

Social Anxiety Level in Acne Vulgaris Patients and its Relationship to Clinical Variables

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Abstract

Objective: The purpose of this study was to determine the level of social anxiety in acne vulgaris patients and to examine its relationship to the sociodemographic and clinical characteristics of acne, as well as to depression, self-esteem, and negative automatic thoughts.

Method: The study included 83 acne vulgaris patients from the dermatology outpatient unit of a university hospital and 58 healthy controls. Sociodemographic and clinical questionnaires, and the Global Acne Grading System (GAGS), Hospital Anxiety and Depression Scale (HADS), Liebowitz Social Anxiety Scale (LSAS), Rosenberg Self-Esteem Scale (RSES), and Automatic Thoughts Scale (ATS) were administered to both groups.

Results: The degree of social anxiety, social avoidance/withdrawal, general anxiety, depression, and negative automatic thoughts were significantly higher, and self-esteem was significantly lower in the acne patients. Among the 83 patients, scoring above the scales' cut-off points was as follows: 25.6% on the LSAS, 32.9% on the LSAS-Anxiety Subscale, 27.7% on the LSAS-Avoidance Subscale, 36.1% on HADS, 30.1% on the HADS-Depression Subscale, and 50.6% on the HADS-Anxiety Subscale. Psychological symptoms were negatively correlated with age and level of education in the patient group; however no relationship was observed between the psychological symptoms, and gender, the severity of acne, or acne localization. The patients rated their symptoms more severely than did the clinicians; however, the subjective ratings of the patients were not correlated to their psychological symptoms.

Conclusion: Acne vulgaris must be considered as an illness with the potential to negatively affect the psychological and emotional functioning of patients; therefore, routine psychiatric evaluation and psychological support should be part of the routine acne treatment plan.

Key Words: Acne vulgaris, social anxiety, avoidance/withdrawal, anxiety disorders, depression, psychiatric morbidity

INTRODUCTION

Relationships between dermatological illnesses and psychiatric disorders have been investigated for a long time. One approach has been to investigate the role of psychological factors on dermatological illnesses and many studies have confirmed such a relationship (Folks and Warnock, 2001). According to such studies, psychiatric and psychological factors play a role in at least 30% of dermatological patients (Gupta and Gupta, 2003). In addition, dermatosis seems to have psychological consequences (Rubinow et al., 1987). Skin diseases, beyond the cosmetic concerns, may lead to anxiety, depression,

or other psychological problems to the same degree as illnesses like arthritis, which may lead to disability. In such cases, various factors concerning the patient and illness, such as gender, age, and lesion localization, play a role (Barankin and DeKoven, 2002).

Acne is a chronic inflammatory disease characterized by lesions, such as pilosebaceous gland comedones, papules, pustules, and nodules. Generally it begins during adolescence and regresses during the mid 20s, when it is more frequent and severe in males (Aktan et al., 2000). Almost 85% of adolescents and young adults are somehow affected by it (Hanna et al., 2003).

Among the skin diseases, acne is the most frequently encountered, and the relationship between acne and psychology has been investigated for a very long time. As emotional stress can exacerbate acne, patients may experience psychological and psychiatric problems as a result of having acne (Koo and Smith, 1991). The importance attributed to the theories about the place of psychogenic factors in the pathogenesis of acne is gradually decreasing. On the other hand, the extent of the effect of acne on patient emotional wellbeing is still an investigation topic, though research results are inconsistent (van der Meeren et al., 1985).

The psychiatric problems that are reported to be related to acne are: Decreased general wellbeing and self-esteem, a disturbance in body perception, shyness, fear of rejection, social avoidance/withdrawal, anger, restrictions in life style, family problems, concerned thoughts related to acne, depression, and anxiety (Aktan et al., 2000; Hanna et al., 2003; Kellet and Gawkrödger, 1999; Rubinow et al., 1987). In previous studies students with acne stated that they do not receive enough invitations to parties, that they do not enjoy being among other people, and they think that people look at them (van der Meeren et al., 1985). In patients with body lesions there arises fear of physical contact, avoidance of swimming and sports, sleeping disorders, and the like (Rubinow et al., 1987). In addition, other studies report psychological symptoms below the clinical level (Kaymak et al., 2006).

