

Quality of Life in Patients with Acne Vulgaris in A Tertiary Care Centre: A Cross Sectional Study

Garima Yadav¹, V.K Garg²

¹Junior Resident, Department of Dermatology, Santosh Medical College, Ghaziabad, UP, India

²Professor & HOD, Department of Dermatology, Santosh Medical College, Ghaziabad, UP, India

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Corresponding author: Dr. Garima Yadav

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Abstract:

Background: A persistent inflammatory condition of the pilosebaceous units known as acne vulgaris has a significant psychological impact and can lead to sadness, anxiety, and low self-esteem.

Methods: To understand the effects of acne on quality of life, 240 people in the age range of 12 to 30 years participated in a hospital-based, cross-sectional, prestructured questionnaire study using the Cardiff Acne Disability Index (CADI) and Acne-specific Quality of Life (Acne-QoL).

Results: The ratio of men to women was 2:3. Average age of the participants was 17.23 ± 1.5 years. The typical CADI rating was 5.3. 44% of the patients had grade 2 acne, the most common type. According to the CADI questionnaire, the percentage of boys (61.9%) and females (59.6%) in the medium score was at its highest. The majority of patients with grade 1 acne had poor scores, followed by those with grade 2 acne. Maximum patients, according to the acne-QoL questionnaire, were in the 11–20 score range, followed by the 21–30 score range.

Conclusions: In addition to being an aesthetic issue, acne has serious psychological effects. Therefore, when managing facial acne, the impact of acne on QoL must be taken into account.

Keywords: Acne-QoL, CADI, and acne vulgaris.

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Introduction

The symptoms of acne vulgaris, a long-lasting inflammatory condition of the pilosebaceous units, include seborrhea, open and closed comedones, papules, pustules, nodules, pseudocysts, and scarring[1]. It has a significant psychological impact and can lead to despair, anxiety, and low self-esteem because it primarily affects the face. Therefore, it's crucial to gauge the effect on patients' quality of life (QoL) using

established and age-appropriate metrics. The WHO defines QoL as "an individual's view of their situation in respect to their objectives, expectations, norms, and worries, as well as the culture and value systems in which they live." For evaluating the QoL, a variety of scales are available. Measures of general health-related quality of life (HRQOL) compare how each ailment affects a patient's quality of life.[2] Although the overall measurements are

good, an evaluation of HRQoL specific to acne is more appropriate. It is the most accurate method for assessing acne's influence and patients' reactions to it.[3] Acne-specific HRQoL indices include the Acne-Specific Quality of Life (Acne QoL), Acne Quality of Life (AQOL), Assessment of the Psychological and Social Effects of Acne (APSEA), Cardiff Acne Disability Index (CADI), etc. Data collection was done using a pre-designed, pre-tested and validated questionnaire. [4]

The 19 items in the four subscales of the patient-completed Acne-QoL questionnaire have a one-week recall duration. [5] There hasn't been a lot of research on how acne affects patients' quality of life in India. By the use of two acne-specific HRQoL indices, the CADI and Acne-QOL, the study's objective was to comprehend the effects of acne on quality of life.

Methods

This hospital-based, cross-sectional, prestructured study involved 240 people who attended the dermatology outpatient department at the Santosh Medical College and hospital, Ghaziabad, between October 2021 and February 2022. After obtaining written informed consent, individuals with acne vulgaris between the ages of 12 and 30 were enrolled in the study. Individuals who were taking medications or had conditions that would make it difficult to diagnose acne were not allowed to participate in the trial. Women who were nursing or pregnant were also excluded. A comprehensive clinical examination was performed, and a thorough history regarding acne and its treatment was obtained. The severity of the acne was rated, and the patients were given the CADI and Acne-QOL HRQoL

questionnaires to gauge how much the condition affected their daily lives. A higher level of disability was indicated by a higher score on the CADI, which contained five questions and was graded as low, moderate, or high. The Acne-QoL questionnaire comprised 19 items in four subscales, each of which was evaluated from 0 to 6 according to its domain. Each domain's subtotal was calculated, with higher scores indicating a better quality of life.

Acne vulgaris was graded as:[6]

- Grade 1-comedones, occasional papules
- Grade 2-papules, comedones, few pustules
- Grade 3-predominant pustules, nodules, abscesses
- Grade 4-mainly cysts, abscesses, widespread scarring

Five questions on a Likert scale and four response options make up the well-validated self-reported CADI questionnaire (0-3).

