ORIGINAL ARTICLE

Evaluation of Major Psychiatric Disorders in Patients in Rafsanjan, Iran, with Acne Vulgaris

Seyed-Ali Mostafavi[1], Reza Bidaki[2 & 3]*, Hamzeh Shahmoradi[3], Afshin Mirzaei[3], Ahmad Reza Sayadi[3], Mohammad Javad Feriduni[3]

[1]*Psychiatry Research Center, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran*

[2]*Research Center of Addiction and Behavioral Sciences, Shahid Sadoughi University of Medical Sciences, Yazd, Iran*

[3]*Diabetes Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran*

Corresponding Author: Reza Bidaki, E-mail: Reza_Bidaki@Yahoo.com

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ABSTRACT

Background: Skin health and mental health are highly correlated. Considering that less attention has been paid to multidisciplinary fields, we evaluated the prevalence of mental disorders and related problems in patients with acne vulgaris in the city of Rafsanjan, Iran. **Methods:** This was a cross-sectional study. The study population included all patients with acne vulgaris in Rafsanjan who were referred in 2016 to a skin and hair clinic. After the patients agreed to participate, they underwent a psychological interview. Using the Hamilton Anxiety Scale, Beck Depression Inventory, and suicide questionnaires, their data were recorded and collected. Data were then analyzed using the chi-square test and Fisher's exact test. **Results:** Of 100 patients evaluated (48 women and 52 men), 8% had severe anxiety, 61% had moderate anxiety, and 31% had mild anxiety. Moreover, 64% of patients had mild depression, 29% had moderate depression, and 7% had severe depression. Of all patients, only one had a high risk for suicide attempts. We did not find any significant relationship between anxiety or suicide disorder and any of following variables: marital status, disease duration, amount of lesions, location of lesions, and expansion of lesions. We observed that with increasing duration of illness, expansion of lesions, and level of lesions, depression increased significantly in patients with acne vulgaris. Location of lesions was not associated with depression. **Conclusion:** The prevalence of anxiety and depression is high in patients with acne vulgaris. Acne disease is more significantly correlated with depression.

INTRODUCTION

Skin health and skin disorders play a major role in mental health. Skin is involved in the expression of emotions such as fear, anxiety, and shame; also, it is involved in shaping personal perception, self-esteem, and socialization (1). The relationship between the skin and the brain forms during the embryonic period when both originate from ectoderm and are affected similarly by hormones and neurotransmitters (2). Psycho-dermatology is the study of the relationship between psychiatry, psychology, and dermatology (3). In more than 30% of skin-care patients, effective skin evaluation and assessment depend on considering the psychological factors that affect them. Therefore, dermatologists are usually concerned about the mental health needs of the general population. Psychiatric factors are important in the treatment of skin diseases such as eczema and psoriasis (4). The prevalence of psychiatric disorders in patients with skin diseases is between 30% and 60% (5). Psychological stress alters the permeability of the epidermis, which may trigger skin disorders such as atopic dermatitis and psoriasis. (6)

Furthermore, stress can worsen the symptoms of these diseases (7). Depression is a major psychiatric disorder that is common among people with skin conditions such as urticaria, acne, itching, and psoriasis. Therefore, psychiatric evaluation should be considered for patients with skin diseases (8). Studies on the effect of psycho-social factors on adults with psoriasis estimated that exacerbation of these factors occurred in 40-80% of cases; this rate was observed in up to 90% of children (9). Studies of urticaria and angioedema showed that, in 11-12% of patients, psychological factors had a direct effect on the worsening of the disease (10). The role of stress in the onset of atopic dermatitis is reported to be as high as 70% (this stress may be related to the illness or to other reasons). In addition, stress plays a major role in increasing the severity of disease (11). There is likely a strong relationship between psychiatric problems and other medical problems, including dermatological problems, but less attention has been paid to multidisciplinary fields.

Therefore, we evaluated patients with acne vulgaris in the city of Rafsanjan., Iran, and investigated the prevalence of mental disorders and related problems.

METHODS

Study Design

This was a cross-sectional study. The study population included all patients with acne vulgaris in Rafsanjan, Iran, who were referred in 2014 to a skin and hair clinic. One hundred patients with acne consented to participate in the study and comprised our sample. After consenting, they underwent a psychological interview. Using the Hamilton Anxiety Scale, Beck Depression Inventory, and suicide questionnaires, their data were recorded and collected. This study was approved by the Research Committee of Rafsanjan Medical School and was funded and supported by Rafsanjan University of Medical Sciences.

