Acne is one of the most common dermatological diseases, and obsessive compulsive disorder is among the most frequent psychiatric conditions seen in dermatology clinics. Comorbidity of these conditions may therefore be expected. The aim of this study was to measure obsessive compulsive symptoms and quality of life in patients with acne vulgaris, compare them with those of healthy control subjects, and determine whether there is any predictive value of obsessive compulsive symptoms for quality of life in patients with acne. Obsessive compulsive symptoms and quality of life measurements of 146 patients with acne vulgaris and 94 healthy control subjects were made using the Maudsley Obsessive Compulsive Questionnaire and Short Form-36 in a cross-sectional design. Patients with acne vulgaris had lower scores for physical functioning, physical role dysfunction, general health perception, vitality, and emotional role dysfunction. They also had higher scores for checking, slowness, and rumination. The only predictor of physical functioning and vitality dimensions of health-related quality of life in these patients was rumination score. Obsessive compulsive symptoms in patients with acne vulgaris are higher than in controls, and this may correlate with both disease severity and quality of life for patients.

Key words: acne vulgaris; excessive cleaning; obsessive compulsive symptoms; quality of life; rumination.

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Acne is a common dermatological disorder mainly affecting adolescents, but which also affects the adult population to some extent (1). Although acne is not physically debilitating, it may have a severe effect on social and psychological functioning (2). Various psychiatric conditions, such as anxiety, depression, lowered self-esteem, and reduced quality of life (QoL), have been reported in patients with acne (3–6).

Obsessive compulsive disorder (OCD) is a common psychiatric illness with a prevalence of 1–2%, characterized by obsessions, compulsions, or both, which cause significant psychological distress or disability (7). Obsessions/compulsions are thought to be among the most commonly encountered types of psychopathological conditions accompanying dermatological diseases (8); 2 previous studies reported the rate of Diagnostic and Statistical Manual of Mental Disorders (DSM) diagnoses of OCD to be 20% and 24.7% among patients admitted to dermatology outpatient clinics (9, 10). In another study, compulsions involving the skin were listed among the more frequently encountered problems in patients who visited dermatology clinics (11).

Acne is one of the most frequent dermatological diseases seen in dermatology clinics, and OCD is among the most frequent psychiatric conditions seen in dermatology clinics (12). Thus, comorbidity of these conditions may be expected in daily clinical practice. Studies have shown associations between acne and obsessions/compulsions (12–17). A compulsive urge to manipulate the skin has been reported in patients with acne excoriée (14, 18). Increased psychopathology may become both a result, as well as a partial cause, of persisting acne in these patients, and a vicious cycle may develop. In addition to compulsion to excoriate among patients with acne, they may also have obsessive thoughts about the oiliness of their faces.

Although some aspects of OCD seen in dermatological diseases, including acne excoriée, have been studied previously, to the best of our knowledge the association between obsessive compulsive symptoms and QoL in patients with acne vulgaris has not yet been studied thoroughly. The aims of this study were to measure obsessive compulsive symptoms and QoL in patients with acne vulgaris and compare the results with those for healthy control subjects.

MATERIALS AND METHODS

Subjects
Among the admissions to dermatology outpatient clinic of Silvan State Hospital located in southeastern part of Turkey 146 consecutive patients with acne vulgaris who agreed to participate and gave informed consent were included in the study. The study period was between January 2010 and November 2010. Inclusion criteria for patients diagnosed with acne vulgaris were: age over 15 years; educated to at least primary school level; not taking any medication; and willingness to...
participate in the study. Patients were excluded if they had any other dermatological disorder or medical disease that might cause psychological distress.

The healthy control group in this study comprised 94 age- and sex-matched subjects who were close relatives of the patients with acne, and who reported having no dermatological symptoms or other diseases. Control subjects also gave informed consent to participate in the study.

