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Research Article

THE EFFECT OF ACNE VULGARIS ON QUALITY OF LIFE AMONG RURAL PATIENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objectives: Acne vulgaris affects a large majority of adolescents, often extending into adulthood. The aim of the study was to determine its impact on the quality of life (QoL).

Methods: This was a cross-sectional, questionnaire-based study, conducted on 60 patients, who attended the dermatology outpatient department and were diagnosed with acne vulgaris by the physician. The severity of lesions was assessed using the global acne grading system, and QoL was assessed using the dermatology life quality index (DLQI) questionnaire. Statistical analysis was done to assess any possible association between DLQI with severity and sequelae of acne vulgaris.

Results: The mean DLQI score was 5.46. There was a significant association between DLQI and severity of acne grade ($p<0.05$).

Conclusion: There is a significant impact of acne on QoL, and hence, a holistic approach is required to treat it.

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

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INTRODUCTION

Acne vulgaris is caused by chronic inflammation of the sebaceous follicle [1]. It is characterized by seborrhea, comedones, papules, pustules, nodules, and in advanced cases, pseudocysts. Face, upper chest, and upper back are the most frequently involved areas [2]. More than 85% of adolescents suffer from acne [3]. Acne also has psychosomatic components associated with it, which include low self-esteem, social withdrawal, depression, frustration, body shame, stress, and anxiety, thereby leading to social, familial, and personal relationship problems [4-6]. Acne may also lead to a reduced level of professional and sexual competence, which in turn can have a detrimental effect on psychosocial development and sexual maturity and, ultimately, on quality of life (QoL) [7].

QoL is a concept that entails the well-being of an individual through the lens of their culture and value system. The use of dermatology life quality index (DLQI) questionnaires, proposed by Finlay and Khan, is a sensitive tool to measure how acne affects the patient's QoL [8]. The past few years have seen promising studies about newer treatment options [9]. However, only limited studies have been conducted in India to assess the impact of acne on QoL. The study aimed at determining the impact of acne and its sequelae on the QoL in a rural population of Eastern India.

METHODS

It was a hospital-based, observational cross-sectional study done in the dermatology and STD outpatient department from June 2023 to October 2023 after approval by the institutional research and ethical committee.

Patients aged 15 years and above with a clinical diagnosis of acne vulgaris were included in the study after informed consent was taken in Hindi. The exclusion criteria were (a) patients with a known history of mental illness or with concurrent somatic diseases that could potentially affect their mental status, (b) patients with a known history of usage of topical and systemic drugs known to predispose them to acne, and (c) patients who did not give consent for the study. A detailed history was taken, which included demographic data, presenting complaints, duration of acne, and past treatment records. The cutaneous examination was done by a dermatologist on all patients, and the following were recorded: (i) site of the lesion (face, chest, or back), (ii) type of skin (dry/normal/oily), (iii) grade of acne, (iv) postacne hyper-pigmentation (present/absent), and (v) acne scars.

Acne vulgaris was graded as follows: [10]

- Grade I: Comedones and occasional papules
- Grade II: Papules, comedones, and few pustules
- Grade III: Predominant pustules, nodules, and abscesses
- Grade IV: Mainly cysts, abscesses, and widespread scarring.

Acne scars (all types included) were graded as follows: [11]

- Mild: <5 scars
- Moderate: 5–10 scars
- Severe: >10 scars.

The DLQI questionnaire, first introduced by Finlay and Khan, was translated into Hindi and distributed among the participants. It contained 10 questions, each to be answered with one out of four available options. Each question was scored from 0 to 3 [8]. Help from a counselor was provided to patients wherever required. The DLQI score ranged from a minimum of 0 to a maximum of 30.

DLQI score interpretation was done as follows:

- 0–1 no effect on patient's life
- 2–5 small effect on patient's life

- 6–10 moderate effect on patient's life
- 11–20 very large effect on patient's life
- 21–30 extremely large effect on patient's life.

Statistical analysis was done using STATA Statistics/Data Analysis software version 14.1. The correlation between DLQI score and acne was done using the Chi-square test. A p<0.05 was interpreted as statistically significant.

RESULTS

The majority of the study population consisted of females (58.3%). The mean age was 21.5 years. The maximum number of patients (48.3%) belonged to the age group of 15–20 years.

The most common site involved was the face (98.3%) followed by both face and trunk in the rest of the patients (1.7%). We noted no statistically significant association between gender and site of acne (Table 1).

Duration of acne was <6 months in most of the cases (56.7%). Most (78.3%) had oily skin, whereas only 11.7% of patients had normal skin. The association between the type of skin and grade of acne was statistically not significant (p>0.05) (Table 2).

