Assessment of general health and quality of life in patients with acne using a validated generic questionnaire

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A B S T R A C T

Objectives: The study was designed to utilize the SF-36, a validated generic questionnaire, to assess acne patients' view of their general health and quality of life.

Methods: The subjects were 454 acne patients (237 males, 217 females) visiting an outpatient clinic at Qassim University. An Arabic translation of the SF-36 questionnaire, culturally adapted and validated, was used to assess eight life-quality dimensions. Data regarding demographics, disease grade, duration, and treatment were also included in the questionnaire. The internal consistency reliability of the multi-item scales was assessed using Cronbach's coefficient alpha. Descriptive statistics were conducted with independent and paired-sample t-tests as well as one-way ANOVA for metric variables; and χ^2 and Fisher's exact tests were used for categorical variables. Spearman's rank correlation was used for associations. All tests were two-sided, and the level of significance was set at $\phi < 0.05$.

Results: The scores for physical functioning, role physical, role emotional, and vitality dimensions were below 60%. About 81.5% of respondents rated their health as either "fair" or "poor," and only 25% said their general health was better than the previous year. Females were more likely to report better general health than males ($\phi = 0.001$). Education level negatively correlated with mental health, role emotional, social functioning, general health, and bodily pain. Rural patients showed better general health ($\phi = 0.003$). Married persons rated their general health better than single patients ($\phi = 0.002$). Mild and shorter-duration acne was associated with a better general health score compared to the previous year ($\phi = 0.01$ and 0.001, respectively). Patients that had received treatment were significantly better regarding role physical, vitality, and mental health dimensions, whereas topical treatment was significantly better in the vitality dimension than oral therapy. The patients treated also rated their general health better than the previous year ($\phi = 0.0001$).

Conclusions: The presence of acne vulgaris per se is the most significant factor underlying patients' low perception of their general health. Patients' education about the disease and social support play a considerable role in better disease perception and can improve patients' quality of life.

Introduction

Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit that affects at least 85 percent of adolescents and young adults (1). Acne is usually considered to be an unimportant and trivial problem compared to diseases of other organ systems, but its presence has been implicated in psychiatric and psychological processes more often than most other dermatological conditions (2, 3).

Although much health research focuses on objective outcome measures such as mortality or morbidity defined through clinical assessment (4), there is an increasing recognition of the patient's point of view as an important component in the assessment of healthcare outcomes. The use of self-reported measures of health status reflects the importance of considering the patients' point of view and the multidimensional nature of health (5, 6).

The SF-36 questionnaire was developed from the Medical Outcomes Study or RAND Health Insurance Experiment. It is a short form derived from a larger 149-item instrument (7, 8). The SF-36 has proven useful in monitoring population health, estimating the burdens of various diseases, monitoring outcome in clinical practice, and evaluating medical treatment effects. The popularity of the SF-36 is in part related to accumulating support for its satisfactory validity and reliability across study settings and populations (5).

To address this point directly, we used the SF-36 questionnaire to assess our acne patients' view of their general health and quality of life with an emphasis on the effect of treatment and various factors affecting their perception.

Methods

The SF-36 was developed by an American research group led by John Ware. It was designed to provide an instrument for the self-evaluation of HRQL, which summarized the essence of conceptions of health. Efforts were made to ask as few questions as possible without omitting valuable information, with the aim of simplifying participation and improving the cost-effectiveness of data collection. The questionnaire consists of 36 items measuring eight dimensions of life quality: Physical Functioning (PF); Role Physical (RP), which refers to role limitations due to physical difficulties; Bodily Pain (BP); General Health (GH); Vitality (VT); Social Functioning (SF); Role Emotional (RE), which refers to role limitations due to emotional difficulties; and Mental Health (MH). In addition, one single item determines perceived differences in state of health over the past year. Verbal response choices vary from two to six (9).

Based on the eight scales, two summary scales have been constructed for physical and mental health, respectively. The Physical Component Summary (PCS) is primarily a comprehensive measure of PF, RP, BP, and GH, whereas the Mental Component Summary (MCS) mainly encompasses VT, SF, RE, and MH. However, the two summaries somewhat overlap, and especially the VT, GH, and SF scales have noteworthy correlations with both components (10).

The Arabic translation, cultural adaptation, and validation of the SF-36 followed the International Quality of Life Assessment (IQOLA) methodology (11–13).

Subjects in this study included patients diagnosed with acne visiting outpatient clinics at Qassim University. They were given a printed Arabic translated version of the questionnaire, the first page of which explained items and how to respond to them. It also contained a consent form to be signed by the patients that agreed to participate. Subjects were briefed about the questionnaire and support was available if needed. Data about demographics, disease grade, duration, and treatment were also included in the questionnaire. The study was carried out from August 2008 through February 2009 and it was approved by the Scientific Ethical Committee of Qassim University, Saudi Arabia.

