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Clinical Profile of Acne Vulgaris: An Observational Study from A Tertiary Care Institution

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ABSTRACT

Background: Acne vulgaris is one of the most common dermatological conditions with considerable variation in clinical presentation, severity, and long-term impact. Despite its high prevalence, the pattern of distribution, grading, and associated scarring remains poorly documented in many regional settings. The aim is to delineate the clinical and epidemiological profile of acne vulgaris among patients attending a tertiary care hospital.

Methods: This cross-sectional study included 120 patients clinically diagnosed with acne vulgaris. Detailed demographic and clinical data were collected, including site of lesion, severity grading using Global Acne Grading System, and type of scarring. Descriptive and comparative statistical analyses were performed.

Results: A strong female predominance (75%) was observed, with the most affected age group being 21–25 years. Cheeks and forehead were the most common sites of involvement. Grade 3 acne was most prevalent, and the most frequent scar type was ice pick scarring.

Conclusion: The study underscores the shifting demographic trend towards adult-onset acne, especially among females, and highlights the predominance of moderate to severe forms requiring prompt intervention. Understanding clinical patterns can support personalized and timely treatment strategies.

Key-words: Acne vulgaris, Clinical profile, Acne grading, Acne scarring

INTRODUCTION

Acne vulgaris is one of the most prevalent chronic dermatological conditions globally, particularly affecting adolescents and young adults, with an estimated 85% prevalence in individuals aged 12–25 years [1]. It represents a significant global burden, both due to its high incidence and its potential for long-term physical and psychological sequelae [2]. The clinical spectrum of acne includes comedones, papules, pustules, nodules, and cysts, with varying degrees of severity and chronicity [3].

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The pathogenesis of acne vulgaris is multifactorial, involving increased sebum production, follicular hyperkeratinization, colonization by *Cutibacterium acnes* (formerly *Propionibacterium acnes*), and inflammatory processes [4]. Several external and internal contributing factors, including hormonal fluctuations, diet (especially dairy and high-glycemic index foods), stress, cosmetic use, environmental pollutants, and genetic predisposition, have been associated with the development and aggravation of acne [5]. While adolescent acne is typically driven by pubertal hormonal changes, adult-onset acne—especially in females—has been increasingly recognized and often reflects a different hormonal and clinical pattern [6].

Recent studies from Indian tertiary care hospitals have emphasized a higher prevalence of moderate to severe acne, with most patients presenting in the second and third decades of life and a female preponderance [7].

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Furthermore, the psychosocial burden of acne is profound—many patients experience diminished self-esteem, social withdrawal, anxiety, and even depression, highlighting the importance of early diagnosis and intervention [8].

Various studies have focused on identifying patterns of acne morphology, grading severity, and mapping the distribution of lesions in relation to age, gender, lifestyle habits, and associated endocrine dysfunctions [9]. A significant number of adult female acne cases also exhibit features of hyperandrogenism, such as seborrhea, hirsutism, and menstrual irregularities, warranting further hormonal evaluation [10].

Given the rising incidence of adult and persistent acne, particularly in South Asian populations, and the psychosocial impact it entails, this study aims to delineate the clinical and epidemiological profile of acne vulgaris in patients presenting to a tertiary care institution. Understanding these variables can assist in improving treatment strategies, minimizing recurrence, and enhancing overall quality of life.

MATERIALS AND METHODS

Study Design and Setting- This observational, cross-sectional study was conducted in the Department of Dermatology at a tertiary care teaching hospital over a period of 12 months. A total of 120 patients clinically diagnosed with acne vulgaris and attending the dermatology outpatient department were enrolled in the study after obtaining written informed consent. Ethical clearance was obtained from the institutional ethical committee before the initiation of the study.

Inclusion and Exclusion Criteria- Participants of either gender aged 12 years and above presenting with clinical features consistent with acne vulgaris were included. Patients with other concurrent dermatological conditions that could mimic acne (such as folliculitis or rosacea), those undergoing systemic treatment for acne in the past three months, or those unwilling to participate were excluded.

Data Collection- A pre-designed, semi-structured clinical proforma was used to collect demographic details, including age, gender, socioeconomic status, age at onset, and family history of acne. A detailed dermatological examination was performed for each patient to document the type of acne (comedonal, papulopustular, nodulocystic, or mixed), the distribution of lesions (face, chest, back, shoulders), and associated findings such as scarring and post-inflammatory hyperpigmentation.

Assessment of Severity- Acne severity was graded using the Global Acne Grading System (GAGS), which considers the type of lesions and their distribution across six anatomical sites. Hormonal history was recorded in female participants, with special attention to features suggestive of hyperandrogenism such as hirsutism, seborrhea, and menstrual irregularities.

Statistical Analysis- All data were compiled and entered into Microsoft Excel. Descriptive statistics were used to summarize the data. Mean and standard deviation were calculated for continuous variables, while categorical variables were expressed as frequencies and percentages. Comparative analysis was done using the chi-square test or t-test wherever applicable, and a p-value of less than 0.05 was considered statistically significant.

RESULTS

In this study comprising 120 patients diagnosed with acne vulgaris, the age and sex distribution revealed a strong female predominance. Out of 120 participants, 90 were females and 30 were males. The most affected age group was 21–25 years, accounting for 38.3% of the total cases, followed by 16–20 years (30.8%). Notably, females outnumbered males in all age groups, with the highest disparity observed in the 26–30-year group, where 19 females were affected compared to only two males (Table 1).

