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The Development of an Acne Quality of Life Scale: Reliability, Validity, and Relation to Subjective Acne Severity in Mild to Moderate Acne Vulgaris

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We developed a disease-specific 9-item Acne Quality of Life scale that is sensitive to changes in patient-rated indices of acne severity and the psychological morbidity that is associated with acne. Seventy patients with mild to moderate acne vulgaris completed a 12-item scale that was developed to assess both the social and vocational impacts of acne. Factor analysis revealed the presence of two dimensions underlying the quality of life construct. The first dimension consisted of 9 items and addressed the social impact of acne, while the second dimension consisted of 3 items and addressed the vocational impact of acne. Only the first dimension correlated with indices of acne severity, such as pustules and scarring, and all 3 scales correlated with a wide range of psychopathologic measures. The 9-item scale had a very high degree of internal consistency and test-retest reliability. This 9-item scale may be used to evaluate the relation between acne severity and quality of life, especially among mildly to moderately affected patients for whom quality of life issues are often a major consideration in deciding whether or not to institute therapies for the acne. ***Key words: social; vocational; factor analysis; mental disorder.***

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The impact of acne upon the quality of life is a very important component of the overall morbidity associated with acne, and often is the primary consideration in deciding whether or not to institute therapies, especially in cases of patients with mild to moderate acne vulgaris. There is a debate in the literature about what constitutes quality of life, with some focusing mainly on the biomedical aspects of the disease and others emphasizing a broader approach that seeks to open up dialogue between the clinician and the patient (1). This debate has culminated in three main approaches to the measurement of quality of life (1):

1. The health-related quality of life approach, which utilizes mainly function-based measures. The patients are typically asked to rate the presence or absence of physical symptoms and their capacity to function in a manner that is consistent with their social role and age.
2. The needs-based approach, which is based on the premise that enhancement of quality of life is dependent on an individual's capacity to meet his or her needs. For example, socialization, employment and hobbies are important only insofar as they fulfil the individual's needs.
3. The individualistic approach, which allows patients to describe their lives in terms of the factors that they consider most important. The individual's "life plan" is taken into consideration; certain desirable factors, such as intelligence and good health, are believed to enhance this life plan, whereas factors such as ill health and pain can hinder its advancement.

Motley & Finlay (2) were the first to publish an instrument, the Acne Disability Index (ADI) that measures the impact of acne upon the quality of life and includes several function-based health-related quality of life measures (2). They subsequently described the Cardiff Acne Disability Index (CADI) (3), which was based on 5 items of the ADI (2). The 10-item ADI correlated with acne severity in the initial study (2); however, in subsequent reports some of the 5 items of the CADI (3) and not the 10-item ADI (2) correlated with measures of acne severity. There has been some variability (4, 5) in the items of the CADI that correlated with acne severity, possibly because only single items were employed, hence resulting in decreased reliability between studies. In another study of patients with mild to moderate acne (6), Girman et al. present a 24-item scale which addressed various psychosocial factors. However, scores on this scale did not distinguish between patients with mild, moderate and severe acne. One major contributing factor to this apparent lack of correlation between acne severity measures and quality of life measures is the observation that in acne, the degree of severity does not necessarily reflect the degree of overall disability experienced by the patient (4, 5, 7). This may be one reason why function-based measures have not been consistently sensitive to changes in acne severity.

As a follow-up to these existing scales (2, 3, 6), we developed an Acne Quality of Life scale that utilizes a mainly needs-based approach, and, to a lesser degree, an individualistic approach. The areas of quality of life that are affected most markedly in acne include the patient's psychological, social and occupational functioning (7 – 14). We therefore developed a scale that addressed both the social and vocational aspects of quality of life. In addition, we examined empirically the nature of the constructs underlying the impact of acne upon quality of life by using exploratory factor analysis. We examined the relation of the factor scores to dermatological severity and to a wide range of psychological measures. This was done to assess both the construct validity of our scale and in order to understand better the basis for the finding that acne severity does not correlate consistently with global quality of life measures (4, 5). The purpose of our study was to develop a disease-specific quality of life scale for acne that was sensitive to changes in both acne severity and the psychological morbidity associated with acne. Furthermore, the scale was developed among patients with mild to moderate acne vulgaris rather than more severely affected patients, because consideration of quality of

