

# Quality of Life in Patients with Acne Vulgaris

Gaurav N Salve<sup>1</sup>, Shruti D Chavan<sup>2</sup>, Shilpa S Pathrikar<sup>3</sup>, Ashish R Deshmukh<sup>4</sup>

## ABSTRACT

**Background:** Dermatological diseases have a significant impact on a patient's quality of life. The present study was to evaluate the impact of acne vulgaris on their quality of life.

**Methods:** Two hundred and fifty-six patients with acne vulgaris were considered for this study. Pre-tested personal interviews were done on all patients for the collection of data. This information was used for grading of acne vulgaris and its complications. Further evaluation of its impact on quality of life was done using the Dermatology Life Quality Index (DLQI) scale. The percentage and frequency of data were assessed by Chi-square test, and final analysis was done using Statistical Package for the Social Sciences (SPSS) version 20th.

**Results:** Small effect on DLQI was noted in 59 (45.7%) patients with mild severity acne, moderate effect in 42 (41.6%) patients with a moderate severity of acne and 14 (53.8%) patients with severe acne had a small effect on DLQI. There was a significant association between the outcome of the DLQI scale and grading of acne ( $p < 0.0001$ ).

**Conclusion:** Depending on the severity, acne vulgaris has a considerable impact on the quality of life of patients. The study showed significant impairment of quality of life in acne patients. Proper treatment early in the course of the disease, along with counseling and assurance of the patient plays an important role in efficacious management and in reducing the psychosocial impact.

**Keywords:** Acne vulgaris, Dermatology life quality index, Quality of life.

*MGM Journal of Medical Sciences* (2019): 10.5005/jp-journals-10036-1222

## INTRODUCTION

Acne vulgaris is a common chronic skin disease in which there is inflammation of pilosebaceous unit. It has varying presentations, in the form of open and closed comedones, papules, pustules, and nodules in more severe cases. Face, upper chest and upper back are the most common sites affected.<sup>1</sup> Although it may occur in all age groups, it is primarily a disorder of adolescence. With an approximate prevalence of 85% in all individuals at one or the other time, peak incidence occurs during adolescence. Despite being a disease of youth, 12% of women and 3% of men will continue to have acne until the age of 44 years.<sup>2</sup> The pathophysiology of acne involves the complex interaction of multiple factors, both internal and external with the pilosebaceous unit. The scarring in acne occurs due to inflammation leading to the disfigurement of the face in eventually most of the cases associated with psychological comorbidity hampering the patient's quality of life.

Clinical assessment of acne alone cannot evaluate the impact of the disease adequately. Its impact on the health-related quality of life is thus a prime tool to assess the complete burden of the disease and treatment efficacy.<sup>3</sup> Quality of life (QoL), as defined by World Health Organization (WHO), is the "individual's perception of their position in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns".<sup>4</sup> It is an important method to assess the general well being of an individual, focusing on both positive and negative aspects of life. It observes the functioning, well-being and life satisfaction of the individual, and indicates the individual's health status and quality of life. Skin diseases in general and acne in particular, greatly affect the quality of life of the patients. QoL thus serves as an important tool in analyzing the treatment effect at the patient's level.<sup>5</sup> The use of this entity helps us achieve a better understanding of the effect of acne on the life of the patient on a day-to-day basis and also the efficacy of therapy. This would ultimately enable us to use more targeted interventions

<sup>1-4</sup>Department of Skin and VD, MGM Medical College and Hospital, Aurangabad, Maharashtra, India

**Corresponding Author:** Ashish R Deshmukh, Department of Skin and VD, MGM Medical College and Hospital, Aurangabad, Maharashtra, India, Phone: +91 9422213292, e-mail: ashish7557@gmail.com

**How to cite this article:** Salve GN, Chavan SD, *et al.* Quality of Life in Patients with Acne Vulgaris. *MGM J Med Sci* 2019;6(1):11–14.

**Source of support:** MGMIHS

**Conflict of interest:** None

for improved management of the disease. Dermatology Life Quality Index (DLQI), a questionnaire developed by Finlay and Khan, is a sensitive measure commonly used in clinical practice and research areas to assess changes in health-related QoL.<sup>6,7</sup> Studies on the impact of acne on QoL have been evaluated in the USA, UK, Spain, Brazil, Iran, Malaysia and Greece.<sup>8</sup> In India, fewer studies on this issue have been conducted.

