

## Original Research

# Impact of Acne Vulgaris on Quality of Life: A hospital based cross-sectional study.

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### Abstract

**Background:** Acne vulgaris, a common dermatological condition affecting millions worldwide, presents not only physical but also psychological challenges. Thus, evaluating the quality of life in patients with acne is imperative for a holistic understanding of disease & to tailor comprehensive treatment plans.

**Aims:** This study was aimed to assess the impact of acne vulgaris on the quality of life using DLQI.

**Materials & Methods:** This was a hospital based, cross-sectional study done between Sept. & Feb., 2024-25 on 350 patients above 12 yrs of age with acne vulgaris. AV & its sequelae were graded & QoL was assessed by DLQI questionnaires.

**Results:** Most cases 55.96% were between the age of 10-20 yrs. Females outnumbered males. Grade II AV were most common, majority of patients had small & medium effect on quality of life DLQI scoring.

**Conclusion:** This study showed the significant impairment of QoL in acne patients. Assurance & counselling along with early treatment of AV are important to reduce disease related psychological sequelae.

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### Introduction

Acne vulgaris, a prevalent dermatological condition affecting a substantial global population, presents considerable physical and psychological challenges.<sup>[1]</sup> Characterized by the presence of comedones, papules, pustules, nodules, and cysts, acne is most common among adolescents and young adults, though it may persist into adulthood.<sup>[2]</sup> The condition's visibility frequently results in self-consciousness, negatively impacting social interactions and overall mental well-being.<sup>[3]</sup> Therefore, a comprehensive assessment of quality of life (QoL) in acne patients is crucial for a holistic understanding of the disease and the development of effective treatment strategies.<sup>[4]</sup>

The Dermatology Life Quality Index (DLQI) is a crucial assessment tool. Developed in 1994 by Finlay and Khan,<sup>[5]</sup> the DLQI is a validated, user-friendly questionnaire designed to quantify the impact of dermatological conditions on patients' lives. It consists of ten questions assessing various domains, including symptoms, feelings, daily activities, leisure, work/school, personal relationships, and treatment effects.<sup>[6]</sup> Each question uses a 0-3 scale (0=no impact, 3=extreme impact), resulting in a total score of 0-30.<sup>[7]</sup> Higher scores reflect a greater negative impact on quality of life.<sup>[8]</sup>

Incorporating the DLQI into clinical practice offers several key advantages. First, it provides a quantifiable assessment of acne's psychosocial impact, enabling objective monitoring of disease progression.<sup>[9]</sup> This is particularly valuable for evaluating treatment efficacy.<sup>[10]</sup> For example, a reduction in DLQI scores during treatment may indicate improvements in both lesion clearance and the patient's emotional and social well-being. Moreover, the DLQI aids in identifying areas requiring supplemental support.<sup>[11]</sup> High scores in items related to feelings and social activities, for instance, may suggest the need for psychological counselling or social skills training in conjunction with dermatological treatment. This holistic approach can substantially improve patient satisfaction and treatment compliance.<sup>[12]</sup>

Furthermore, employing the DLQI enhances communication between patients and healthcare professionals.<sup>[13]</sup> Discussion of DLQI scores enables patients to articulate the impact of acne on their daily lives, fostering more empathetic and effective clinical interactions. This patient-centric approach ensures treatment aligns with individual needs and priorities, resulting in improved clinical outcomes.<sup>[14]</sup>

The Dermatology Life Quality Index (DLQI) is a critical assessment tool in managing acne vulgaris,

providing a comprehensive evaluation of its impact on patients' quality of life. Its assessment of acne's multifaceted effects facilitates a holistic treatment strategy addressing both the physical and psychological dimensions of the disease. This comprehensive approach improves patient care and broadens our understanding of acne's impact beyond purely dermatological concerns.

### Materials & Methods

It was a hospital-based cross-sectional study done in the Dept. of Dermatology, Venereology and Leprosy of JNIMS, Imphal from Sept., 2024 to Feb., 2025 after getting approval by the Institutional Research & Ethical Committee.

Patients aged 12 yrs and above with the acne vulgaris of any grade, who are willing to give informed consent were included in the study. Those patients who are unwilling to give consent were excluded from the study.

