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Original Research Article

A Retrospective Study on the Clinical Profile of Acne Vulgaris: Severity Patterns and Therapeutic Outcomes

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Abstract:

Background: Acne vulgaris is a common chronic inflammatory disorder of the pilosebaceous unit affecting adolescents and adults, often leading to significant clinical and psychosocial burden.

Aim: To evaluate the clinical profile, severity patterns, and therapeutic outcomes of patients with acne vulgaris.

Methodology: This hospital-based retrospective observational study included 80 patients aged ≥12 years attending the Department of Skin & VD, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar. Medical records were reviewed for demographic data, duration, family history, site of involvement, Investigator Global Assessment (IGA) severity grading, treatment modalities, and follow-up outcomes. Statistical analysis was performed using SPSS version 27.

Results: The majority of patients were aged 17–25 years (60%) with female predominance (57.5%). Most had disease duration of 1–3 years (42.5%) and positive family history (65%). Moderate acne (IGA Grade 3) was most common (37.5%). Combination therapy (oral antibiotics with topical agents) was the preferred treatment (35%). At follow-up, 72.5% showed moderate to marked improvement.

Conclusion: Acne vulgaris predominantly affects young adults with moderate severity and demonstrates favorable response to guideline-based combination therapy, though individualized management remains essential.

Keywords: Acne vulgaris, Clinical profile, Severity grading, Therapeutic outcomes, Retrospective study.

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Introduction

The acne vulgaris has been identified as the most widespread skin disorder in the world in all age groups and ethnicities [1]. Even though it is considered to be an adolescence condition, modern epidemiological statistics reflect that its prevalence in adulthood is also high. Approximately, 80 percent of adolescence and young adults are said to have acnes lesions at one time or another, which goes to show that it is almost universal throughout puberty. Moreover, one out of four adults has acne, which is also known as adult acnes or acnes tarda. These statistics highlight the massive morbidity of acnes vulgaris as a fleeting adolescent problem, but also as a chronic or late-onset skin disease, with an implication that goes well into adulthood.

Acne vulgaris has a clinical presentation as a chronic inflammatory disease of the pilosebaceous unit with the appearance of comedones, papules, pustules, nodules, and in severe cases, cysts, and scar tissue. The face is the most affected area and it is associated with the large concentration of sebaceous glands in the area, but the lesions often affect the chest and upper back as well. Perception regarding appearance by patients, especially in case of facial involvement, plays a very critical role in determining the distribution pattern. Although most patients with acne come into the clinic with mild cases of disease severity, it is believed that about 20 percent of patients may have moderate to severe cases of the condition [2]. Such subgroup has been of special clinical concern because of the elevated risk of post-inflammatory hyperpigmentation, scarring and length of disease, which can lead to long-term physical and psychological consequences.

The clinical presentation of acnes vulgaris is diverse due to the age of onset, duration, the morphology of the lesions, anatomical location and severity scale [3]. In adolescents, the polymorphic lesions usually

appear mainly on the face, but in adults the lower part of the face and the jawline may be prone to the acne, particularly in females. This system demonstrates the importance of the systematic documentation of demographic and clinical features of particular populations. The retrospective study on patient records is an opportunity to evaluate the real-life trends of seriousness, distribution, and treatment outcomes thus adding evidence-based clinical practice.

Although acne vulgaris is not a life-threatening disease, its effects on the psychosocial health of the patients are immense regardless of the severity of the condition. Lesion visibility especially on the face can result in low self-esteem, withdrawal, and poor interpersonal relationships. Various studies have proved that patients with acne have considerably lower scores on the quality of life (QoL) than healthy subjects. Psychosocial burden is not only limited to severely diseased patients; even the patient with mild acne gets quite a bit distressed. Moreover, it has also been reported that acne patients are more susceptible to the perceived stigmatization, which, in turn, may contribute to the increase in their experiences of embarrassment, shame, and social isolation [4].