## MATERIALS AND METHODS

Our study was a cross-sectional, hospital-based, a prospective study done in the Outpatient Department of Skin and Vernal Diseases (VD) in a tertiary care teaching hospital, over a period of two years, from January 2015 to December 2016. It has been approved by the Institutional Research and Ethical Committee.

Patients diagnosed clinically with acne vulgaris, with age more than 12 years were included in the study. Informed consent of the patient and from guardian/ parent in case of minors, was taken in all cases. Patients with a history of any chronic medical/surgical illness or known chronic mental disorders were excluded from the study.

A sample size of 256 was calculated using the prevalence of acne vulgaris and available literature on its a psychological impact. Patients of acne vulgaris meeting inclusion and exclusion criteria

were approached for participation in study till sample size was reached. Personal interviews of all patients were conducted using a pre-tested semi-structured schedule.

The collected data was analyzed using a Statistical Package for the Social Sciences (SPSS) version 20th. The quantitative data was represented in form of frequency and percentage. Chi-square test was applied to check the significant difference between the severity of acne and the DLQI, using  $p$  value at 0.05 level of significance. A detailed history of all patients was taken with respect to the presenting complaints, duration, and onset, the presence of any aggravating factors, seasonal variation, stress, use of any oral or topical medications or cosmetics, socio-demographic data, etc. Dietary history, menstrual history in females, associated symptoms like weight gain were noted. A single dermatologist conducted the cutaneous examination on all patients to avoid inter-observer errors. Grading of the severity of acne was done using Pillsbury, Shelley and Kligman Grading system.<sup>9</sup> Following grades were included:

- *Grade 1:* Comedone and occasionally small cysts confined to the face.
- *Grade 2:* Comedone with occasionally pustules and small cysts confined to the face.
- *Grade 3:* Many comedones and small and large inflammatory papules and pustules, more extensive but confined to the face.
- *Grade 4:* Many comedones and deep lesion tending to coalesce and canalize, and involving the face and upper aspect of trunk.<sup>9</sup>

The dermatology life quality index (DLQI) questionnaire was used as the study instrument.<sup>5</sup> After obtaining consent, all patients were asked to fill out the questionnaire without any assistance, since the questionnaire is self-explanatory. Domains covered in the DLQI questionnaire included: (a) physical symptoms and feelings (question 1 and 2), (b) daily activities (question 3 and 4), (c) leisure (question 5 and 6), (d) work/school (question 7), (e) personal relationships (question 8 and 9) and (f) treatment (question 10). Each question is scored as "very much" (score 3), "a lot" (score 2), "a little" (score 1), and "not at all", "not relevant", "question unanswered" (score 0). Final DLQI score is the sum of all scores (range 0–30). High scores indicate a poor quality of life. The DLQI can also be expressed as a percentage of the maximum possible score of 30. Interpretation of DLQI score: 0–1 no effect on patient's life, 2–5 small effect, 6–10 moderate effect, 11–20 very large and 21–30; extremely large effect.<sup>6</sup>

### Interpretation of Incorrectly Completed Questionnaires

In the event of any mistakes by the patient in filling out the questionnaire, the interpretation was done using the following points:

- Any question left unanswered to be scored as 0 and the scores are summed and expressed as a usual maximum of 30.
- In the case of two or more unanswered questions, scoring is not done.
- If question 7 is answered yes this is scored 3. If question 7 is answered no or not relevant but then either a lot or a little is ticked this is then scored 2 or 1.
- If two or more response options are ticked, the response option within the highest score is recorded.
- If there is a response between two tick boxes, the lower of two score option is recorded.

- The DLQI can be analyzed by calculating the score for each of its six subscales. When using subscale, if the answer to one question in subscale is missing, that subscale should not be recorded".<sup>6</sup>

## RESULTS

The maximum patients were from age-group 21–30 years, i.e. 148 (57.8%) and whereas only 6 (2.4%) were from age-group 41–50 years. The mean age of the present study was 25.24 years (Table 1).

Out of 256 patients, 102 (39.8%) were male, and 154 (60.2%) were females (Table 1).

Out of 256 acne patients, the maximum patients 101 (39.4%) were from Grade 3 and minimum were observed in Grade 4, i.e. 26 (10.1%) whereas 44 (17.2%) and 85 (33.2%) patients were observed in Grade 1 and Grade 2 acne respectively (Table 2).

In the present study, 129 (50.4%) patients were having mild acne, 26(10.1%) were having severe acne, and 101 (39.5%) were having moderate acne (Table 3).

In this study, maximum 96 (37.5%) acne patients were having a small effect and 88 (34.4%) patients were having a moderate effect. Only 5 (2%) patients showed an extremely large effect (Table 4).