Beck Suicidal Thoughts Scale

This 19-item questionnaire is a self-assessment tool that measures attitudes, thoughts, and suicide attempts. The first five questions are for screening. If people score zero points on the first five questions, they do not have suicidal thoughts. Scores between 1 and 5 indicate suicidal thoughts; scores between 6 and 19 indicate the willingness to commit suicide; and scores between 20 and 38 indicate the actual commission of suicide attempts. This questionnaire is an effective tool for assessing suicidal thoughts and attempts. Danitz and colleagues showed that it has an internal consistency of 0.89 and an inter-rater reliability of r = 0.83. Other investigators reported a significant concurrent validity of the questionnaire in the risk assessment scale test (P <0.001) and in suicide r = 0.69 was obtained [12].

Beck Depression Inventory

This 21-item questionnaire is a self-assessment tool that assesses signs of depression. Scores range from zero to 63. This scale categorizes people as not depressed (scores 1-15), mildly depressed (scores 16-31), moderately depressed (scores 32-47), or severely depressed (scores 48-63). Many researchers and practitioners have assessed the reliability and validity of the Beck Depression Inventory. May and colleagues (1969) showed that this test was valid and was able to anticipate depression. Beck, Steer, and Garbin (1988), in an attempt to determine the internal consistency of this questionnaire, obtained coefficients of 0.73-0.92 (mean, 0.86). Assessment of content validity, construct and discriminate, and factor analysis had generally favorable results (13).

Hamilton Anxiety Scale

The Hamilton Anxiety Scale, created in 1960 and updated in [←Correct?] 1967, was the first and is still the most widely used tool in clinical research to measure the severity of anxiety symptoms (14). This scale consists of 14 sections, each containing a series of symptoms related to anxiety. The questionnaire evaluates and examines both mental stress and somatic anxiety (physical symptoms and somatic complaints). The test categorizes patients based on anxiety level: scores less than 17 indicate mild anxiety; scores 18-24 indicate

mild to moderate anxiety; scores 25-30 indicate moderate to severe anxiety; and scores 31-56 indicate severe to very severe anxiety (16). In our study, patient data were entered into a Microsoft Excel spreadsheet and exported into SPSS v. 17 software. Results were analyzed using the chi-square test and Fisher's exact test.

RESULTS

For each of the three variables of anxiety, depression, and suicide, patients were grouped as mild, moderate, or severe. In our study, 48 women and 52 men with acne were evaluated; 53 were single and 47 were married.

Duration of acne disease was more than 1 year in 69 patients; in 31 patients, it was less than 1 year. Forty-nine patients had lesions on the face, 16 had lesions on the body, and 35 had lesions on both the face and body. In 57 patients, the lesions were mild; in 41 patients, the lesions were moderate; and in two patients, the lesions were severe. Of 100 patients evaluated, eight had severe anxiety, 61 had moderate anxiety, and 31 had mild anxiety. Additionally, 64 patients had mild depression, 29 had moderate depression, and seven had severe depression. Only one patient (a 25-year-old married man) had a high risk for suicide attempts.

We found that, with increasing age, anxiety increased, but this was not statistically significant (P=0.499). No significant relationship was observed between sex and anxiety level (P=0.718). No significant relationship was observed between anxiety disorder and any of following variables: marital status, disease duration, and amount, location, and expansion of lesions (Table 1). Finally, no significant relationship was observed between suicide disorder and any of following variables: marital status, disease duration, and amount, location, and expansion of lesions (Table 2).

In this study, we observed that men with acne were more likely to develop depression (P=0.023) than women. No significant relationship was observed between marital status and depression in patients with acne (P=0.75). In patients with acne, with increasing duration of lesions, depression increased significantly (P=0.045); with increasing expansion of lesions, depression increased significantly (P=0.002); and with increasing level of scars caused by acne, depression increased significantly (p=0.001). Location and severity of lesions were not associated with depression (Table 3).

DISCUSSION

Various investigators have evaluated patients with acne vulgaris using different methods. Behnam and colleagues (17) found that the most common psychological symptoms in patients with acne were psychoticism (34.0%) and depression (31.1%). They also found significant positive correlations between disease duration and psychological symptoms. In addition, patients with multiple sites of involvement were affected more severely than those with a single site of involvement. Similarly, in our study, with increased duration of illness, affected area, and level of scars, depression increased significantly.

