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Original Article

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ANXIETY, DEPRESSION, AND QUALITY OF LIFE AMONG ADOLESCENTS WITH ACNE VULGARIS

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ABSTRACT

Background: Acne vulgaris (AV) is one of the most frequently encountered skin conditions in clinical practice. While often regarded as a cosmetic issue, its impact on psychological well-being can be profound. In recent years, the significance of evaluating the quality of life in acne patients has gained attention, highlighting the broader consequences of the condition beyond the skin. Objectives: This study aimed to assess the prevalence of anxiety and depression among adolescents with acne vulgaris and to evaluate how the severity and duration of acne correlate with psychological well-being and quality of life. Methodology: A cross-sectional study was carried out between July 1st, 2018, and February 1st, 2019, in Baghdad, Iraq. The study included 700 adolescents aged 16 to 19 years diagnosed with acne vulgaris. Data were collected through face-to-face interviews and self-administered questionnaires. The survey consisted of three components: sociodemographic details, the Hospital Anxiety and Depression Scale (HADS) for assessing psychological status, and the Cardiff Acne Disability Index (CADI) for evaluating the impact of acne on quality of life. Results: Anxiety and depression were present in 45% and 18.6% of participants, respectively. There was no significant association between psychological status and sociodemographic factors. However, both the severity and duration of acne showed a significant positive association with anxiety, depression, and impaired quality of life. Quality of life disability was rated as high in 25.7% and moderate in 35.7% of participants. Conclusions: Adolescents with acne vulgaris experience a high prevalence of anxiety and depression. The psychological burden and quality of life impairment increase with the severity and chronicity of the condition. These findings underscore the need for a holistic approach in managing acne, addressing both dermatological and psychological aspects.

KEYWORDS: Anxiety, Depression, Quality of Life, Adolescents, Acne Vulgaris.

INTRODUCTION

The human skin serves as the body's primary interface with the external environment and is the most visible and exposed organ. It plays a critical role not only in physiological functions but also in determining a person's appearance, which holds substantial social importance. The way individuals are perceived by others is often influenced by their skin condition, making dermatological diseases a source of psychological burden and social discomfort.^[1] Among these conditions, acne vulgaris (AV) is recognized as the most frequently treated skin disorder in medical practice, particularly during adolescence. The prevalence of AV can reach up to 80% in this age group^[2], and it affects approximately 9.4% of the global population, ranking as the eighth most

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prevalent disease worldwide.^[3] Acne commonly emerges at puberty and may persist into the twenties or even beyond, with some individuals continuing to experience breakouts into their forties and fifties.^[4] Although AV predominantly affects the face, other areas such as the neck, chest, back, and shoulders are frequently involved.^[5] The onset of AV during adolescence—a critical phase of physical, psychological, and social development—adds to its complexity. At this stage, identity formation is particularly sensitive, and visible skin conditions can deeply impact self-esteem and social interactions.^[6] While often perceived as a minor or cosmetic problem, acne can lead to significant psychological disturbances. Research has consistently highlighted the strong link between AV and mental