In mild severity of acne, 59 (45.7%) patients were having a small effect of DLQI. In moderate severity of acne, 42 (41.6%) patients were having a moderate effect of DLQI. In severe acne patients, 14 (53.8%) patients were found to have a small effect of DLQI (Table 5). There was a significant association between the severity of acne and DLQI scale outcome ( $p < 0.0001$ ).

## DISCUSSION

This is a cross-sectional observational study conducted in dermatological patients, and its results may not generalize to other population. In this study, we evaluated the prevalence of psychiatric morbidity in patients with acne vulgaris and to what extent DLQI affected them.<sup>10</sup> The study group included patients above 12 years of age.

In this study, about 39.8% of the patients were males, whereas 60.20% were females. The study by Schafer et al.<sup>11</sup> showed that acne was more prevalent in males 29.9% than females 23.7% which is in variance to this study, in which females predominated. In the

**Table 1:** Distribution of patients according to age-group and gender

S. No.	Variables	Frequency	Percentage (%)	
1	Age	<20	60	23.4
		21–30	148	57.8
		31–40	42	16.4
		41–50	06	2.4
		Total	256	100
	Mean SD	25.24+/-6.49 years		
2	Sex	Male	102	39.8
		Female	154	60.2
		Total	256	100

**Table 2:** Distribution of patients according to grading of acne

Grading	No. of patients	Percentage (%)
Grade 1	44	17.2
Grade 2	85	33.2
Grade 3	101	39.4
Grade 4	26	10.1
Total	256	100

**Table 3:** Distribution of patients according to the severity of acne

Severity of acne	No. of patients	Percentage (%)
Mild	129	50.4
Moderate	101	39.5
Severe	26	10.1
Total	256	100%

**Table 4:** Distribution of patients according to dermatological life quality index

DLQI	No. of patients	Percentage (%)
No effect	16	6.3%
Small effect	96	37.5%
Moderate effect	88	34.4%
Large effect	51	19.9%
Extremely large effect	5	2.0%

**Table 5:** Association between severity of acne and DLQI score:

Severity of acne	DLQI					Chi-square value
	No effect	Small effect	Moderate effect	Large effect	Extremely large effect	
Mild	12	59	39	17	2	Chi-square value $s = 25.26\%$ $p < 0.0001$ Statistically significant
Moderate	4	23	42	30	2	
Severe	0	14	7	4	1	
Total	16	96	88	51	5	

distribution of patients according to age group maximum patients (57.8%) were from the age group 21–30 years. Mean age was 25.24 years. Schafer et al.<sup>11</sup> and Collier et al.<sup>12</sup> found a predominance of acne in the age group of 14 to 29 years which is similar to our study.

A maximum number of patients in our study (39.4%) had Grade 3 acne and least (10.1%) had Grade 4. Severity-wise, 50.4% had mild acne whereas severe acne and moderate acne percentages were 10.1% and 39.5% respectively in our study. DLQI score grading in our patients showed: 6.3% patients no effect, 37.5% had a small effect, 34.4% had a moderate effect, and only 2.0% of patients had an extremely large effect. While checking for the association between severity of acne and DLQI score we found that in mild severity acne, 45.7% patients had a mild effect on their DLQI whereas percentage of no effect, moderate effect, very large effect, extremely large effect were at 9.3%, 30.2%, 13.2%, 1.6% respectively. In moderate severity acne, maximum patients were found in moderately affected DLQI, i.e. 41.6% whereas the percentage of patients in no effect, small effect, very large effect, and extremely large effect groups were 4%, 23%, 30%, and 2% respectively. In severe acne, maximum patients (53.8%) had a small effect on DLQI, whereas no effect, moderate effect, very large effect, and extremely large effect percentages were 0%, 26.4%, 15.4%, and 3.8% respectively. These figures show a significant association between the severity of acne and DLQI score ( $p < 0.0001$ ). Martin et al.<sup>5</sup> observed that quality of life (QoL) score correlated with the severity of acne. They also observed that QoL in the facial acne correlated with patient's psychiatric disease severity. Pawin et al.<sup>13</sup> reported in their study that quality of life was affected by 48% of the patients with acne. These findings are similar to those of our study in which 189 patients out of 256 (73.8%) showed impaired QoL. However, Yazici et al.<sup>14</sup> found no correlation between the severity of acne and DLQI which is at variance with our study.

