Research Article

# Assessment of the quality of life indices in adolescents with Acne vulgaris

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**Abstract**

**Background:** Acne vulgaris, a multifactorial disease, is one of the most common dermatological conditions that is encountered in clinical practice and affecting approximately 80% adolescents and young adults at some stage.

**Objective:** To study the quality of life in adolescents with acne and its relation with severity.

**Materials and Methods:** A hospital-based cross-sectional study was carried out in the Dermatology Outpatient Department of a tertiary care hospital from January 2014 to December 2014. All the patients who fulfilled the inclusion criteria were chosen from the Dermatology Out-Patient Department during the specified period of time. Cardiff acne disability index (CADI) and separate Child dermatology life quality index (CDLQI) and adult Dermatology life quality index (DLQI) were assessed depending on the age of the patient. Data were entered and analyzed using Epi Info software (version 3.4.3). Categorical data were analyzed using the Pearson's $\chi^2$-test and significant *P*-value was fixed at $P < 0.05$.

**Result:** With the DLQI, only a few questions relating to the symptoms and the embarrassment or self-consciousness caused by the disease were positively answered by the patients. Of all, 12% patients had problems with their partners or close friends or relatives due to acne. However, acne did not interfere with the activities of their daily life such as school work, household work, leisure activities, sports, or the clothes they wore. DLQI also had only a small and moderate effect on 67% and 20% patients, respectively. Very much effect was noted in 5% and there was no effect in 8% cases. On correlating the severity of acne with the DLQI, it was interestingly found that there was no correlation with the severity. Patients with moderate acne seemed to have a very much effect whereas the patients with severe acne had a moderate effect. These results were statistically significant ($P = 0.0001$).

**Conclusion:** Our study implies that the quality of life impairment must not be judged based on the acne severity. Quality of life does not always correlate with acne severity and the disability caused by it must be taken into account when individualizing treatment. A questionnaire more relevant to our setting could be postulated taking into account the marital status, dietary inhibitions, etc. based on the Indian sociocultural practices pertaining to various age groups.

**KEY WORDS:** Acne, quality of life, adolescents

## Introduction

Acne vulgaris, a multifactorial disease, is one of the most common dermatological conditions that is encountered in clinical practice and affecting upto 80% adolescents and young adults at some stage.[1-3] It is a chronic inflammatory disease of the pilosebaceous units characterized by seborrhea, comedones, erythematous papules, and pustules. In more severe cases, nodules, deep pustules, and pseudocysts followed by various degrees of scarring are seen. The four major factors that are primarily involved in the pathogenesis of acne include increased sebum production, hypercornification of the pilosebaceous duct, abnormal colonization by propionibacterium acnes and inflammation.[4,5]

The presence of acne has a very significant impact on self-esteem and the quality of life of patients.[6] Adolescence, identified by WHO as the period in the human growth and development that occurs after childhood and before adulthood, from ages 10–19 years, is the time of physical,

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emotional, and social development.[6] There is a paucity of data on the impact of acne vulgaris on the quality of life in the adolescent group in an Indian backdrop. Although it is of a known fact that acne is a source of distress and embarrassment, the relationship between the severity of acne and the emotional distress caused by it is poorly understood or rather controversial.[7,8] Depression and other psychological disorders that are prevalent can be alleviated by treating acne. The purpose of this study was to ascertain the importance of the psychosocial burden posed by the disease in this age group and aid them improve their self-esteem and to study the quality of life in adolescents with acne and its relation with severity.

## Materials and Methods

### Study Design

A hospital-based cross-sectional study was carried out in the dermatology outpatient department of a tertiary care hospital from January 2014 to December 2014. All the patients who fulfilled the inclusion criteria were chosen from the dermatology outpatient department during the specified period of time.

A detailed history and clinical examination of all consenting subjects were recorded. Cardiff acne disability index (CADI) and separate Child dermatology life quality index (CDLQI) and adult Dermatology life quality index (DLQI) were assessed depending on the age of the patient using the predesigned questionnaires after getting the permission from the authors. Acne was graded based on the grading by Indian authors and by the Global Acne Grading System (GAGS). Ethical approval for this study was obtained from the institutional ethics committee of SMVMCH, Puducherry and all ethical etiquettes were adhered to.

### Sample

Considering the prevalence of acne as 16.1%, at 90% confidence interval (CI) the sample size required for the study would be 147.[9] When taking 10% as nonresponsive rate, the sample size was 160; calculated using open-epi software version 2.3. Patients of either sex, aged between 10 and 19 years, who are diagnosed to have acne vulgaris by a dermatologist were included in the study. Acnieform eruptions due to other causes were excluded.