Acne vulgaris was graded as (Pillsbury et. al.)<sup>[15]</sup>

- Grade 1: Comedones and occasional small cysts confined to the face.
- Grade 2: Comedones with occasional 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 lesions tending to coalesce and canalize, and involving the face and the upper aspects of the trunk.

A pretested structured proforma with DLQI will be used for the study. DLQI is a validated questionnaire which grades QoL.

**Statistical Analysis:** Data collected will be checked for consistency and completeness. Then the data will be entered in SPSS software and will be presented percentages, mean, median with standard deviation. The analytical study will be done using descriptive tool and analytical statistics like chi-square or t-test and other appropriate analytical test. P-value of less than 0.05 will be considered statistically significant.

### Results

A total of 350 patients clinically diagnosed as acne vulgaris were studied. We divided the age of the patients into 5 groups, 10-20 yrs, 21-30 yrs, 31-40 yrs, 41-50 yrs & more than 50 yrs. Majority of patients belong to the age group 10-20 yrs. The highest and the lowest age of the patient affected were 12 yrs & 51 yrs. Mean age in the study was  $20.86 \pm 5.62$ . [Table 1] Out of 350 patients, 247 patients were female amounting to 70.17%. Thus, female were majority in this study compared to male (105, 29.8%). [Table 2]

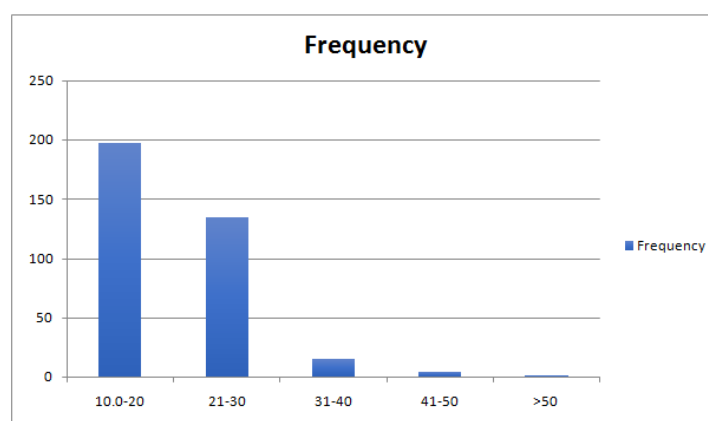
Grade II acne was the most common clinical type (61.07%) followed by Grade I (27.55%), Grade III (9.09%). [Table 3]

Based on DLQI scoring, 309 out of 350 patients had elevated DLQI while 41 patients were not affected by the condition such as to impair their quality of life (i.e. no effect corresponding to total score of 0-1. Majority had very mild effect on QoL(42.32%), followed by moderate effect (26.98%) & 0.56% had extremely large effect on QoL. [Table 4]

6 out of 32 Grade III acne & 2 out of 8 Grade IV acne had a very large effect on patient's quality of life which is found to be statistically significant. [Table 5]

**Table 1: Age wise distribution of study participants**

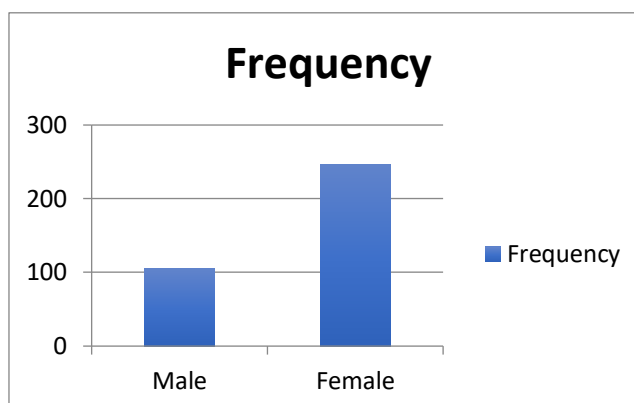
Age range (years)	Frequency	Percentage
10-20	197	55.96
21-30	135	38.35
31-40	15	4.26
41-50	4	1.13
>50	1	0.002
<b>Total</b>	<b>352</b>	<b>100.00</b>
<b>Mean Age</b>	<b><math>20.86 \pm 5.62</math></b>	



