QUALITY OF LIFE IN PATIENTS WITH ACNE VULGARIS: A SINGLE TERTIARY-CARE CENTER EXPERIENCE

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ABSTRACT

Background: Acne Vulgaris is a chronic inflammatory disease of the pilo-sebaceous glands with a lifetime prevalence of 85-90%. Acne vulgaris has a significant impact on quality of life, affecting social behaviour, career, and social relationship. Our aim was to determine the differences in mean DLQI scores among patients with acne vulgaris. This will help in determining the effect of severity of acne vulgaris on the quality of life of adult dermatology patients.

Methods: It was a prospective cross-sectional study which was conducted at the Department of Dermatology, Department of Dermatology, Khalifa Gul Nawaz Hospital, Bannu, from June 2014 to December 2015. Data was collected using a 10 items instrument.

Results: The study included 138 patients with acne. The mean age was 20.7±3.16 years. The duration of illness ranged from 6 months to 7 years with a mean of 2.6±1.2 years. The DLQI scores had no linear relation to age of the patients; Pearson correlation coefficient= 0.086; p= 0.318.

Conclusions: Acne vulgaris significantly affects patients' quality of life. The magnitude of effect on quality of life is significantly determined by severity of acne. Severe of acne effects quality of life more than mild and moderate acne.

Key Words: DLQI; Acne; Quality of life.

INTRODUCTION

Acne Vulgaris is a chronic inflammatory disease of the pilo-sebaceous unit characterized by comedones, papules, pustules and nodules.[1] It is typically present on facial skin which is apparent to others; therefore, it has a role in reflecting the personality and image of the person.[2] Lifetime prevalence of acne is 85-90% and it mostly affects young adolescents.[3]

Acne effects life of patients in many ways. Symptoms associated with acne are pain, recurrent bleeding and purulent discharge.[4] The psychological effects of acne were first described by Sulzberger and Zaidens in 1948.[5] social activities like going out with friends, attending social gatherings or taking part in sport, swimming or other physical activities are often disturbed because of reluctance to allow others to see the diseased skin and fear of what might others think of the appearance.[6] In a study by India it was acne patients suffer from low self-esteem, lack of confidence, cannot take initiative, failure to express themselves properly, psychosomatic disorders, OCD

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and tendency to think suicidal.[7,8] Barak[9] in his study calculated that 5.6% patients with moderated acne may have pre-exiting suicidal thoughts.[9] Acne vulgaris has a terrible effect on the quality of life, bring changes in the social behaviour of young adolescents, effects their career, besides damaging their face value and in some cases leaves a scar for the whole life.[10]

There are many approaches for determining the effects of skin diseases o the quality of life of the patient.[11] Among them "Dermatology Life Quality Index" devised by Finley is the tool. It has been extensively used worldwide for the assessment of variety of dermatological diseases.[12] Similarly acne- specific Quality of Life (QOL) instruments like Acne Disability Index (ADI), Cardiff acne Disability Index (CADI) and acne specific Quality of Life (Acne-QOL) have been employed to assess quality of life in acne patients. Nonetheless, no work has been done on the subjects in our community.

By conducting the study, we wanted to find out the social and psychological aspects related to acne as this is usually ignored by the clinician and they are usually concerned with the physical treatment which is less time consuming.

MATERIALS AND METHODS

The study was carried out at Dermatology out-patient department of Khalifa Gul Nawaz Hospital, Bannu, between June 2014 till December 2015. Total 138 patients were enrolled with 46 in each mild, moderate and severe acne groups. Patients were selected through non-probability consecutive sampling. It was a cross sectional descriptive study.

Inclusion criteria was adult patients (age more than 16 years) of either gender having (mild, moderate or severe) acne, who are able to read, understand Urdu or English language. Patients with other concomitant skin disease or patients having systemic diseases like diabetes mellitus and COPD were excluded.

After approval of hospital ethical committee, informed consent was obtained from all the patients. Patients with acne vulgaris were diagnosed on the basis of relevant clinical history and examination. Their age, sex, duration of the disease was recorded in a chart. After complete examination, extent of the lesions was recorded. Extent of disease was measured by using the global system[13] recently approved by the US FDA for the severity of acne.

Patients were then requested to fill the DLQI questionnaire themselves. All the questions were self-explanatory. Translated version of DLQI in Urdu was given to the patients not understanding English.

The DLQI questionnaire that were used in the study, was obtained from the studies by Finlay AY[14,15], therefore no changes were made in the questionnaire. It is a validated questionnaire used in more than 130 published articles, and validated in more than 30 lan-guages (including Urdu) and therefore it is taken as such without any modification. The Urdu version is taken from the dermatology UK site. (http://www.dermatology.org.uk/quality/quality-dlqi-languages.html).