**RESULTS**

The mean age of the 146 patients with acne vulgaris was 20.5 ± 4.7 years (range 15–38 years; 70 males [47.9%], 76 females [52.1%]). In this group 128 (87.7%) patients were single and 18 (12.3%) patients were married. Their mean duration of education was 11.6 ± 2.8 years, starting from 7 years of age. The mean duration of acne was 47.3 ± 37.5 months (range 1–168 months). Mean acne severity, determined by GAGS, was 14.8 ± 7.2 (range 4–32).

The healthy control group comprised 94 subjects, mean age 20.9 ± 5.1 years (range 15–32 years; 43 males [45.7%], 51 females [54.3%]). In the control group 76 (81%) subjects were single and 18 (19%) subjects were married. Their mean duration of education was 11.5 ± 3.0 years.

None of the above demographic variables showed any statistically significant difference between the acne vulgaris group and the control group.

The mean scores of psychiatric measurements (MOCQ and HADS) and health-related quality of life (SF-36) of the patients with acne vulgaris and control subjects are shown in Table I. There was no significant difference between the acne vulgaris group and the control group.

### Statistical analysis

Statistical analysis was carried out using the Statistical Package for Social Sciences 11.5 (SPSS 11.5) software. Student’s t-test was used for the comparison of continuous variables, and χ²-test for the comparison of categorical variables. Pearson correlation analysis was used in the evaluation of the correlation between scores of the different scales and other relevant variables. Demographic and clinical variables that were likely to influence disability were assessed by multiple linear regression analysis.

### Procedure

An interview form prepared by the authors was used to collect data on the demographic and clinical features of both groups. All patients underwent a complete dermatological examination and completed the GAGS. All participants also completed a global measure of anxiety and depression (HADS), an inventory measuring obsessions and compulsions (MOCQ), and a quality of life scale (SF-36).
Correlations between acne duration, global acne grading score, quality of life dimensions, and obsessive compulsive symptoms in patients with acne vulgaris

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*p<0.05, **p<0.01.

DISCUSSION

OCD has been reported to be the second most common psychiatric disorder in dermatology clinics, following depression (29). Compulsions involving the skin have been reported to be among the more frequently encountered problems in patients visiting dermatology clinics. They have also been reported to reflect an underlying OCD in dermatology patients. For example, Fineberg et al. (9) reported a DSM diagnosis of OCD in 20% of 92 consecutive dermatology referrals and concluded any dimension of QoL. Acne duration was negatively correlated with cleaning score in MOCQ. All dimensions of the SF-36 were negatively correlated with rumination level measured with the MOCQ. Negative correlations were also present between general health perception dimension and slowness, vitality dimension and both slowness and doubting. On the other hand, physical and emotional role functioning dimensions were both negatively correlated with all dimensions of the MOCQ. In addition, education level was positively correlated with all dimensions of QoL expect bodily pain and social functioning.

In this study, as shown in Table I, some dimensions of QoL, including physical functioning, physical role difficulty, general health perception, vitality, and emotional role difficulty, were poorer in patients with acne vulgaris. Multiple linear regression models were constructed for those dimensions of QoL that included each of these QoL dimensions as dependent variables separately. Age, duration of education, acne duration and severity, total score and sub-scores of HADS, gender, marital status, and scores obtained from all dimensions of MOCQ have been introduced into these regression models as independent variables. Among the generated models only two models, those tested independent predictors of physical functioning and vitality, were significant (F = 2.412, R = 0.392, R² = 0.151, adjusted R² = 0.90, p = 0.011 for physical functioning; F = 3.712, R = 0.488, R² = 0.238, adjusted R² = 0.174, p < 0.001 for vitality). Rumination score was found to be the only predictor of both dimensions of quality of life in patients with acne vulgaris (β = −3.734 p = 0.001; β = −2.077 p = 0.027, respectively).
that there was a high prevalence of clinically relevant OCD in dermatology patients. In addition, Demet et al. (10) reported a diagnosis of OCD in 24.7% of 166 patients admitted to a dermatology outpatient clinic. It is perhaps important to note that, in their study, 43.9% of patients with OCD also had sebaceous gland diseases including acne as the most common type. In our study, the higher levels of checking, slowness, and rumination, found in patients with acne vulgaris, appear to be consistent with the results of the above-mentioned studies, which reported increased frequency of OCD in dermatology clinics. Further support for this suggestion comes from some recent molecular studies showing the involvement of cytokines and corticotropin-releasing hormone in the pathophysiology of acne, factors which are known to play a role in many psychiatric conditions, such as anxiety and depression (30–32).