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Table I. *Demographic and patient-rated dermatological characteristics of the study patients.*

Characteristic	Description
Age (years; mean ± SD)	23.7 ± 6.8
Gender	
Men	14
Women	56
Marital status	
Single	71.4%
Married	25.7%
Separated or divorced	2.8%
Occupation	
Students	62.5%
Unemployed	4.2%
Manual labourers	1.4%
Clerical	9.7%
Technical	9.7%
Professional	8.3%
Information missing	4.2%
Race	
White	75%
Black	8.3%
Oriental	8.3%
Other	8.3%
Extent to which individual body regions were affected (rated on 10-point scale: 0 = not at all, 9 = very markedly; mean ± SD score)	
Face	4.7 ± 2.1
Front of neck	1.4 ± 2.2
Back of neck	0.86 ± 1.57
Shoulders	2.2 ± 2.2
Chest	2.0 ± 2.1
Upper back	2.9 ± 2.7
Lower back	1.7 ± 2.4
Individual patient-rated indices of acne severity (rated on 10-point scale: 0 = not at all, 9 = very markedly; mean ± SD score)	
Number of acne pimples	4.1 ± 2.8
Redness or inflammation of the skin due to acne	3.1 ± 2.9
Acne pustules or pus-filled pimples	1.8 ± 2.2
Scarring from the acne or "pitting"	2.7 ± 2.8
Excessive oiliness of the skin	4.0 ± 2.7
Overall flushing or redness of the skin affected by acne	2.8 ± 2.6

life issues becomes more important when making treatment decisions for the less severely affected subgroup of acne patients.

METHODS

This cross-sectional survey examined the responses of a sample of mildly to moderately affected acne patients who completed a battery of questionnaires as part of a larger study of psychosocial factors in acne (15, 16). One hundred consecutive consenting outpatients attending a community-based dermatology practice of one of the authors (AKG) (72 patients recruited from this centre) and the outpatient dermatology clinic (28 patients recruited from this centre) at the University of Michigan Hospitals, Ann Arbor, Michigan, USA were initially recruited into the study. The research assistants were asked to recruit 100 patients. While attending the clinic, the research assistants asked the patients if they wanted to volunteer for a questionnaire study surveying a wide range of psychosocial factors in acne. The research assistants contacted 138 consecutive patients, and 100 patients agreed to participate. The study was approved by the Institutional Review Board at the University of Michigan, and a written informed consent was obtained from all patients. Consenting patients were given study questionnaires and informed that their participation in the study was entirely voluntary, and that they had the option to drop out of the study at any time. A brief questionnaire incorporating the quality of life questions was to be completed a second time within 2 to 3 days of completion of the baseline survey for evaluation of test-retest reliability. Exclusion criteria were: age under 18 years, presence of other dermatological conditions, presence of cystic acne or any major medical disorders.

Table II. *The 12 items used to develop the Acne Quality of Life* (AQOL) scale.*

Please indicate to what extent you have experienced the following *as a result of your acne*. Write *one* most appropriate number in each case, using the following 4-point rating scale: 0 = not at all; 1 = mildly; 2 = moderately; 3 = very markedly.

