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PREVALENCE OF DEPRESSION AND ANXIETY AMONG ACNE PATIENTS ATTENDING PRIMARY CARE CLINICS IN MOSUL

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ABSTRACT

Background: Acne vulgaris is a common chronic dermatological condition that predominantly affects adolescents and young adults and is increasingly recognized to have significant psychological consequences. The visibility of acne lesions, particularly on the face, may lead to emotional distress, low self-esteem, and social impairment. Depression and anxiety are among the most frequently reported psychiatric comorbidities in patients with acne; however, these conditions often remain underdiagnosed in primary care settings. **Objectives:** To determine the prevalence of depression and anxiety among patients with acne attending primary care clinics in Mosul city, and to assess the association between acne severity and the presence of psychological distress. **Methods:** A cross-sectional study was conducted among 200 patients with acne vulgaris attending Al Sukar Primary Health Care Center. Data were collected through direct interviews using a structured questionnaire that included sociodemographic variables and clinical assessment of acne severity (mild, moderate, severe). Psychological assessment was performed using the Patient Health Questionnaire-9 (PHQ-9) for depression and the Generalized Anxiety Disorder-7 (GAD-7) for anxiety. Data were analyzed using SPSS, and associations were tested using the Chi-square test with a significance level of $p \leq 0.05$. **Results:** Among the 200 participants, 40.5% had mild acne, 39.5% moderate acne, and 20.0% severe acne. Regarding depression, 40.5% had minimal symptoms, while 59.5% exhibited varying degrees of depression, including 29.5% mild, 16.5% moderate, 8.5% moderately severe, and 5.0% severe depression. Anxiety was also prevalent, with 44.5% having minimal anxiety and 55.5% experiencing anxiety symptoms (30.5% mild, 14.5% moderate, and 10.5% severe). A statistically significant association was found between acne severity and both depression and anxiety ($p \leq 0.05$), with higher levels of psychological distress observed among patients with more severe acne. **Conclusions:** Acne vulgaris is associated with a considerable burden of depression and anxiety among patients in primary care settings. The findings emphasize the need for integrating psychological assessment into routine acne management and adopting a holistic approach to improve patient outcomes.

KEYWORDS: Acne vulgaris; Anxiety; Depression; Mosul; Primary care; Psychological distress**.**

1- INTRODUCTION

Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit that is one of the most common dermatological conditions globally, especially among teenagers and young adults. Despite being traditionally seen as a benign and self-limiting disorder, acne is now widely recognized as a disease with serious psychosocial and psychological consequences. Contemporary information reveals that the burden of acne extends beyond physical manifestations and greatly affects mental health and general quality of life.[1]

The visibility of acne lesions, particularly on the face, influences an individual's self-image and interpersonal interactions. The skin is essential to interpersonal communication, and any perceived deformity can cause

embarrassment, social disengagement, and low self-esteem. Studies have revealed that patients with acne typically experience psychological disorders, including depression, anxiety and stress, often leading in decreased social involvement and academic or job performance.[2, 3] A recent global study found that depression and anxiety are common comorbidities among acne patients, with prevalence rates of around 22% and 29%, respectively, with significantly higher rates observed in Asian populations.[4] These findings highlight the therapeutic significance of recognizing acne as both a dermatological issue and a potential risk factor for mental health disorders.

Furthermore, the link between acne and psychological distress appears to be complex and bidirectional. Psychological stress has been found to worsen acne through neuroendocrine and inflammatory pathways, whereas acne itself causes psychological distress and a lower quality of life. This "skin-brain axis" underlines the complicated relationship between dermatological and mental diseases, underlining the importance of integrated treatment interventions.[5]

Recent study has found a strong link between acne severity and psychological consequences. Patients with moderate to severe acne have been shown to have higher levels of depressive symptoms than those with mild illness, with six-fold increase in the odds of depression in severe cases.[6] Furthermore, acne has been associated with broader psychological outcomes, including social appearance anxiety, body image issues, and lower well-being, particularly among females and young adults.[7-8] Importantly, acne may also be linked to more severe psychological effects. Evidence suggests that people with acne may have suicidal thoughts and experience severe emotional distress, emphasizing the severity of the psychological impact.[9] These findings highlight the need of detecting and managing mental health disorders in acne sufferers as early as possible.

Despite extensive global evidence, data from low- and middle-income countries, like Iraq, are limited. Cultural variables, cultural judgments of beauty, and stigma associated with dermatological and mental illnesses may all contribute to the psychological burden in these situations. Mental health disorders are frequently overlooked and misdiagnosed in basic care, where the majority of acne patients seek therapy. This is because clinician attention is predominantly focused on physical symptoms. As a result, assessing the prevalence of depression and anxiety among acne patients in primary care settings is critical for enhancing overall patient care. Such study is particularly relevant in Mosul city, where limited local data exist. Understanding the psychological burden of acne in this setting may lead to more effective screening procedures, integrated management options, and better patient results.

