

Frequency of Anxiety and Depression in Patients with Acne Vulgaris

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ABSTRACT

Background: The mental health and overall well-being of individuals can be profoundly affected by acne. The objective of this study was to determine the prevalence of anxiety and depression among individuals suffering from acne vulgaris.

Methods: A cross-sectional survey was conducted at Unit 1 of the Department of Dermatology, Mayo Hospital Lahore, spanning from March 9th, 2022, to February 3rd, 2023. The study included 115 patients, all diagnosed with acne vulgaris. Patients were selected using non-probability consecutive sampling. Anxiety and depression levels in patients with acne vulgaris were assessed using the 14-item Hospital Anxiety and Depression Scale (HADS) with scores ranging from 0 to 21 to indicate normal, borderline, or anxiety/depression levels.

Results: The age range of the patients varied from 14 to 35 years, with an average age of 22.4 ± 5.5 years. Among patients diagnosed with acne vulgaris, depression was noted in 52 (45.2%) individuals, while anxiety was present in 66 (57.4%) patients. Upon comparison, there were no statistically significant differences in the occurrence of depression and anxiety among various subgroups of patients classified by age, gender, educational background, employment status, and marital status.

Conclusion: Our study found that a significant proportion of patients with acne vulgaris experienced anxiety and depression. These mental health challenges were observed across all demographic factors, including age, gender, education level, employment status, and marital status.

Keywords:

Acne Vulgaris, Anxiety, Depression, Mental Health, Psychosocial Factors, Quality of Life, Psychological Stress.

INTRODUCTION

Having normal skin appears to be essential for both physical and mental well-being, contributing to the overall quality of life for patients.¹ Acne is a persistent inflammatory skin condition characterized by increased proliferation of follicular epidermal cells, excessive sebum production, inflammation, and the presence and activity of specific bacterial species such as *Propionibacterium acnes*.² This condition affects mostly the upper part of the body with pleomorphic arrays of comedones, papule and/or nodules depending on the severity of the lesion.³ According to the classification, acne severity was categorized into mild (comprised solely of comedonal

acne), moderate (ranging from mild to moderate papulopustular acne), severe (involving severe papulopustular acne or moderate nodular acne), and very severe (incurring severe nodular acne or acne conglobata).⁴ Due to its widespread occurrence, especially among adolescents, facial acne significantly affects patients' psychosocial well-being, leading to detrimental effects on self-image and fostering feelings of isolation and loneliness. Observations in the population affected by acne have revealed notably diminished self-esteem, feelings of worthlessness, a diminished sense of pride and self-value, reduced body satisfaction, and a higher incidence of suicidal thoughts.⁵ Previous studies have identified substantial correlations between acne and depression as well as anxiety, pointing towards a heightened occurrence of both conditions among individuals with acne compared to those without the skin condition.⁶ Two commonly utilized methods for assessing the mental health of patients with illnesses are the Hospital Anxiety and Depression Scale (HADS) and the Dermatology Life Quality Index (DLQI).⁷ In their research, Hussien et al. (2010) discovered that anxiety was detected in 23.9% of individuals with acne, as opposed to 6.5% in the control group. Depression was observed in 13.1% of the acne group and 4.3% of the controls.⁸ These differences were statistically significant. According to

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Golchai et al. (2010), the prevalence of anxiety in the patient group was significantly higher at 68.3% compared to 39.1% in the control group ($p = 0.001$). Regarding depression, it was recorded as 25.6% in the patient group and 28.1% in the control group, with no statistically significant difference.⁹ In the study by Molla et al. (2021), it was found that 47.3% of the participants in the cases exhibited anxiety, compared to 40.2% in the control group. Similarly, more than half (51.4%) of the participants in the cases experienced depression, while 50.7% had depression in the control group.¹⁰

Acne vulgaris predominantly affects adolescents, a critical period for body image development, and can lead to social anxiety due to cosmetic concerns. Despite the growing recognition of acne's impact on mental health, limited research exists on the prevalence of depression and anxiety among acne patients, especially in the Pakistani population. This gap in the literature highlights the need for local studies to understand the psychological effects of acne. Addressing mental health concerns in acne patients is essential for improving their quality of life. This study aims to contribute valuable insights to the national and international literature on the psychological burden of acne.

PATIENTS AND METHODS

This cross-sectional survey took place at Unit 1 of the Department of Dermatology, Mayo Hospital, Lahore. The study spanned six months, starting on March 9, 2022, and ending on March 2, 2023, after obtaining approval for the synopsis. A sample size of 115 cases was determined based on a 95% confidence level, an 8% margin of error, and an assumed frequency of depression among patients with acne vulgaris of 25.6%.¹⁰ Patients were selected using non-probability consecutive sampling. The study included patients of both genders aged between 14 and 35 years with acne vulgaris. Some patients were excluded from the study based on their medical history and clinical records. Specifically, individuals with a documented history of mental disorders, along with patients having somatic conditions such as heart, pulmonary, and joint diseases, diabetes, and epilepsy that might influence their mental well-being, were not considered in the research. Additionally, pregnant and lactating women were also excluded from participation. Following approval from the hospital's ethical review committee, 115 patients attending the Outpatient Department of Dermatology, Unit 1, at Mayo Hospital Lahore, were identified. These patients met the specified criteria and were then briefed and provided with detailed information about the study. Each patient provided written informed consent, and a comprehensive medical history was obtained from them. Demographic information including age, gender, marital

status, educational status, and occupation was recorded. The diagnosis of acne vulgaris was clinically established by a senior dermatologist.