The appearance of acne during adolescence/puberty, a time when social and physical changes occur at the maximum level, and identity formation is at stake, brings this disease to the focus of concerns; therefore, it effects patient intrapersonal relationships, self-evaluation, and daily performance (Hanna et al., 2003; Khan et al., 2001; Rubinow et al., 1987). In fact, the effect of lesions on visible parts of the body, the effect of deformations and involuntary movements on the body image and the level of social anxiety are not only critically important to adolescents, they are also important to adults and were also reported in patients with Parkinson's disease, muscle dysfunctions, polio sequelae, disabilities as result of accidents, psoriasis, and hemi facial spasm (Montgomery 1995; Oberlanger et al., 1994; Özgüven et al., 2000; Özel-Kızıl et al., 2006).

In acne and other skin diseases, it was reported that psychiatric morbidity is due to the effect of the skin disease on patient quality of life, rather than the severity evaluation by the clinician. For this reason, it is advised to determine the psychopathology that accompanies the illness

and to provide treatment by taking into consideration the psychological and social factors along with the primary dermatological factors (Gupta and Gupta, 2003).

Although there are many studies that discuss the psychological problems and psychiatric symptoms that result from acne, social anxiety and related factors have not been studied sufficiently. Acne vulgaris is an illness of adolescence. In consideration of the importance of body image during adolescence and the cosmetic problems that this illness may cause, it is clear that the level social anxiety should be studied in acne patients. The aim of this study was to determine the level of social anxiety in acne patients and to examine its relationship to sociodemographics, clinical features, depression symptoms, self-esteem, and negative automatic thoughts.

METHOD

Sampling

Between May 2002 and March 2004, all acne patients that presented to the dermatology outpatient unit of a university hospital were briefly informed about this study. In all, 83 patients met the study's inclusion criterion and agreed to participate. The study criteria were as follows: Minimum of a primary school education, definitive acne diagnosis, no other illnesses (including psychiatric), and no history of head trauma or convulsion. A control group was composed of 58 healthy sociodemographically- age- and gender-match participants. These people did not have acne or any other illnesses, and did not have a history of head trauma or convulsion. The sociodemographic characteristics of the patient and control groups are presented in Table I. There were significant differences between the sociodemographic variables of the 2 groups.

Tools

Sociodemographic and clinical questionnaires, and the Global Acne Grading Scale (GAGS), Hospital Anxiety and Depression Scale (HADS), Liebowitz Social Anxiety Scale (LSAS), Rosenberg Self-Esteem Scale (RSES), and Automatic Thoughts Scale (ATS) were administered to the patient and control groups.

The sociodemographic and clinical questionnaires collected data on the sociodemographic characteristics of the patients (age, gender, level of education, marital status, and occupation) and acne (localization, chronicity, and severity), acne treatment, and the patients' subjective evaluations of the severity of their acne.

Table I. Sociodemographic characteristics of the sample (t-test, chi-square test).

	Patient (n = 83)	Control (n = 58)	
Age	21.8 ± 5.1	23.1 ± 5.6	t = 1.43
mean ± SD (range)	(15-40)	(15-40)	
Total education duration (years)	12.4 ± 2.6	13.2 ± 2.5	t = 1.79
mean ± SD (range)	(5-16)	(5-16)	
Gender			Chi square = 0.1
female	47 (56.6%)	33 (56.9%)	
male	36 (43.4%)	25 (43.1%)	
Marital status			Chi square = 1.4
married	7 (8.4%)	7 (12.1%)	
single	76 (91.6%)	51 (87.9%)	
Occupational status			Chi square=0.4
student	53 (63.9%)	38 (65.5%)	
unemployed	2 (2.4%)	1 (1.7%)	
employed	30 (36.1%)	20 (34.5%)	

GAGS was developed by Doshi et al. (1997) for determining the severity of acne. The intensity, and the distribution of pilosebaceous units are evaluated on total 6 localities (face/forehead, left and right cheeks, nose, and chin, chest, and upper back), and patients are given global acne scores between 0 and 44. A patient's acne is evaluated as follows: No acne (0 points), mild severity (1-18 points), moderate severity (19-30 points), severe (31-38 points), and very severe (> 39 points). Acne locality, on the other hand, is evaluated in 3 classes: mostly the face, mostly the body, and equally distributed on the face and body. The sociodemographic and clinical questionnaires have a visual analogue evaluation scale (10-cm long analogue evaluation rulers divided into 10 equal degrees) for patients to evaluate their acne severity on a scale of 0 to 10. Patients are asked to rate their acne severity from 0 (I do not have acne) to 10 (my acne is very severe) as they are presented on the scale.

