

EFFECT OF ACNE VULGARIS ON QUALITY OF LIFE OF PATIENTS IN
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Abstract**Introduction**

Acne vulgaris is a common dermatological condition that affects physical and psychological well-being. While its prevalence is high globally, limited research explores its impact on quality of life in culturally diverse settings like Pakistan. This study assesses the influence of acne severity on quality of life in this context.

Study Setting& Duration: Department of Dermatology CMH, Gujranwala from August 2024 to January 2025.

Materials and Methods

This cross-sectional study involved 150 participants aged 18–30 years, attending dermatology clinics in Pakistan. Acne severity was measured using the Global Acne Grading System (GAGS), while quality of life was assessed using the Cardiff Acne Disability Index (CADI). Statistical analysis was performed using International Business Machines Statistical Package for the Social Sciences (IBM SPSS) version 27.0.

Results

The study included 98 females (65.3%) and 52 males (34.7%), with a mean age of 23.4 ± 3.77 years. Acne severity was significantly associated with quality-of-life impairment ($p < 0.001$), as participants with severe GAGS scores more often reported severe CADI scores (11–15) (40%). Education level also showed a significant association ($p = 0.047$), with individuals having primary education reporting higher CADI scores. Participants from the middle socioeconomic class experienced more severe quality-of-life impairment (70.6%) than those from the upper class. Gender differences were observed but not statistically significant ($p = 0.184$).

Conclusion

Acne vulgaris has a strong effect on the quality of life of young adults in Pakistan. People with more severe acne reported greater problems in their daily lives. Study findings show the need for interventions addressing both physical and psychological aspects of acne care.

INTRODUCTION

Acne vulgaris is a chronic skin condition that affects the hair follicles and sebaceous glands, leading to the

development of pimples, blackheads, nodules and in severe cases, scarring [1]. It is one of the most

common dermatological disorders globally, predominantly affecting adolescents and young adults [2]. Acne usually starts during puberty due to hormonal changes and can persist into adulthood. While commonly perceived as a cosmetic issue, acne has significant psychosocial implications, affecting self-esteem, body image and social interactions. This condition's dual physical and emotional burden highlights the need for a deeper understanding of its impact on patients' lives [3].

The global prevalence of acne is substantial, with studies indicating that nearly 85% of individuals aged 12–24 experience some degree of acne [4]. In Pakistan, the prevalence is similarly high, particularly among younger populations (18 – 25 year age group) [5]. Factors such as genetics, diet, stress and hormonal changes contribute to the development of acne [6]. Limited awareness of effective skincare practices and access to treatment exacerbates the problem [7]. Cultural factors such as societal expectations about appearance, further amplify the psychosocial effects of acne, making it a significant public health concern [8].

Research by Muzaffar et al., (2014) highlights that individuals with severe acne are more likely to experience anxiety, depression and social withdrawal [9]. Tools such as the Cardiff Acne Disability Index (CADI) are commonly used to assess how acne affects quality of life [10]. Most of the studies consistently demonstrate that acne is more than a skin condition—it can disrupt daily activities, relationships and emotional well-being. However, most of the research is focused on Western populations, leaving a gap in understanding how acne affects individuals in non-Western and culturally diverse settings.

Study conducted in India has identified that acne can lead to feelings of shame, reduced self-confidence and stigmatization, particularly among females [11]. However, these studies are often small-scale and lack robust statistical analysis. Moreover, they do not consistently examine how factors such as education level, socioeconomic status, or cultural norms influence the psychosocial impact of acne.

Another gap in the literature is the limited focus on how demographic and socioeconomic factors interact with acne severity to shape individuals' experiences. While it is known that acne can significantly impact

quality of life, there is less clarity on how this impact varies across groups based on education, income, or marital status. For example, individuals with less education or fewer resources may face additional challenges in managing acne due to limited access to treatment or information. Understanding these dynamics is essential for developing targeted interventions that address the diverse needs of acne patients. To address all these problems, this study aims to examine the impact of acne vulgaris on the quality of life of young adults in Pakistan. By using validated tools such as the CADI and GAGS, the research provides a detailed analysis of how acne severity correlates with quality of life.