1.*	Feeling *self-conscious* in the presence of others	——
2.*	Decrease in your *socialization* with others (e.g. going to parties, dances, etc.)	——
3.*	Difficulties in your relationship with your spouse/partner (answer only if applicable)	——
4.*	Difficulties in your relationship with your *close friends*	——
5.*	Difficulties in your relationship with your *immediate family* (e.g. parents, brothers and sisters)	——
6.	Decrease in your *overall performance at work* (answer only if you are currently working)	——
7.	Decrease in your *overall performance at school* (answer only if you are currently in school)	——
8.	Not being able to find *a job that you like* (answer only if applicable)	——
9.*	Feeling like an "outcast" most of the time because of the effect of acne upon your appearance	——
10.*	People making fun of your appearance	——
11.*	Feeling *rejected* in a *romantic relationship* because of the effect of acne upon your appearance	——
12.*	Feeling *rejected* by your *friends* because of the effect of acne upon your appearance	——

* These 9 items comprised the final version of the AQOL.
Scoring for the study: Social Quality of Life (SOCQOL): (Items 1+2+3+4+5+9+10+11+12)/9. Vocational Quality of Life (VOCQOL): (Items 6+7+8)/3.

Seventy-two of the 100 patients who were initially recruited returned the questionnaires, and 70 patients completed the quality of life questionnaire and the psychosocial measures that were used in this study. Sixty-four patients completed the retest questionnaire. The main reason given for non-participation was a lack of time. Twelve of the 28 patients who did not return the study questionnaire were lost to follow-up, as they did not return for their follow-up appointment. The demographic and patient-rated dermatological characteristics are summarized in Table I. There were more women than men in the study sample (Table I). This was a reflection of the fact that there were more female patients in the clinic on the study days. None of the patients had cystic acne by clinical dermatological examination, and all patients were receiving routine outpatient therapies for their acne vulgaris.

Quality of life ratings

The initial 12 items of the Acne Quality of Life scale (Table II) were each rated on a 10-point Likert-type scale, where a rating of "0" denoted "not at all" and a rating of "9" denoted "very markedly".

Table III. *Varimax rotated factor matrix summarizing the factor loadings* for each of the 12 items of the initial version of the Acne Quality of Life scale.*

Quality of Life Item (number from Table II and description)	Factor 1**	Factor 2***
Item 1. Self-consciousness	0.664	–
Item 2. Decreased socialization	0.785	–
Item 3. Difficulties with spouse/partner	0.725	0.474
Item 4. Difficulties with close friends	0.728	0.457
Item 5. Difficulties with immediate family	0.848	–
Item 6. Decrease in overall work performance	0.589	0.562
Item 7. Decrease in overall performance at school	–	0.829
Item 8. Not being able to find a suitable job	–	0.715
Item 9. Feeling like an "outcast"	0.802	–
Item 10. People making fun of appearance	0.865	–
Item 11. Rejection in romantic relationship	0.828	–
Item 12. Rejection by friends	0.740	–

* Only items with factor loadings of >0.45 are listed in Table III.
** Factor 1 accounted for 57.8% of the sample variance.
*** Factor 2 accounted for 11.4% of the sample variance.

The items in the scale were developed based upon interviews with 20 acne patients, in addition to a review of the literature.

Dermatological ratings

All patients had mild to moderate acne vulgaris by clinical dermatological examination, and none of the subjects had cystic acne. Since the disability associated with acne has been shown to correlate inconsistently with clinical grading of acne severity (3, 5, 6), it has been emphasized that it is important to consider the patients' subjective acne severity ratings when evaluating satisfaction with treatment outcome (5). We therefore obtained patient ratings of the various clinical aspect of acne severity. The patients rated the overall severity of acne affecting the following body regions by responding to the question: To what extent is this region affected by acne?: face, front of neck, back of neck, shoulders, chest, upper back and lower back. Ratings were made on a 10-point Likert-type scale, where a rating of "0" denoted "not at all" and a rating of "9" denoted "very markedly". The mean $\pm$ SD patient rating (on the 10-point scale described above) of the severity of acne affecting the face was 4.7 ± 2.1 (Table I), which was consistent with moderate severity and essentially consistent with the clinical dermatological examination. Secondly, the patients were asked to provided a relative rating of the "number of acne pimples" on their faces on a 10-point acne rating scale, where a rating of "0" denoted "none" and a rating of "9" denoted "the most you have ever had". In addition, on a 10-point scale where a rating of "0" denoted "not at all" and a rating of "9" denoted "very markedly", the patients rated the severity of the following acne-related symptoms affecting their faces: redness or inflammation of the skin due to acne, acne pustules or pus-filled pimples, scarring or "pitting" from the acne, pain when pressing the acne pimples, excessive oiliness of the skin and redness or overall flushing of the skin affected by acne.

