

Prevalence Of Acne Vulgaris And Its Association With Lifestyle Factors And Psychosocial Impact Among Adults

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Abstract

Background: Acne vulgaris is a common dermatological condition affecting adolescents and adults also, with multifactorial aetiology involving diet, stress and lifestyle factors. It significantly impacts physical appearance and psychosocial well-being.

Objectives:

- 1) To assess the prevalence of acne vulgaris among adults.
- 2) To evaluate the association between lifestyle factors.
- 3) To evaluate impact of acne on mental health and self-confidence.

Methodology: A cross-sectional study was conducted among adults using a structured questionnaire. Data on demographic details, dietary patterns, stress levels, sleep habits, and acne severity were collected. Statistical analysis was performed to determine associations between variables.

Limitations: Convenience sampling was used.

Results: A high prevalence of acne was observed among participants in some part of their life. Diet and stress showed no significant association while inadequate sleep was significantly correlated with more severe acne. Acne has a psychosocial impact also.

Conclusion: Acne vulgaris is highly prevalent and influenced by modifiable lifestyle factors. Sleep plays a significant role in determining acne severity. Social interactions were affected among individuals with acne.

Keywords: Acne vulgaris; Diet; Sleep; Lifestyle

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I. Introduction

Acne is one of the most common dermatological conditions affecting individuals across different age groups worldwide. It is a chronic inflammatory disorder of the pilosebaceous units, involving hair follicles and sebaceous glands. Clinically, it presents as comedones (blackheads and whiteheads), papules, pustules, nodules, or cysts, most frequently affecting the face, chest, shoulders, and back¹⁻² Although traditionally associated with adolescence, acne can occur at any age, including childhood, adulthood, and middle age, making it a condition of significant public health importance³.

In India, acne has a notably high prevalence. Studies indicate that nearly 80–90% of adolescents experience acne at some point during their teenage years⁴. A considerable proportion of adults, particularly women, continue to suffer from acne beyond adolescence⁵. The overall prevalence of acne in the general population is estimated to be around 9.4%, though it varies across regions depending on lifestyle, dietary habits, and environmental factors⁵. This high burden highlights the need to understand the factors contributing to its occurrence and severity.

Acne is a multifactorial condition influenced by genetic, hormonal, environmental, and lifestyle-related factors¹⁻³. Among these, lifestyle factors have gained increasing attention in recent years. Diet, in particular, has been strongly linked with acne severity. High-glycaemic index foods, sugary beverages, and dairy products are believed to influence hormonal levels and sebum production, thereby aggravating acne lesions⁶⁻⁷. Conversely, diets rich in fruits, vegetables, and whole grains may have a protective effect on skin health⁸.

Psychological stress is another important lifestyle factor associated with acne. Stress triggers the release of hormones such as cortisol, which can stimulate sebaceous gland activity and promote inflammation in the skin⁹.

¹⁰. In today's fast-paced environment, stress has become increasingly common among students and working professionals, potentially contributing to the persistence and worsening of acne.

Sleep patterns also play a vital role in skin health. Adequate and quality sleep supports the body's natural repair processes, including skin regeneration. Poor or irregular sleep can disrupt hormonal balance, weaken immune function, and increase systemic inflammation, all of which may contribute to the development or aggravation of acne¹

Beyond its physical manifestations, acne can have significant psychological and emotional consequences. Individuals with acne often experience reduced self-esteem, lack of confidence, social withdrawal, anxiety, and in some cases, depression due to concerns about their appearance¹¹⁻¹⁴. These psychosocial effects can adversely affect academic performance, social relationships, and overall quality of life, particularly among adolescents and young adults.

Understanding the association between acne and modifiable lifestyle factors such as diet, stress, and sleep is essential for developing effective preventive and management strategies. Identifying these associations can help in formulating targeted interventions aimed at reducing acne severity and improving both physical and mental well-being. The present study aims to assess the prevalence of acne and evaluate its association with lifestyle factors, along with its impact on mental health and self-confidence among affected individuals.

II. Objectives

- 1) To assess the prevalence of acne in adults.
- 2) To determine the association between lifestyle factors (dietary habits, stress levels, and sleep patterns) and the severity of acne.
- 3) To evaluate the psycho-social impact of acne on mental health and self-confidence among affected individuals.

III. Methodology

1. Study design: A cross sectional study was done, questionnaire was formed and received responses via Google forms.
 2. Study period: 27 May 2026- 27July 2026
 3. Study setting: Study was performed in college campus at Dr.Ulhas Patil Medical College, Jalgaon.
 4. Study population: People ranging from the age of 18-60 years
 5. Sample Size: The required sample size was 67, although it was a 109 participants study.
- Formula:
$$n = Z^2 \cdot p \cdot (1-p) / E^2$$

n: Sample size needed.
Z: Z-score for the confidence level (here 1.96 for 95% confidence).
p: Expected proportion of the outcome (here 9.4%)⁵
E: Margin of error (here ± 0.05 or 5%, the precision you want for the proportion).

