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Original Research Article

IMPACT OF ACNE SEVERITY ON QUALITY OF LIFE AMONG PATIENTS WITH ACNE VULGARIS: A HOSPITAL-BASED CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Acne vulgaris is one of the most prevalent chronic inflammatory disorders of the pilosebaceous unit and affects a substantial proportion of adolescents and young adults worldwide. The disease is characterized by the presence of comedones, papules, pustules, nodules, and cysts, predominantly involving the face, chest, and back. Although acne is not associated with significant mortality, its visible nature often results in psychological distress, impaired self-esteem, social withdrawal, and reduced quality of life. The severity of acne and its psychosocial consequences vary considerably among individuals, emphasizing the importance of evaluating both clinical manifestations and patient-reported outcomes. The present study was undertaken to assess the demographic and clinical profile of acne vulgaris patients and to evaluate the impact of acne severity on quality of life. **Materials and Methods:** A hospital-based cross-sectional observational study was conducted among 98 consecutive patients with acne vulgaris attending the Dermatology,venereology and leprosy Outpatient Department of Dhanalakshmi Srinivasan Medical College and Hospital, Perambalur, Tamil Nadu. Sociodemographic characteristics, clinical history, precipitating factors, lesion morphology, and associated clinical findings were recorded using a pretested semi-structured questionnaire. Acne severity was assessed using both the Clinical Acne Grading System and the Global Acne Grading System (GAGS). Quality of life was evaluated using the validated Acne Quality of Life (AQOL) scale. Data were analyzed using descriptive and inferential statistical methods, and associations between acne severity and quality-of-life scores were assessed. A p-value of <0.05 was considered statistically significant. **Results:** The mean age of the study participants was 23.3 ± 7.9 years, with the majority (54.1%) belonging to the 20–29-year age group. Females accounted for 66.3% of the study population, yielding a female-to-male ratio of 1.9:1. The mean duration of acne was 15.2 ± 16.4 months, and 46.9% of patients had disease duration of less than six months. Itching was the most commonly reported symptom (27.6%), while summer was identified as the most frequent precipitating factor (22.4%). Papules were the predominant lesion observed (95.9%), followed by comedones (34.7%), pustules (21.4%), and nodules (16.3%). Post-acne scarring and post-inflammatory hyperpigmentation were present in 30.6% and 20.4% of patients, respectively. Grade II acne was the most common clinical presentation (50%). According to GAGS, 86.7% of participants had mild acne, 10.2% had moderate acne, and 3.1% had severe acne. The mean AQOL score was 6.28 ± 3.5. A statistically significant association was observed between increasing acne severity and worsening quality-of-life scores. **Conclusion:** Acne vulgaris predominantly affects young adults and females and is associated with considerable psychosocial morbidity. Increasing disease severity is significantly associated with greater impairment in quality of life. Routine assessment of quality of life, along with clinical evaluation of acne severity, should be incorporated into dermatological practice to facilitate comprehensive patient management, improve treatment outcomes, and address the psychosocial burden associated with the disease.

INTRODUCTION

Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit characterized by the presence of comedones, papules, pustules, nodules, and, in severe cases, cysts and scarring. It is one of the most common dermatological conditions encountered in clinical practice and affects approximately 9.4% of the global population, making it one of the most prevalent skin disorders worldwide. Although acne predominantly affects adolescents and young adults, it can occur at any age and often persists into adulthood, particularly among females.[1]

The pathogenesis of acne vulgaris is multifactorial and involves increased sebum production, follicular hyperkeratinization, colonization by Cutibacterium acnes (formerly Propionibacterium acnes), and inflammation. Hormonal influences, especially androgens, play a pivotal role in stimulating sebaceous gland activity and sebum secretion. Additional factors such as genetic predisposition, dietary habits, obesity, stress, cosmetic use, environmental factors, medications, and endocrine disorders including polycystic ovarian syndrome have been implicated in the development and exacerbation of acne.[2]

Clinically, acne most commonly affects the face, followed by the neck, chest, shoulders, and upper back. The disease manifests in varying degrees of severity ranging from mild comedonal acne to severe nodulocystic acne associated with permanent scarring and post-inflammatory hyperpigmentation. These cutaneous manifestations may lead to significant cosmetic concerns and long-term dermatological sequelae.