### Statistical Analysis

Data were entered and analyzed using Epi Info software (version 3.4.3). Categorical data were expressed as frequencies and percentages. Continuous data were expressed as means and standard deviations. Categorical data were analyzed using the Pearson's $\chi^2$ test and significant *P*-value was fixed at $P < 0.05$.

## Result

A total of 200 patients were included in the study with a sex distribution of 68 males and 132 females; a ratio of approximately 1:2. The mean age encountered was 16.02 ± 2.182 SD. On clinical examination using the clinical grading of acne by Indian authors, it was noted that a majority of patients attending the outpatient department had grade 2 acne followed by grade 1. Only 6% patients were presented with severe nodulocystic acne [Figure 1]. Similar results were obtained with the global acne grading system as well. Of all, 33% presented with mild acne, 64% with moderate acne, and the remaining 3% had severe acne. No cases fell into the very severe spectrum [Figure 2]. On assessing the CADI, it was noted that a majority

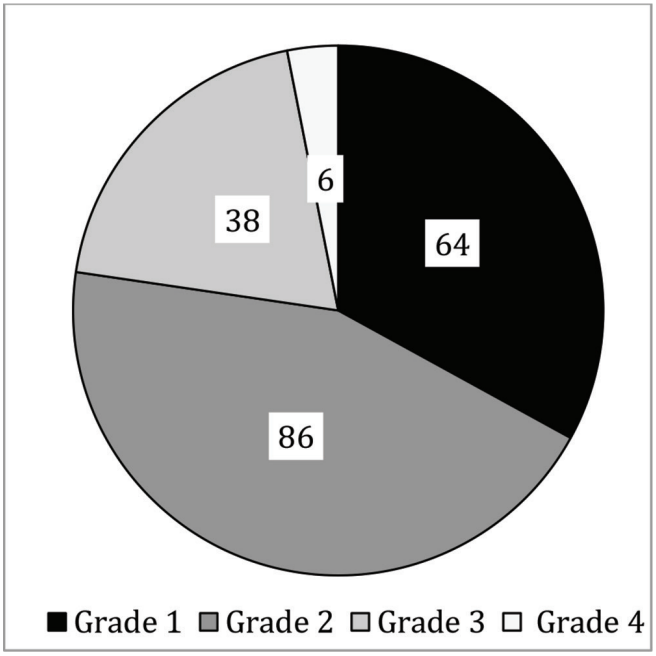


**Figure 1:** Clinical grading of Acne by Indian authors.

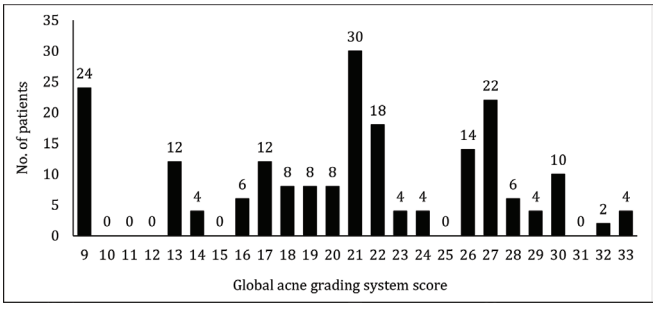


**Figure 2:** Spectrum based on Global Acne Grading system (GAGS Scoring: 1–18: mild; 19–30: moderate; 31–37: severe; >38: very severe).

of patients were either hesitant to answer or negated to questions based on the effects of acne on their social relationships and use of bathing suits or public changing facilities [Table 1]. Thus as a result, the mean disability posed by acne also fell on the lower side [Figure 3].

With the DLQI, only a few questions relating to the symptoms and the embarrassment or self consciousness caused by the disease were positively answered by the patients. Only 12% of the patients had problems with their partners or close friends or relatives due to acne. However, acne did not interfere with the activities of their daily life such as school work, household work, leisure activities, sports, or the clothes they wore. DLQI also had only a small and moderate effect on 67% and 20% patients, respectively. Very much effect was noted in 5% and there was no effect in 8% cases. On correlating the severity of acne with the DLQI, it was interestingly found that there was no correlation with the severity. Patients with moderate acne seemed to have a very much effect whereas the patients with severe acne had a moderate effect. These results were statistically significant ($P$ = 0.0001) [Table 2]. The same was the case, when we correlated the severity based on clinical grading by Indian authors with the DLQI. 66.7% cases with nodulocystic acne had a moderate effect whereas the remaining 33.3% had very much effect. This was also statistically significant at $P$ = 0.0001 [Table 3].