Materials and Methods

Study Design and Setting

This was a cross-sectional study, carried out in Department of Dermatology CMH, Gujranwala from August 2024 to January 2025. The study period spanned six months, during which data collection was completed. This setting was chosen to ensure access to a diverse patient population with varying degrees of acne severity and demographic backgrounds.

Study Population and Sampling

The study population comprised individuals aged 18–30 years diagnosed with acne vulgaris by dermatologists. Inclusion criteria included patients willing to participate, those with a confirmed clinical diagnosis of acne, and individuals who could provide informed consent. Exclusion criteria included patients with other chronic skin conditions, psychiatric illnesses or those undergoing systemic treatments for acne. A total of 150 participants were enrolled in the study using a convenience sampling technique. The sample size was determined based on previous similar studies to ensure sufficient statistical power.

Data Collection Tools

Two validated tools were used to assess the severity of acne and its impact on quality of life. The Global Acne Grading System (GAGS) was employed to classify the severity of acne. GAGS considers the number, type and distribution of acne lesions on the face, chest and back to provide a composite severity

score. The Cardiff Acne Disability Index (CADI) was used to measure the psychosocial impact of acne on participants' quality of life. The CADI consists of five questions addressing feelings of self-consciousness, social interference and emotional well-being, with scores ranging from 0 (no impairment) to 15 (severe impairment).

Data Collection Procedure

Participants were recruited during their routine visits to the dermatology clinics. After explaining the purpose and procedure of the study, written informed consent was obtained. Trained research assistants conducted face-to-face interviews with participants using a structured questionnaire. The questionnaire included demographic information such as age, gender, marital status, education level and socioeconomic status, alongside the GAGS and CADI assessments. Each interview lasted approximately 15–20 minutes, and participants were encouraged to answer questions honestly to ensure the reliability of data.

Ethical Considerations

The study was conducted in accordance with ethical guidelines outlined in the Declaration of Helsinki. Approval was obtained from the institutional ethics review board before initiating the study. All participants provided informed consent and were assured of the confidentiality of their responses. Participation was voluntary, and individuals were

free to withdraw from the study at any point without any consequences.

Statistical Analysis

The collected data was analyzed using IBM SPSS, version 27.0. Categorical variables are presented as frequency and percentage and compared by Chi square test and Fisher exact test. Continuous variables are expressed as mean and standard deviation (SD). The results were visualized in the form of graphs where possible for easier interpretation. Level of significance was set at 5% and $p < 0.05$ (at 95% CI) was considered significant.

Results

A total of 150 participants were included in the study, with a predominance of females ($n=98$, 65.3%) compared to males ($n=52$, 34.7%). The age of participants ranged from 18 to 30 years, with the majority between 18 to 23 years, and a mean age of 23.4 ± 3.77 years. Regarding marital status, most participants were single ($n=114$, 76.0%), while 24.0% ($n=36$) were married. In terms of education, 46.0% ($n=69$) had completed secondary education, followed by tertiary education ($n=65$, 43.3%) and primary education ($n=16$, 10.7%). Most participants belonged to the middle socioeconomic class ($n=107$, 71.3%), with fewer in the lower ($n=13$, 8.7%) and upper classes ($n=30$, 20.0%). The mean Global Acne Grading System (GAGS) score was 20.6 ± 10.16 , while the Cardiff Acne Disability Index (CADI) score averaged 6.6 ± 3.52 as shown in Table 1.

Table 1. Clinical and demographic characteristics of study participants (n=150)

Characteristics	n	%
Gender		
Female	98	65.3%
Male	52	34.7%
Age (years), mean $\pm$ SD	23.4 $\pm$ 3.77	
Marital status		
Married	36	24.0%
Single	114	76.0%
Education		
Primary	16	10.7%
Secondary	69	46.0%
Tertiary	65	43.3%
Socioeconomic status		
Lower class	13	8.7%

Middle class	107	71.3%
Upper class	30	20.0%
GAGS score, mean $\pm$ SD	20.6 $\pm$ 10.16	
CADI score, mean $\pm$ SD	6.6 $\pm$ 3.52	

GAGS, Global Acne Grading System; CADI, Cardiff acne disability index

The association of quality-of-life impairment, measured by the CADI, with demographic factors is presented in Table 2. Among those with moderate CADI scores (6-10), females comprised a higher proportion (n=50, 66.7%) compared to males (n=25, 33.3%), although this association was not statistically significant (p=0.184). Marital status showed no significant association with CADI scores (p=0.128); however, the education level was significantly

associated with quality-of-life impairment (p=0.047), with those having primary education showing a higher prevalence of severe CADI scores (n=4, 23.5%) compared to participants with tertiary education (n=2, 11.8%). Socioeconomic status was also significantly associated with quality-of-life impairment (p=0.035), with a greater proportion of participants from the middle socioeconomic class reporting severe CADI scores (n=12, 70.6%).