The most common clinical type of acne was Grade II (45%), followed by Grade III (33.3%), Grade IV (16.7%), and Grade I (5%). Furthermore, males had more severe disease. Among Grade III acne, 21.7% were females, and Grade IV acne was equally distributed in both genders – 8.3% each. We noted no statistically significant difference in acne grading between the genders (Table 1).

Acne scars were seen in almost all the cases. There was no statistically significant association between the gender and presence of acne scars. However, the grade of acne influenced the degree of scars with statistical significance (p<0.05) (Table 2).

Post-acne hyperpigmentation was noted in 36%. We noted no statistically significant association between the grade of acne and postacne hyperpigmentation (p>0.05) (Table 2).

The DLQI scores ranged from 0 to 15 with a mean DLQI score of 5.46±2.86. Mean DLQI scores were highest among the following groups: (i) age >20 years, (ii) patients having Grade IV acne, (iii) patients having severe acne scars, and (iv) patients having postacne hyperpigmentation (Table 3).

Table 1: Correlation of gender with site of acne, grade of acne, and acne scar*

Variable	Gender*		
	Male (n [%])	Female (n [%])	p-value
Site of acne			
Cheeks	10 (40.0)	15 (42.9)	>0.05
Cheeks_forehead	13 (52.0)	19 (54.3)	
Face	1 (4.0)	1 (2.9)	
Cheeks_trunk	1 (4.0)	0 (0.0)	
Grade of acne			
I	0 (0.0)	3 (8.6)	>0.05
II	13 (52.0)	14 (40.0)	
III	7 (28.0)	13 (37.1)	
IV	5 (20.0)	5 (14.3)	
Grade of acne scar			
Mild	5 (20.0)	7 (20.0)	>0.05
Moderate	19 (76.0)	25 (71.4)	
Severe	1 (4.0)	3 (8.6)	
PIH			
Yes	17 (68.0)	19 (54.3)	>0.05
No	8 (32.0)	16 (45.7)	

*Pearson Chi-square test

DLQI score was found to be raised in 41.7% of the patients. Among the patients with raised DLQI, 56.7% had only mild effects (DLQI score 2–5). None of the patients had DLQI score >20 (extremely large effect) (Table 4).

Eleven out of 20 cases of Grade III acne had a moderate-to-very large effect on DLQI, and almost 50% of Grade IV acne patients had a moderate-to-very large effect on DLQI (Table 5).

Furthermore, 18 out of 44 cases with severe acne scars had a DLQI score in the range of 6–20, i.e., moderate-to-very large effect (Table 6).

A statistically significant association was noted only between DLQI scores and grade of acne while with all other parameters, it was nonsignificant (Table 1).

DISCUSSION

The impact of acne on QoL has been assessed by various countries in their studies, but studies on Indian patients are reported less

Table 2: Correlation of grade of acne with type of skin, acne scars, and postacne hyperpigmentation*

Variable	Grade of acne n (%)*				p-value
	I	II	III	IV	
Type of skin					
Oily	2 (4.3)	25 (53.2)	14 (29.8)	6 (12.8)	>0.05
Normal	1 (14.3)	0 (0.0)	4 (57.1)	2 (28.6)	
Dry	0 (0.0)	2 (33.3)	2 (33.3)	2 (33.3)	
Acne scars					
Mild	3 (25.0)	7 (58.3)	2 (16.7)	0 (0.0)	<0.05
Moderate	0 (0.0)	20 (45.5)	15 934.1)	9 (20.5)	
Severe	0 (0.0)	0 (0.0)	3 (75.0)	1 (25.0)	
PIH					
Yes	2 (5.6)	17 (47.2)	10 (27.8)	7 (19.4)	>0.05
No	1 (4.2)	10 (41.7)	10 (41.7)	3 (12.5)	

*Pearson Chi-square test

Table 3: Distribution of mean DLQI scores according to age, gender, duration of acne, grade of acne, acne scar, and postacne hyperpigmentation*

Variable	Mean DLQI	SD	p-value
Age			
15–20	5.14	2.68	>0.05
21–25	5.80	3.11	
>25	5.73	3.17	
Gender			
Male	5.20	2.58	>0.05
Female	5.66	3.11	
Duration of acne (months)			
0–6	5.15	2.65	>0.05
7–12	7.00	3.57	
13–24	4.89	2.47	
25–36	3.00	0.00	
>36	5.50	3.11	
Grade of acne			
I	4.67	5.69	>0.05
II	4.96	2.14	
III	5.95	3.47	
IV	6.10	2.60	
Acne scar			
Mild	5.00	2.98	>0.05
Moderate	5.57	2.87	
Severe	5.75	3.40	
Post-acne hyperpigmentation			
Present	5.81	3.10	>0.05
Absent	4.96	2.51	

*Pearson Chi-square test. DLQI: Dermatology life quality index, SD: Standard deviation

frequently, especially in a rural setting. Our study was a hospital-based study which included 60 cases of acne vulgaris over a period of 6 months. A previous study by Durai and Nair included 140 patients over a period of 5 months, whereas the study by Kulthanan *et al*. was done on 110 patients in 1 year [11,12].