Especially of interest is the correlation between acne and psychiatric comorbidities. A massive European venture carried out in 13 countries among dermatology outpatients by the European Society of Dermatology and Psychiatry (ESDaP) uncovered that acne patients were quite likely to develop depression and anxiety disorders as compared to those without dermatological illnesses [5]. The prevalence of suicidality has also been reported to be more common in acnes patients than in healthy controls, which is also alarming. This is because these results highlight the fact that acnes vulgaris is not something to be taken as a simple cosmetic issue, but a disorder that may have significant mental health consequences.

The issue of gender differences in psychosocial effects of acne is still an object of research [6]. Though it has both male and female victims, the kind and the level of psychological distress can differ among the two genders. These differences could be caused by social demands, cosmetic factors, hormones and patterns of seeking health. Nevertheless, available evidence on gender difference in psychosocial parameters among patients with acne is not clear and in certain cases, alarming. This shows that more research is necessary in which the gender specific trends in clinical severity and treatment outcome are closely assessed.

Besides the psychosocial issues, therapeutic management of acne vulgaris is an important part of patient management. The modalities of treatment include topical therapy in mild cases and systemic therapy in moderate to severe disease [7] -. Clinical severity, type of lesion, age of the patient and the response of the patient to the prior treatment usually dictate the kind of therapy used. The analysis of therapeutic outcomes during a retrospective cohort provides an opportunity to measure reality, adherence, and possible gap in management approaches. These analyses are especially applicable in resource-constricted environments, where access to treatment and adherence to them among patients can affect the final results.

Since the prevalence of acne vulgaris is high, its clinical picture is variable, and its psychosocial burden is also significant, the investigation of the clinical portrait of the affected individuals has an urgent necessity. The knowledge of the severity patterns and their association with the therapeutic outcomes may help develop the specific management guidelines. In addition, the study of demographic factors, such as gender distribution, can also lead to information on the difference in disease patterns and response to treatment.

Thus, the current retrospective research will examine the clinical profile of acne vulgaris patients, with particular emphasis on the patterns of severity and treatment results. Specific focus is put on the knowledge of demographic features, anatomy, and the psychosocial consequences of the disease, as well as gender differences. This study aims to make a contribution to a more subtle view of acne vulgaris by carefully examining patient records and thereby help to optimize patient-focused treatment approaches".

Methodology

Study Design: This hospital-based retrospective observational study was conducted to evaluate the clinical profile, severity patterns, and therapeutic outcomes of patients diagnosed with acne vulgaris. The study involved a detailed review of medical records of patients who attended the dermatology outpatient department during the defined study period.

Study Area: The study was carried out in the Department of Skin & VD, Sri Krishna Medical College and Hospital, Muzaffarpur, Bihar, India.

Study Duration: The study was conducted over a period of 7 months from July 2025 to January 2026.

Study Participants: A total of 80 patients diagnosed clinically with acne vulgaris were included in the study based on predefined eligibility criteria.

Inclusion Criteria

- Patients of both genders diagnosed with acne vulgaris based on clinical examination.
- Patients aged 12 years and above.

- Patients with complete medical records including details of severity grading and treatment prescribed.
- Patients who had a t least one follow-up visit documented for assessment of therapeutic outcome.

Exclusion Criteria

- Patients with other concomitant dermatological disorders that could interfere with acne assessment.
- Patients with incomplete or missing clinical records.
- Patients receiving treatment for drug-induced acne or acneiform eruptions.
- Patients with systemic illnesses significantly affecting skin condition (e.g., endocrine disorders not documented properly).

Sample Size: The final sample size comprised 80 patients who fulfilled the inclusion and exclusion criteria during the study period.

Procedure: Medical records of patients diagnosed with acne vulgaris were retrieved from the departmental record section. Diagnosis had been made clinically by experienced dermatologists based on characteristic features such as comedones, papules, pustules, nodules, and cysts. Data were extracted using a structured proforma, which included demographic details (age, gender), duration of disease, family history, site of involvement, type of lesions, and severity grading.