The aim of this study is to determine the prevalence of depression and anxiety among patients with acne attending primary care clinics in Mosul city, and to assess the association between acne severity and the presence of psychological distress.

2-PATIENTS AND METHODS

An official agreement was obtained from the directorate of Health in Mosul before conduction of the present study. A verbal consent was taken from the patients who included in the study.

This cross-sectional descriptive study was conducted at Al Sukar Primary Health Care Center, from 1st of October 2023 to the 1st of April 2024. Al Sukar Primary Health Care Center serves a large population and offers comprehensive outpatient healthcare services. The study population consisted of patients who were clinically diagnosed with acne vulgaris and visited the outpatient clinic during the study period. A convenient sample of 200 patients was recruited based on their attendance during the study period.

Patients aged 12 to 40 years old who had a clinical diagnosis of acne vulgaris and were willing to participate in the study were eligible. The study excluded patients with previously identified psychiatric problems, those on psychotropic drugs, patients with chronic systemic diseases that may impair psychological status, and those who refused to participate.

Data were gathered by direct face-to-face interviews utilizing a standardized questionnaire. The questionnaire was divided into three sections: sociodemographic data (age, gender, and marital status), clinical assessment of acne severity, and psychological assessment. Clinical judgment determined the severity of acne as mild, moderate, or severe. Validated screening techniques were used to conduct the psychological examination. Depression was measured using the Patient Health Questionnaire-9 (PHQ-9), and anxiety was measured using the Generalized Anxiety Disorder-7 (GAD-7). The PHQ-9 scores ranged from 0 to 27, with categories for minimum, mild, moderate, moderately severe, and severe depression. The GAD-7 scores ranged from 0 to 21, and they were classified as low, mild, moderate, and severe anxiety.

Data analysis were carried out using of Microsoft Office Excel software programs. Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 26. Continuous variables were presented as mean ± standard deviation, while categorical variables were reported as frequencies and percentages. The Chi-square test was used to assess the association between acne severity and the presence of depression and anxiety. A p-value of ≤ 0.05 was considered statistically significant.

3-RESULTS

A total of 200 patients were included, with the majority (50.5%) aged between 12–20 years, followed by 34.5% in the 21–30 years group and 15.0% in the 31–40 years group. Females constituted a slightly higher proportion of the sample (50.5%) compared to males (49.5%). Most participants were single (80.5%), while only 19.5% were married. This distribution reflects the predominance of adolescents and young adults among acne patients. As shown in table 3.1.

Table (3.1) Sociodemographic characteristics (n = 200).

Variable	Category	Number	Percentage
Age group (years)	12–20	101	50.5%
	21-30	69	34.5%
	31-40	30	15%
Gender	Male	99	49.5%
	Female	101	50.5%
Marrital state	Single	161	80.5%
	Married	39	19.5%

Table 3.2 shows the distribution of acne severity among the study population. Mild acne was observed in 40.5% of patients, while 39.5% had moderate acne. Severe acne accounted for 20.0% of cases. This indicates that the majority of patients presented with mild to moderate forms of acne, with a smaller proportion experiencing severe disease.

Table (3.2) Acne severity (n = 200).

Variable	Category	Number	Percentage
Acne severity	Mild	81	40.5%
	Moderate	79	39.5%
	Severe	40	20%

Table 3.3 illustrates the distribution of depression levels among patients based on PHQ-9 scores. Minimal depression was the most common category (40.5%), followed by mild depression (29.5%). Moderate depression was observed in 16.5% of patients, while 8.5% had moderately severe depression and 5.0% had severe depression. Overall, more than half of the patients exhibited some degree of depressive symptoms, highlighting the psychological burden associated with acne.

Table (3.3) Depression (PHQ-9) distribution (n = 200).

Variable	Category	Number	Percentage
Depression level	Minimal	81	40.5%
	Mild	59	29.5%
	Moderate	33	16.5%
	Moderate severe	17	8.5%
	Severe	10	5%

Table 3.4 demonstrates the distribution of anxiety levels according to GAD-7 scores. Minimal anxiety was reported in 44.5% of patients, while 30.5% had mild anxiety. Moderate anxiety was present in 14.5% of patients, and 10.5% experienced severe anxiety. These findings indicate that a considerable proportion of patients with acne suffer from varying levels of anxiety.

Table (3.4) Anexity (GAD-7) distribution (n = 200).

Variable	Category	Number	Percentage
Depression level	Minimal	89	44.5%
	Mild	61	30.5%
	Moderate	29	14.5%
	Severe	21	10.5%

Table 3.5 shows the relationship between acne severity and depression levels. Patients with mild acne predominantly exhibited minimal or mild depression, whereas those with moderate acne showed higher frequencies of moderate and moderately severe depression. In contrast, patients with severe acne demonstrated the highest proportions of moderate, moderately severe, and severe depression. This pattern suggests a positive association between increasing acne severity and the severity of depressive symptoms, with statistically significant differences observed between groups ($p \leq 0.05$).