The SF-36 items were scored so that higher scores meant a better health state. After data entry, the items and scales pass through the following steps: a) Item recoding, for the 10 items that required recoding; b) Computing scale scores by summing scores, and c) Transforming raw scale scores into a 0–100 scale.

Internal consistency reliability of the multi-item scales was assessed by Cronbach's coefficient alpha. A value of 0.70 or greater was considered adequate for group comparisons. Interscale correlations were calculated to determine if the correlations between scales were lower than the internal consistency estimates of the scales, indicating that each scale was assessing a unique concept (14). Acne grading was based on the system proposed by Doshi et al. (15).

Statistical calculations were done using SPSS Version 16.0.0 on Microsoft Windows Vista Home Premium SP1. Descriptive statistics were conducted with an independent and paired-sample t-test as well as one-way ANOVA for metric variables, and χ^2 and Fisher's exact test were used for categorical

variables. Spearman's rank correlation was used for associations. All tests were two-sided, and the level of significance was set at $p < 0.05$.

Results

The study included 454 subjects (237 males, 217 females). Eight questionnaires were excluded from the analysis due to incomplete responses. The demographic characteristics of the study subjects are shown in Table 1.

The results of the 8 SF-36 dimensions are presented in Table 2. The physical functioning, role physical, role emotional, and vitality dimensions were below 60%. Females were more likely to report better general health than males ($p = 0.001$). Males were significantly better in role physical, social functioning, and bodily pain, whereas females were significantly better in role emotional. The level of education negatively correlated with mental health, role emotional, social functioning, general health, and bodily pain. This means that patients with a low level of education felt significantly better than those with a higher education. Rural patients were significantly better in all dimension of SF-36 compared to city residents. Rural residents were also significantly better in general health ($p = 0.003$). Job status was not associated with a significant difference regarding the question about general health. Married patients scored better than single patients in mental health and bodily pain. Married patients also rated their general health better than single patients ($p = 0.002$).

When patients were asked to assess their own general health, no one said their health was "excellent." About 81.5% of the respondents rated their health as either "fair" or "poor" (Fig. 1). The previous history of treatment had no statistically significant effect on patients' rating of their general health ($p = 0.0152$). Figure 2 indicates patients' assessment of their general health compared to the previous year; only 25% said they were feeling better than the previous year.

Severity of the disease correlated with poor general health ($p = 0.004$). Milder grades of acne were associated with better scores in the vitality dimension ($p = 0.017$), whereas other dimensions did not show a consistent trend (Table 3). Table 3 also shows that patients with a shorter disease duration reported significantly poorer general health ($p = 0.001$). The shorter the disease duration, the higher the bodily pain dimension ($p = 0.001$). Similarly, the role emotional and mental health dimensions were worse in patients that had acne for less than 1 year ($p = 0.01$). Patients with milder disease or shorter

Table 1. Demographic and clinical characteristics of surveyed acne cases.

Parameter	n	%
Age (years)		
14–20	217	47.8
21–30	202	44.5
30–45	35	7.7
Education		
< Secondary	14	3.1
Secondary	245	54.0
University	195	43.0
Marital status		
Single	405	89.2
Married	49	10.8
Residence		
Rural	405	89.2
Urban	49	10.8
Duration of illness		
< 1 year	182	40.1
1–5 years	202	44.5
> 5 years	70	15.4
Previous treatment		
Yes	236	52.0
No	218	48.0
Type of treatment		
Traditional	154	33.9
Topical	258	56.8
Oral	42	9.3
Family history		
Yes	210	46.3
No	244	53.7
Grade of Acne		
Mild	252	55.5
Moderate	153	33.7
Severe	35	7.7
Very severe	14	3.1
Associated diseases		
Yes	77	17.0
No	377	83.0
Psychiatric disease		
Yes	14	3.1
No	440	96.9

Table 2. SF-36 scores by gender, residence, and educational level of cases, M and (SD).