Table 2. Association of quality of life impaired (CADI) with demographic variables

	Cardiff acne disability index (CADI)						p value
	Mild: 0-5 (n=58)		Moderate: 6-10 (n=75)		Severe: 11-15 (n=17)		
	n	%	n	%	n	%	
Gender							
Female	34	58.6%	50	66.7%	14	82.4%	0.184 ^a
Male	24	41.4%	25	33.3%	3	17.6%	
Marital status							
Married	9	15.5%	23	30.7%	4	23.5%	0.128 ^a
Single	49	84.5%	52	69.3%	13	76.5%	
Education							
Primary	5	8.6%	7	9.3%	4	23.5%	0.047 ^a
Secondary	23	39.7%	35	46.7%	11	64.7%	
Tertiary	30	51.7%	33	44.0%	2	11.8%	
Socioeconomic status							
Lower class	4	6.9%	5	6.7%	4	23.5%	0.035 ^b
Middle class	46	79.3%	49	65.3%	12	70.6%	
Upper class	8	13.8%	21	28.0%	1	5.9%	

^a Chi square test; ^b Fisher exact test

A significant association was observed between quality-of-life impairment (CADI score) and acne severity (GAGS score) (p<0.001), as shown in Table 3. Participants with mild GAGS scores (1-18)

predominantly reported mild CADI scores (n=43, 82.7%), whereas those with severe GAGS scores (31-38) were more likely to report moderate (n=10, 50.0%) or severe CADI scores (n=8, 40.0%).

Table 3. Association of quality of life impaired (CADI score) and severity of acne (GAGS score)

CADI score	Global Acne Grading System						p value ^a
	Mild: 1-18		Moderate: 19-30		Severe: 31-38		
	(n=52)		(n=78)		(n=20)		
	n	%	n	%	n	%	

Mild (0-5)	43	82.7%	13	16.7%	2	10.0%	< 0.001
Moderate (6-10)	9	17.3%	56	71.8%	10	50.0%	
Severe (11-15)	0	0.0%	9	11.5%	8	40.0%	

^a Chi square test

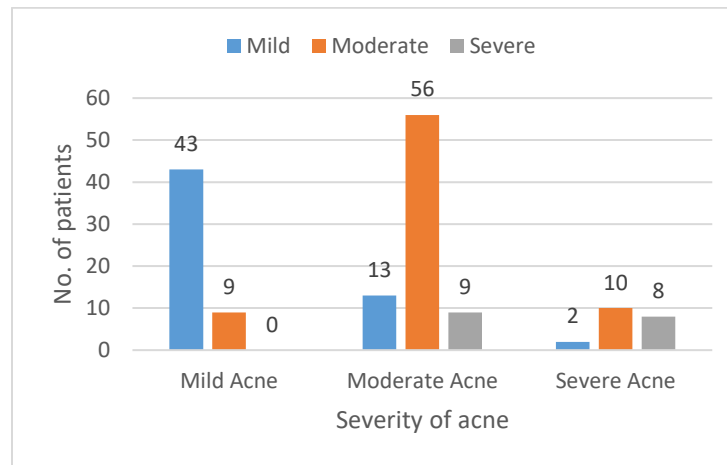


Figure 1. Distribution of patients based on quality of life impaired

Discussion

Acne vulgaris is one of the most common dermatological conditions affecting young adults, and its impact extends beyond physical symptoms, significantly affecting patients' psychological and social well-being. This study aimed to assess the influence of acne on the quality of life of patients in Pakistan using the CADI and the GAGS.