Psychological ratings

A wide range of psychological ratings were obtained, because the psychological impact of acne on the quality of life is recognized as one of the major aspects of the overall morbidity associated with acne. We therefore examined the relation between psychological factors and quality of life measures in the evaluation of the construct validity of the Acne Quality of Life scale. The psychological measures included (i) the *Brief Symptom Inventory (BSI)* (17), a 53-item instrument that measures psychological symptom dimensions including anxiety, depression, phobic anxiety, paranoid ideation, obsessive-compulsiveness, somatization, interpersonal sensitivity, hostility and psychoticism; (ii) the *Carroll Rating Scale for Depression (CRSD)* (18), a 52-item instrument used to screen for clinical depression (acne has been associated with depression and suicide (9, 11) and this was the basis for using a more detailed rating for depression); (iii) the *Rosenberg's Self Esteem Questionnaire* (19), a 10-item instrument used as a measure of self esteem; and (iv) a subscale of the *Interpersonal Dependency Inventory (IDS)* (20), an 18-item subscale of the 48-item IDS, which measures the extent to which a person relies upon the approval of others. In contrast to the other scales, a high score on the IDS indicates a lower tendency to want the approval of others, i.e. better mental health. Finally, an index of the impact of acne on body image was obtained by asking the patients to respond to the following item using a 10-point scale (rating of "0" denoted "not at all" and a rating of "9" denoted "very markedly"): How bothered are you by the effect of acne upon your appearance?

Statistical analysis

The 12-item Acne Quality of Life scale (Table II) was factor analysed using principal components factor analysis. Cases with missing values were not entered in the analysis, i.e. list-wise deletion was employed when missing data were encountered. After the appropriate number of factors to extract by examination of the Scree plot was determined, the factor matrix was orthogonally rotated using Varimax rotation to obtain an estimate of the simple structure of the data. Two subscales were created based on the factor loadings of the 12 items (Table III).

The basic psychometric properties of the quality of life scale were examined. Internal consistency of the 12 items was determined by means of Cronbach's alpha, and test-retest reliability was evaluated

Table IV. *Frequency of response in each category of 10-point scale (0 = not at all, 9 = very markedly).*

Scale item (described in Table II)	0	1	2	3	4	5	6	7	8	9
Item 1. Self-conscious	8.3	6.9	5.6	4.2	5.6	4.2	15.3	12.5	8.3	29.2
Item 2. Socialization	34.7	13.9	2.8	5.6	4.2	4.2	5.6	8.3	6.9	13.9
Item 3. Spouse/partner	47.7	13.8	6.2	3.1	6.2	3.1	4.6	0	4.6	10.8
Item 4. Close friends	65.3	9.7	4.2	2.8	4.2	2.8	0	5.6	1.4	4.2
Item 5. Immediate family	50.0	13.9	11.1	5.6	8.3	2.8	1.4	1.4	0	5.6
Item 6. Work*	60.7	8.9	3.6	7.1	8.9	5.4	1.8	0	0	3.6
Item 7. School*	55.6	18.5	1.9	3.7	5.6	3.7	5.6	1.9	1.9	1.9
Item 8. Job*	72	14	2	2	6	2	0	2	0	0
Item 9. Outcast	42.3	18.3	4.2	9.9	8.5	2.8	4.2	0	2.8	7.0
Item 10. Fun of appearance	49.3	28.2	5.6	1.4	1.4	7.0	1.4	2.8	0	2.8
Item 11. Romantic	52.1	15.5	1.4	7.0	2.8	4.2	4.2	2.8	5.6	4.2
Item 12. Friends	69.0	14.1	4.2	0	1.4	5.6	0	4.2	1.4	0

* Items 6, 7, and 8 made up the VOCQOL subscale. The remaining 9 items made up the SOCQOL subscale.

