

## SHORT ARTICLE

# Assessment of disability index and dermatological life quality among acne vulgaris patients attending tertiary care centre in south India: A Cross Sectional Study

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### ARTICLE CYCLE

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### ABSTRACT

**Background:** Individuals with Acne vulgaris experience significant psychological and social disability, struggling with self-consciousness and personal relationships. **Aim & Objective:** to determine the psychological influence of acne on QOL (quality of life) of adolescents in both rural and urban areas. **Settings and Design:** tertiary care hospital and cross-sectional study design **Methods and Material:** Total 229 study participants were selected using a purposive sampling method from the Dermatology OPD. A pretested semi-structured questionnaire was used as the study tool, which included CADI, DLQI. Data was collected by interviewing the study participants. **Statistical analysis used:** Descriptive statistics and kruskal wallis test were applied **Results:** Most common type of acne was facial acne observed in 88.7% of study participants. The majority fell into the low-grade category of the CADI, comprising 53.04% of the study participants. 25.65% reported a very large effect on their life as indicated by the DLQI grades

### KEYWORDS

Acne Vulgaris; Cardiff Acne Disability Index (CADI); Dermatology Life Quality Index (DLQI)

### INTRODUCTION

Acne vulgaris is a chronic inflammatory disease with multi factorial cause, characterized by the inflammation or blockage of pilosebaceous units. While it may seem as a cosmetic concern, its outcome extends beyond the surface of the skin, often leading to significant psychological burden for patients.(1) Acne vulgaris is affecting approximately 80% of

adolescents and sometimes persisting into adulthood consequently, it represents one of the most common cases encountered by dermatologists.(2,3)

The psycho social impact of acne can be exacerbated by mocking, further contributing to feelings of embarrassment and self-consciousness.(4) The fear of having judged by others, coupled with societal expectation of

unblemished skin, exaggerates these emotions. Adolescents with acne frequently exhibit unease, avoid eye contact, grow long hair to hide the face, and in the case of girls, may use makeup to conceal their acne.(5,6) In light of these considerations, this study aims to determine the psychological influence of acne on QOL (quality of life) of adolescents in both rural and urban areas.

**Aims and Objectives:** To determine Cardiff acne disability index, dermatological life quality index and to assess factors influencing the disability and quality of life among young adults and adolescents diagnosed acne vulgaris

### MATERIAL & METHODS

This was a cross-sectional study, which was conducted from June 2022 to January 2023 in a medical college hospital after taking approval from the institutional ethical committee. The formula:  $N = 4PQ/L^2$  was applied to calculate the sample size. With a desired margin of error represented by the DLQI score of 29%. (7)  $N \approx 228.7$  Therefore, the target sample size was rounded to 229 participants.

Study participants were selected using a purposive sampling method from the Dermatology outpatient department of a medical college. All grades of acne vulgaris was included in the study. All the study participants were explained regarding the study and informed consent was taken. A pretested semi-structured questionnaire was used as the study tool, which included details of socio-demographic data, clinical profiles of acne vulgaris, the Cardiff Acne Disability Index (CADI) and the Dermatological Life Quality Index (DLQI). CADI is a five-question scale designed to assess the disability caused by acne with score ranging from 0–15. DLQI is the dermatology-specific quality of life questionnaire. The DLQI score ranged from a minimum of 0 to a maximum of 30. Data was collected by interviewing the study participants. Informed consent from all the study participants was taken and confidentiality was maintained.

The data collected during the interviews were entered into an MS Excel spreadsheet. Data analysis was done using Epi-info software

version 7.2. Descriptive statistics were applied and association was assessed by kruskal wallis test. Statistical significance was considered when p-value of less than 0.05.

### RESULTS

A total of 230 participated in the study. Among the observed types of acne involvement, most frequent type of acne was facial acne (88.7%). More than half of the patients (53.91%) reported symptoms lasting between one to five years, indicating a significant duration of acne. Grade II acne was the common type and present in 45.7% of patients.