**Graph 1: Age wise distribution of study participants**

**Table 2: Gender wise distribution of study participants**

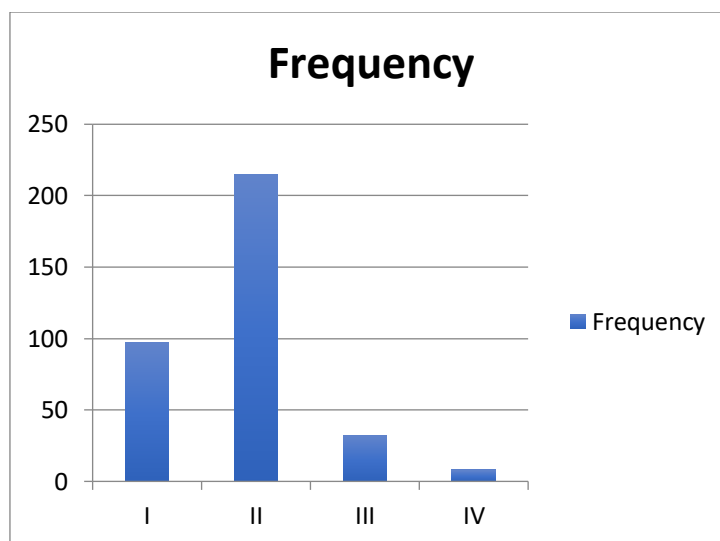
Gender	Frequency	Percentage
Male	105	29.82
Female	247	70.17



**Graph 2: Gender wise distribution of study participants**

**Table 3: AV Grade wise distribution of study participants**

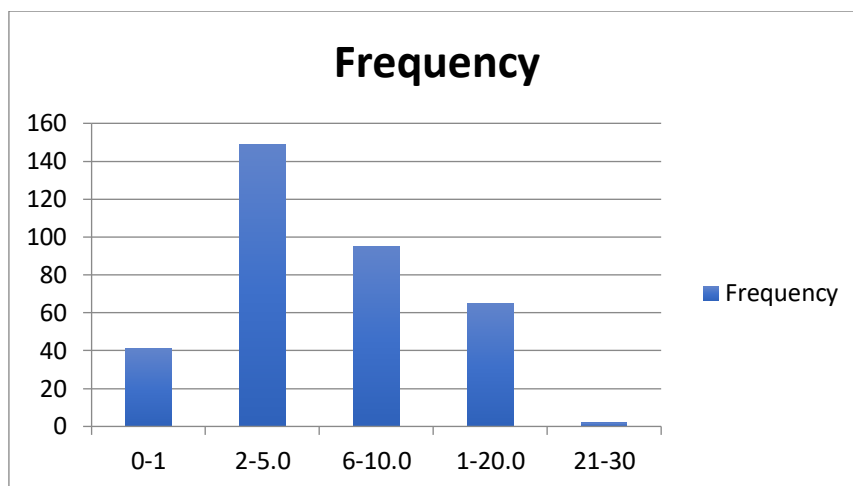
AV Grade	Frequency	Percentage
I	97	27.55
II	215	61.07
III	32	9.09
IV	8	2.27