The severity of acne had been assessed during patient visits using the Investigator Global Assessment (IGA) scale, which grades acne on a 5-point scale ranging from 0 (clear) to 4 (severe). Therapeutic interventions prescribed were documented, including topical agents (retinoids, benzoyl peroxide, antibiotics), systemic antibiotics, hormonal therapy, and isotretinoin where indicated.

Therapeutic outcomes were assessed based on follow-up records, noting clinical improvement in lesion count, reduction in severity grade, and physician-documented response categorized as mild, moderate, or marked improvement. Adverse effects, if any, were also recorded from patient files. All relevant clinical and therapeutic data were compiled systematically for further statistical analysis.

Statistical Analysis: The collected data were entered into Microsoft Excel and subsequently analyzed using IBM SPSS Statistics version 27.0. Descriptive statistics such as mean, standard deviation, frequency, and percentage were calculated for demographic and clinical variables. The normality of quantitative data was assessed using the Shapiro–Wilk test. For comparison of quantitative variables, Student's t-test was applied for normally distributed data, while the Mann–Whitney U test was used for non-parametric data. Qualitative variables were analyzed using the Chi-square test. Correlation between severity patterns and therapeutic outcomes was assessed using Pearson's or Spearman's correlation coefficients as appropriate. A p-value of less than 0.05 was considered statistically significant".

Result

Table 1 shows the demographic characteristics of the study participants (n = 80). The majority of participants belonged to the 17–20 years age group, accounting for 26 individuals (32.5%), followed by the 21–25 years group with 22 participants (27.5%). The 12–16 years age group comprised 14 participants (17.5%), while 12 participants (15%) were in the 26–30 years category. The smallest proportion was observed in participants aged more than 30 years, with only 6 individuals (7.5%). Regarding gender distribution, females constituted a slightly higher proportion of the study population, with 46 participants (57.5%), whereas males accounted for 34 participants (42.5%). Overall, the data indicate that the study population was predominantly young adults, particularly those between 17 and 25 years, with a female predominance.

Table 1: Demographic Characteristics of Study Participants (n = 80)

Variable	Frequency	Percentage (%)
Age Group (years)		
12–16	14	17.5
17–20	26	32.5
21–25	22	27.5
26–30	12	15
>30	6	7.5
Gender		
Male	34	42.5
Female	46	57.5

Table 2 shows the clinical profile of acne vulgaris among the study participants (n = 80). The majority of patients (42.5%) had a duration of acne ranging from 1–3 years, followed by 35% with a history of more than 3 years, while 22.5% had acne for less than 1 year, indicating that most cases were of

chronic nature. A positive family history of acne was present in 65% of participants, suggesting a strong genetic predisposition, whereas 35% reported no family history. Regarding the site of involvement, the face was affected in all patients (100%), making it the most common site. Additionally, 45% had lesions on the back and 35% on the chest, demonstrating that truncal involvement was also fairly common along with facial acne. Overall, the findings highlight the chronicity, familial tendency, and predominant facial distribution of acne vulgaris in the study population.

Table 2: Clinical Profile of Acne Vulgaris (n = 80)		
Variable	**Frequency**	**Percentage (%)**
Duration of Acne		
<1 year	18	22.5
1–3 years	34	42.5
>3 years	28	35
Family History of Acne		
Present	52	65
Absent	28	35
Site of Involvement		
Face	80	100
Chest	28	35
Back	36	45

Table 3 shows the severity grading based on Investigator Global Assessment (IGA) among 80 study participants. The majority of patients were categorized under Grade 3 (Moderate severity), accounting for 30 cases (37.5%), indicating that moderate clinical presentation was the most common at the time of assessment. This was followed by Grade 2 (Mild), observed in 24 patients (30%), suggesting that a substantial proportion had less intense manifestations. Severe cases (Grade 4) constituted 16 patients (20%), reflecting a considerable burden of advanced disease in the study population. Meanwhile, only 10 patients (12.5%) were classified as Grade 1 (Almost Clear), representing the smallest group. Overall, the distribution demonstrates that most participants fell within the mild to moderate severity range, with fewer patients at the extreme ends of the clinical spectrum.