The five questions concern feelings of hostility, annoyance, interference with social life, avoidance of public restrooms, and skin appearance throughout the previous month. 2CADI results received a grade of 4.

- Low = 0-4
- Moderate = 5-9
- High = 10-15

High scores indicate a higher level of disability.

With a one-week recall period, patients fill out the Acne-QoL questionnaire, which has 19 items divided into four subscales: self-perception, role-emotional, role-social, and acne.

Table 1: Domain structure of the Acne-QoL[8]

Self-Perception	Role-Emotiona	Role-Social	Symptoms
Feeling unattractive	Upset about having facial acne	Concerns about meeting new people	Bumps on your face
Feeling embarrassed	Annoyed about time spent cleaning and treating face	Concern about going out in public	Bumps full of pus on face
Feeling self-conscious	Concerned about not looking your best	Socialising a problem	Scabbing from facial acne
Dissatisfied with appearance	Concern about acne medication not working fast enough	Interacting with the opposite sex a problem	Concern about scarring from facial acne
Self-confidence (negatively affected)	Bothered by need to have medication and cover up available		Oily facial skin

Each item within a domain is equally weighted. Symptom answers for all items are on a scale from 0 ('very' or 'extensive') to 6 ('not at all' or 'none'). [7] Higher scores imply a better quality of life, and the instrument scores are calculated by adding the responses on each subscale to produce the four overall domain scores. [8]

Statistical analysis

The acquired data was tabulated in a Microsoft Excel Spreadsheet, and statistical product and service solutions (SPSS) 16.0 software was used for computer-based analysis. Proportions and percentages were used to enumerate the

category variables. The mean and standard deviation were used to summarise the continuous variables.

Results

Out of 240 patients, 47.5% were in the 16 to 20 year age range. Just 6.6% of patients were in the 26–30 age range (Table 2). Just 39.2% of patients were men, making up the majority of patients at 60.8% female. The ratio of females to males was 1.5:1. Just 27.5% of the patients were married, and 72.5% were single. Just 5% of patients had grade 4 acne, while the majority of patients had grade 2 (40%) and grade 1 (32.5%) acne (Table 3).

Table 2: Age distribution (years) among the patients

Age (years)	No. of patients
12 –15	38 (15.8)
16-20	114 (47.5)
21-25	72 (30)
26-30	16(6.6)

Table 3: Demographic data

Age (years)Mean±SD	17.23±1.5
Duration of disease (years)Mean±SD	3.8±1.1
	N (%)
Gender	
Males	84 (35)
Females	156 (65)
Marital Status	
Single	174 (72.5)
Married	66 (27.5)

Acne grade	
Grade 1	68 (28.3)
Grade 2	106 (44.1)
Grade 3	50 (20.8)
Grade 4	16(6.6)

Table 4: Distribution of Cardiff acne disability index scores based on gender

CADI score	Male N(%)	Female N(%)	Total N(%)
Low (0-4)	20 (23.8)	47 (30.1)	67 (28)
Medium; (5-9)	52 (61.9)	93 (59.6)	145 (60.4)
High (10-15)	12 (14.3)	16 (10.3)	28 (11.6)
Total	84 (35)	156 (65)	240 (100)

According to the CADI questionnaire, the percentage of males and females was highest in the medium score (61.9% and 59.6%, respectively), while it was lowest in the high score (males: 14.3%, females: 10.3%). (Table 4)