Dimension	Total score	Sex		Residence		Education		
		M	F	Rural	Urban	< Secondary	Secondary	University
Physical functioning	55.43 (28.14)	56.3 (28.5)	54.5 (27.8)	56.9 (28.3)	43.6 (24.1)	52.5 (28.5)	56.3 (28.5)	54.6 (27.8)
Role physical	52.31 (36.17)	57.4 (35.8)*	46.8 (35.9)	55.6 (34.8)	25.0 (35.7)	50.0 (25.9)	51.4 (37.4)	53.6 (35.4)
Bodily pain	72.65 (20.29)	77.3 (16.6)*	67.6 (22.6)	73.6 (19.4)	64.7 (25.3)	82.0 (8.3)*	74.3 (15.5)	69.9 (25.2)
General health	66.35 (15.04)	67.4 (15.4)	65.2 (14.6)	67.3 (14.1)*	58.4 (19.6)	76.0 (4.2)*	67.9 (13.2)	63.7 (17.1)
Vitality	59.81 (15.98)	59.9 (12.7)	59.7 (18.9)	60.9 (15.4)	50.7 (18.0)	67.5 (7.8)	60.0 (17.4)	59.0 (14.4)
Social functioning	74.75 (20.64)	76.7 (20.8)*	72.6 (20.2)	75.6 (20.4)	67.9 (21.2)	87.5 (13.0)*	76.1 (19.3)	72.2 (22.3)
Role emotional	52.72 (40.49)	48.8 (41.5)*	57.0 (39.1)	55.6 (38.9)	28.6 (45.6)	66.7 (34.6)*	56.2 (38.9)	47.4 (42.2)
Mental health	60.47 (17.91)	59.7 (16.0)	61.3 (19.8)	61.6 (18.3)	51.4 (11.3)	72.0 (12.5)*	61.6 (18.3)	58.2 (17.3)

* significant

Table 3. SF-36 scores related to disease grade and duration, M and (SD).

| Dimension	Disease grade				Disease duration		
	Mild	Moderate	Severe	Very severe	< 1 year	1–5 years	> 5 years
Physical functioning	54.6 (26.0)	59.9 (29.1)	34.0 (32.0)	75.0 (10.4)	52.1 (25.79)	58.6 (29.58)	55.0 (29.10)
Role physical	50.7 (37.1)	53.4 (33.3)	50.0 (42.4)	75.0 (25.9)	52.9 (38.91)	55.2 (34.52)	42.5 (31.9)
Bodily pain	75.9 (15.1)	69.1 (24.8)	65.6 (28.8)	70.5 (9.9)	79.2 (12.38)*	69.3 (21.5)	65.1 (27.34)
General health	65.1 (15.5)	67.7 (14.5)	71.4 (15.0)	62.0 (5.2)	65.7 (13.21)	67.5 (16.97)	65.0 (13.43)
Vitality	61.8 (17.6)	58.1 (12.0)	55.0 (19.3)	55.0 (5.2)	60.6 (18.56)	60.8 (13.35)	55.0 (14.93)
Social functioning	74.3 (18.4)	77.7 (23.0)	70.0 (20.6)	62.5 (25.9)	76.9 (17.62)	73.1 (23.18)	73.8 (19.86)
Role emotional	51.9 (39.7)	52.7 (41.1)	46.7 (45.9)	83.3 (17.3)	44.9 (38.15)*	60.7 (41.23)	50.0 (40.42)
Mental health	60.2 (18.8)	60.1 (14.0)	61.6 (25.5)	66.0 (18.7)	57.8 (18.88)*	64.4 (16.49)	56.0 (17.18)

* significant
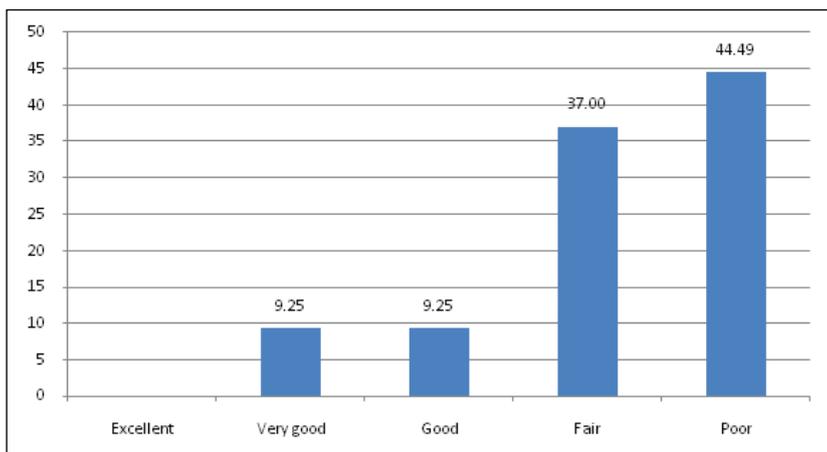
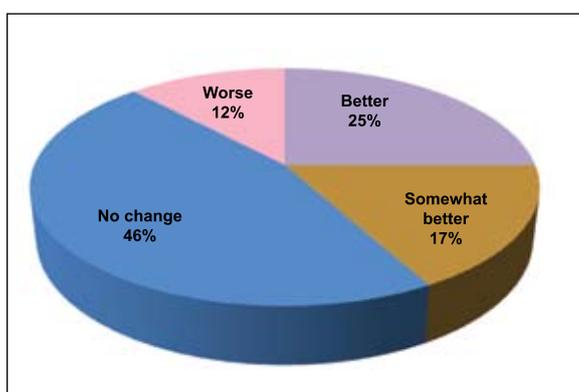Fig. 1. Patients' rating of their overall general health status.