Table 3: Severity Grading Based on Investigator Global Assessment (IGA) (n = 80)			
IGA Grade	**Clinical Severity**	**Frequency**	**Percentage (%)**
1	Almost Clear	10	12.5
2	Mild	24	30
3	Moderate	30	37.5
4	Severe	16	20

Table 4 shows the distribution of treatment modalities prescribed among the 80 study participants. The majority of patients were managed with a combination of oral antibiotics and topical therapy, accounting for 28 cases (35%), indicating a preference for combination therapy in moderate to severe presentations. Topical therapy alone was prescribed to 26 patients (32.5%), suggesting that nearly one-third of the cases were managed conservatively, likely due to milder disease severity. Isotretinoin therapy was administered to 16 patients (20%), reflecting its use in more resistant or severe cases requiring systemic retinoid treatment. Hormonal therapy, specifically among female patients, was given to 10 cases (12.5%), highlighting its role in selected patients where hormonal factors were considered contributory. Overall, combination therapy emerged as the most commonly adopted treatment approach in this study population.

Table 4: Treatment Modalities Prescribed (n = 80)		
Treatment Modality	**Frequency**	**Percentage (%)**
Topical therapy alone	26	32.5
Oral antibiotics + Topical	28	35
Isotretinoin therapy	16	20
Hormonal therapy (females)	10	12.5

Table 5 illustrates the therapeutic outcomes at follow-up among 80 study participants. The majority of patients demonstrated a favorable response to treatment, with 30 patients (37.5%) showing moderate improvement (25–50%) and 28 patients (35%) exhibiting marked improvement (>50%).

Additionally, 12 patients (15%) experienced only mild improvement (<25%), indicating limited but noticeable clinical benefit. However, 10 patients (12.5%) showed no significant improvement at follow-up. Overall, the findings suggest that a substantial proportion of participants (72.5%) achieved moderate to marked improvement, reflecting the overall effectiveness of the therapeutic intervention, while a smaller proportion had minimal or no response, highlighting the need for further evaluation or alternative management strategies in those cases.

Table 5: Therapeutic Outcomes at Follow-up (n = 80)

Outcome Category	Frequency	Percentage (%)
Mild Improvement (<25%)	12	15
Moderate Improvement (25–50%)	30	37.5
Marked Improvement (>50%)	28	35
No Significant Improvement	10	12.5

Discussion

The findings of the current retrospective research study demonstrate a high degree of agreement with existing research studies about the epidemiology of acne vulgaris. Our finding that most patients fell within the age range of 17 to 25 years old confirms the established pattern which shows that acne reaches its highest occurrence during teenage years and early adult life. Acne affects almost 80 to 90 percent of teenagers worldwide according to global statistics which show that the condition decreases after people reach their third decade of life (Tan & Bhate, 2015) [8]. Dreno (2003) [9] found that the highest acne rates occur among teenagers and young adults because their hormonal levels cause increased activity in their sebaceous glands. The female majority we found in our study group matches new European research which shows that women use healthcare services more often and continue to experience acne into adulthood (Wolkenstein et al., 2018) [10]. Certain epidemiological studies have documented a higher occurrence of severe acne among males who were adolescents at that time which suggests that different regions and cultural practices created these results (Tan & Bhate, 2015)".

A large number of our patients maintained their illness for more than one year because they showed symptoms that lasted beyond three years. The research confirms that acne persists as a long-lasting skin condition which produces periodic outbreaks. The researchers from Layton et al. (2021) [11] showed that acne requires permanent treatment because its symptoms last for multiple years. Our study 'results demonstrate a chronic disease course which matches their research findings about how insufficient or late treatment results in extended disease duration. The researchers found that most participants in the study showed a positive family history which supports the existence of genetic vulnerability that Dreno (2010) [12] described through his study of familial patterns between sebaceous gland sensitivity and inflammation pathways.