health issues, and there is growing awareness of the emotional and psychological toll that acne can inflict.^[7] In Iraq, adolescents comprise 22.9% of the population, making their well-being a crucial public health concern, as reported by the Ministry of Health in 2015. Local studies have shown varying prevalence rates of AV, such as 36% among medical college students and 20.2% among educational college students in Baghdad^[8], and 16.8% in two urban areas of Basrah.^[9] In neighboring countries, AV prevalence rates have been reported as 34.7% in Syria^[10], 23.1% in Turkey^[11], and 56.6% in Saudi Arabia among female patients aged 14-38 years.^[12] More distant countries report even higher figures: 67.5% in Malaysia^[13], 50.6% in Indian boys and 38.13% in girls aged 12–17 years.^[14] The CDC states that approximately 80% of preteens and teens experience acne at some point. Beyond its physical manifestations, AV is often linked to psychiatric comorbidities. Around 30% of dermatology patients report psychiatric or psychosocial impairments.^[15] Adolescents with severe acne are two to three times more likely to suffer from depression or have suicidal thoughts.^[16] Studies have found elevated levels of depression and anxiety among AV patients when compared to control groups.^[17] For instance, the prevalence of depression among AV patients in Saudi Arabia was 40.8%^[2], social anxiety affected 36% of acne patients in Mumbai [18]. In Pakistan, rates were even higher, with 70.29% experiencing depression and 81.18% anxiety.^[19] Suicidal ideation is also a concerning issue, present in about 6-7% of acne sufferers.^[20] Interestingly, it is often not the clinical severity but the impact of acne on the patient's quality of life (QoL) that serves as a stronger predictor of psychological distress.^[21] Assessing OoL in acne patients offers valuable insights into the unspoken burdens they carry.^[22] A study in Erbil, Iraq, highlighted a significant association between acne severity and QoL impairment. The majority of patients under 20 years (67%) had low QoL scores, with females being more affected. QoL was not significantly linked to occupation, education, or marital status.^[23] These findings justify the need for local research on this issue. Acne vulgaris is highly prevalent among adolescents^[24], who form a significant portion of Iraq's population. Anxiety and depression, if left unaddressed, may impair their functional potential. Social pressures surrounding appearance further compound this issue, and the lack of sufficient local data on the psychological impact of AV in Iraq necessitates a focused study to guide future interventions.

METHOD

This study was designed as a cross-sectional analytic investigation conducted at the Dermatological Outpatient Clinics of four major hospitals in Baghdad, Iraq. These included two hospitals from Al-Rusafa side (Al-Kindi Teaching Hospital and Baghdad Medical City) and two from Al-Karkh side (Al-Yarmouk Teaching Hospital and Imamein Kadhimein Medical City). Data collection was carried out over seven months, from July 1st, 2018 to February 1st, 2019. The study population comprised adolescent patients aged 16-19 years diagnosed with acne vulgaris (AV) of varying severity. Eligibility was limited to literate male and female patients within the specified age range who had no other dermatological, hormonal, or chronic conditions that might influence psychological status. Pregnant or lactating females and those with a history of psychiatric illness or prolonged medication use were excluded. Using a prevalence estimate of 35% for psychological symptoms among AV patients and a 5% margin of error at 95% confidence level, the required sample size was initially calculated as 350. This number was doubled to 700 to allow comparative analysis between patients with and without psychological symptoms. A convenient sampling method was applied, with 175 patients enrolled from each hospital. Data collection was performed via direct questionnaires. interviews and self-administered Participants were assessed using three tools: a demographic and socioeconomic status form, the Hospital Anxiety and Depression Scale (HADS) to evaluate psychological symptoms, and the Cardiff Acne Disability Index (CADI) to measure the impact of acne on quality of life. Acne severity was classified clinically by dermatologists using the American Academy of Dermatology guidelines. Data were analyzed using SPSS version 24. Descriptive statistics were used to summarize participant characteristics, while Chi-square tests and binary logistic regression were employed to examine associations between variables. Statistical significance was considered at p < 0.05. A pilot study involving 35 patients (excluded from the final sample) was conducted to ensure feasibility and refine the study instruments.

RESULTS

This study includes 700 adolescents suffering from AV, 67.1% of them were females and 32.9% were males. Their mean age was $17.81 \ (\pm 1.17)$ year. Other sociodemographic variables are shown in table 1. According to acne severity, most of the patients got moderate grade of AV 45%. While, 41.3% of patients had mild grade of AV and severe grade was seen in 13.7% as shown in Figure 1.]

		No.	%
Candan	Male	230	32.9
Gender	Female	470	67.1
Morital status	Single	630	90.0
Marital status	Married	70	10.0
Smoking	Yes	35	5.0
	No	665	95.0
Eamily history	Positive	383	54.7
Family mistory	Negative	317	45.3
Socioconomia	Poor	234	33.4
status	Fair	293	41.9
	Good	173	24.7

 Table 1: Sociodemographic Characteristics of the AV

 Adolescent Patients.