This study showed a significant relationship between the severity of acne (measured by GAGS scores) and the impairment in quality of life (measured by CADI scores). Participants with severe acne reported greater quality of life impairment, consistent with prior research. A similar study by Supriya (2023), found that patients with severe acne were more likely to experience social withdrawal, anxiety and depression compared to those with mild acne [12]. The current findings corroborate these results, suggesting that the visible and persistent nature of acne may amplify psychological distress.

Educational attainment was also significantly associated with quality-of-life impairment. Participants with lower levels of education, such as primary schooling, reported higher CADI scores. This could be due to lower awareness about acne management and reduced access to healthcare among individuals with less education. Recent researches indicated that education level influences the ability to seek timely medical intervention and

cope with acne-related stress [13, 14]. While the context differs geographically, the similarity in findings highlights the role of education in health outcomes globally.

Socioeconomic status emerged as another critical factor in this study. Participants from the middle class reported the highest prevalence of severe CADI scores, contrasting with those from the upper socioeconomic class. This finding aligns with research, which showed that financial constraints among middle-class individuals may limit their access to effective dermatological treatments, exacerbating the psychosocial impact of acne [15, 16]. Conversely, upper-class individuals have better access to advanced skincare regimens, thereby mitigating quality-of-life impacts.

Gender differences, while not statistically significant, indicated that females experienced slightly higher CADI scores than males. This trend is echoed in studies, where females often reported a more profound impact of acne on self-esteem and social interactions [17, 18]. Cultural and societal pressures related to appearance could explain this gender disparity. However, the lack of significant association in this study suggests the need for further exploration of gender-related psychosocial factors in similar settings.

The majority of participants in this study were young adults, which is consistent with the typical age range

for acne prevalence. Previous studies highlight that adolescence and early adulthood are critical periods for social and emotional development, during which visible skin conditions can profoundly impact self-image and social functioning [19]. It emphasize the necessity of early intervention to prevent long-term psychological effects.

Another finding was the association between marital status and quality of life impairment. Although married participants had slightly lower CADI scores than singles, the difference was not statistically significant. A study by Lema et al., (2022) suggesting that support systems, whether through family or friends, play a crucial role in buffering the negative effects of acne [20]. The lack of statistical significance in this study also reflect a relatively small proportion of married participants, warranting further research. The study's methodology and its reliance on validated tools like CADI and GAGS lend credibility to its findings. However, cultural factors unique to Pakistan, such as societal norms regarding physical appearance, may amplify the psychosocial burden of acne. This is consistent with studies, which emphasize that stigma and misconceptions about acne often exacerbate its psychological effects [21]. Integrating culturally sensitive approaches in treatment plans may thus enhance patient outcomes in such contexts.

While the association between acne severity and quality of life is well-documented globally, the role of socioeconomic and educational factors appears more pronounced in low- and middle-income countries like Pakistan [22, 23]. This shows the importance of addressing healthcare inequities to mitigate the broader impact of dermatological conditions.

Some limitations are noted in this study. Sample size was small (n = 150) and restricted to a single region in Pakistan, which limit the generalizability of the findings to large populations. This study relied on self-reported measures for assessing quality of life, which can introduce bias due to underreporting or overreporting by participants. The cross-sectional design only provides a snapshot of the relationship between acne severity and quality of life, without exploring long-term effects or causal relationships. Cultural and societal factors unique to the region may also influence the results, which were not extensively explored in this study.

More research should be conducted to include larger and more diverse populations from multiple regions to enhance the generalizability of the findings. Longitudinal studies could provide data regarding how acne severity and its impact on quality of life evolve over time and in response to treatment. Incorporating qualitative methods, such as interviews, could help understand the cultural and emotional aspects of living with acne. Integrating mental health assessments into acne research could reveal co-occurring issues like anxiety and depression, paving the way for holistic care. It is also recommended that healthcare providers focus on public awareness campaigns to reduce stigma and provide education on acne management, particularly targeting groups with limited access to resources.

Conclusion

Acne vulgaris has a strong effect on the quality of life of young adults in Pakistan. People with more severe acne reported greater problems in their daily lives, especially those with less education and from middle-income backgrounds. Although women seemed to be more affected than men, this difference was not significant. These findings show the need for better support and treatment for people with acne, focusing on both their physical and emotional needs to improve their overall well-being.

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