HADS is a Likert-type self-evaluation scale. It consists of 14 items; 7 investigate depression symptoms and 7 investigate anxiety symptoms. The scale is a scan test in which anxiety and depression are scanned in a short time to diagnose the level of risk in physically ill patients. The scale was developed by Zigmond and Snaith (1983), and the validity and reliability of the Turkish version were determined by Aydemir (1997) and Özgüven et al. (1997). The cut-off point for the anxiety subscale is a score of 10, and for the depression subscale it is 7.

LSAS is a Likert-type self-evaluation test composed

of 24 questions. It measures anxiety and avoidance/withdrawal that appear in various social situations. It is composed of 2 subscales; the first measures the level of anxiety that arises in social settings and the second measures the severity of avoidance/withdrawal behavior. Subscale total score ranges from 0 to 72 and total scale score ranges between 0 and 144. Higher scores indicate greater severity of social anxiety and avoidance/withdrawal. The recommended cut-off point for each subscale is a score of 25 and for total test a score of 50 points. The scale was developed by Liebowitz (1987); its validity and reliability were determined by Heimberg et al. (1999), and the validity and reliability of the Turkish form was determined by Soykan et al. (2003).

RSES is a Likert-type self-evaluation test composed of 10 questions, which was developed by Rosenberg (1965). The first 10 items are used to evaluate self-esteem. The validity and reliability of the Turkish version were reported by Çuhadaroğlu (1986). A point total on the first 10 questions of 0-1 indicates that self-esteem is high, 2-4 is moderate, and 5-6 is low.

ATS was developed by Hollan and Kendall (1980) for objectively diagnosing the frequency of depressive automatic thoughts in patients. It is a Likert-type self-evaluation scale composed of 30 items. Scores range from 30 to 150 and higher scores indicate higher levels of depressive automatic thoughts. The validity and reliability of the Turkish version were determined by Aydın and Aydın (1990), and Şahin and Şahin (1992).

Table II. Clinical characteristics of the acne patients (t-test, chi-square test).

	Female (n = 47)	Male (n = 36)	
Acne Localization			
Mostly on the face	40 (85.1%)	27 (75.0%)	Chi square = 1.4
Mostly on the body	5 (10.6%)	6 (16.7%)	AD
Equally distributed	2 (4.3%)	3 (8.3%)	
Global acne points	22.6 ± 7.6	24.8 ± 7.1	t = 1.32
mean ± SD (range)	(8-41)	(9-39)	NS
Acne severity			
Mild	17 (36.2%)	7 (19.4%)	Chi square = 3.45
Moderate	19 (40.4%)	17 (47.2%)	NS
Severe	8 (17.0%)	7 (19.4%)	
Very severe	3 (6.4%)	5 (13.9%)	
Patient's subjective acne severity evaluation (0-10)	7.1 ± 2.1	7.1 ± 1.8	t = 0.13
mean ± SD (range)	(3-10)	(3-10)	NS
Acne chronicity (years)	5.7 ± 4.6	4.1 ± 2.4	t = 2.04*
mean ± SD (range)	(0.5-25)	(1-14)	

NS: Not significant

*P < 0.05

PROCEDURE

All patients that presented to the dermatology outpatient unit with acne were informed about the study, and those that met the study's inclusion criteria and agreed to participate were given a dermatological examination the same day by the second author. In this examination clinical variables, such as the severity of acne, acne localization, and the patient's subjective evaluation of the severity, were evaluated. Following this, research forms and scales were administered to the patients within 2 days by the first author. Interviewing and administration of the scales took an average of 30 min.

Analysis

The findings were analyzed with SPSS v.11.0 for Windows. For comparison between independent groups, t-test and unidirectional variant analysis were used. For the categorical variants, chi-square test was used and for determining the relationship between constant variables, Pearson's correlation coefficient was used. The level of statistical significance was $P = 0.05$.