The lesions of acne start around 15 years of age and often persist into the thirties and forties [2,13]. This study included cases 15 years and above. The mean age of the study population was 21.5 years, whereas Tasoula *et al*. reported a mean age of 15.77 years among the population of 11–19 years.

The mean DLQI score was highest (5.80) in the age group of 21–25 years and did not show any significant trend with age. This finding is different from the study by Durai and Nair which was done in patients from the urban part of South India. Durai and Nair showed increasing mean DLQI scores with age [12]. This may be explained by the fact that peer and romantic relationships, often developing during late adolescence, affect DLQI scores to a great extent. Since our study was done in a rural population where these relationships do not play a significant role, hence DLQI did not show any trend with age. However, in urban areas, peer and romantic relations start developing as adolescence approaches, and hence, DLQI may show an increasing trend with age.

Our study had 58.3% females which corroborated with findings from other studies. However, no gender difference in DLQI scores was noted in our study, a finding which was similar to Durai and Nair's study, indicating both genders were equally concerned about their problem [12]. The association between the duration of acne and DLQI scores was not statistically significant in our study.

The most common site of acne presentation was the face (98.3%), though the site of acne did not influence DLQI scores in our study. This was in accordance with Durai and Nair's study, which reported that facial acne was the most common presentation (99.3%) and that there was no relation between the site of acne with DLQI [12]. In our study, the majority of patients (78.3%) had oily skin but the association between the type of skin and grade of acne was statistically not significant.

Grade II acne was the most common clinical type in our study (45%), whereas Durai and Nair's study reported comedones to be the most common (95%) [12]. No statistical association was noted between gender and grade of acne in this study.

Durai and Nair observed that QoL correlated significantly with the severity of acne, and the scores worsened with increasing severity [12]. This was duplicated in our study. There was, however, no significant association between DLQI scores and its complications.

The differences in the findings between our study and other studies can be explained by the fact that it was done in a rural population from a backward region, where we had to exclude patients because of their inability to understand the DLQI questionnaire. Furthermore, the social, behavioral, and cultural factors; population characteristics; and individual perceptions differ from region to region.

Table 4: Distribution of DLQI scores among the study population

DLQI interpretation	Number of patients (%)
No effect (0–1)	1 (1.67)
Mild effect (2–5)	34 (56.7)
Moderate effect (6–10)	22 (36.7)
Very large effect (11–20)	3 (5.0)
Extremely large effect	0 (0.0)

DLQI: Dermatology life quality index

CONCLUSION

Our study confirms a significant impact of acne on QoL, which calls for a holistic approach to treat acne. This comprehensive treatment approach can be facilitated by setting up separate psychodermatology clinics in all tertiary care hospitals which will help in improving the overall psyche of the patient along with the medical treatment.

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AUTHOR'S CONTRIBUTION

Dr. Ruchika Tripathi - Concepts, review of literature, clinical studies, data collection, manuscript designing, review, and guarantor; Dr. Uday Prabhakar - Definition of intellectual content, literature search, manuscript preparation, and manuscript review; Dr. Rajaram Yadav - Data analysis and statistical analysis.

CONFLICT OF INTEREST

None.

Table 5: Association of grade of acne with DLQI score interpretation*

DLQI							
Grade of acne	No effect (0–1)	Mild effect (2–5)	Moderate effect (6–10)	Large effect (11–20)	Extremely large effect (21–30)	Total	p-value
I	1	1	0	1	0	3	<0.01
II	0	19	8	0	0	27	
III	0	9	9	2	0	20	
IV	0	5	5	0	0	10	
Total	1	34	22	3	0	60	

*Based on the Chi-square test. DLQI: Dermatology life quality index

Table 6: Distribution of acne scar according to DLQI interpretation

Acne scar grade	DLQI					
	No effect (0–1)	Mild effect (2–5)	Moderate effect (6–10)	Large effect (11–20)	Extremely large effect (21–30)	Total
Mild	1	7	3	1	0	12
Moderate	0	25	17	2	0	44
Severe	0	2	2	0	0	4

DLQI: Dermatology life quality index

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