Sampling Technique

A non-random convenience sampling technique was used in this study.

Inclusion criteria

- Adults in the age group 18-60 years.
- Both male and females were participants.
- People with all skin types.
- People who have been affected by acne in some part of their life (maybe current or past).

Exclusion criteria

- Children below 18 years.
- Adults above 60 years.

Data collection

A questionnaire was given to all the participants through Google forms. All participants were asked to provide verbal consent to the study and promised confidentiality on our part. Questions consisted of demographic details, diet patterns, sleep habits, stress levels and their mental health. Few questions were asked regarding severity and acne's effect on psychosocial behaviour.

Ethical considerations

An approval from Institutional Ethical Committee was obtained prior to the study.

Statistical analysis

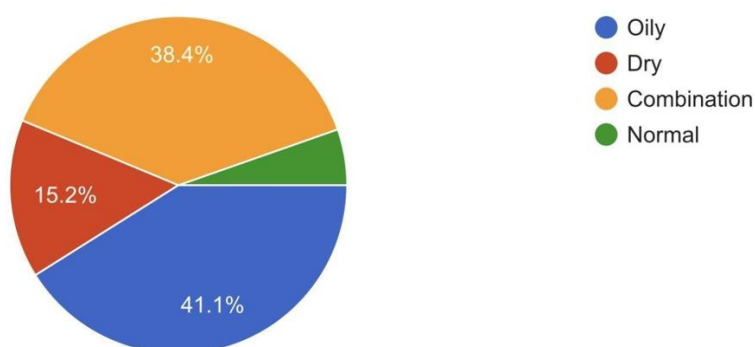
For assessment of data, statistical tests such as Chi-square test, Descriptive tests, independent t test and Pearson Correlation test were used.

IV. Results**Demographic data and other characteristics**

A total of 109 participants were included in the study. The mean age of our study sample was 26.62 years~ 27 years. The majority of participants were females (64.22%), while males constituted 35.78%. The most common age group was 23 years (28.44%), followed by 24 years (19.27%).

A positive family history of acne was found in 12.84% of people

Regarding skin type, oily skin (41.28%) and combination skin (38.53%) were the most prevalent among respondents, indicating a higher predisposition to acne in these groups.

Graph 1: Distribution of Skin Types Among Participants

The relevant skin types of oily, dry, combination and normal shows that oily skinned people were more likely to develop acne. Out of the total, oily skinned participants were 45, from which 41 had acne.

Interpretation:

The graph shows that oily skin is the most common type, followed closely by combination skin. This supports the observation that individuals with oilier skin are more prone to acne.

Sample characteristics associated with prevalence

Out of 109 participants, 39 (35.78%) reported currently having acne, while 70 (64.22%) did not. However, a higher proportion, 88 participants (80.73%), reported having experienced acne in the past.

Table 1: Prevalence of Acne

Current Acne	Response	Frequency	Percentage
	Yes	39	35.78
	No	70	64.22
Past Acne	Yes	88	80.73
	No	21	19.27

Interpretation:

The prevalence data indicates that although only about one-third of participants currently suffer from acne, a large majority have experienced it at some point, suggesting acne is a common condition.

The prevalence of acne of people currently suffering from acne is 35.78% while 80.73% people have had acne in the past.

Stress level vs Current Acne

For analysis we used independent t test. We divided sample size into 2 groups, compared the mean stress levels of both groups rated from a scale of 1-10. Therefore, mean stress levels of Mean (average) = sum of all values ÷ number of observations

Table 2: Acne and stress levels

Acne	Sample size	Mean Stress Levels	Standard Deviation	Mean±S.D.	Mean Difference	d.f.	t value	p value
Yes	n1=70	5.49	2.26	5.49 ± 2.26	0.71	107	1.55	0.12
No	n2=39	4.78	2.33	4.78 ± 2.33				

Interpretation:

There is no statistically significant association. ($t=1.55, p=0.12$). Although, mean stress score was higher in the acne group (5.49 ± 2.26) compared to the non-acne group (4.78 ± 2.33).

Association of Diet with Acne**Table 3: Association of fast-food consumption and sugary drinks/ food intake with occurrence of acne**

Variables	Response	Acne		Chi square value	d.f.	p value	Significance
		Yes	No				
1)Fast Food	Daily	5	10	0.888	2	0.641	not significant
	Never	2	7				
	Once a week	32	54				
2)Sugary foods/ drinks	Always	5	4	2.277	3	0.517	not significant
	Often	15	24				
	Rarely	6	12				
	Sometimes	13	30				

For analysing the data, we used Chi square test.