## Discussion

In our study, the age of the patients ranged from 10 to 19 years with majority of them belonging to 16–18 years (50%) supporting the fact that acne is a chronic disease affecting about 85% of the teenagers.[10] Females had outnumbered males by an approximate ratio of 2:1. The CADI ranged from 3 to 12 with a mean of 6.93 indicating that acne posed only as a moderate disability in a majority of the patients. This correlated with the clinical grading of acne. Eight patients with CADI of 3 and four patients with a CADI of 4 belonged to grades 1 and 4, respectively. Scores on the DLQI in patients with acne vulgaris ranged from 1 to 12 implying that acne has some impact on all the patients. However, 67% patients had a very small effect and no one had an extremely large effect due to acne. There was no correlation of DLQI with the severity of acne as six patients with severe acne had moderate effect whereas 10 patients with moderate acne had very much effect.

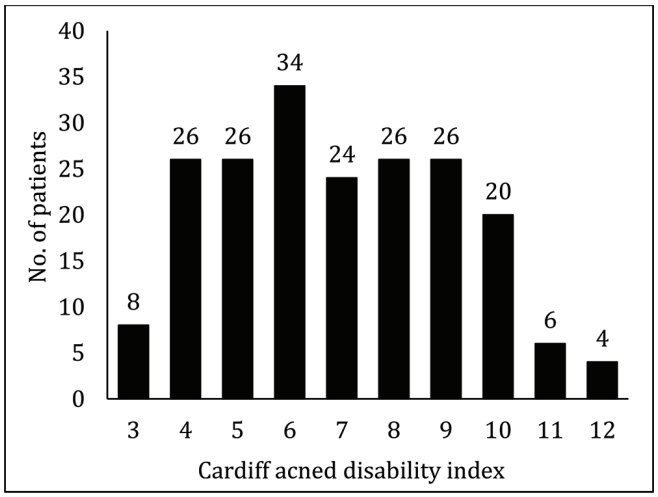


**Figure 3:** Spectrum based on Cardiff Acne Disability Index.

A gender-based study was carried out by Samanthula et al. on the impact of acne on the quality of life also stated that the female patients had a poorer quality of life when compared to males.[11] Another reason that could be attributed to this is the fact that this being a hospital-based study, the male population could have been reluctant to attend the clinics due to a number of causes. A study on the quality of life among school children with acne conducted by Jankovic et al. reported that 71.6% of the pupils self-reported with acne and it was also identified that 17% boys and 18% girls perceived acne as a major problem.[12] A number of other studies also found that the adolescent girls were more vulnerable to the negative psychological effects of acne when compared to boys.[13–15] Studies conducted on Serbian and Iranian adolescent age group revealed similar results with a mean of 3.57 and 7.57, respectively.[12,16] This could be attributed to social inhibitions and religious customs as few questions from the questionnaire are not relevant to that clinical setup. Similar is the scenario in our country. Indian culture is often labeled as an amalgamation of several cultures. In spite of the fast picking westernization, individual freedom regarding social issues among adolescents is still being looked up as a taboo. The mean DLQI was 4.24 in our study. A similar study carried out on young adults in South India also revealed similar results. The mean DLQI and CADI scores were 6.91 and 5.2, respectively.[17] However, this was in contrast to the studies conducted in the USA, Turkey, Malaysia, and France which showed a positive correlation between acne severity and a poorer quality of life.[18–21] This variation could be attributed to the fact that most of the questions in the DLQI and CDLQI were not relevant to the adolescent age group in our setup.

Our study implies that the quality of life impairment must not be judged based on the acne severity. However, since this study was a hospital-based cross-sectional study and all the patients self-reported with acne, the scores documented in our study could be a little higher when compared to the disability caused in those who do not report for treatment. Literature also suggests that the under reporting of serious acne among adolescents is quite common.[22–24] In this context, community-based surveys are more warranted in establishing a true relationship between severity and disability.

## Conclusion

Quality of life does not always correlate with acne severity and the disability caused by it must be taken into account when individualizing treatment. A questionnaire more relevant to our setting could be postulated taking into account the marital status, dietary inhibitions, etc. based on the Indian socio-cultural practices pertaining to various age groups.

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