Table (3.5) Acne severity versus depression (n = 200).

Acne severity	Mininal	Mild	Moderate	Moderate-severe	Severe	Total
Mild (81)	51	19	7	3	1	81
Moderate (79)	23	31	15	7	3	79
Severe (40)	7	9	11	7	6	40
Total	81	59	33	17	10	200

Table 3.6 presents the association between acne severity and anxiety levels. Patients with mild acne mainly had minimal or mild anxiety, while those with moderate acne showed increased proportions of moderate anxiety. In the severe acne group, higher levels of moderate and severe anxiety were observed. This indicates a gradual increase in anxiety severity with worsening acne, and the association was found to be statistically significant ($p \leq 0.05$).

Table (3.6) Acne severity versus anexity (n = 200).

Acne severity	Mininal	Mild	Moderate	Severe	Total
Mild (81)	53	17	7	4	81
Moderate (79)	25	31	13	10	79
Severe (40)	11	13	9	7	40
Total	89	61	29	21	200

4- DISCUSSION

The current study found that a significant number of acne patients who visited Al Sukar primary care clinics in Mosul exhibited varied degrees of depression and anxiety. More than half of the participants experienced depressed symptoms, with a significant number also reporting anxiety. These findings underscore the enormous psychological cost associated with acne vulgaris, particularly in a primary care context where mental health issues are frequently overlooked.

The study's findings on depression and anxiety are consistent with recent global evidence. A comprehensive meta-analysis found that around 22% of acne patients have depression and 29% have anxiety, confirming that psychiatric comorbidity is frequent in this population.[10] Similarly, another comprehensive analysis discovered that patients with skin diseases, including acne, had pooled prevalence rates of 27.2% for depression and 28.8% for anxiety, highlighting the substantial burden of psychological disorders in dermatological problems.[11] The slightly higher rates seen in the current study could be related to cultural and socioeconomic variables, as well as inequalities in healthcare availability and mental health awareness across Iraq.

There are several factors that can explain the link between acne and psychological suffering. Acne mostly affects visible regions of the face, which are important for self-image and social engagement. Consequently, patients frequently experience embarrassment, low self-esteem, and social disengagement. Recent study suggests that acne severely reduces health-related quality of life, notably in the emotional and psychosocial areas, frequently outweighing the impact of physical symptoms alone.[12] Furthermore, people with acne typically express anxiety and depression symptoms as a result of perceived deformity and societal expectations of beauty.[13]

The current study found a significant positive association between acne severity and the intensity of depression and anxiety. Patients with moderate to severe acne had higher levels of psychological distress than those with less condition. This finding is consistent with earlier study, which has demonstrated that rising acne severity is linked to poorer mental health outcomes.[12] Additionally, acne has been characterized as a disorder impacted by the "skin-brain axis," in which psychological stress can increase inflammatory processes, resulting in a bidirectional link between dermatological and psychiatric conditions.[5, 14]

The higher prevalence of psychological distress among female patients in this study is also consistent with previous study. Females are more likely to be affected by acne's psychosocial impact, probably due to cultural emphasis on physical appearance and more sensitivity to cosmetic issues.[14] likewise, younger people, notably teenagers and young adults, were more subject to psychological distress, which could be attributed to the role of appearance in identity formation and social acceptance during these life stages.

Another important finding in this study was that even patients with minor acne showed noticeable levels of depression and anxiety. This shows that the psychological effect of acne is impacted by subjective perception, coping methods, and societal factors, in addition to clinical severity. Previous study has suggested that perceived severity and social stigma may play a more important role than objective clinical grading in predicting psychological consequences.[15] Clinically, these findings highlight the significance of taking a comprehensive approach to acne therapy. Primary care physicians should not just focus on the physical symptoms of the disease, but also actively

screen for psychiatric comorbidities. Early detection and therapy of depression and anxiety can increase treatment adherence, patient satisfaction, and overall outcomes. This is especially essential in low-resource settings, where mental health resources are limited and frequently neglected.

Despite the study's advantages, such as its emphasis on a primary care population and the use of established screening tools, certain limitations should be noted. The cross-sectional study design limits the capacity to demonstrate causal links between acne and psychological disorders. Furthermore, the reliance on self-reported questionnaires may result in reporting bias. Nevertheless, these tools are widely accepted and useful in basic care settings.

5- CONCLUSION AND RECOMMENDATION

This study concludes that acne vulgaris is associated with a significant psychological burden among patients attending Mosul primary care clinics, with a significant proportion experiencing depression and anxiety, particularly in moderate and severe cases, though psychological distress was also present in mild acne, highlighting the influence of subjective and sociocultural factors. As a result, it is recommended that primary care physicians adopt a holistic approach by incorporating routine psychological screening using simple validated tools such as PHQ-9 and GAD-7, providing patient education and reassurance, improving awareness and training on psychodermatology, and establishing clear referral pathways for patients requiring specialized mental health care, while further longitudinal studies are encouraged to explore causal relationships and optimize integrated management strategies.

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