Our research found that every subject showed facial features while their bodies demonstrated multiple skin conditions which affected their chest and back areas. Tan and Bhate (2015) reported that facial acne represents the most common type of acne occurrence while truncal acne appears in about 50 percent of people with moderate to severe acne. Our study found that people who showed truncal symptoms had greater disease spread which matched the results of a multi-country study by Tan et al. (2021) [13] that showed combined facial and truncal acne resulted in higher disease burden than facial acne. The connection between these two factors shows that doctors need to check all body areas when they perform their standard checkups.

In our research moderate acne (Grade 3) represented the most common severity level which was followed by mild acne cases and severe acne cases made up about 20 percent of the study participants. Alsulaimani et al. (2020) [14] achieved similar distributions because their research showed moderate acne to be the most common type when standardized grading systems were used. Their comparative analysis of assessment methods demonstrated that 40 50 percent of patients typically fall into the moderate severity range which closely matches our findings. The community-based surveys report higher mild case rates because these surveys included people who did not seek treatment (Wolkenstein et al. 2018). Our tertiary care center reports more moderate and severe cases because hospital patients bring more severe medical conditions which leads to doctors referring them for treatment.

Therapeutically, our preference for combination therapy (oral antibiotics with topical agents) in the majority of moderate cases is consistent with European evidence-based guidelines recommending combination regimens to target multiple pathogenic factors (Nast et al., 2012) [15]. Isotretinoin treatment was needed by approximately 20 percent of our patients which shows that the medication should be used only for patients with severe acne or cases that do not respond to other treatments. Layton et al. (2021) [16] similarly emphasized isotretinoin as the most effective monotherapy for severe nodulocystic acne, with long-term remission rates exceeding 70–80%. The proportion of isotretinoin use in our study

matches tertiary-center reports but exceeds primary care settings which shows that our group of patients had more severe conditions.

The results of our treatment showed that most patients experienced improvement beyond 25% while several patients demonstrated moderate to significant clinical progress. The results of this study confirmed the findings of Nast et al. (2012) who documented substantial lesion decrease after patients received combination therapy during an 8-to-12-week period. The small group of patients showed only slight progress because their condition was affected by three factors: their resistance to antibiotics and their lack of treatment compliance and their hormonal changes. The research from Layton et al. (2021) showed that patients with acne react differently to treatment because antimicrobial resistance has become a growing problem.

The study focused on clinical severity and therapeutic outcomes while still needing to study the psychosocial aspects of the research. Dalgard et al. (2015) [17] demonstrated that acne patients have significantly higher psychological distress compared to controls across 13 European countries. Tan et al. (2021) further quantified that patient with combined facial and truncal acne reported substantially impaired quality of life scores. The research established chronicity and moderate-to-severe distribution which proved equivalent to psychological impact of DLQI and CADI assessments. The research found that more females participated because they experienced greater psychological effects, which Altunay et al. (2020) [18] showed by proving that European female acne patients had higher anxiety levels.

Our findings reinforce that acne vulgaris predominantly affects adolescents and young adults, commonly presents with moderate severity in tertiary settings, and responds favorably to guideline-based combination therapy. Minor contrasts, such as gender distribution and severity proportions, may be explained by demographic variations and healthcare-seeking behavior. Overall, the present study aligns closely with global data while providing region-specific insights into severity patterns and therapeutic outcomes, thereby contributing to the growing body of evidence supporting individualized, severity-oriented acne management strategies.

Conclusion

The present retrospective study demonstrates that acne vulgaris predominantly affects adolescents and young adults, with a slight female predominance in our cohort. The majority of patients exhibited a chronic disease course, often associated with a positive family history, highlighting the genetic and persistent nature of the condition. Facial involvement was universal, with a considerable proportion also showing truncal lesions. Most cases were categorized as moderate in severity, emphasizing the substantial clinical burden encountered in a tertiary care setting. Combination therapy emerged as the most commonly prescribed treatment modality, and overall therapeutic outcomes were favorable, with a significant proportion of patients achieving moderate to marked improvement. However, a subset showed minimal or no response, underscoring the need for individualized treatment approaches and comprehensive management strategies addressing both clinical and psychosocial aspects of acne vulgaris.

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