Cardiff Acne Disability Index (CADI) questionnaire revealed that among the participants, the majority experienced a little frustration or embarrassment because of acne in the last month (62.2%). Acne was reported to occasionally interfere or interfere in only some activities related to daily life, socio cultural events, or close personal relationships (36.1%). Participants generally exhibited occasional avoidance of wearing swimming costumes or common changing facilities due to acne (48.3%). Concerning the appearance of their skin, participants reported occasional concern (45.7%). When rating the severity of their acne, most participants considered it a minor problem (47.0%). This summary provides an overview of the participants' experiences regarding the effect of acne on their lives, encompassing various aspects such as emotions, social interactions, and self-perception. The majority fell into the low-grade category of the CADI, comprising 53.04% of the study participants. 43.04% of study participants were in medium grade. A small proportion of participants, specifically 3.91%, were classified under the high-grade category of the CADI.

Dermatology Life Quality Index (DLQI) questionnaire was used among the study participants, the majority experience very much to little physical symptoms such as itchiness, soreness, pain or stinging of the skin during the last week (70.9 %). In terms of emotional experiences, a significant proportion reported feeling embarrassed or

self-conscious due to their skin (60.8%). Difficulties in relationships with partners, close friends or relatives were reported by a substantial portion of participants (53.9%), while sexual difficulties were reported by a smaller percentage (21.2%). Skin interference with daily activities varied, with few experiencing some level of interference in activities like shopping, home or garden care, clothing choices, social or leisure activities (12.6%) and participating in sports (13.0%). However, most participants reported that their skin did not prevent them from working or studying (94.3%). These results provide insights into the multifaceted impact of skin conditions on participants' physical, emotional, social and occupational aspects of life.

The majority fell into the low-grade category of the CADI, comprising 53.04% of the study participants. 43.04% of study participants were in medium grade. A small proportion of participants, specifically 3.91%, were classified under the high-grade category of the CADI.

A significant proportion (41.74%) reported a mild effect on their life as indicated by the DLQI grades. Additionally, 16.96% of participants experienced a moderate effect, while 25.65%

reported a very large effect on their life. A smaller percentage (14.78%) indicated that condition of their skin did not affect their life. Only 0.87% of participants reported an extreme large effect. These results demonstrate the wide-ranging impact that skin conditions can have on individuals' quality of life.

No significant association was observed between Age group, gender, residence, and duration of acne whereas, Marital status had a significant association with CADI and DLQI grades. A significant statistical difference was found in both the Cardiff Acne Disability Index (CADI) scores and the Dermatology Life Quality Index (DLQI) scores across different grades of acne ( $P < 0.001$ ). The mean CADI score for Grade 1 acne was  $3.1 \pm 2.6$ , while for Grade 4 acne it was  $5.6 \pm 3.3$ , indicating a significant increase in CADI scores with higher grades of acne. Similarly, the mean DLQI score for Grade 1 acne was  $4.5 \pm 4.8$ , whereas for Grade 4 acne, it was  $9.2 \pm 5.7$ , demonstrating a significant increase in DLQI scores with increasing grades of acne. These results indicate a clear association between the acne severity and the effect on both disability and quality of life experienced by individuals.

**Table 1 Socio - demographic and clinical presentation of acne among study participants**

Variables	Category	Frequency	Percent
Age group (in years)	≤18	56	24.3
	>18	174	75.7
Gender	Male	126	54.8
	Female	104	45.2
Residence type	Rural	53	23.0
	Urban	177	77.0
Marital status	Married	41	17.8
	Unmarried	189	82.2
Duration of acne (In months)	1-6	33	14.3
	7-12	55	23.9
	13-60	124	53.9
	>60	18	7.8
Site of the acne	Face	204	88.7
	Face and back	25	10.9
	Face and thighs	1	0.4
Grade of the acne	Grade 1	60	26.1
	Grade 2	105	45.7
	Grade 3	48	20.9
	Grade 4	17	7.4

**Table 2: Comparison of CADI Scores and DLQI Scores between grades**

Scores	Grade	Mean	Kruskal Wallis H	P-value
<b>CADI Score</b>	Grade 1	3.1±2.6	28.075	<0.001
	Grade 2	4.9±2.5		
	Grade 3	5.7±2.5		
	Grade 4	5.6±3.3		
<b>DLQI Score</b>	Grade 1	4.5±4.8	16.98	<0.001
	Grade 2	6.6±5.2		
	Grade 3	6.8±5.1		
	Grade 4	9.2±5.7		

## DISCUSSION

The present study aimed to determine the psychological influence of acne on QOL (quality of life) of young adults and adolescents in both rural and urban areas. The findings highlight the substantial effect of acne on both disability and QOL among the study participants.

