

Original Research Article

Quality of life in patients with acne vulgaris in a tertiary care centre: a cross sectional study

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ABSTRACT

Background: Acne vulgaris is a chronic inflammatory disease of pilosebaceous units which has great psychological impact and causes depression, anxiety, and low self-esteem.

Methods: It was a hospital-based, cross-sectional, prestructured, questionnaire-based study done in 120 individuals in the age group 12-30 years using two specific HRQoL indices-Cardiff Acne Disability Index (CADI) and Acne-specific Quality of Life (Acne-QoL) to understand the impact of acne on the quality of life.

Results: Male to female ratio was 2:3. The mean age was 19.23 ± 1.7 . The mean CADI score was 5.3. Majority of the patients had grade 2 acne. Based on the CADI questionnaire, the number of males (61.7%) and females (60.2%) was maximum in the medium score. Grade 1 acne had maximum number of patients showing low score followed by grade 2 acne. Based on the acne-QoL questionnaire, maximum patients were in the 11-20 score range, followed by the 21-30 score range.

Conclusions: Acne is not only a cosmetic problem, but also has significant psychological impact. Hence, impact of acne on QoL must be considered in the management of facial acne.

Keywords: Acne vulgaris, CADI, Acne-QoL

INTRODUCTION

Acne vulgaris is a chronic inflammatory disease of pilosebaceous units, characterized by seborrhea; open and closed comedones; papules; pustules; nodules, pseudocysts, and scarring.¹ Since it mostly affects the face, it has great psychological impact and causes depression, anxiety, and low self-esteem.² Hence, measurement of its impact on patient's quality of life QoL is important using validated and age appropriate measures.² QoL is defined by the WHO as "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".³ Several scales are available for assessing the QoL. General

health-related quality of life (HRQOL) measures compare the effect of different conditions on patient's life. Although the general measures are good, acne-specific HRQoL assessment is more appropriate.² It is the most sensitive way to determine the impact of acne and its effects on patients. There are several acne specific HRQoL indices like Cardiff acne disability index (CADI), Assessment of the Psychological and Social Effects of Acne (APSEA), Acne Quality of Life (AQOL), Acne-Specific Quality of Life (Acne QoL) etc

CADI is a well-validated, self-reported questionnaire consisting of five questions with a Likert scale and four response categories (0-3).⁴

Acne-QoL is a patient-completed questionnaire with a one-week recall period composed of 19 items in four subscales.⁵

The impact of acne on QoL in Indian patients hasn't been very widely studied. The aim of this study was to understand the impact of acne on the quality of life using two acne specific HRQoL indices – CADI and Acne-QOL.

METHODS

This was a hospital-based, cross-sectional, prestructured, questionnaire-based study done in 120 individuals, attending the Dermatology OPD in A.J Institute of Medical Sciences, Mangalore from August 2018 to December 2018. Individuals between 12 and 30 years with acne vulgaris were included in the study after taking written informed consent. Patients on drugs or those suffering from medical disorders likely to interfere with assessment of acne were excluded from the study. Pregnant and lactating women were also excluded. A detailed history pertaining to acne and its treatment was elicited and a thorough clinical examination was done. Clinical photographs were taken.

Acne was graded and two acne specific HRQoL questionnaires – CADI and Acne-QOL were given to the patients to assess how much acne affected their day to day life. CADI had five questions and was graded as low, moderate and high with high scores indicating a higher

level of disability. Acne-QoL had 19 items in four subscales with each item within a domain graded from 0-6. The subtotal of each domain was done, where higher scores indicate more favourable 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, wide spread scarring.

CADI is a well-validated, self-reported questionnaire consisting of five questions with a Likert scale and four response categories (0-3). The five questions relate to feeling of aggression, frustration, interference with social life, avoidance of public changing facilities, and appearance of the skin all over the last month.² CADI scores were graded as.⁴

Low = 0-4

Moderate = 5-9

High = 10-15

High scores indicate a higher level of disability.

Acne-QoL is a patient-completed questionnaire with a one-week recall period composed of 19 items in four subscales: self-perception, role-emotional, role-social, and acne.

Table 1: Domain structure of the Acne-QoL.⁸

Self Perception	Role-Emotional	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

Symptoms responses for all items are on a scale from 0 ('extremely' or 'extensive') to 6 ('not at all' or 'none') with each item within a domain weighted equally.⁷ Instrument scoring is done by summing the responses within the subscales to yield four overall domain scores, where higher scores indicate more favourable quality of life.⁸

Statistical analysis

The data collected was tabulated in Microsoft Excel Worksheet and computer-based analysis was performed using the Statistical product and service solutions (SPSS)

16.0 software. The categorical variables were summarized as proportions and percentages. The continuous variables were summarized as mean and standard deviation.

RESULTS

Out of 120 patients, majority 47.5% belonged to 16-20 years age group. Only 6.6% patients belonged to the 26-30 years age group (Table 2).

Majority of patients, i.e. 60.8% were females and only 39.2% were males. Female to male ratio was 1.5:1.

72.5% of the patients were single and only 27.5% were married. Majority of the patients, had grade 2 (40%) and grade 1 (32.5%) acne and only 5% had grade 4 acne (Table 3).

Table 2: Age distribution (years) among the patients.

Age (years)	No. of patients N (%)
12 – 15	19 (15.8)
16-20	57 (47.5)
21-25	36 (30)
26-30	8 (6.6)

Table 3: Demographic data.