Table 1. Different levels of anxiety in patients with acne and association with different variables

	Anxiety			Chi-square	P-value	df
	Mild (%)	**Moderate (%)**	**Severe (%)**			
Age						
<20 years	7 (28)	14 (56)	4 (16)	3.96	0.44	4
20-25 years	12 (36.4)	20 (60.6)	1 (3)			
>25 years	12 (28.6)	27 (64.3)	3 (7.1)			
Sex						
Men	18 (34.6)	30 (57.7)	4 (7.7)	0.66	0.71	2
Women	13 (27.1)	31 (64.6)	4 (8.3)			
Marital status						
Single	15 (28.3)	33 (62.3)	5 (9.4)	0.58	0.74	2
Married	16 (34)	28 (59.6)	3 (6.4)			
Acne duration						
<1 year	11 (35.5)	17 (54.8)	3 (9.7)	0.729	0.6	2
>1 year	20 (29)	44 (63.8)	5 (7.2)			
Acne location						
Face	16 (32.7)	29 (59.2)	4 (8.2)	5.47	0.21	4
Body	8 (50)	8 (50)	0 (0)			
Face and body	7 (20)	24 (68.6)	4 (11.4)			
Acne extension (%)						
<20	22 (33.8)	37 (56.9)	6 (9.2)	4.35	0.36	4
20-50	9 (31)	18 (62.1)	2 (6.9)			
>50	0 (0)	6 (100)	0 (0)			
Acne severity						
Mild	20 (35.1)	32 (56.1)	5 (8.8)	2.26	0.688	4
Moderate	11 (26.8)	27 (65.9)	3 (7.3)			
Severe	0 (0)	2 (100)	0 (0)			
Scar level						
Mild	20 (38.5)	27 (51.9)	5 (9.6)	5.81	0.214	4
Moderate	7 (18.4)	28 (73.7)	3 (7.9)			
Severe	4 (40)	6 (60)	0 (0)			

Table 2. Different levels of suicide risk in patients with acne and association with different variables

	Suicide risk			Chi-square	P-value	df
	Mild (%)	**Moderate (%)**	**Severe (%)**			
Age						
<20 years	22 (88)	3 (12)	0 (0)	3.79	0.43	4
20-25 years	25 (75.8)	8 (24.2)	0 (0)			
>25 years	36 (85.7)	5 (11.9)	1 (2.4)			
Sex						
Men	43 (82.7)	8 (15.4)	1 (1.9)	0.95	0.62	2
Women	40 (83.3)	8 (16.7)	0 (0)			
Marital status						
Single	45 (84.9)	8 (15.1)	0 (0)	0.58	0.747	2
Married	38 (80.9)	8 (17)	1 (2.1)			
Acne duration						
<1 year	25 (80.6)	6 (19.4)	0 (0)	0.79	0.67	2

(*Contd...*)

Table 2. (*Continued*)

	Suicide risk			Chi-square	P-value	df
	Mild (%)	Moderate (%)	Severe (%)			
>1 year	58 (84.1)	10 (14.5)	1 (1.4)			
Acne location						
Face	41 (83.7)	8 (16.3)	0 (0)	2.009	0.73	4
Body	13 (81.2)	3 (18.8)	0 (0)			
Face and body	29 (82.9)	5 (14.3)	1 (2.9)			
Acne extension (%)						
<20	53 (81.5)	11 (16.9)	1 (1.5)	1.78	0.77	4
20-50	24 (82.8)	5 (17.2)	0 (0)			
>50	6 (100)	0 (0%)	0 (0)			
Acne severity						
Mild	47 (82.5)	9 (15.8)	1 (1.8)	1.17	0. 88	4
Moderate	34 (82.9)	7 (17.1)	0 (0)			
Severe	2 (100)	0 (0)	0 (0)			
Scar level						
Mild	43 (82.7)	9 (17.3)	0 (0)	1.99	0.73	4
Moderate	32 (84.2)	5 (13.2)	1 (2.6)			
Severe	8 (80)	2 (20)	0 (0)			

Table 3. Different levels of depression in patients with acne and association with different variables