Table V. *Correlation between Acne Quality of Life variables and the dermatological and psychological measures*

Quality of Life variable (Dependent variable)	Dermatological ratings that correlated with QOL variable (Pearson's *r*)		Psychological ratings that correlated with with QOL variable (Pearson's *r*)		Variables in regression equation* using both dermatological and psychological ratings as independent variables	
TOTQOL (combination of all 12 items in Table II)†	No significant correlations		BSI	$r>0.35$ $p<0.05$	BSI Phobic Anxiety	$\beta=0.809$ $p<0.0001$ adjusted $R^2=0.6$
			CRSD	$r=0.45$ $p=0.01$		
			IDS	$r=-0.50$ $p=0.006$		
			Self-esteem	$r=0.42$ $p=0.01$		
SOCQOL (combination of Items 1–5, 9–12 from Table II)†	Pustules or pus-filled pimples	$r=0.34$ $p=0.006$	BSI	$r>0.30$ $p<0.05$	BSI Phobic Anxiety	$\beta=0.365$ $p=0.003$
			IDS	$r=-0.36$ $p=0.003$	IDS or Interpersonal Dependency	$\beta=-0.32$ $p=0.009$
			Self-esteem	$r=0.32$ $p=0.009$	Pustules	$\beta=0.238$ $p=0.068$
	Scarring	$r=0.39$ $p=0.002$	CRSD	$r=0.31$ $p=0.03$	Scarring	$\beta=0.275$ $p=0.042$ adjusted $R^2=0.50$
VOCQOL (combination of Items 6–8 from Table II)	No significant correlations		BSI	$r>0.4$ $p<0.05$	BSI Phobic Anxiety	$\beta=0.684$ $p<0.0001$
			CRSD	$r=0.62$ $p<0.01$		
			IDS	$r=-0.32$ $p=0.04$	CRSD	$\beta=0.277$ $p=0.028$
			Self-esteem	$r=0.33$ $p=0.01$		adjusted $R^2=0.73$

* Stepwise multiple regression analysis.
† The SOCQOL subscale emerged as the final Acne Quality of Life (AQOL) scale.
BSI = Brief Symptom Inventory; IDS: Interpersonal Dependency Inventory; CRSD: Carroll Rating Scale for Depression.

by examining the Pearson product-moment correlation between the baseline and the 2 to 3-day retest scores. Construct validity was examined using Pearson product-moment correlations between the quality of life scores and various demographic factors, such as age and sex, and the dermatological and psychological measures described above. In addition to examining the total quality of life score from the 12-item scale, we also examined the relation between the factor scores that emerged from the factor analysis and the dermatological and psychological measures, using Pearson product-moment correlations and stepwise multiple regression analysis (Table V).

RESULTS

Table II lists the 12 items of the Acne Quality of Life scale that were administered in the study. An exploratory factor analysis was carried out on these 12 items, using principal components factor analysis. Examination of the Scree plot suggested that 2 factors should be extracted. These factors were orthogonally rotated using Varimax rotation. Table III is a summary of the Varimax rotated factor matrices indicating the individual factor loadings that were >0.45. Factor 1 explained 57.8% of the variance, while Factor 2 explained 11.4% of the variance in the sample data. Therefore, together, Factors 1 and 2 explained 69.2% of the sample variance.

For practical use, 2 subscales were derived from 2 factors (Table III) using the empirical information obtained from the factor loadings. The first subscale mainly addressed the social quality of life (SOCQOL) and the second subscale addressed the vocational quality of life (VOCQOL). Because of the relatively high factor loadings, the SOCQOL and VOCQOL subscales were derived by obtaining an equally weighted linear combination of the items in each of the 2 factors that had a loading of >0.5 (Table III). The factor loadings for Item 6 (relating to decrease in overall work performance) were about the same for both scales; Item 6 was included only in the VOCQOL score. A total quality of life (TOTQOL) score was also obtained using an equally weighted linear combination of all

12 items. The mean ± SD scores for each of the scales were as follows: TOTQOL (12-item): 1.72 ± 1.61; SOCQOL (9-item): 2.28 ± 2.32; VOCQOL (3-item): 0.94 ± 1.50.