EVIDENCE

The clinical characteristics of the acne patients are

presented in Table II. In almost 75% of the patients, acne localization was on the face, 50% the patients' clinical acne severity was moderate, and in almost 25% of the patients severity was severe. In their subjective acne severity evaluations, the patients reported their acne to be more severe (average 22 out of 40) than the doctor did and they were given 7 out of 10 points, which may be considered severe. In all, regarding these clinical variables there were no differences between the male and female patients. Acne chronicity was approximately 6 years in females and 4 years in males; the difference in chronicity was significant.

The average patient and control scores on the psychiatric scales, and the results of their comparisons are presented in Table III. As seen in the table, patients received higher, statistically meaningful results when compared to the control group. Among the patients, 25.6%, 32.9%, 27.7%, 36.1%, 30.1%, and 50.6% scored above the cut-off point of LSAS, LSAS-Anxiety Subscale, LSAS-Avoidance Subscale, HADS, HADS-Depression Subscale, and HADS-Anxiety Subscale, respectively.

There were no significant differences between the scores of the male and female patients. There were also no significant differences between the 3 patient localiza-

Table III. Comparison of the patient and control groups' scale scores (t-test).

	Patient (n = 83)	Control (n = 58)	t
LSAS/Social Anxiety mean ± SD (range)	20.5 ± 11.7 (1-53)	13.9 ± 11.1 (1-43)	3.35**
LSAS/Social Avoidance/Withdrawal mean ± SD (range)	18.7 ± 12.2 (0-50)	13.3 ± 9.9 (0-38)	2.78**
LSAS/Sum Mean ± SD (range)	38.0 ± 23.1 (3-103)	27.2 ± 20.0 (1-75)	3.12**
ATS mean ± SD (range)	57.8 ± 22.5 (30-138)	42.6.2 ± 13.6 (30-85)	4.99***
RSES mean ± SD (range)	3.4 ± 1.5 (0-6)	1.02 ± 1.22 (0-5)	10.358***
HADS/Depression mean ± SD (range)	6.0 ± 3.3 (0-15)	4.8 ± 2.3 (0-10)	2.54*
HADS/Anxiety mean ± SD (range)	7.7 ± 4.1 (1-18)	4.7 ± 2.7 (0-13)	5.21***
HADS /Sum mean ± SD (range)	13.8 ± 6.7 (2-30)	9.6 ± 4.3 (0-21)	4.52***

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

LSAS: Liebowitz Social Anxiety Scale; ATS: Automatic Thoughts Scale; RSES: Rosenberg Self Esteem Scale; HADS: Hospital Anxiety and Depression Scale.

tion groups (face, body, and equal distribution) regarding scale scores.

The relationship between high scores, and sociodemographic and clinical variables was investigated via Pearson's correlation analysis and the results are presented in Table IV. Duration of acne increased with age ($p \leq 0.001$) and acne severity decreased with age ($p \leq 0.05$). As age increased, social anxiety subscale scores decreased ($p \leq 0.05$). Level of education had a negative correlation with all scale scores. The objective acne severity evaluations of the doctor were related to the subjective acne severity evaluations ($p \leq 0.01$); however, a significant relationship was not found between the subjective evaluations of the patients, and their age, level of education, or psychological symptoms. When the interrelationship of the scale scores was investigated, all the scales were correlated, except RSES ($p \leq 0.01$).

The interrelationship of scale scores and their relationship to sociodemographic variables were also analyzed in the control group. Although the scales demonstrated significant correlations, age and level of education of the healthy individuals, in contrast to the patient group, were found to be related to the scale scores.

DISCUSSION

In this study the difference between acne patients and healthy controls, in terms of social anxiety, social avoidance/withdrawal, general anxiety, depression, negative automatic thoughts, and low self-esteem, and the

sociodemographic factors that might have an effect on such symptoms was investigated.

Previous studies found that acne was related to shyness and social inhibition, decreased self-esteem and self confidence, disruption in body perception, suicidal ideation, somatic symptoms, anxiety, and depression, and that the effective treatment of acne leads to recovery from such symptoms (Ferahbaş et al., 2004; Kellet and Gawkrödger, 1999; Khan et al., 2001; Rubinow et al., 1987; Tan, 2004; Thomas, 2004; van der Meeren et al., 1985).