Saker et al.<sup>10</sup> found that in most of the patients (42%) the effect of the disease on their lives was minor, in 33.6% it was very large effect and in only 6.4% there was no effect of the disease on their lives. The relation between DLQI and severity of acne was statistically significant. In patients having mild severity of acne, there was a small effect on DLQI, whereas, in patients with severe acne, the effect was relatively large. On comparing our study with that of Saker et al., we found corroborative results viz. effect of acne on DLQI was small in 45.7% patients and moderate in 41.6%.

## CONCLUSION

The visibility of skin diseases increases the likelihood of stigmatization. Skin diseases should be measured by physical, psychological and social parameters along with symptoms. Understanding of mind and body interaction and interventions can help to improve patient's skin conditions and ultimately their quality of life. Physicians concerned with patients' mental wellbeing should also consider referral to properly trained specialists in cosmetic camouflage to diminish or disguise facial or other disfigurements. Acne vulgaris, especially those involving the face, is a common skin disorder that can cause disfigurement of appearance. It affects many young people and is usually considered to be a cosmetic issue only.<sup>15</sup> Dermatologists need to be aware of psychological issues caused by acne, which can have serious consequences. It may be prudent to provide a basic standardized quality of life index assessment upon clinical evaluation of new and current acne patients. Consistent utilization of this tool would allow clinicians to better identify coexisting psychiatric comorbidity in their patients and tailor a regimen to each individual patient that would help to optimize treatment outcomes.<sup>15</sup> Management of skin disorders may be optimized by nonpharmacological or pharmacological-cum-psychological interventions.

## LIMITATION

Following are the limitations of this study:

- This is a cross-sectional study with a limited sample size, and its result may not be generalized to other populations.
- The finding of assessment of psychiatric scales, i.e. DLQI of this study was based on information provided by acne vulgaris patients on above mentioned psychiatric scale questionnaire which are subject to some informant bias.

## REFERENCES

1. Layton AM. Disorders of sebaceous glands. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. 8th ed. Vol. 42. Oxford: Wiley-Blackwell Publication; 2010. pp. 1–89.
2. Goulden V, Stables GI, et al. Prevalence of facial acne adult. J Am Acad Dermatol 1999 Oct;41(4):577–580.
3. Saitta P, Grekin SK. A Four-question Approach to Determining the Impact of Acne Treatment on Quality of Life. J Clin Aesthet Dermatol 2012 Mar;5(3):51–57.

4. World Health Organization Quality of Life assessment (WHOQOL): Position paper from the World Health. *Soc Sci Med* 1995 Nov;41(10):1403–1409.
5. Martin AR, Lookingbill DP, et al. Health related quality of life among patients with facial acne to assessment of a new acne specific questionnaire. *Clin Exp Dermatol* 2001 Jul;26(5):380–385.
6. Finlay AY, Khan GK. Dermatology Life Quality Index (DLQI)-A simple practical measure for routine clinical use. *Clin Exp Dermatol* 1994 May;19(3):210–216.
7. Barnes LE, Levender MM, et al. Quality of life measures for acne patients. *Dermatol Clin* 2012 Apr;30(2):293–300.
8. Rapp SR, Feldman SR, et al. The Acne Quality of Life Index (Acne-QOLI): Development and validation of a brief instrument. *Am J Clin Dermatol* 2006;7(3):185–192.
9. Witkowski JA, Parish LC. The assessment of acne: an evolution of grading and lesion counting in the measurement of acne. *Clin Dermatol* 2004 Sep–Oct;22(5):394–407.
10. Saker AA, El-Moez KA, et al. Evaluation of psychiatric morbidity and quality of life in patients with acne vulgaris. *Egypt J Psychiatry* 2015 36(3):144–149.
11. Schafer T, Nienhaus A, et al. Epidemiology of acne in the general population: the risk of smoking. *Br J Dermatol* 2001 Jul;145(1):100–104.
12. Collier CN, Harper JC, et al. The prevalence of acne in adults 20 years ad older. *J Am Acad Dermatol* 2008 Jan;58(1):56–59.
13. Pawin H, Chivot M, et al. Dréno B. Living with Acne: A Study of Adolescents' Personal Experiences. *Dermatology* 2007;215(4): 308–314.
14. Yazici K, Baz K, et al. Disease specific quality of life is associated with anxiety and depression in patients with acne. *J Eur Acad Dermatol* 2004 Jul;18(4):435–439.
15. Saitta P, Keehan P, et al. An update on the presence of psychiatric comorbidities in acne patients, part 1: overview of prevalence. *Cutis* 2011 Jul;88(1):33–40.