Many patients experience emotional sequelae of having a disfiguring skin disease (33). Thus, acne vulgaris may account for the high level of obsessive compulsive symptomatology in our study population. In addition, patients with acne may have thoughts or urges related to excessive picking or scratching of their normal skin or skin with minimal surface texture irregularities (33, 34). In addition to the compulsion to excoriate among patients with acne, there is also a common view that they may have obsessive thoughts about the oiliness of their faces. The negative correlation between duration of acne and cleaning score shown in patients with acne vulgaris supports this view, given the fact that patients may be habituated to their feelings of greasiness over time. The high rumination score found in patients with acne vulgaris in our study may be related to the compulsion to excoriate surface texture irregularities on their skin or to obsessive thoughts about their appearance. Thus, one may expect high scores for checking and slowness in these patients as they are thought to be preoccupied with their appearance. On the other hand, studies have reported an underlying depressive disorder in patients with acne who are excessively preoccupied with their skin (12). However, the similar levels of depression in patients with acne vulgaris and healthy control subjects in our study, as determined by HADS, greatly reduces the probability of the existence of underlying depression in patients with acne vulgaris.

Numerous studies have reported a significant decrease in QoL in patients with acne (3, 35–38). The results of the present study, showing decreased physical functioning, physical role dysfunction, general health perception, vitality, emotional role dysfunction scores in patients with acne vulgaris reinforce those of previous studies (36–38). For example, in a recent study of 454 patients with acne, the same dimensions of QoL, except general health perception, were also reported to be below 60% (36). The results of studies on the relationship between QoL and the duration and severity of illness, and gender, are extremely variable and inconsistent (38). In our study, there were no correlations between duration and severity of acne, and QoL. In addition, any gender difference was not observed in terms of QoL dimensions.

Some psychiatric symptoms, such as anxiety and depression, are well-known factors associated with QoL in patients with acne (39–41). However, to the best of our knowledge the relationship between obsessive compulsive symptomatology and health-related QoL has not been reported previously. According to our findings, worse physical and emotional role functioning are associated with an increase in obsessive compulsive symptoms. Furthermore, increased rumination in patients with acne vulgaris was negatively correlated with worse QoL in all dimensions. Slowness and doubting were also associated with poorer vitality, whereas slowness alone was correlated with worse general health perception. Given our findings, one may conclude that obsessive compulsive symptoms are closely associated with QoL in patients with acne vulgaris. Regression analysis concluded that the QoL dimensions physical functioning and vitality in these patients were predicted only by their reported rumination level. Thus, obsessive compulsive symptoms, at least rumination, may account for the deterioration in QoL experienced by patients with acne vulgaris.

This study has some limitations. First, to assess the obsessive compulsive symptoms, a scale rated by clinicians would be more appropriate. In addition, identifying the frequency of OCD in addition to its severity would provide further information about its comorbidity with acne vulgaris. Secondly, it would be better to assess QoL with a scale more specific to patients with acne vulgaris rather than using the SF-36, which is a general health-related QoL measure. However, to assess associations between obsessive compulsive symptoms and QoL might not be possible if a scale specific for acne were used. Thirdly, we studied the obsessive compulsive symptoms of patients with acne vulgaris who live in a very small area of Turkey, and these results may not be applicable to a wider population.

In conclusion, the severity of obsessive compulsive symptoms may be greater in patients with acne vulgaris than in healthy control subjects and may correlate with QoL. This relationship should be taken into account by clinicians, in order to provide better healthcare, referral and treatment for patients with acne vulgaris.

REFERENCES
