion exhibited moderate to severe disease associated with longer duration, male gender, and positive family history. Post-inflammatory hyperpigmentation and scarring were common sequelae, highlighting the chronic and recurrent nature of the condition. Early identification of high-risk individuals, appropriate severity-based management, and timely intervention are essential to prevent complications and reduce the psychosocial burden of acne vulgaris.

Acknowledgement: None

References

1. Bhate K, Williams HC. Epidemiology of acne vulgaris. Br J Dermatol. 2013;168(3):474–85. doi:10.1111/bjd.12149.
2. Tan JKL, Bhate K. A global perspective on the epidemiology of acne. Br J Dermatol. 2015;172(Suppl1):3–12. doi:10.1111/bjd.13462.
3. Heng AHS, Chew FT. Systematic review of the epidemiology of acne vulgaris. Sci Rep. 2020;10(1):5754. doi:10.1038/s41598-020-62715-3.
4. Lynn DD, Umari T, Dunnick CA, Dellavalle RP. The epidemiology of acne vulgaris in late

adolescence. Adolesc Health Med Ther. 2016;7:13–25. doi:10.2147/AHMT.S55832.
5. Hazarika N, Archana M. The psychosocial impact of acne vulgaris. Indian J Dermatol. 2016;61(5):515–20. doi:10.4103/0019-5154.190102.
6. Sharma RK, Dogra S, Singh A, Kanwar AJ. Epidemiological patterns of acne vulgaris among adolescents in North India: a cross-sectional study and brief review of literature. Indian J Paediatr Dermatol. 2017;18(3):196–201. doi:10.4103/ijpd.IJPD_82_16.
7. Khunger N, Kumar C. A clinico-epidemiological study of adult acne: Is it different from adolescent acne? Indian J Dermatol Venereol Leprol. 2012;78(3):335–41.