Fig. 2. Change in patients' general health as compared to the previous year.
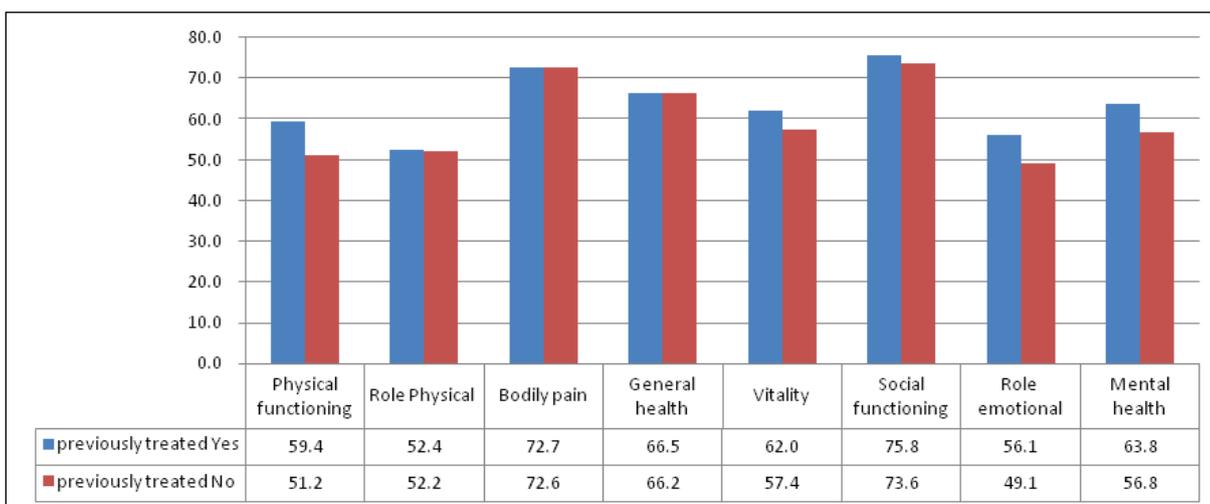

	Physical functioning	Role Physical	Bodily pain	General health	Vitality	Social functioning	Role emotional	Mental health
previously treated Yes	59.4	52.4	72.7	66.5	62.0	75.8	56.1	63.8
previously treated No	51.2	52.2	72.6	66.2	57.4	73.6	49.1	56.8

Fig. 3. SF-36 score difference between treated patients and untreated patients.
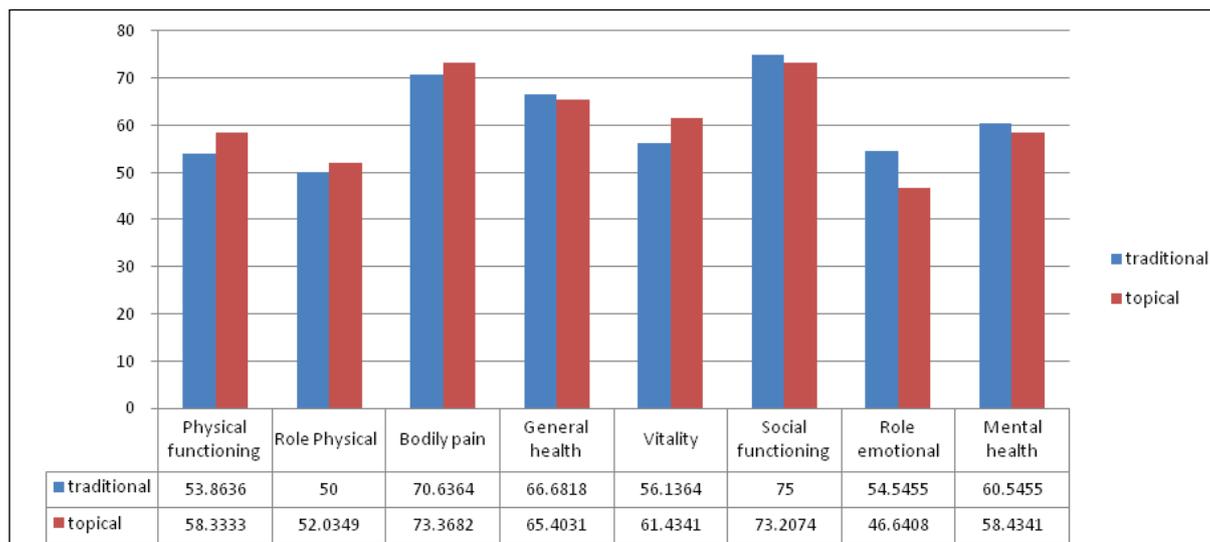
Fig. 4. SF-36 score difference between patients with topical treatment versus traditional treatment.