Males were slightly higher in present study (54.8%) and face was most common site of acne involvement. Similar findings were observed in study done by Someshwar et al and Hazarika et al.(7,8 )Majority of the study subject were in low grade category of CADI score and only small proportion were under high grade category (3.91%). Similar results were observed in other studies .(7,9)There was no significant association between CADI score age, gender and duration of acne in the present study. Similar findings were observed in Durai et al study. Were as marital status had significant association with high CADI score in the present study. Indicating the potential additional challenges faced by individuals in committed relationships. But according to Durai et al marital status did not show any significant effect on CADI score.(9)

Acne had mild effect (41.74%) on dermatological quality of life in our study whereas Hazarika et al observed mild to moderate effect in their study conducted in chennai.(8)Grade of acne had significant effect on both CADI and DLQI in the present study and These findings are consistent with previous research indicating that acne can impair self-perception, social relationships, and daily functioning and other aspects of individuals lives.(7,9,10)

Similarly, the DLQI scores demonstrated the substantial effect of acne on QOL. The affected DLQI subscales, including physical symptoms (pain and itch), self-esteem, appearance, self-

embarrassment and participation in social activities, highlight the multifaceted nature of the impact. These findings are consistent with previous research indicating that acne can impair self-perception, social relationships, and daily functioning.(8)

These findings highlight the need for healthcare professionals to address the psychosocial influence of acne vulgaris on patient's lives and provide comprehensive management strategies that address not only the physical symptoms however also the emotional and social aspects of the condition

## CONCLUSION

This study demonstrates the substantial impact of acne on disability and QOL among adolescents and young adults. The findings emphasize the need for healthcare professionals to adopt a patient-centred approach that addresses the psycho social and emotional aspects of acne. By providing comprehensive management strategies, including early intervention and support, healthcare professionals can help individuals with acne improve their overall well-being and quality of life.

## RECOMMENDATION

Holistic and multidisciplinary approach to acne vulgaris patients is important. Acne vulgaris treatment along with psychological counselling is required when necessary than one -direction treatment for faster recovery.

## LIMITATION OF THE STUDY

Study is conducted in one area wide spread study should be conducted to conclude the results

### RELEVANCE OF THE STUDY

Study concludes the importance of psychological component of the acne vulgaris

### AUTHORS CONTRIBUTION

All authors have contributed equally.

### FINANCIAL SUPPORT AND SPONSORSHIP

Nil

### CONFLICT OF INTEREST

There are no conflicts of interest.

### DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

### REFERENCES

1. Kundale DR, Gosavi AP, Chavan RB, Bhatt N. Dermatology life quality index in patients of acne vulgaris presenting to a tertiary care hospital: an observational study. *Int J Res Dermatol.* 2021; 7:692-6.
2. Pawin H, Chivot M, Beylot C. Living with acne. A study of adolescents personal experiences. *Dermatology.* 2007;215(4):308-314.
3. Krowchuck DP. Managing acne in adolescents. *Pediatr Clin North Am.* 2000;47(4):841-857.
4. Loney T, Standage M, Lewis S. Not just 'skin deep': psychosocial effects of dermatological-related social anxiety in a sample of acne patients. *J Health Psychol.* 2008;13(1):47-54.
5. Magin P, Adams J, Heading G, Pond D, Smith W. The causes of acne: a qualitative study of patient perceptions of acne causation and their implications for acne care. *Dermatol Nurs.* 2006;18(4):344-349.
6. Tedeschi A, Dall'Oglio F, Micali G, Schwartz RA, Janniger CK. Corrective camouflage in pediatric dermatology. *Cutis.* 2007;79(2):110-112.
7. Someshwar S, Ahire P, Pawar R, Mohanty N. Assessment of the impact of acne vulgaris on the quality of life of preadolescents in Navi-Mumbai. *New Indian Journal of Pediatrics.* 2019;8(2):46-69.
8. Hazarika N, Archana M. The Psychosocial Impact of Acne Vulgaris. *Indian J Dermatol.* 2016 ;61(5):515-20.
9. Durai PC, Nair DG. Acne vulgaris and quality of life among young adults in South India. *Indian J Dermatol.* 2015 ;60(1):33-40.
10. Tripathi R, Prabhakar U, Yadav R. The effect of acne vulgaris on quality of life among rural patients: A cross-sectional study. *Asian J Pharm Clin Res.* 2024;17(7):91-4.