Beyond its physical manifestations, acne has substantial psychological and social consequences. Facial disfigurement caused by acne lesions and subsequent scarring can adversely affect self-esteem, body image, interpersonal relationships, and overall psychosocial well-being. Studies have demonstrated an association between acne and anxiety, depression, embarrassment, social withdrawal, and reduced confidence. The psychosocial burden is often disproportionate to the clinical severity of the disease and may significantly impair quality of life.[3]

Assessment of quality of life has therefore become an important component in the comprehensive evaluation of acne patients. Several instruments such as the Dermatology Life Quality Index (DLQI), Cardiff Acne Disability Index (CADI), Acne Quality of Life Scale (AQoL), and Acne-Specific Quality of Life Questionnaire (Acne-QoL) have been developed to quantify the psychosocial impact of acne. These tools provide valuable insights into the extent to which acne affects daily activities, social interactions, emotional health, and vocational functioning.[4]

Previous studies have reported considerable variation in the demographic characteristics, clinical patterns, severity, and psychosocial impact of acne across different populations. While several studies have evaluated either the clinical profile or quality-of-life impairment among acne patients, data evaluating both parameters simultaneously in South Indian tertiary-care settings remain limited. Understanding the relationship between disease severity and quality of life is essential for developing patient-centered management strategies and improving treatment outcomes.

Therefore, the present study was undertaken to assess the demographic and clinical profile of patients with acne vulgaris presenting to a tertiary care dermatology outpatient department and to evaluate the impact of the disease on their quality of life.[5]

Aim

To assess the clinical profile and quality of life among patients with acne vulgaris attending the Dermatology Outpatient Department of a tertiary care hospital.

Objectives

1. To study the demographic profile of patients with acne vulgaris.
2. To evaluate the clinical characteristics and severity of acne vulgaris.
3. To assess the quality-of-life index among patients with acne vulgaris.
4. To determine the association between acne severity and quality of life.

MATERIALS AND METHODS

Study Design and Setting: A hospital-based cross-sectional observational study was conducted in the Department of Dermatology, Venereology and Leprosy, Dhanalakshmi Srinivasan Medical College and Hospital, Siruvachur, Perambalur, Tamil Nadu, India. The study was carried out after obtaining approval from the Institutional Ethics Committee and was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

Study Population: Patients presenting with acne vulgaris to the Dermatology Outpatient Department during the study period were screened for eligibility and recruited consecutively after obtaining written informed consent.

Sample Size: A total of 98 patients diagnosed clinically with acne vulgaris were included in the study.

Inclusion Criteria

Patients clinically diagnosed with acne vulgaris.
Patients aged 12 years and above.
Patients willing to participate in the study.
Patients who provided written informed consent.

Exclusion Criteria

Patients unwilling to participate.
Patients with severe psychiatric illness affecting questionnaire responses.
Patients with other dermatological conditions significantly affecting quality of life.

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Patients who were unable to provide reliable clinical information.

Data Collection Procedure

After obtaining informed consent, detailed demographic and clinical information was collected using a predesigned structured proforma.

The following information was recorded:

Demographic Variables

Age
Gender
Marital status
Occupation
Place of residence

Clinical Variables

Duration of acne
Site of involvement
Symptoms associated with acne
Aggravating and precipitating factors
Personal habits
Associated medical conditions
Family history where applicable

A detailed dermatological examination was performed for all study participants.