Figure 1: Distribution of studied patients according to severity of acne.

The prevalence of anxiety among AV patients was 45%. According to HADS scores, 13.7% and 31.3% of patients had definite and probable anxiety, respectively. As mentioned earlier in methodology, probable and definite scores were regarded as cases. While normal and suggestive scores were regarded as non case. So total non-cases of anxiety were seen in 55%, as shown in Figure 2.



Figure 2: Distributions of studied patients according to level of anxiety.

The association between sociodemographic variables and anxiety is shown in Table 2. There was no significant association between any sociodemographic variable and anxiety.

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Se at a dama amari	• • •	Anxiety						
Sociodemograp	nic	Ca	ses	Non	cases	Dualua		
variables		No.	%	No.	%	r value		
Condor	Male	95	41.3	135	58.7	0 160		
Gender	Female	220	46.8	250	53.2	0.109		
Marital status	Single	280	44.4	350	55.6	0 375		
Marital status	Married	35	50.0	35	50.0	0.375		
Smolting	Yes	20	57.1	15	42.9	0.129		
Smoking	No	295	44.4	370	55.6	0.158		
Equily history	Positive	178	46.5	205	53.5	0.200		
Family mistory	Negative	137	43.2	180	56.8	0.388		
Sociocomomio	Poor	108	46.2	126	53.8			
Socioeconomic	Fair	138	47.1	155	52.9	0.290		
status	Good	69	39.9	104	60.1			

The association between severity and duration of AV with anxiety has shown significant status. 63.5% of patients with severe acne had anxiety. It was also found that anxiety was present in 39.7%, 44.6% of patients

with moderate and mild acne, respectively (P value=0.001). Long duration of AV (>5 years) was significantly associated with anxiety (P-value=0.001), as shown in Table 3.

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Table 3: Association between severity and duration of AV with anxiety.

		Ca	ises	Non	cases	P value
		No.	%	No.	%	
Severity of AV	Severe	61	63.5	35	36.5	
	Moderate	125	39.7	190	60.3	0.001
	Mild	129	44.6	160	55.4	
Duration of AV	>5y	160	54.2	135	45.8	
	1-5yr	100	43.5	130	56.5	0.001
	<1 y	55	31.4	120	68.6	

Probable cases of depression symptoms according to HADS score showed a prevalence of 18.6%. The rest were non cases as shown in (Figure 3).

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Figure 3: Distributions of studied patients according to depression symptoms.

Depression symptoms showed no significant association with any sociodemographic variable, as shown in Table 4.

	Depression symptoms						
Sociodemographic var	iables	Ca	ises	Non	cases	D voluo	
		No.	%	No.	%	P-value	
Condon	Male	50	21.7	180	78.3	0 1 2 2	
Gender	Female	80	17.0	390	83.0	0.152	
Marital status	Single	115	18.3	515	81.7	0.517	
	Married	15	21.4	55	78.6		
Smoking	Yes	5	14.3	30	85.7	0.503	
Shloking	No	125	18.8	540	81.2		
Family history of AV	Positive	68	17.8	315	82.2	0 5 4 1	
Family mistory of A v	Negative	62	19.6	255	80.4	0.541	
Socioeconomic status	Poor	50	21.4	184	78.6		
	Fair	55	18.8	238	81.2	0.206	
	Good	25	14.5	148	85.5		

 Table 4: Association between sociodemographic variables and depression symptoms.

The severity of acne and depression symptoms had positive significant association (P =0.034). Also long duration of AV had positive significant association with

depression symptoms (P-value=0.006) as shown in Table5.

 Table 5: Association between severity and duration of AV with depression symptoms.

		Depression symptoms					
		Ca	ises	Non	cases	D voluo	
	No.	%	No.	%	P-value		
Severity of acne	Severe	<u>26</u>	<u>27.1</u>	70	72.9		
	Moderate	60	19.0	255	81.0	0.034	
	Mild	44	15.2	245	84.8		
Duration	>5y	55	<u>23.9</u>	175	76.1		
	1-5yr	55	18.6	240	81.4	0.006	
	<1 y	20	11.4	155	88.6		

Significant association was shown between anxiety and depression symptoms among patients with AV (P value=0.001). (Table 6).