In contrast, some studies reported that anxiety and depression levels do not change in acne patients (Aktan et al., 2000; Myhill et al., 1988).

Our study supports those studies that reported an increase in psychiatric morbidity in acne patients. In our acne patients, social anxiety, social avoidance/withdrawal, general anxiety, depression, and negative automatic thoughts were high, whereas self-esteem was low when compared to the control group. However, based on our investigation of the sociodemographic and clinical risk factors that may have an effect on such psychological symptoms, the only variable that was related was patient age. As patient age decreased, the severity of psychological symptoms increased. Considering that adolescence is a period marked by intensive preoccupation with body image and related worries, while at the same time it is a period of limited coping ability, the relationship between age and psychological symptoms was not surprising.

Table IV. The relationship of patient scale scores to sociodemographic and clinical variables, and among themselves (Pearson's correlation analysis).

	Education	Chronicity	GAS	PSASE	LSAS/ Sosyal Kaygı	LSAS/ Social Anxiety	LSAS/Sum	ATS	RSES	HADS/ Depression	HADS/ Anxiety	HADS/ Sum
Age	0.334**	0.676***	-0.216*	-0.034	-0.222*	-0.189	-0.205	-0.101	-0.007	0.152	0.193	0.044
Education		0.421**	-0.208	0.051	-0.352**	-0.311**	-0.338**	-0.333**	-0.250*	-0.111	-0.312**	-0.247
Chronicity			-0.040	0.124	-0.128	-0.099	-0.109	-0.099	-0.078	0.172	-0.081	0.035
GAS				0.342**	0.158	0.194	0.164	0.067	0.122	0.168	0.034	0.104
PSASE					0.003	0.038	0.006	-0.063	-0.093	0.039	-0.044	-0.008
LSAS/Social Anxiety						0.891**	0.972**	0.583**	0.156	0.364**	0.642**	0.575**
LSAS/Social Avoidance/ With drawal							0.973**	0.489**	0.058	0.407**	0.559**	0.545**
LSAS/Sum								0.560**	0.106	0.397**	0.626**	0.581**
ATS									0.062	0.596**	0.753**	0.758**
RSES										-0.097	-0.005	-0.051
HADS/ Depression											0.619**	0.875**
HADS/ Anxiety												0.922**

*P < 0.05, **P < 0.01, ***P < 0.001.

GAS: Global Acne Score; PSASE: Patient's Subjective Acne Severity Evaluation; LSAS: Liebowitz Social Anxiety Scale; ATS: Automatic Thoughts Scale; RSES: Rosenberg Self-Esteem Scale; HADS: Hospital Anxiety and Depression Scale.

In the present study it was observed that as the level of education decreased, the level of psychological symptoms increased. This may have been due to the patients' inability to deal with such problems and lower level problem-solving skill, which could be the result of less education. In contrast to our hypothesis, the psychological symptoms experienced by the patients were not related to acne severity.

Most studies of the relationship between acne and psychiatric morbidity have been conducted with severe and cystic acne patients; however, most clinical acne patients have acne of mild or moderate severity. Gupta et al. (1990) reported that all 10 of their acne patients with mild-moderate severity recovered psychologically after acne treatment. Their levels of shyness decreased, they were more satisfied with their general appearance, and their body perceptions were more positive. The patients included in our study reflected the clinical population in this sense, and showed that for acne to lead to psychological problems it need not be severe. This may be why a relationship between psychological symptoms acne severity was not found. Mild-moderate acne severity also

leads to important levels of stress and anxiety, and these patients, as much as the patients with more severe acne, may also experience social anxiety and other psychological problems (Gupta et al., 1990).

With regards to some of the previous studies, it is thought that the lack of a control group or an insufficient number of participants in the control group and evaluations made by the dermatologist rather than subjective evaluations of the patient may lead to inconsistent results. Although a clinician's evaluation is objective and more precise and valuable, the self-perception of a patient has a greater affect on his/her psychological condition, behavior, and personal characteristics. Wu et al. (1988) found that patient self-evaluations of acne and dermatologist evaluations were only 60% compatible. In this study the patients diagnosed with severe acne were reported to have higher levels of anxiety compared to the mild acne patients and control group. In another study it was reported that patients evaluate the severity level of acne, especially when localized on the face, higher than clinicians (Kellet and Gawkrödger, 1999). In the present study, the subjective evaluations of the patients and the

objective evaluations of the clinicians were related; however, the patient self-evaluation scores were much higher than the objective acne scores. Patients perceived their acne as more severe than it actually was; however, as with the objective evaluations there wasn't a significant relationship between their subjective evaluations and psychological symptoms.