Clinical Assessment of Acne

The morphology of acne lesions was documented, including:

Comedones,Papules,Pustules,Nodules & Cysts

Presence of the following sequelae was also recorded:

Post-acne scarring
Post-inflammatory hyperpigmentation

Clinical Grading of Acne

Acne severity was graded clinically using the standard acne grading system:

Grade I Predominantly comedones with occasional papules.
Grade II Papules with comedones and few pustules.
Grade III Predominantly pustules, nodules, and abscesses.
Grade IV Cysts, abscesses, widespread scarring, and severe inflammatory lesions.

Global Acne Grading System (GAGS)

Acne severity was also assessed using the Global Acne Grading System (GAGS).

Six anatomical regions were evaluated:

Forehead
Right cheek
Left cheek
Nose
Chin
Chest and upper back

Each region was assigned a factor based on surface area and density of pilosebaceous units. The local score was calculated by multiplying the factor score by the lesion grade. The sum of local scores constituted the global score.

Severity categories were classified as:

Mild: 1–18
Moderate: 19–30
Severe: 31–38
Very severe: >39

Assessment of Quality of Life

Quality of life was assessed using a validated Acne Quality of Life (AQoL) questionnaire.

The questionnaire evaluated the impact of acne on:

Social functioning
Emotional well-being
Personal relationships
Vocational activities
Daily activities

Higher scores indicated greater impairment in quality of life.

Ethical Considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee of Dhanalakshmi Srinivasan Medical College and Hospital before commencement of the study. Written informed consent was obtained from all participants prior to enrollment.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) software version 25.0.

Descriptive statistics were expressed as mean ± standard deviation for continuous variables and frequencies with percentages for categorical variables.

Associations between acne severity and quality-of-life scores were evaluated using appropriate statistical tests including Chi-square test and correlation analysis.

A p-value <0.05 was considered statistically significant.

RESULTS

A total of 98 patients diagnosed with acne vulgaris were included in the present study. The demographic profile, clinical characteristics, acne severity, and quality-of-life parameters were evaluated.

Demographic Characteristics

The mean age of the study participants was 23.3 ± 7.9 years, with ages ranging from 7 to 60 years. More than half of the participants (54.1%) belonged to the 20–29 years age group, followed by individuals aged ≤19 years (29.6%) and ≥30 years (16.3%). The predominance of young adults in the present study reflects the peak prevalence of acne during adolescence and early adulthood.

A female predominance was observed, with 65 (66.3%) participants being females and 33 (33.7%) being males, resulting in a female-to-male ratio of approximately 1.9:1. Most participants were students (64.3%), reflecting the high prevalence of acne among adolescents and young adults. With regard to place of residence, 52% of participants belonged to urban areas, while 48% were from rural regions. The majority of the study population was unmarried (79.6%).

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Clinical Characteristics

The mean duration of acne vulgaris was 15.2 ± 16.4 months, with a minimum duration of 2 months and a maximum duration of 72 months. Nearly half of the participants (46.9%) had acne of less than six months duration at the time of presentation.

Among the associated symptoms, itching was the most common complaint and was reported by 27 (27.6%) patients. Pain was present in 18 (18.4%) patients, while burning sensation was reported by 7 (7.1%) participants. The presence of these symptoms indicates that acne vulgaris may produce considerable physical discomfort in addition to cosmetic concerns.

Evaluation of precipitating factors revealed that summer was the most frequently reported trigger for acne exacerbation, accounting for 22.4% of cases. Increased temperature, sweating, and sebaceous gland activity during summer months may contribute to worsening of acne lesions. The forehead was identified as the most commonly involved facial region among study participants.

Morphological Pattern of Acne

Assessment of lesion morphology demonstrated that papules were the predominant lesion type and were observed in 94 (95.9%) patients. Comedones were present in 34 (34.7%) patients, pustules in 21 (21.4%), and nodules in 16 (16.3%). The predominance of papular lesions suggests that inflammatory acne constituted the major clinical presentation in the study population.