	Depression			Chi-square	P-value	df
	Mild (%)	Moderate (%)	Severe (%)			
Age						
<20 years	17 (68)	8 (32)	0 (0)	3.916	0.417	4
20-25 years	23 (69.7)	7 (21.2)	3 (9.1)			
>25 years	24 (57.1)	14 (33.3)	4 (9.5)			
Sex						
Men	38 (73.1)	9 (17.3)	5 (9.6)	7.56	0.023	2
Women	26 (54.2)	20 (41.7)	2 (4.2)			
Marital status						
Single	34 (64.2)	18 (34)	1 (1.9)	5.17	0.75	2
Married	30 (63.8)	11 (23.4)	6 (12.8)			
Acne duration						
<1 year	18 (58.1)	13 (41.9)	0 (0)	5.98	0.045	2
>1 year	46 (66.7)	16 (23.2)	7 (10.1)			
Acne location						
Face	31 (63.3)	17 (34.7)	1 (2)	5.96	0.2	4
Body	10 (62.5)	5 (31.2)	1 (6.2)			
Face and body	23 (65.7)	7 (20)	5 (14.3)			
Acne extension (%)						
<20	42 (64.6)	23 (35.4)	0 (0)	16.5	0.002	4
20-50	19 (65.5)	4 (13.8)	6 (20.7)			
>50	3 (50)	2 (33.3)	1 (16.7)			
Acne severity						
Mild	39 (68.4)	16 (28.1)	2 (3.5)	4.393	0.355	4

(*Contd...*)

Table 3. (*Continued*)

	Depression			Chi-square	P-value	df
	Mild (%)	Moderate (%)	Severe (%)			
Moderate	23 (56.1)	13 (31.7)	5 (12.2)			
Severe	2 (100)	0 (0)	0 (0)			
Scar level						
Mild	35 (67.3)	17 (32.7)	0 (0)	48.3	<0.0001	4
Moderate	26 (68.4)	11 (28.9)	1 (2.6)			
Severe	3 (30)	1 (10)	6 (60)			

Using the Hospital Anxiety and Depression (HAD) scale, Aktan et al. (18) by did not find any significant differences between patients with acne and their controls with respect to depression or anxiety. However, in the acne group, anxiety in girls was significantly higher than in boys. The severity of acne was not correlated with the HAD anxiety or depression subscale scores. In another study, the HAD test was administered to 308 patients with acne vulgaris, and results were compared to those of sex-matched controls. Differences of subscale scores between groups for anxiety and depression were not significant (19). In a population-based survey in Taiwan, regardless of sex, depressive disorders were more common in patients with acne. Furthermore, in women, acne had additive effects on the risk of depression and suicide (20).

In a cross-sectional survey of students in New Zealand, Purvis et al. (21) used self-reported acne information, the Adolescent Depression Scale, the Anxiety Disorder Index, and self-reported suicide attempt information and found that acne was linked with an increased likelihood of depressive symptoms (odds ratio [OR]=2.04, 95% confidence interval [CI]: 1.70–2.45); anxiety (OR=2.3, 95% CI: 1.74–3.00); and suicide attempts (OR=1.83, 95% CI: 1.51–2.22).

In our study, sex differences were not significant with regard to anxiety. However, we observed that men with acne were more likely to develop depression than women One reason for the different results in the various studies is that different rating scales were used to assess the psychological properties of patients. The sensitivity of HAD and its ability to distinguish signs of psychological disorders in outpatient adolescents are unknown. Also unknown is its ability to relate acne to anxiety and depression.

We found that in people with acne, anxiety increased with increasing age, but this increase was not statistically significant. In our study, we observed no correlation between marital status or sex and anxiety. We also observed that with increasing age, the probability of suicide decreased in patients with acne, but this was not statistically significant. Finally, we did not observe any significant relationship between suicide and other variables, including marital status, disease duration, and amount, location, and expansion of lesions.

We cannot infer that with increasing age, depression also increases (p=0.417). Surprisingly, we observed that men with acne were more likely to be depressed than women (p=0.023), which may be due to environmental stresses on men. In patients with acne, marital status did not correlate with depression.

CONCLUSION

The prevalence of anxiety and depression is high in patients with acne. Acne disease is significantly correlated with depression.

AUTHOR CONTRIBUTIONS

All authors contributed to this work and manuscript equally. All authors read and approved the final manuscript.

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