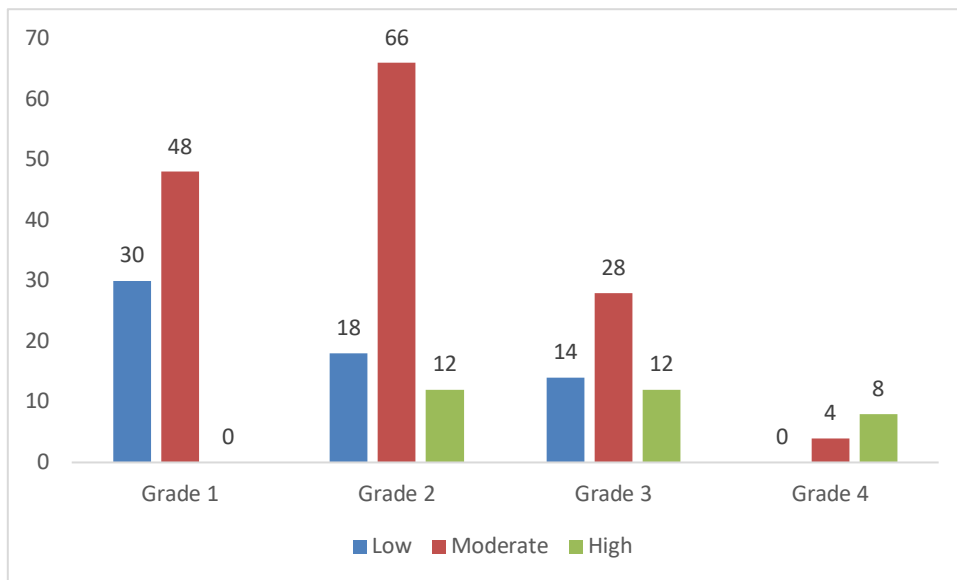


Figure 1: Distribution of patients with different grades of acne based on CADI score

In grades 1, 2, and 3, the majority of patients had moderate ratings for their acne, but in 4, the majority of patients had high scores. The most patients with low scores had grade 1 acne, which was followed by grade 2 acne.

Table 5: Distribution of Acne-QoL scores

	0-10 N(%)	11-20 N(%)	21-30 N(%)	Total N(%)
Self-perception	24 (11.6)	148 (61.6)	64 (26.7)	240 (100)
Role-emotional	32 (13.3)	134 (55.9)	74 (30.9)	240 (100)
Role-social	32 (13.3)	164 (68.3)	44 (18.3)	240 (100)
Symptoms	34 (14.2)	118 (49.1)	88 (36.7)	240 (100)

Maximum patients, according to the Acne-QoL questionnaire, were in the 11–20 score range, followed by the 21–30 score range. Low scores on this scale suggest a greater degree of impairment (Table 5).

Discussion

Acne vulgaris is a chronic inflammatory disease of pilosebaceous unit.[1]

Various mechanisms have been proposed for the development of acne including, increased sebum production, follicular hyperkeratinization, proliferation of *Propionibacterium acnes* within the follicle, alteration of the quality of sebum lipids, regulation of cutaneous steroidogenesis, androgen activity, interaction with neuropeptides, and exhibition of pro- and anti-inflammatory properties.[1,9]

Although a very common cosmetic problem, it can also affect a person's emotional and social behaviour as it affects the face and can negatively impact the patient's life causing low self-esteem, depression and anxiety issues. There are studies assessing the impact of acne on QoL from various countries whereas studies on Indian patients are reported less frequently.[2]

The age range of acne vulgaris patients included in the many studies conducted in this area varies. A group of people between the ages of 13 and 18 have been included in the majority of research. [4,10-13] Participants in our study range in age from 12 to 30.

In this study, women were affected more frequently than men (1.5:1). This supports findings from earlier studies, which may be related to the fact that women are more concerned about their appearance than men are. [13-16]

When a person is 17 years old, acne incidence peaks. [14] The average age in our sample was 17.23 ± 1.5 . The majority of the patients experienced a mild psychological impact, with a mean CADI score of 5.3. The results of our investigation are consistent with those of a study by Jankovic et al.[11], in which the mean CADI score was 3.57 and gender differences were significant, with CADI scores being higher in females. The mean CADI score in a study by Walker and Lewis-Jones was low (1.9), and no gender differences were found. 10 Patients with acne who had their CADI scores analysed

by Shahin et al had a mean CADI score of 7.57. The majority (78%) of patients had fairly severe acne, and the CADI scoring was linked with the grade. Only 6.6% of the participants in our study had grade 4 acne, with the bulk of them having grade 2 (44.1%) and grade 1 (28.3%) acne.

The correlation between QoL scores and patient-reported severity is stronger than the correlation between QoL scores and physician-reported severity, indicating that patients' opinions of their disease may be a crucial factor in the assessment and treatment of acne.[7]

The Acne-QoL was created as a tool to evaluate the QoL factors that face acne has an impact on as well as the results of treatment.[7]

According to the Acne-QoL questionnaire used in our study, the majority of patients fell into the 11–20 score range, followed by the 21–30 score range.