Table 6: Association between anxiety and depression symptoms in the study sample.

		C	Cases Non cases		Total	P value	
		N.	%	N.	%	Total	
	Cases	95	30.2	220	69.8	315	
Anxiety	Non cases	35	9.1	350	90.9	385	0.001
	Total	1	130	570		700	

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Out of the total 700 patients, 13.6% had both anxiety and depression symptoms. 31.4% of patients had only anxiety whereas depression symptoms alone were seen in

5% of patients. While 50% of them had neither anxiety nor depression symptoms (Figure 4).



Figure 4: Distribution of patients according to anxiety, depression symptoms, neither, and both.

According to CADI scores for QoL of acne, 25.7% of patients had high disability in QoL. 35.7% of patients had medium disability and low disability was seen in 38.6% of the patients as shown in Figure 5.



Figure 5: Distribution of studied cases according to severity of disability of QoL.

The results revealed that being female had positive significant association with disability of QoL. Marital status, smoking, family history of acne and socioeconomic status were not associated with disability of QoL as shown in Table 7.

Descriptive vari	ables	High		Medium		Low		P-value
		No.	%	No.	%	No.	%	
Condon	Male	45	19.6	85	37.0	100	43.5	0.026
Gender	Female	135	28.7	165	35.1	170	36.2	5.2 0.020
Marital status	Single	160	25.4	220	34.9	250	39.7	0 195
Marital status	Married	20	28.6	30	42.9	20	28.6	0.105
Smalring	Yes	10	28.6	15	42.9	10	28.6	0.450
Smoking	No	170	25.6	235	35.3	260	39.1	0.450
Family history	Positive	111	29.0	135	35.2	137	35.8	0.071
Family history	Negative	69	21.8	115	36.3	133	42.0	0.0/1
Sector companying	Poor	52	22.2	83	35.5	99	42.3	
status	Fair	80	27.3	114	38.9	99	33.8	0.149
status	Good	48	27.7	53	30.6	72	41.6	

The severity of acne and disability of QoL were significantly associated (P value= 0.001). Table 8

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showed that 39.6% of severe grade of acne got high disability of QoL. The association between the duration

of disease and disability of QoL was also shown in Table 8. There was a significant positive association between

long duration of AV and disability of QoL (P value=0.001).

		High		Medium		Low		P-value
		No.	%	No.	%	No.	%	
	Severe	<u>38</u>	<u>39.6</u>	30	31.2	28	29.2	
Severity of AV	Moderate	75	23.8	130	41.3	110	34.9	0.001
	Mild	67	23.2	90	31.1	132	45.7	
	>5y	<u>87</u>	<u>37.8</u>	70	30.4	73	31.7	
Duration of AV	1-5yr	70	23.7	85	28.8	140	47.5	0.001
	<1 y	23	13.1	95	54.3	57	32.6	

Table 8: Association between duration and severity of AV with disability of QoL.

Significant association was shown between anxiety and disability of QoL. Table 9 shows that 46% of patients with anxiety got high disability of QoL. While 28.6%

and 25.4% of patients with anxiety got medium and low disability of QoL respectively (P = 0.001).

Table 9: Association between anxiety and disability of QoL.

Disability of QoL								
		High		Medium		Low		P-value
	No.	%	No.	%	No.	%		
Americates	Cases	145	46	90	28.6	80	25.4	0.001
Anxiety	Non cases	35	9.1	160	41.6	190	49.4	0.001

Depression symptoms were significantly associated with the disability of QoL. As shown in Table 10, about 43.8% of patients with depression symptoms got high disability of QoL (P = 0.001).

Table 10: Association between depression symptoms and disability of QoL.