**Graph 3: AV Grade wise distribution of study participants**

**Table 4: DLQI wise distribution of study participants**

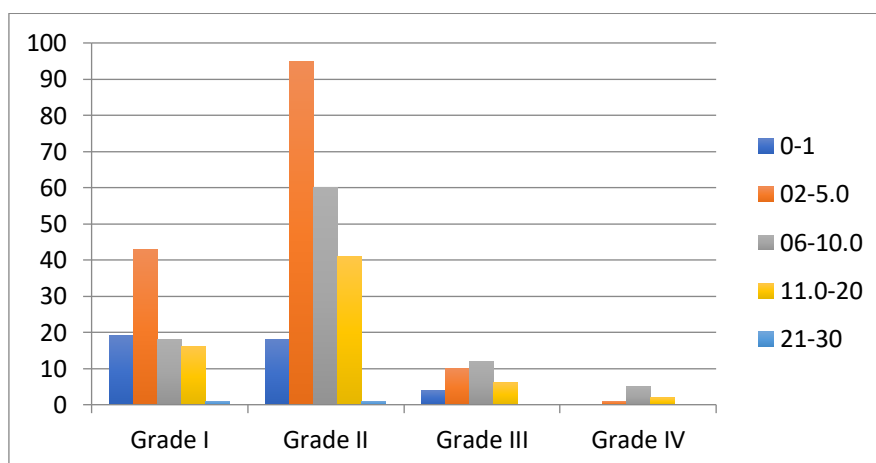
DLQI	Frequency	Percentage
0-1	41	11.64
2-5	149	42.32
6-10	95	26.98
11-20	65	18.46
21-30	2	0.56



Graph 4: DLQI wise distribution of study participants

Table 5: AV Grade and DLQI wise distribution of study subjects

AV Grade/DLQI	0-1	2-5	6-10	11-20	21-30	P value
Grade I	19	43	18	16	1	<0.001
Grade II	18	95	60	41	1	0.000
Grade III	4	10	12	6	0	0.006
Grade IV	0	1	5	2	0	0.029



Graph 5: AV Grade and DLQI wise distribution of study subjects

**Discussion**

Acne vulgaris, a chronic inflammatory condition, arises from a complex interplay of factors including increased sebum production, follicular hyperkeratinization, P. acnes proliferation within the follicle, altered sebum lipid composition, dysregulation of cutaneous steroidogenesis, androgen activity, and neuropeptide influence, exhibiting both pro and anti-inflammatory properties. Inflammation, potentially initiated by perifollicular T-helper cells via IL-1, plays a central role in its pathogenesis.<sup>[16]</sup> This hospital-based study encompassed 350 acne cases seen in the Dermatology outpatient department over a six-month period. Darshana R Kundale et al.<sup>[16]</sup> included 60 cases over three months. Swathi D et al.<sup>[17]</sup> included 500 cases within a one-year timeframe.

Mean age of our study was 20.86 with the standard deviation of 5.62 as acne vulgaris affect mostly during the adolescent period. Female patients outnumbered male patients similar finding seen in Hazarika N et. al.<sup>[18]</sup> & Sangaiah Sivaramakrishnan et. al.<sup>[19]</sup> study but Pooja Pandey et. al.<sup>[20]</sup> study showed that there was male preponderance with ratio 1.04:1 which contradictory to our study.

The highest prevalence of Grade II acne (61.07%) while Raju BP & Nagaraju U<sup>[21]</sup> observed that Grade I acne was the most common clinical type (76.4%).

95 patients (27.1%) were having moderate effect on quality of life which was similar to moderate effect of 30% in a study conducted by Sivaramakrishnan et. al.<sup>[19]</sup> study.

In this study even mild acne had significant impairment of QoL which reported early for treatment.

309 out of 350 patients had elevated DLQI score. Majority of the affected had a small effect (42.5%) followed moderate effect (27.1%) & very large effect (18.5%) with 0.56% have an extremely large effect on their QoL. These results agreed with those of Hazarika et. al. & Sivaramakrishnan et. al. study. The impact of DLQI was more among adolescent age group than among young adults. Gupta A Sharma YK et. al.<sup>[22]</sup> & Pillai RI et. al.<sup>[23]</sup> also showed similar findings.

### Conclusion

This study showed significant impairment of quality of life & has a strong correlation between the QoL & acne grade severity. Majority of patients had small impact on quality of life, implying that even mild acne can lead to psychosocial morbidity. Assurance & counselling along with early treatment of AV are important to reduce disease related psychological sequence. There was no gender predilection, even men also had significant impairment of quality of life. This study will help in assessing the impact of acne vulgaris on QoL of patients & has help in intensive management along with psychosocial support in such patients. For instance, decrease in QLQI score over the course of treatment may reflect not only the physical clearance of the acne region but also an improvement in the patient's emotional & social well-being.

Limitations of the study was that it did not analyses the impairment of QoL of those patients who does not attend the Dermatology OPD.

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### Conflicts of interest

There were no conflicts of interest.

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