Conclusion

A typical adolescent issue is acne. It has a big psychological impact in addition to just being a cosmetic issue. Hence, when managing facial acne, the impact of acne on QoL must be taken into account.

References

1. Layton AM. Disorders of sebaceous glands. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. Rook's Textbook of Dermatology. 8th ed., Vol. 42. Oxford: Wiley-Blackwell publication; 2010:42:1-89.
2. Durai PT, Nair DG. Acne vulgaris and quality of life among young adults in South India. *Indian J Dermatol.* 2015; 60:33-40.
3. The World Health Organization Quality Of Life assessment (WHOQOL): Position paper from the World Health Organization. *Soc Sci Med.* 1995; 41:1403-9.
4. Hanisah A, Omar K, Shah SA. Prevalence of acne and its impact on the quality of life in school-aged

- adolescents in Malaysia. *J Prim Health Care*. 2009;1:20-5.
5. Girman CJ, Hartmaier S, Thiboutout D, Johnson J, Barber B, DeMuro-Mercon C, et al. Evaluating health-related quality of life in patients with facial acne: Development of a self-administered questionnaire for clinical trials. *Qual Life Res*. 1996;5:481-90
 6. Adityan B, Kumari R, Thappa DM. Scoring systems in acne vulgaris. *Indian J Dermatol Venereol Leprol*. 2009; 75:323-6.
 7. Martin AR, Lookingbill DP, Botek A, Light J, Thiboutout D, Girman CJ. Health related quality of life among patients with facial acne: Assessment of a new acne-specific questionnaire. *Clin Exp Dermatol*. 2001; 26:380-5.
 8. Fehnel SE, McLeod LD, Brandman J, Arbit DI, McLaughlin-Miley CJ, Coombs JH, et al. Responsiveness of the acne specific quality of life questionnaire (Acne QoL) to treatment for acne vulgaris in placebo-controlled trials. *Qual Life Res*. 2002; 11:809-16.
 9. Kurokawa I, Danby FW, Ju Q, Wang X, Xiang LF, Xia L, et al. New developments in our understanding of acne pathogenesis and treatment. *Exp Dermatol*. 2009; 18: 821-32.
 10. Walker N, Lewis-Jones MS. Quality of life and acne in Scottish adolescent schoolchildren: Use of the Children's Dermatology Life Quality Index (CDLQI) and the Cardiff Acne Disability Index (CADI). *J Eur Acad Dermatol Venereol*. 2006;20:45-50.
 11. Jankovic S, Vukicevic J, Djordjevic S, Jankovic J, Marinkovic J. Quality of life among schoolchildren with acne: Results of a cross-sectional study. *Indian J Dermatol Venereol Leprol*. 2012; 78: 454-8.
 12. Pawin H, Chivot M, Beylot C, Faure M, Poli F, Revuz J, et al. Living with acne. A study of adolescents' personal experiences. *Dermatology*. 2007; 215: 308-14.
 13. Uslu G, Sendur N, Uslu M, Savk E, Karaman G, Eskin M. Acne: Prevalence, perceptions and effects on psychological health among adolescents in Aydin, Turkey. *J Eur Acad Dermatol Venereol*. 2008; 22: 462-9.
 14. Rapp SR, Feldman SR, Graham G, Fleischer AB, Brenes G, Dailey M. The Acne Quality of Life Index (Acne-QOLI): Development and validation of a brief instrument. *Am J Clin Dermatol*. 2006;7:185-92
 15. Lasek RJ, Chre MM. Acne vulgaris and the quality of life of adult dermatology patients. *Arch Dermatol*. 1998;134:454-8.
 16. Tasoula E, Gregoriou S, Chalikias J, Lazarou D, Danopoulou I, Katsambas A, et al. The impact of acne vulgaris on quality of life and psychic health in young adolescents in Greece. Results of a population survey. *An Bras Dermatol*. 2012;87:862-9.
 17. Aghaei S, Mazharinia N, Jafari P, Abbasfard Z. The Persian version of the Cardiff Acne Disability Index. Reliability and validity study. *Saudi Med J*. 2006; 27:80-2.