The low mean values indicated that the distribution of the responses on the 10-point scale was skewed, and therefore we examined further the frequency of responses for each of the 10 categories (0 – 9) of the 10-point scale (Table IV). The pattern of responses in Table IV suggested that a 4-point scale would be more appropriate. Therefore, for the final version of the instrument (proposed in Table II), we further reduced the initial scale to 4 points as follows: a new rating of "0" denoting "not at all" (for an initial rating of "0"); a new rating of "1" denoting "mildly" (for a 10-point rating of "1", "2", or "3"); a new rating of "2" denoting "moderately" (for a 10-point rating of "4", "5", or "6") and a new rating of "3" denoting "very markedly" (for a 10-point rating of "7", "8" or"9"). The mean scores ± SD using the 4-point scale (0 – 4) were as follows: SOCQOL (9 items): 0.95 ± 0.83 and VOCQOL (3 items): 0.94 ± 1.50.

Reliability

Cronbach's alpha for the 12-item (TOTQOL) scale was 0.91, indicating a high degree of internal consistency. Further examination of the 2 subcales addressing the social and vocational dimensions (Table III) indicated that Cronbach's alpha for the SOCQOL was 0.94 and for the VOCQOL 0.83, further confirming a high degree of internal consistency within the 2 subscales. The test-retest reliability for the 12-item TOTQOL was very high at 0.98. The test-retest reliability of the 9-item SOCQOL subscale was 0.99, and for the 3-item VOCQOL subscale was 0.97, again indicating a very high degree of test-retest reliability for the 2 subscales.

Validity

Construct validity, which addresses whether the instrument is measuring what it purports to measure, was evaluated by examining the relation between the 12-item TOTQOL, the 9-item SOCQOL and the 3-item VOCQOL scores (Table V) and both the dermatological and psychological ratings. The TOTQOL, SOCQOL and VOCQOL scores correlated significantly with psychological factors, a finding consistent with previous reports (2 – 6, 8, 11, 13). The TOTQOL and VOCQOL scores did not correlate with any of the measures of acne severity, however; only the SOCQOL subscale, which primarily addresses the impact of acne upon the social functioning of the patient, correlated with indices of acne severity, such as pustules and scarring (Table V). Fig. 1 is a graphical representation of our finding that SOCQOL scores discriminate between different indices of acne severity. The SOCQOL score (using the 4-point scale proposed in Table II), which was the mean score of the 9 items of the SOCQOL, was categorized into "Low" (scores ≤ 1) and "High" (scores >1) groups. The cut-off score of 1 was used because it was close to the mean SOCQOL score of 0.95 (using the 4-point scale). Using this score, 66.2% of patients were classified as having "Low" SOCQOL scores, and 33.8% were classified as having "High" SOCQOL scores.

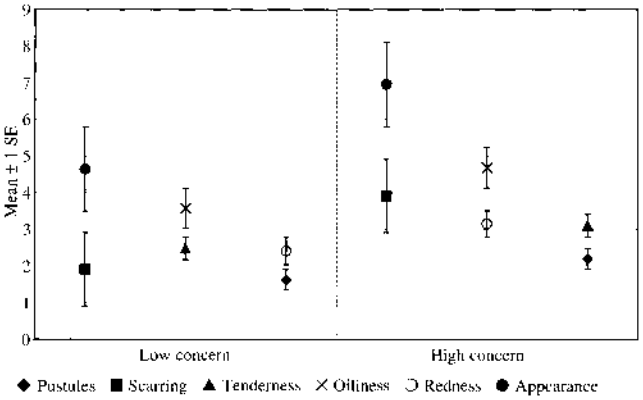

Fig. 1. The "Low" (≤ 1) and "High" (>1) SOCQOL scores were associated with (1) low and high grades of acne severity, respectively, and (2) low and high ratings, respectively, of the degree to which the patients were bothered by the effect of acne upon their appearance.