Anxiety and depression levels among patients with acne vulgaris were evaluated using the self-administered Hospital Anxiety and Depression Scale (HADS), developed by Zigmond and Snaith (1983). The HADS is a 14-item questionnaire consisting of two subscales: one for depression symptoms (HADS-D) and one for anxiety symptoms (HADS-A). Patients were asked to report depressive and anxiety symptoms experienced during the previous week on a Likert scale ranging from 0 (not at all) to 3 (most of the time). The standard scoring algorithm was used: for anxiety, the sum of items 1, 3, 5, 7, 9, 11, and 13; for depression, the sum of items 2, 4, 6, 8, 10, 12, and 14, with starred items being reverse scored. Total scores on these subscales ranged from 0 to 21, where a score of 0-7 was considered normal, 8-10 as borderline, and 11-21 as indicative of either anxiety or depression.¹¹

Potential confounding variables were managed by adhering strictly to the inclusion and exclusion criteria. Treatment protocols for all patients were in accordance with established standard guidelines. The gathered data underwent entry and analysis using SPSS version 20.0. Descriptive statistics for numerical variables like age were presented as mean \pm standard deviation (SD), while categorical variables such as gender, educational background, employment status, marital status, depression, and anxiety were expressed as frequency and percentage. The data was stratified based on age, gender, educational background, employment status, and marital status to account for potential effect modifiers. Following this, the chi-square test was utilized, with a significance level established at $p \leq 0.05$, to assess statistical significance.

RESULTS

The age range of the patients varied from 14 to 35 years, with an average age of 22.4 ± 5.5 years. A significant portion of the patients ($n=68$, 59.1%) were below the age of 25. Within this group, there were 52 (45.2%) males and 63 (54.8%) females, resulting in a male to female ratio of 1:1.2. A majority of the patients, 66 (57.4%), had not received formal education, while 57 (49.6%) were unemployed, and 73 (63.5%) were unmarried, as outlined in Table 1. Among patients with acne vulgaris, depression was observed in 52 (45.2%), while anxiety was present in 66 (57.4%) patients, as detailed in Table 2. Upon comparison, no statistically significant variance in the occurrence of depression and anxiety was found across different patient subgroups categorized by age, gender, educational background, employment status, and marital status, as indicated in Tables 3 and 4.

Table 1: Demographic characteristics of enrolled patients (n=115)

Characteristics	Frequency (%)
Age (years)	
<25 years	68 (59.1%)
≥25 years	47 (40.9%)
Gender	
Male	52 (45.2%)
Female	63 (54.8%)
Educational Status	
Educated	49 (42.6%)
Uneducated	66 (57.4%)
Employment Status	
Employed	58 (50.4%)
Unemployed	57 (49.6%)
Marital Status	
Married	42 (36.5%)
Unmarried	73 (63.5%)

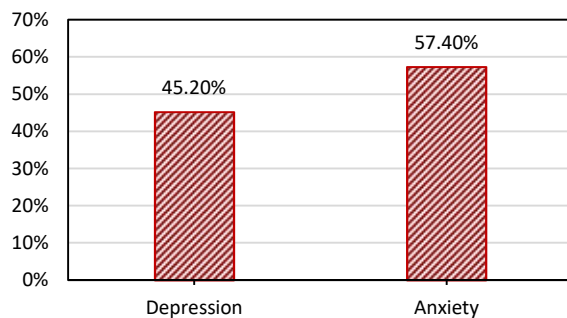
Table 2: Frequency of depression and anxiety among patients with acne vulgaris (n=115)

Condition	Frequency (n)	Percent (%)
Depression		
Yes	52	45.2
No	63	54.8
Anxiety		
Yes	66	57.4
No	49	42.6

Table 3: Comparison of depression across various subgroups of patients with acne vulgaris (n=115)

Subgroups	n	Depression (n, %)	p-value
Age (years)			
<25 years	68	31 (45.6%)	0.923
≥25 years	47	21 (44.7%)	
Gender			
Male	52	22 (42.3%)	0.569
Female	63	30 (47.6%)	
Educational Status			
Educated	49	22 (44.9%)	0.953
Uneducated	66	30 (45.5%)	
Employment Status			
Employed	58	26 (44.8%)	0.932
Unemployed	57	26 (45.6%)	
Marital Status			
Married	42	18 (42.9%)	0.700
Unmarried	73	34 (46.6%)	