Further analysis of lesion counts revealed that the majority of patients with comedones (76.5%), papules (53.2%), and pustules (66.7%) had between 0 and 10 lesions. This finding is consistent with the predominance of mild acne observed in the study.

Acne Sequelae

Acne-related sequelae were observed in a substantial proportion of participants. Post-acne scarring was present in 30 (30.6%) patients, while post-inflammatory hyperpigmentation was identified in 20 (20.4%) patients. These findings indicate that a considerable number of patients experience long-term cosmetic consequences despite the generally mild severity of acne observed in the study population.

Severity Assessment

Clinical grading of acne revealed that Grade II acne was the most common presentation, accounting for 50% of all cases. This was followed by Grades I, III, and IV in decreasing order of frequency.

Severity assessment using the Global Acne Grading System (GAGS) demonstrated that the majority of patients had mild acne. A total of 85 (86.7%) patients were categorized as having mild acne, while 10 (10.2%) had moderate acne and 3 (3.1%) had severe acne. The predominance of mild acne suggests that most patients sought medical attention before progression to more severe disease.

Quality of Life Assessment

The quality of life of the participants was assessed using the Acne Quality of Life (AQOL) scale. The mean AQOL score was 6.28 ± 3.5, with scores ranging from 0 to 17. Higher scores indicate greater impairment in quality of life.

Analysis of the relationship between acne severity and quality of life demonstrated a statistically significant association. Patients with Grade IV acne exhibited the highest AQOL scores, indicating greater psychosocial impairment and reduced quality of life compared to patients with less severe disease. These findings suggest that increasing clinical severity is associated with worsening psychosocial burden.

Association Analysis

The association between demographic variables and acne severity was also examined. No statistically significant association was observed between age and acne severity. Similarly, gender was not significantly associated with acne severity.

Evaluation of factors influencing quality of life revealed no statistically significant association between age, gender, or body mass index and AQOL scores. In contrast, acne severity demonstrated a significant relationship with quality-of-life impairment, highlighting disease severity as the principal determinant of psychosocial burden among the study participants.

Summary of Findings

The present study demonstrated that acne vulgaris predominantly affected young adults and females. Papules were the most common lesion type, and Grade II acne represented the most frequent clinical presentation. Although the majority of patients had mild disease according to GAGS, a significant proportion experienced acne-related sequelae such as scarring and post-inflammatory hyperpigmentation. Most importantly, increasing acne severity was associated with significant deterioration in quality of life, emphasizing the need for comprehensive management strategies that address both clinical and psychosocial aspects of the disease.

Table 1: Demographic Characteristics of Study Participants (n = 98)

Variable	Frequency (n)	Percentage (%)
Age≤19years	29	29.6
Age20–29years	53	54.1
Age≥30years	16	16.3
Female	65	66.3
Male	33	33.7

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Table 2: Clinical Charecteristics of Acne Vulgaris

Variable	Findings
Mean age	23.3±7.9 years
Mean duration of acne	15.2 months
Most common symptom	Itching (27.6%)
Pain	18.4%
Burning sensation	7.1%
Most common facial site	Forehead
Most common precipitating factor	Summer (22.4%)

Table 3: Morphological Pattern and Severity of Acne

Variable	Numbers (%)
papules	94(95.9)
post-acne scars	30(30.6)
post-inflamatory hyperpigmentation	20(20.4)
Grade II acne	49(50.0
mild acne(GAGS)	85(86.7)
Moderate acne(GAGS)	10(10.2
Severe acne(GAGS)	3(3.1)