DISCUSSION

We empirically examined the constructs underlying the impact of acne upon the quality of life by doing principal components factor analysis on 12 items (Table II) that we developed to address the effect of acne on the psychosocial and vocational functioning of the patient. Orthogonal Varimax rotation of the factors suggested the presence of two dimensions relating to the impact of acne on the social (accounting for 57.8% of the sample variance), educational and occupational (accounting for 11.4% of the sample variance) functioning of the patient. Based on these empirical findings, 2 subscales, the SOCQOL, addressing the social dimension of quality of life, and the VOCQOL, addressing the vocational dimension, were created. Because of heavy factor loadings and ease of interpretation, the SOCQOL and VOCQOL each essentially represented an equally weighted linear combination of the respective items (Table II) that had a loading of >0.5 on the 2 orthogonal factors (Table III) emerging from the factor analysis.

The predictors of SOCQOL (Table V) in the final regression equation (involving both the dermatological and psychological ratings) include indices of acne severity, e.g. pustules, and chronicity and disfigurement, e.g. scarring. Both the psychological predictors of SOCQOL, Phobic Anxiety (BSI) (17) and Interpersonal Dependency (IDS) (20), measure a fear response or uneasiness in certain situations and the tendency to want the approval of others. Such personality traits, which may be primary or develop secondary to the cosmetic problems caused by acne, are more likely to lead to greater difficulties with social interaction. In a recent report of 16 completed suicides among dermatological patients, 7 patients had acne with scarring (9). Our finding that scarring was one of the dermatological predictors for SOCQOL underlines the adverse impact of scarring upon the quality of life of the patient, and is consistent with this report (9).

The predictors for VOCQOL were psychological measures only, such as Phobic Anxiety (BSI) (17), which measures anxiety in certain situations including social situations, and the Carroll Rating Scale for Depression (CRSD) (18) score, which screens for the clinical depressive syndrome. Our findings indicate that in contrast to the SOCQOL, over 70% of the variance in the VOCQOL scores was explained by the psychological factors (Table V, adjusted $R^2 = 0.73$). This suggests that when patients with mild to moderate acne attribute their vocational

difficulties to their acne, the clinician should be alerted to the possibility of serious psychopathology, such as depressive disease. In such patients, the quality of life scores are not directly related to the severity of the acne. This may be the basis for the earlier finding that acne severity does not correlate consistently with global acne-specific quality of life ratings (2 – 6). This finding was confirmed in our study by the observation that the 12-item TOTQOL (which incorporates both the SOCQOL and VOCQOL scores) correlated with Phobic Anxiety (BSI) (17), a psychological symptom dimension that measures situational anxiety. However, it did not correlate with any of the measures of acne severity (Table V).

In summary, our findings suggest that the 9-item SOCQOL can be employed as an Acne Quality of Life (AQOL) scale to examine the relation between acne severity and quality of life, for example, when evaluating the effectiveness of therapies for acne. As with any new instrument, this scale needs to be tested among other patient samples representing both sexes before its generalizability can be confirmed. This patient-rated scale generally takes less than 5 min to complete. When using this scale, it may not be necessary to administer other psychological instruments, because the SOCQOL scores correlate significantly with a wide range of psychopathologic measures (Table V). However, a full clinical psychiatric assessment cannot be replaced by a questionnaire in the diagnosis of psychiatric co-morbidity such as depressive disease, as some acne patients can suffer from serious psychopathology (9). This 9-item quality of life scale correlated with dermatological symptom severity and psychopathologic factors (Table V) among the mildly to moderately affected group of patients. The scale may prove to be a clinically useful tool, especially for this subgroup of acne patients, for whom quality of life issues are often a major consideration in deciding whether or not to institute therapies for acne.

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