1)Interpretation:

There is no statistically significant association between fast food consumption and acne ($p > 0.05$).

2)Interpretation:

No significant association was found between sugary food intake and acne ($p > 0.05$), indicating that diet alone may not be a determining factor.

Impact on mental health and self-confidence**Table 4: Impact of Acne on mental health and social factors**

Variables	Response	Acne		Chi Square Value	d.f.	p value	Significance
1)Affects Social Interactions		Yes	No	6.432	2	0.040	Yes, Significant
	Yes	6	9				
	No	23	55				
	Sometimes	10	6				
2)Embarrassment		Yes	No	5.459	2	0.065	not significant
	Yes	13	10				

	No	17	39				
	Sometimes	9	21				

To find out impact, Chi square test was used.

1) Interpretation:

A statistically significant association was found between acne and social interaction ($p < 0.05$), indicating that acne negatively impacts social behaviour.

2) Interpretation: Embarrassment due to acne showed no statistically significant association ($p=0.065$)

Sleep Duration vs Acne Severity

X = Sleep duration (hours per night)

Y = Acne severity (mild, moderate, severe)

Pearson needs numeric values, so we coded severity like

Mild=1, Moderate=2, Severe=3

Table 5: Correlation of sleep duration with acne severity

Sleep(X)	Severity(Y)	r value	Direction
8	1	-0.42	negative
6	2		
5	3		
7	1		

For assessment of data, we used Pearson correlation test. Pearson correlation analysis showed a negative correlation between sleep duration and acne severity ($r = -0.42$). This indicates an inverse relationship between the two variables.

Interpretation:

The negative correlation suggests that as sleep duration decreases, acne severity increases. Participants with shorter sleep duration tend to report more severe acne, while those with longer sleep duration generally exhibit milder acne.

V. Discussion

The findings of this study indicate that acne is a common condition within the sample, with 35.78% of participants currently affected and 80.73% having experienced it in the past. This is consistent with global epidemiological evidence suggesting that acne affects approximately 9.4% of the population at any given time and remains one of the most prevalent dermatological conditions worldwide⁵. Although higher prevalence rates of 70–90% are typically reported among adolescents, the mean age of participants (~26 years) explains the relatively lower current prevalence observed. The high proportion of individuals reporting past acne supports previous findings that acne often persists into adulthood, affecting nearly 40–55% of individuals aged 20–40 years¹. The predominance of oily and combination skin types further aligns with established evidence that increased sebum production plays a central role in acne pathogenesis².

The association between stress and acne in this study was not statistically significant, which contrasts with previous research demonstrating a positive relationship between stress and acne severity. A large cross-sectional study reported that stress significantly increased acne risk (OR = 1.187, $p < 0.001$), indicating a measurable association⁹. Sleep, however, showed a moderate negative correlation with acne severity, suggesting that reduced sleep duration may worsen acne. Similar findings have been reported in other studies, where poor sleep quality was significantly associated with increased acne severity (OR = 1.109, $p = 0.010$)⁹.

Dietary factors in the present study did not demonstrate a statistically significant association, as fast food and sugary food intake yielded p-values greater than 0.05. This differs from existing literature, which reports a stronger association between diet and acne, particularly with high-glycaemic foods and dairy products contributing to increased acne risk². These differences may be attributed to variations in population characteristics, dietary assessment methods, or sample size.

The psychosocial impact findings indicate that acne significantly affects social interaction, reflecting difficulties in social engagement among affected individuals. This is consistent with studies demonstrating that acne negatively impacts quality of life, social functioning, and interpersonal relationships¹³. However, embarrassment was not found to be statistically significant in this study, which contrasts with broader evidence linking acne to emotional distress, including anxiety, reduced self-esteem, and depression¹¹. Existing literature also suggests a bidirectional relationship, where psychological stress exacerbates acne, and acne in turn contributes to increased psychological burden, forming a reinforcing cycle^{9,13,11}.

VI. Conclusion

The study demonstrates that acne is highly prevalent within the population, with a substantial proportion of individuals having experienced it at some point, highlighting its common occurrence and persistence.

Dietary factors, including the intake of fast food and sugary items, do not exhibit a significant association with acne, suggesting that diet alone may not be a primary contributing factor. Similarly, although individuals with acne reported relatively higher stress levels, the relationship was not statistically significant, indicating a limited role of stress in determining acne occurrence.

In contrast, sleep patterns show a meaningful relationship with acne severity, where reduced sleep duration is associated with increased severity. Furthermore, acne exerts a notable impact on mental and social well-being, particularly influencing social interactions, thereby emphasizing its broader psychosocial implications.

Limitations

- Convenience sampling was used.
- Study didn't focus on teenagers.

Funding

A fully self-funded study was conducted.

Conflict of Interest

There was no conflict of interest in relation to the study.

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