Table 4: Association between Acne Severity and Quality of Life

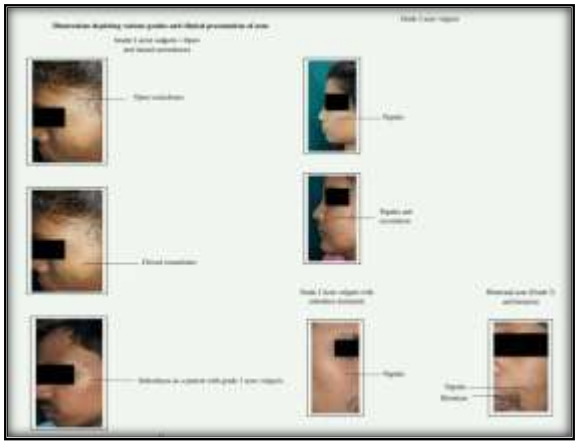
Acne Grade	Mean AQoL Score (Mean ± SD)	p-value
Grade I	4.50 ± 4.50	Overall significant association 0.001
Grade II	4.67 ± 2.08	
Grade III	8.10 ± 3.22	
Grade IV	8.18 ± 3.56	

p value significant

Table 5: Association between grading of acne and social quality of life

Grade	Mean ± SD	p value
1	3.75 ± 3.59	Overall significant association 0.002
2	4.14 ± 1.9	
3	7.36 ± 2.7	

p value significant



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DISCUSSION

Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit that predominantly affects adolescents and young adults and has a substantial impact on both physical appearance and psychosocial well-being. The present study evaluated the demographic and clinical profile of acne vulgaris patients attending a tertiary care hospital and assessed the impact of acne severity on quality of life.[6]

In the present study, the mean age of the participants was 23.3 ± 7.9 years, with the majority (54.1%) belonging to the age group of 20–29 years. This finding is consistent with the established epidemiology of acne vulgaris, which predominantly affects adolescents and young adults due to increased androgen production and sebaceous gland activity during puberty and early adulthood. Similar findings were reported by Kundale et al., who observed a mean age of 24.8 years among acne patients. Raghavan et al. reported a mean age of 23 years, while Deuri et al. documented a mean age of 19.7 years with the highest prevalence among individuals aged 21–25 years. The similarity of these findings supports the observation that acne vulgaris remains a major dermatological concern among young adults.[7]

Female predominance was observed in the present study, with females constituting 66.3% of the study population and a female-to-male ratio of 1.9:1. Similar female predominance has been reported by several investigators including Eram et al., Hazarika et al., Deuri et al., and Monisha et al. The greater number of female patients may be attributed to increased healthcare-seeking behavior, greater cosmetic concern regarding facial lesions, hormonal influences, and heightened awareness regarding skin appearance. Adult female acne has also been increasingly recognized as a distinct clinical entity associated with hormonal fluctuations and psychosocial distress.

The majority of participants in the present study were students, highlighting the predominance of acne during educational years. Acne during adolescence and young adulthood can adversely affect self-image, interpersonal relationships, academic performance, and emotional health. The increased prevalence among students may be related to psychological stress, irregular dietary habits, sleep disturbances, and hormonal factors.

The mean duration of acne in our study was 15.2 months, and nearly half of the patients had disease duration of less than six months. Similar observations were reported by Hazarika et al. and Deuri et al., who found that most patients presented within the first year of disease onset. Early presentation may be attributed to increasing awareness regarding acne treatment and concerns about facial appearance and scarring. [8]

Among the symptoms associated with acne, itching was the most common complaint, followed by pain and burning sensation. Although acne is often regarded as an asymptomatic disease, inflammatory lesions can produce significant discomfort and pruritus. Recognition of these symptoms is important because they may contribute to psychological distress and reduced quality of life.

The forehead was identified as the most commonly involved facial site in the present study. This observation may be explained by the high density of sebaceous glands in the forehead region. Similar patterns of facial involvement have been reported in previous studies conducted in Indian populations. Increased sebum production in these anatomical regions creates a favorable environment for the development of acne lesions.

Summer was identified as the most common aggravating factor in the present study. Increased sweating, humidity, sebum production, and occlusion of pilosebaceous units during warmer months may contribute to disease exacerbation. Seasonal aggravation has also been documented in previous studies, particularly in tropical countries such as India where climatic conditions influence acne severity.