disease duration also perceived their general health as better compared to the previous year ($p = 0.01$ and 0.001, respectively).

The patients that received previous treatment scored better in all dimensions of the SF-36 Scale; the difference was statistically significant in the role physical, vitality, and mental health dimensions (Fig. 3). They also rated their general health as better than the previous year ($p = 0.0001$). Patients that were treated with topical agents were better in all dimensions compared to those that received oral treatment; however, this difference was only significant in the vitality dimension (Fig. 4). Topically treated patients also reported a better change in health than patients receiving oral treatment. ($p = 0.017$). Patients with co-morbidities scored consistently worse in all dimensions of the scale; the difference was statistically significant in all dimensions except for role emotional.

Discussion

This study's results agree with previously published studies assessing acne patients' quality of life and psychological profile (16). Our results emphasize that acne, often regarded as a simple disease, has a great impact on patients' general health. It affects individuals' physical and psychological health. The use of a self reported tool such as the SF-36 can shed light on patients' perceptions about the quality of their life. This information can be valuable for physicians and healthcare professionals to better understand their patients' concerns.

When answering the question "in general would you say your health is . . ." none of the respondents rated it "excellent." The majority of respondents reported it as either "fair" or "poor." Although 83% of the respondents were free of any other associated illness, the presence of acne made them believe that their general health was not "good." This underscores the burden of the disease from the patient's perspective.

The results of this study indicated that females were more likely to report better general health in comparison to males. This finding was unexpected because females are known to be more concerned with their looks. It may mean that the problem exceeds the looks issue. Married and rural patients also reported better general health. The reason here was better family and social support.

Only 25% of our study patients stated that they were enjoying better general health in comparison to the previous year. These were cases that either had a milder form and shorter duration of acne or were successfully responding to treatment. These findings underscore the importance of effective treatment and prompt care of acne patients.

The SF-36 summary dimensions indicate that the physical functioning, role physical, role emotional, and vitality dimensions were below 60% (Table 2). The shorter the duration of the disease, the better the bodily pain dimension, but the role emotional and mental health dimensions were worse in patients that had the disease for less than 1 year. The severity of the disease consistently correlated only with the vitality dimension, and the milder

grades had better scores. The other dimensions did not show a consistent trend (Table 3).

Our results support some published studies that have indicated that there is no strong relationship between disease severity and quality of life. There could be two explanations for this observation. First, the extent to which a given level of disfigurement leads to disability or handicap will depend on the patient's particular environment (personal, social, and occupational). Second, a population of hospital acne patients may be unusual in that those that are inordinately bothered by minor acne will be overrepresented in the referred population, a situation that would mask any underlying correlation between quality of life and severity in the community (16). The psychological impact of the illness was clear in patients with recent disease onset, which showed up in the role emotional and mental health dimensions. The presence of co-morbidities with acne had the worst impact on all the SF-36 subscales, and was statistically significant in all except for role emotional.

Patients with a low level of education scored better on the mental health, role emotional, social functioning, general health, and bodily pain subscales. This finding may be explained by the fact that the more knowledge one has about the disease, the more aware one will be about the problem, and the more one will suffer the psychological impact of the disease. Another explanation could be that because our patients with a low level of education tended to be from rural areas they enjoyed better family support in comparison to city dwellers.

In the absence of national normative data, we cannot draw firm conclusions based on these data; however our data will serve as a base for future studies to compare acne patients to normal subjects and to other disease studies in our local environment. One might also argue here that many recently developed questionnaires are "dermatology- or acne-specific" and hence do not measure constructs that have generic significance (beyond skin diseases) and cannot be used to derive utility values for treatments (17).

In conclusion, our data have shown that the presence of acne vulgaris per se is the most significant factor behind patients' low perception of their general health. Educating patients about the disease and providing social support will play a considerable role in better disease perception and will improve patients' quality of life.

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