To describe the characteristics of study participants, continuous variables (age, duration of disease and the DLQI scores) were reported in mean ± standard deviation and categorical variables (sex, severity of the disease) were reported as percentages and proportions. Ratio (male: female) was computed for gender distribution. Data was analysed in SPSS version 13. One-way ANOVA test was used to determine the differences in DLQI scores among different grades of acne. p value <0.05 was considered significant.

RESULTS

The study included 138 patients with acne; 46 with mild acne, 46 with moderate acne and 46 with severe acne.

Age

The age ranged from 16 to 36 years with a mean age of 20.7±3.1 years. The mean age of mild, moderate and severe acne patients was 19.9±3.4 years,

Table 1: Descriptive statistics for DLQI score in different acne severity groups

	n	Mean	Std. Deviation	95% CI for Mean	
				Lower Bound	Upper Bound
Mild Acne	46	8.9130	4.28344	7.64	10.18
Moderate Acne	46	12.13	5.34835	10.54	13.71
Severe Acne	46	15.00	3.45125	13.97	16.02
Total	138	12.01	5.05587	11.16	12.86

Table 2: Bonferroni Multiple Comparisons

Severity Group	Severity Group	Mean Difference	P value	95% Confidence Interval	
				Lower Bound	Upper Bound
Mild	Moderate	-3.21739(*)	0.002	-5.4564	-.9783
	Severe	-6.08696(*)	<0.0001	-8.3260	-3.8479
Moderate	Mild	3.21739(*)	0.002	.9783	5.4564
	Severe	-2.86957(*)	0.007	-5.1086	-.6305
Severe	Mild	6.08696(*)	<0.0001	3.8479	8.3260
	Moderate	2.86957(*)	0.007	.6305	5.1086

The mean difference is significant at the .05 level.

Table 3: Acne severity across different DLQI bands

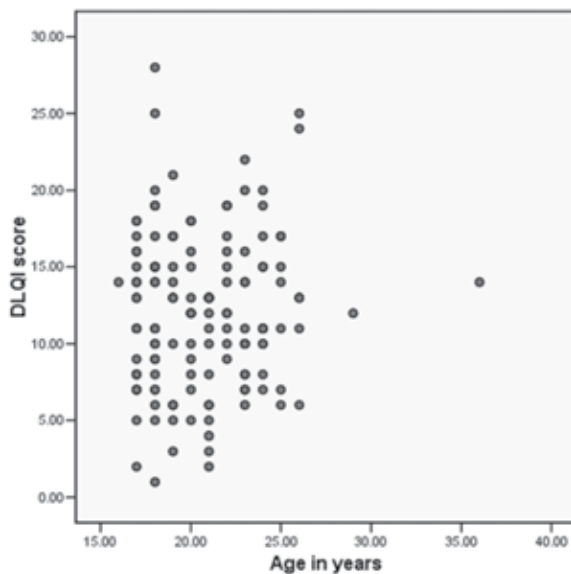| Severity	No effect	Small effect	Moderate effect	Very large effect	Extremely large effect	P value
Mild	1 (2.1%)	8(17.4%)	24(52.2%)	13(28.3%)	0	
Moderate	0	2 (4.3%)	17 (37%)	24 (2.2%)	3 (6.5%)	<0.001
Severe	0	0	2 (4.3%)	41(89.1%)	3 (6.5%)	

Figure 1: DLQI scores and age of patients

21.15±3.06 years and 21±2.9 years respectively. The three groups were not statistically significantly different with respect to their age distribution; p= 0.153 by one-way ANOVA.

Duration of acne

The duration of illness ranged from 6 months to 7 years with a mean of 2.6±1.2 years. The mean duration of symptoms in mild, moderate and severe acne groups was 2.29±1.33 years, 2.80±1.2 years and 3.0±1.13 years respectively. The three groups were not statistically significantly different with respect to their age distribution; p= 0.153 by one-way ANOVA.

Gender

47 (34.1%) were males and 91 (65.9%) were females. The frequency of males in mild, moderate and severe acne groups was 11, 13 and 23 respectively. The three groups were statistically significantly different with respect to their gender distribution; p= 0.018.

DLQI scores and age, gender of patients and duration of acne

The DLQI scores had no linear relation to age of the patients; Pearson correlation coefficient= 0.086; p= 0.318. The DLQI scores had a linear relation to duration of acne; Pearson correlation coefficient= 0.251; p= 0.003.

The mean DLQI score of male patients was 12.21±5.5 and the mean DLQI score of female patients was 11.91±4.8; this difference was statistically significant; p = 0.742. Table 1 and Table 3 for group wise comparisons.