Table 1: Age and sex distribution (n = 120)

Age group (years)	Males	Females	Total (%)
10–15	2	3	5 (4.2)
16–20	14	23	37 (30.8)
21–25	10	36	46 (38.3)
26–30	2	19	21 (17.5)
>30	2	9	11 (9.2)
Total	30	90	120

Analysis of the anatomical site of lesion involvement showed that the cheeks were the most frequently affected site, observed in 95 individuals (79.2%), followed by the forehead (75 patients, 62.5%) and the mandible (40 patients, 33.3%). Chin involvement was recorded exclusively among females, seen in 30 patients. Lesions on the chest, back, shoulders, and upper arms were also noted, but with a lower frequency (Table 2).

Table 2: Site of involvement (n = 120)

Site	Males	Females	Total (%)
Forehead	24	51	75 (62.5)
Cheeks	25	70	95 (79.2)
Mandible	9	31	40 (33.3)
Chin	0	30	30 (25.0)
Chest	6	6	12 (10.0)
Back	8	7	15 (12.5)
Shoulder	4	5	9 (7.5)
Upper arm	0	4	4 (3.3)

Grading of acne severity using the Global Acne Grading System indicated that Grade 3 acne was the most common, affecting 72 patients (60%), followed by Grade 2 in 36 patients (30%). Severe acne (Grade 4) was identified in 9 patients (7.5%), while mild acne (Grade 1) was the least frequent, seen in only 3.3% of cases. Females constituted the majority across all severity grades, especially in Grade 3 and Grade 4 categories (Table 3).

Table 3: Grade of acne (n = 120)

Grade	Males	Females	Total (%)
1	1	3	4 (3.3)
2	9	27	36 (30.0)
3	15	57	72 (60.0)
4	5	4	9 (7.5)

Among the patients examined for post-acne scarring, ice pick scars were the most prevalent type, noted in 20 individuals. Distensible retraction scars and non-distensible superficial scars were each seen in 10 patients. Other types, such as non-distensible crater-like scars, hypertrophic scars, and keloids, were less frequently observed, each affecting a small proportion of the study population (Table 4).

Table 4: Type of acne scars (n = 120)

Type of scar	No. of patients
Ice pick	20
Distensible retraction	10
Non-distensible crater-like	5
Non-distensible superficial	10
Hypertrophic	3
Keloid	1

DISCUSSION

The present study aimed to delineate the clinical and epidemiological profile of acne vulgaris in patients attending a tertiary care institution, and the findings affirm several emerging trends consistent with recent literature. A predominant female representation (75%) was noted, with the highest concentration of cases occurring in the 21–25 years age group, mirroring the demographic shift being increasingly reported in global and Indian studies [11]. This rise in post-adolescent acne, especially among females, is often attributed to hormonal fluctuations, increasing stress levels, and dietary habits, which are more evident in urban tertiary-care settings [12].

The cheeks and forehead emerged as the most common sites of lesion involvement in this cohort, which aligns with recent anatomical mapping studies that highlight the T-zone and malar areas as primary sites due to their higher density of pilosebaceous units [13]. The exclusive occurrence of chin acne among females in the present study may suggest an underlying hormonal influence, as mandibular and chin involvement has been strongly associated with hyperandrogenic states [14].

Grading of acne severity revealed that Grade 3 acne was most prevalent (60%), followed by Grade 2 (30%). This is consistent with recent multicentric observational studies reporting a shift towards more moderate to severe presentations in younger populations, potentially driven by the use of oily cosmetics, climatic conditions, and self-medication with over-the-counter steroids [12,14]. Furthermore, acne scarring, particularly ice pick and distensible retraction types, was common. This reaffirms findings from newer studies, which indicate that delayed treatment, poor compliance, and lack of awareness

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about acne sequelae contribute significantly to scarring patterns [15].

The psychological impact of acne, although not quantitatively assessed in the current study, cannot be overlooked. Multiple recent works emphasize the correlation between acne severity and emotional distress, including anxiety and depression, especially among young females [11,15]. These findings collectively support the need for early clinical intervention, education regarding skincare, and perhaps routine psychological screening for moderate to severe acne cases.

CONCLUSIONS

Acne vulgaris continues to be a highly prevalent dermatological concern with multifactorial origins and diverse clinical presentations. This observational study highlights a female predominance, significant involvement of facial zones—particularly cheeks and forehead—and a rising trend in moderate to severe acne grades among young adults. The frequency of post-acne scarring, especially ice pick type, underscores the necessity for timely therapeutic interventions and preventive strategies. A comprehensive clinical evaluation considering hormonal, dietary, and lifestyle factors, along with proper grading and scar assessment, is essential for tailored management. The findings emphasize the evolving face of acne vulgaris in tertiary care settings and the importance of integrating dermatological care with patient education and psychosocial support.

CONTRIBUTION OF AUTHORS

Research concept- Dhara Zankat, Dhruv Patel R
Research design- Dhara Zankat, Dhruv Patel R
Supervision- Dhara Zankat, Dhruv Patel R
Materials- Dhara Zankat, Dhruv Patel R
Data collection- Dhara Zankat, Dhruv Patel R
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