Age (years) Mean±SD	19.23±1.7
Duration of disease (years) Mean±SD	3.1±1.1
	N (%)
Gender	
Males	47 (39.2)
Females	73 (60.8)
Marital Status	
Single	87 (72.5)
Married	33 (27.5)
Acne grade	
Grade 1	39 (32.5)
Grade 2	48 (40)
Grade 3	27 (22.5)
Grade 4	6 (5)

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

CADI score	Male N (%)	Female N (%)	Total N (%)
Low (0-4)	10 (21.2)	21 (28.8)	31 (25.9)
Medium (5-9)	29 (61.7)	44 (60.2)	73 (60.8)
High (10-15)	8 (17)	8 (10.9)	16 (13.3)
Total	47 (39.2)	73 (60.8)	120 (100)

Based on the CADI questionnaire, the number of males (61.7%) and females (60.2%) were maximum in the medium score, while in the high score the number was the least (males = 17%, females = 10.9%) (Table 4).

Maximum number of patients in grade 1, grade 2 and grade 3 acne showed moderate scores whereas in grade 4 acne majority of the patients had high score. Grade 1 acne had maximum number of patients showing low score followed by grade 2 acne (Figure 1).

Based on the Acne-QoL questionnaire, maximum patients were in the 11-20 score range, followed by the 21-30 score range. According to this scale, low scores indicate a higher level of disability (Table 5).

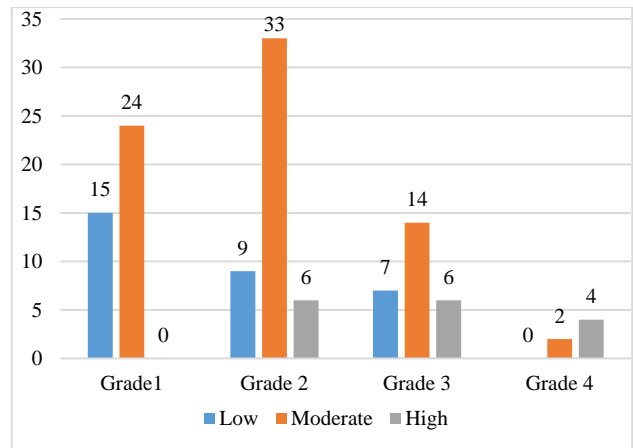


Figure 1: Distribution of patients with different grades of acne based on CADI score.

Table 5: Distribution of Acne-QoL scores.

	0-10 N (%)	11-20 N (%)	21-30 N (%)	Total N (%)
Self-perception	14 (11.6)	74 (61.6)	32 (26.7)	120 (100)
Role-emotional	16 (13.3)	67 (55.9)	37 (30.9)	120 (100)
Role-social	16 (13.3)	82 (68.3)	22 (18.3)	120 (100)
Symptoms	17 (14.2)	59 (49.1)	44 (36.7)	120 (100)



Figure 2 (A-C): Patient with grade 2 acne vulgaris.

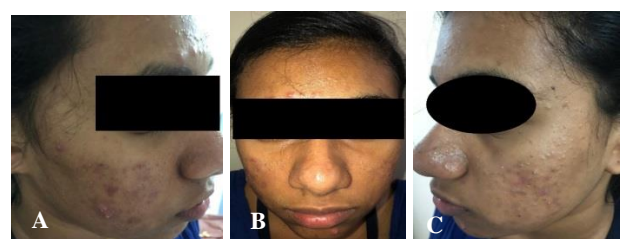


Figure 3 (A-C): Patient with grade 3 acne vulgaris.

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 group of acne vulgaris patients included in different studies done in this regard is variable. Most of the studies have included an age group between 13 and 18 years.^{4,10-13} Our study includes patients in the age group of 12-30.

In this study, females were more commonly affected than males (1.5:1). This is in corroboration with other studies which may be because females are more conscious of their appearance than males.¹³⁻¹⁶

The peak incidence of acne occurs at the age of 17 years.¹⁴ In our study, the mean age was 19.23±1.7. The mean CADI score was 5.3 and most of the patients had moderate psychological impact. In a study by Jankovic et al¹¹ the mean score for CADI was 3.57 gender difference was significant with CADI score being more in females, which correlates with the findings in our study. In a study done by Walker and Lewis-Jones the mean CADI score was low (1.9) and no gender differences were noted.¹⁰ Shahin et al evaluated CADI scores in patients with acne which showed a mean CADI score of 7.57.¹⁷ Majority (78%) of patients had moderately severe acne and the grade correlated with the CADI scoring. In our study, majority of the patients had grade 2 (40%) and grade 1 (32.5%) acne and only 5% had grade 4 acne.

QoL scores correlate more strongly with patient-reported severity than with physician reported severity suggesting that patients' perceptions of their disease may be an important consideration in the evaluation and treatment of acne.⁷ The Acne-QoL was developed as a tool to assess the effects of facial acne on QoL, and the impact of treatment on these QoL parameters.⁷ In our study, based on the Acne-QoL questionnaire, maximum patients were in the 11-20 score range, followed by the 21-30 score range. According to this scale, low scores indicate a higher level of disability. The use of this questionnaire helps to understand the impact of facial acne on patients.⁷

CONCLUSION

Acne is a common adolescent problem. It is not only a cosmetic problem, but also has significant psychological impact. Hence, impact of acne on QoL must be considered in the management of facial acne.

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Ethical approval: The study was approved by the institutional ethics committee

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