Papules were the most common lesion morphology observed in the present study and were present in 95.9% of participants. This finding suggests that inflammatory acne constitutes the predominant clinical presentation among patients attending tertiary care centers. Similar findings have been reported by Budamakuntla et al. and Raghavan et al., who also identified papular lesions as the most common morphological pattern. The predominance of inflammatory lesions may indicate delayed presentation or progression from comedonal acne to inflammatory stages before medical consultation.

Post-acne scarring was observed in 30.6% of participants, while post-inflammatory hyperpigmentation was present in 20.4%. These sequelae represent important long-term complications of acne vulgaris. Scarring and hyperpigmentation often persist even after active lesions have resolved and can significantly influence psychological well-being. Previous studies have reported varying prevalence rates of acne scarring ranging from 22% to 73%, depending on disease severity and study population. The comparatively lower prevalence observed in our study may be related to earlier healthcare-seeking behavior and initiation of treatment.[9]

Grade II acne was the most common clinical presentation in our study, accounting for approximately half of all cases. Similar observations have been reported by Deuri et al., Hazarika et al., Monisha et al., and Budamakuntla et al., all of whom found Grade II acne to be the predominant clinical grade. These findings suggest that moderate acne represents the most common disease severity encountered in routine dermatology practice. The predominance of moderate acne emphasizes the

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importance of early intervention to prevent progression to severe inflammatory lesions and permanent scarring.

The most significant finding of the present study was the impact of acne on quality of life. The mean Acne Quality of Life score was 6.28, indicating measurable psychosocial impairment among affected individuals. Acne is increasingly recognized not merely as a cosmetic disorder but as a condition capable of producing substantial emotional and social consequences. Facial involvement, visible lesions, pigmentation, and scarring may negatively affect self-confidence, body image, and interpersonal interactions.

A statistically significant association was observed between acne severity and quality-of-life impairment. Patients with Grade IV acne demonstrated the highest impairment scores, indicating poorer quality of life compared with patients having milder disease. These findings are in agreement with studies conducted by Kundale et al., Eram et al., Hazarika et al., and Durai et al., all of which demonstrated worsening quality of life with increasing acne severity.

The association between acne severity and psychosocial burden can be explained by the increased visibility of severe inflammatory lesions, higher probability of scarring, prolonged disease duration, and social stigma associated with facial disfigurement. Patients with severe acne frequently experience embarrassment, social withdrawal, anxiety, low self-esteem, and depressive symptoms. Such effects may influence academic performance, occupational productivity, and interpersonal relationships.

The present study also demonstrated significant associations between acne severity and both social and vocational quality-of-life domains. This finding suggests that acne influences multiple aspects of daily living. Social interactions, participation in public activities, confidence during communication, and workplace functioning may all be adversely affected. Similar observations have been reported in studies evaluating dermatology-specific quality-of-life indices among acne patients.[10]

CONCLUSION

Acne vulgaris is a common dermatological condition predominantly affecting adolescents and young adults, particularly females. The present study demonstrated that the majority of patients presented with moderate (Grade II) acne, with papules being the most common morphological lesion. Post-acne scarring and post-inflammatory hyperpigmentation were observed in a substantial proportion of patients, emphasizing the importance of early diagnosis and treatment.

The study further revealed that acne vulgaris has a significant negative impact on patients' quality of life. A statistically significant association was observed between acne severity and quality-of-life impairment, with patients having severe acne experiencing greater psychosocial burden. Social interactions, self-esteem, emotional well-being, and vocational functioning were adversely affected as disease severity increased.

These findings highlight the need for a comprehensive approach to acne management that addresses both the clinical manifestations and psychosocial consequences of the disease. Early therapeutic intervention, prevention of acne sequelae, patient counseling, and routine assessment of quality of life should be considered integral components of acne care. Further multicentric studies with larger sample sizes are recommended to better understand the long-term psychosocial impact of acne vulgaris and to develop targeted interventions aimed at improving patient outcomes.

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