	Disability of QoL							
		High		Medium		Low		P-value
		No.	%	No.	%	No.	%	
Depression	Cases	<u>57</u>	<u>43.8</u>	55	42.3	18	13.8	0.001
symptoms	Non cases	123	21.6	195	34.2	252	44.2	0.001

Regression analysis was done for significantly associated variables with disability of QoL as showed in Table 11:

- Severity of AV was positively significantly associated with disability of QoL (OR= 1.26, p value= 0.007, 95% CI= 1.07-1.48).
- Long duration was significantly associated with disability of QoL (OR= 1.45, P value=0.025, 95% CI=1.12-1.97).
- Having anxiety was associated significantly and positively with disability of QoL (OR= 1.55, P value= 0.001, 95% CI= 1.31-1.84).
- Having depression symptoms was associated significantly and positively with disability of QoL (OR= 3.72, P value= 0.001, 95% CI= 2.16-6.40).

Table 11: Binary logistic regression of significantly associated variables with disability of QoL.

	Sig	OP	95% C.I.for OR		
	Sig.	UK	Lower	Upper	
Gender	0.207	1.27	0.88	1.83	
Severity	0.007	1.26	1.07	1.48	
Duration	0.025	1.45	1.12	1.97	
Anxiety	0.001	1.55	1.31	1.84	
Depression symptoms	0.001	3.72	2.16	6.40	
Constant	0.000	0.08			

DISCUSSION

This study highlights the considerable psychological impact of acne vulgaris (AV) among adolescents, with anxiety and depression symptoms being significantly prevalent. The findings align with numerous regional and

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international studies, emphasizing that AV is not merely a cosmetic issue but one that can deeply affect the emotional and psychological health of affected individuals. Anxiety symptoms were observed in 45% of the sample, with 31.3% being probable cases and 13.7%

definite. This high rate may be attributed to the age group's sensitivity to appearance and social acceptance, especially when facial lesions are involved-often leading to lowered self-esteem and social withdrawal.^[18,25] These results are consistent with findings from India (39% and 44.6%)^[25,26], and Lithuania (38.4%).^[27] However, higher rates were seen in Pakistan (81.18%)^[19], and Malaysia (69.1%)^[28], which may be explained by differences in measurement tools, cultural perceptions, and cutoff thresholds used for anxiety classification. Interestingly, no significant association was found between anxiety and sociodemographic variables. including gender. marital status. socioeconomic level, smoking, and family history of AV—consistent with several previous studies.^[7,25,27,28] A notable finding was the positive association between both the severity and duration of AV and the presence of anxiety, supporting similar conclusions from Turkey, and India.^[29,30] The chronic, relapsing nature of AV, classified by WHO as a chronic condition^[30,31], may worsen outcomes over time. Regarding psychological depression, the prevalence in this study was 18.6%, higher than the general Iraqi population rate (7.1%)^[32]. yet lower than reported rates in Pakistan (70.29%)^[19]. and Iran (47.4%).^[33] Saudi Arabia $(40.8\%)^{[2]}$, Discrepancies may again reflect methodological differences, particularly in scoring cutoffs.^[19] Consistent with prior studies^[7,25], this study found no significant association between depression and gender, marital status, or socioeconomic factors, although some studies do suggest a greater burden among females.^[29,33] Quality of life (QoL) was significantly impaired in 74.3% of participants, supporting existing literature.^[34,35] While sociodemographic variables showed no significant association with QoL, the severity and duration of AV were positively linked with increased disability, consistent with multiple reports.^[1,36,37] Importantly, the presence of anxiety and depression symptoms significantly correlated with impaired QoL. This confirms the earlier views of Sulzberger and Zaidens^[38] and is reinforced by contemporary studies from Turkey and Malaysia, which found similar associations between psychological distress and reduced QoL.^[28] These findings emphasize the need for a holistic approach to AV treatment that includes psychological assessment and support.

CONCLUSION

Acne vulgaris significantly impacts adolescents beyond physical appearance, with high rates of anxiety (45%) and depression (18.6%). The severity and duration of acne are strongly associated with worsened psychological health and reduced quality of life. Moderate to severe QoL impairment affects over 60% of Sociodemographic patients. factors showed no significant influence on mental health outcomes.

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