Aktan et al. (2000), and Kellet and Gawkrödger (1999) set forth that the psychological effects of acne are encountered more by women than men; however, in our study there wasn't a significant difference between the male and female patients in terms of the studied psychological parameters. This finding may have been due to the fact that most of our patients were adolescents. As it is known, body image and appearance is very important to adolescents, not only to females but also to males, and this period is very difficult for both genders.

When acne localizes primarily on the face, it has a greater effect on psychological functioning. When it is on the back or the chest, because it can be covered with clothing, it causes less distress. It was reported that after recovery, patients that had acne localized on the face experienced significant positive changes in depression and anxiety, whereas patients with acne localized on the body experienced less of a degree of change (Kellet and Gawkrödger, 1999; Rubinow et al., 1987). In our study most of the patients (80%) had facial acne localization; however, there wasn't a significant relationship between acne localization and psychiatric scores.

Studies have been conducted to determine if psychological symptoms in acne patients are different than the symptoms reported in patients with other dermatological and non-dermatological illnesses. Gupta and Gupta (1998a) reported that patients with acne have higher scores for depression when compared to alopecia, atopic dermatitis, and psoriasis patients. Kellet and Gawkrödger (1999) reported that patients with acne have greater levels of emotional stress and anxiety than patients with general dermatological illnesses, cancer, and psoriasis, and less than psychiatric patients. On the other hand, Mallon et al. (1999) reported psychological scores of acne patients that were lower than those of patients with epilepsy, diabetes, asthma, and coronary artery disease. The shortcoming of our study is the lack of a control group including patients with other dermatological illness with non-visible lesions, in addition to the normal control group.

Although the patients in the study had mildly severe acne, an advantage in terms of resembling the clinical

population, it may have had an effect, due to not being representative of patients with severe acne, on determining the risk factors regarding social anxiety. The lack of research into the relationship between such factors as personal characteristics, rejection experiences, and social anxiety, is another limitation of the study. Moreover, for the psychiatric evaluations, standardized evaluation tools were not administered to the patients. It would have been more useful for investigating psychiatric morbidity to use standard interview tools, such as SCID.

Another important point of related studies is that in the evaluation of the psychosocial effects of acne, standardized psychometric scales may be insufficient and psychometric methods capable of measuring all psychosocial effects of acne are needed. Lately, life standard scales have been added to the clinical classification used in the evaluation of acne treatment (Klassen et al., 2000). Gupta et al. (1998b) developed a 12-item life standard test for use with mild and moderate severity level patients, which includes acne-specific social and occupational life standard subscales sensitive to psychosocial morbidity.

As a result, acne vulgaris is an illness with the potential to cause important psychological and psychiatric complications, and to negatively affect quality of life. In the present study patients with acne vulgaris had high depression and anxiety levels, intense social anxiety and social avoidance/withdrawal symptoms, and low self-esteem. These findings were not related to acne severity, but to younger age and lower level of education. This outcome suggests that psychological support, in addition to proper acne treatment, would help in eliminating the social and individual distress caused by the lack of social and problem-solving skills associated with both adolescence and low-level education, and by acne itself. In many studies, it was shown that acne has a negative effect on the psychological state of patients more than many other chronic illnesses. Age, level of education, social and cultural factors, personality traits, self-perception, and some conditions of the illness (duration, severity, localization place, formation of scar) are correlated. Acne's appearance during adolescence, a period when frequent, intensive social and physical changes are observed, identity formation is taking place, and chronic psychological dysfunction may develop, highlights the importance of preventing such complications. Therefore, acne should be considered as an illness to the same degree as other dermatological illnesses are, with a potential to significantly disrupt the psychological and emotional functioning of patients. Psychiatric evaluations and psychological support should be a part of the acne treatment plan.

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