DLQI scores and severity of acne

The DLQI score for patients with mild acne ranged from 1-18 with a mean of 8.91±4.2. The DLQI score for patients with moderate acne ranged from 5-28 with a mean of 12.13±5.3. The DLQI score for patients with severe acne ranged from 9-25 with a mean of 15.00±3.4.

When DLQI scores were evaluated in different band ranging from no effect (0-1), small effect (2-5), moderate effect (6-10), very large effect (11-20) and extremely large effect (21-30), mild acne patients had relatively lesser effect as compared to severe acne patients who had more patients with larger effect on life; p= 0.00. (Table 3)

In one-way ANOVA, the total variation is partitioned into two components. Between Groups represents variation of the group means around the overall mean. Within Groups represents variation of the individual scores around their respective group means. The two estimates of variability are shown in the column labelled Mean Square. Their ratio is in the column F. Large value for the F ratio (21.739) indicates that the sample means vary more than we would expect if the null hypothesis was true. The probability of obtaining an F ratio of 21.739 when the null hypothesis is true is 0.00. So we can reject the null hypothesis. It is therefore unlikely that the DLQI score is the same for the three groups. Sig indicates the significance level of the F-test. Small significance values (<.05) indicate group differences. In this example, the significance level is less than .05. At least one of the groups differs from the others. Figure 1 for the overall DLQI scores versus age distribution.

Post Hoc comparison (Bonferroni multiple comparison test)

Planned contrasts or Post Hoc comparisons are methods used to determine which group(s) differ. We used the Bonferroni multiple comparison test on DLQI scores. To compare all three groups (mild, moderate and severe acne) we formed 3 pairs of groups. Statistics for all three pairs of groups are shown in Table 1.

- Group 1 had a lower mean score (- 3.217) when compared to Group 2; this difference was statistically significant; p= 0.002. The 95% Confidence interval was -5.45 to -.97.

- Group 1 had a lower mean score (- 6.086) when compared to Group 3; this difference was statistically significant; p= 0.000. The 95% Confidence interval was -8.32 to -3.84.

- Group 2 had a lower mean score (- 2.869) when compared to Group 3; this difference was statistically significant; p= 0.007. The 95% Confidence interval was -5.10 to -.63.

DISCUSSION

Acne vulgaris is the most common cutaneous disorder in the dermatology outpatient. Patients with acne can experience significant psychological morbidity and, rarely, mortality due to suicide.[14] The psychological

effects of embarrassment, anxiety, and shame have an impact upon both social lives and employment. Scars can be permanent. In one prospective study of 90 patients with acne, a significant improvement in self-esteem was found with treatment.[16] Thus, it is imperative that physicians are familiar with acne vulgaris and its treatment.

In Pakistan there is only one study in which DLQI was tested in patients with acne vulgaris, which showed mean DLQI scores for severe acne 13.8±6.42, moderate acne 12.1±7.44 and for mild acne 10.6±5.83 with p<0.005.[17] These results are comparable to our results.

Lasek et al[18] conducted a similar study to see the determinants of poor quality of life in patients with acne. Their results were similar to our results. Women and men were equally likely to respond that appearance was the most bothersome aspect of their skin disease (P=.50). Seventy percent of responding patients aged 30 to 39 years wrote appearance, compared with 33%, 33%, 17%, and 33% of patients aged 17 to 19 years, 20 to 29 years, 40 to 49 years, and 50 to 53 years, respectively. The effects of acne on quality of life were similar for men and women, and were somewhat greater in older patients, although the difference did not reach statistical significance (for composite Skindex score, r= 0.24; P=.07). Patients with more severe acne (as judged by the dermatologist) also reported more effects on their quality of life; correlations of Skindex scale scores with clinical severity were the following: functioning, r= 0.31 (P=.02); emotions, r= 0.34 (P=.01); and symptoms, r = 0.23 (P=.09). In a multiple regression model controlling for sex, age, and acne severity, both patient age and acne severity remained independently associated with the Skindex composite score (P .01). On average, in this multivariate model the Skindex composite score increased with age by approximately 20% for each decade of life and with clinical severity by approximately 28% for each grade of severity.[18]

More than 20 years ago Plewig and Kligman[16] observed that the very behaviour of attending a dermatology appointment implies significant bothering. Only recently, however, have tools become available to measure accurately how patients are bothered in terms of their quality of life. In this study we examined skin disease–specific quality of life in a sample of adult patients with acne vulgaris and found that the effects of acne on patients' quality of life are significant.[16]