Chi-square test, observed difference was statistically insignificant

**Figure 1:** Frequency of depression and anxiety among patients with acne vulgaris**Table 4:** Comparison of anxiety across various subgroups of patients with acne vulgaris n=115

Subgroups	n	Anxiety (n, %)	p-value
Age (years)			
<25 years	68	39 (57.4%)	0.992
≥25 years	47	27 (57.4%)	
Gender			
Male	52	29 (55.8%)	0.749
Female	63	37 (58.7%)	
Educational Status			
Educated	49	28 (57.1%)	0.963
Uneducated	66	38 (57.6%)	
Employment Status			
Employed	58	33 (56.9%)	0.914
Unemployed	57	33 (57.9%)	
Marital Status			
Married	42	23 (54.8%)	0.665
Unmarried	73	43 (58.9%)	

Chi-square test, observed difference was statistically insignificant

DISCUSSION

The societal stigma associated with acne, which includes negative stereotypes and cultural expectations of flawless skin, can trigger feelings of embarrassment and reduced self-esteem.⁹ As a result, individuals may encounter social isolation, difficulties in forming relationships, and a diminished quality of life. Moreover, individuals with severe acne may experience physical discomfort, scarring, and disfigurement, intensifying negative emotions and psychological distress.^{4,5} Given the significant impact of acne on mental health, addressing both the physical and psychological aspects of the condition is crucial. Research suggests that individuals with acne are more likely to encounter anxiety and depression.⁶⁻¹⁰

The mean age of participants with acne vulgaris in our study aligns with that reported by Aryal et al., who observed an average age of 20.1 ± 2.1 years and a male-to-female ratio of 1:1.6 among acne patients in Nepal.¹² In our study, depression was identified in 52 (45.2%) patients diagnosed with acne vulgaris. This finding aligns with the work of Santos et al., who reported that 46.5% of acne patients experienced depression in relation to their condition.¹³ Similarly, Saedi et al. observed depression in 47.8% of Iranian patients with acne vulgaris.¹⁴ Our results are also comparable to those of Altunay et al., who found that 43.6% of Turkish acne patients experienced depression.¹⁵ Furthermore, our findings are consistent with those of Abdelmawla et al., who reported that 41.0% of Egyptian patients with acne vulgaris were affected by depression.¹⁶

The findings of our study regarding the high prevalence of depression (45.2%) and anxiety (57.4%) among patients with acne vulgaris are consistent with existing research, which highlights the significant psychological burden associated with the condition. Our results align with those of Kandre et al., who observed a

notable prevalence of anxiety and depression, although our study found somewhat higher rates in both conditions.¹⁷ Similarly, the study by Jamil et al. reported that anxiety levels were significantly higher in the acne group compared to controls, although their study found no significant difference in depression scores.¹⁸ This is comparable to our findings, where both depression and anxiety were highly prevalent in our sample, but there were no significant differences across subgroups.

Molla et al. also found elevated anxiety levels in acne patients, with a significant difference between the acne and control groups. However, they reported no significant difference in depression scores, which is consistent with our findings where depression and anxiety were both prevalent but did not vary significantly between groups.¹⁹ Rafiq et al. reported that depression was observed in a majority (62%) of acne patients, with moderate to severe forms of anxiety also common in their cohort.²⁰ Our results are also comparable to those of Mehmood et al., who reported high levels of anxiety and depression among acne patients. In their study, anxiety was found in 67% of patients, and depression in 40%, which is similar to our findings of 57.4% for anxiety and 45.2% for depression.²¹

This study provides valuable insights into the prevalence of depression and anxiety among patients with acne vulgaris, with a substantial sample size (n=115) and a comprehensive demographic assessment. The use of the well-established Hospital Anxiety and Depression Scale (HADS) enhances the reliability and validity of the psychological outcomes. The study is limited by its cross-sectional design, which restricts causal inferences. Additionally, it did not assess the severity of acne in relation to psychological outcomes, nor did it include a control group for comparison. Furthermore, self-reported data may introduce response bias, and the study's findings may not be generalizable to populations outside of the sample.

CONCLUSION

In our study, we observed that a considerable proportion of patients with acne vulgaris encountered anxiety and depression, regardless of age, gender, educational attainment, employment status, or marital situation. This highlights the critical necessity of routinely evaluating the quality of life in individuals with acne vulgaris. Such assessments can facilitate the timely recognition and proper management of this often neglected aspect of the condition, thereby potentially improving outcomes in future dermatological practice.

Author contributions

Sana Rafiq, Conception and design, analysis and interpretation of data, drafting the article, Acquisition of data, final approval.

Amna Saeed, Analysis and interpretation of data, drafting the article, proofreading.

Ayesha Hameed, Analysis and interpretation of data, drafting the article, proofreading.

Iqra Fatima, Acquisition of data, analysis and interpretation of data, drafting the article critical revision for important intellectual content

Wajieha Saeed, critical revision for important intellectual content, proofreading

Ghazala Butt, Analysis and interpretation of data, proofreading.

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