Lasek et al[18] emphasized 3 findings from their study. First, patients with acne vulgaris reported emotional effects of their skin condition that were similar in magnitude to those reported by patients with psoriasis, which is traditionally regarded as a skin condition causing significant disability.[17,18] Second, in a multivariate analysis, older adults with acne vulgaris reported significantly greater overall effects on their quality of life than did younger patients, even when controlling for the clinical severity of the acne as judged by the dermatologist. This finding is interesting because of the prevailing perception of younger patients as being more susceptible to the psychosocial effects of acne. Finally, 3 months after treatment, older (40 years) than younger patients reported no improvement in their acne and, compared with younger patients who had not seen improvement, older patients reported greater effects on their quality of life. In summary, these findings are consistent with the premise that acne vulgaris is a disease that significantly affects patients' quality of life, particularly that of older patients.

Cunliffe[19] found that the unemployment rate was 7% higher for adults with acne. Furthermore, acne's effects on patient's lives may be related to patient age. In one study, adults with acne (age ≥21 years) were less likely than younger patients to improve on measures of social appraisal and social assertiveness following treatment with isotretinoin. Conversely, in a study of acne and quality of life among patients aged 15 to 45 years, Salek et al[20] found no relationship between age and quality of life as measured by the Acne Disability Index.

Because the richest insights into the effects of disease may come from asking patients directly, Gill et al[21] asked adults what bothered them the most about having acne and stratified their answers by age. Based on previous observations of, and reports from, acne sufferers,[22] it is not surprising that most patients in their study responded that they were bothered by acne's appearance. Interestingly, appearance was most troublesome to patients aged 30 to 39 years. One explanation for this difference among age groups is that patients younger than 30 years are closer to adolescence and feel that acne is accepted by their peers, whereas those aged 40 years and older may have themselves accepted acne. Overall, these findings support the premise that patients are affected differently by acne during different stages in their lives.[22]

Previous qualitative work suggests that the effects of acne on patients' lives may be comparable with those of other skin diseases conventionally believed to be debilitating. In a study of the effects of skin disease on self-image, researchers found that acne may be more psychosocially damaging to patients than both eczema and psoriasis. Lasek et al[18] found that patients with acne reported similar effects on their emotions and somewhat different effects on their physical and social functioning

than patients with psoriasis, even though patients with acne experienced fewer symptoms and reported better general health. Furthermore, patients with acne and with psoriasis were similar in how they rated their general quality of life and the importance of the condition of their skin to their quality of life, indicating that those with acne were not necessarily unique in terms of their general well-being or preoccupation with their skin. These comparisons highlight the degree of the effect of acne on quality of life, which may be heightened by acne's typical involvement of the face.

Finally, the study by Lasek et al[18] study confirmed other research suggesting that more severe acne (as judged by the dermatologist) is more likely to be associated with psychological factors such as anxiety, and with greater effects on patients' lives. However, factors other than severity contribute to the effects of acne on patients' quality of life, including patient age. In fact, in a previous study,[23] the psychosocial effects of acne on quality of life were found to be influenced more by patients' self-perception of their acne 'severity than by the objective severity of the disease. As with other diseases, measures of quality of life in patients with acne can supplement measures of clinical severity in assessing comprehensively the outcomes of disease and treatment.

When we analysed data after banding the DLQI scores we found that patients with mild acne had relatively little effect in quality of life and patients with severe acne had extremely large effect on their quality of life. This effect was statistically significant; p 0.00.

There were certain limitations of our study. One methodological consideration of our study is that the sample size of 138 patients limits the generalizability of our conclusions as well as our power to detect differences in important subgroups. On the other hand, the broad age range of our subjects makes it likely that any conclusions about age are valid. Also, to facilitate comparisons, we averaged the individual DLQI scales to create a composite score. Although the composite score does not reflect the magnitude of specific physical and psychosocial effects of skin disease because the different scales are given equal weights, similar techniques have been used with other instruments.[24] Finally, to assess the clinical severity of acne we used dermatologists' ratings on a 4-point scale that has not been independently validated. Further studies with larger samples of patients should test our conclusions.

Although it is possible for a clinician to gain an overall view of a patient's QoL by asking a single question, the use of a more detailed questionnaire provides much richer detail that allows the clinician both to ad-dress specific problems experienced by a patient and to identify which aspects of the patient's life are most severely affected by their disease. Intervention can therefore be directed more appropriately. It is believed that the findings of this study will help dermatologists to use DLQI scores and allow them to use this data in their clinical decision taking on a routine basis.

CONCLUSION

Acne vulgaris affects patients' quality of life. The magnitude of effect on quality of life is significantly determined by severity of acne. Severe acne affects quality of life more than mild and moderate acne.

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