

# Assessment of Quality of Life in Patients of Acne Vulgaris Pre and Post Treatment by Using “Cardiff Acne Disability Index (CADI)”

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## Abstract

Acne vulgaris is a chronic inflammatory disease of the pilo-sebaceous unit. It is characterized by seborrhea, non-inflammatory and inflammatory lesions, and scarring. Almost all teenagers can expect some degree of acne, with moderate to severe disease in about 15% of 15-17-year-olds. Acne develops earlier in girls, but more boys are affected.

**Background and Aims:** This study is designed to study, the quality of life in patients of acne vulgaris, pre and post treatment using “CARDIFF ACNE DISABILITY INDEX (CADI)”

**Method:** In this study 60 patients having acne vulgaris attending the Out Patient department of Dermatology were included as subjects for the study. The Cardiff Acne Disability Index (CADI) (Motley and Finlay, 1992) CADI<sup>4</sup>, a five-item questionnaire is used to assess the impact of acne on quality of life of acne patients.

**Results:** The Quality of life on the whole was found to be significantly affected in pre-treatment acne patients as compared to post-treatment acne patients ( $p < 0.001$ ). The CADI score correlated with the severity of acne ( $p < 0.001$ ). In summary, the findings of the present study indicate that CADI is a reliable and valid measure of acne impact on quality of life in patients with this condition.

**Conclusion:** The impact of acne on quality of life can be measured using general health measures, dermatology-specific measures or acne-specific measures. Quality of life measures can influence the choice of therapy. In patients with a severe impact on their quality of life, a more aggressive therapy may be justified.

**Keywords:** *acne vulgaris; acneiform eruptions; depression; follicular occlusion; isotretinoin; oral contraceptive pill; topical antibiotics; topical retinoids.*

## Introduction

Acne vulgaris is a chronic disorder affecting pilo-sebaceous follicles, presenting with comedones, papules, pustules, nodules along with pitted or hypertrophic scars as sequelae<sup>1</sup>. Serious impact of disfigurement is

best appreciated by the disfigured, as the patient has to adjust and compensate for a distorted image in his/her own and others eyes.

Acne vulgaris is reported to cause shame, embarrassment and anxiety, lack of confidence, impaired social contact and poor academic function<sup>2</sup>.

Recently the attention has been shifted to measure the effect of disease on patient's Quality of Life (QOL). The concept of QOL has been used in different ways.

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## Materials and Method

The study was carried out in the Department of Dermatology, Venereology and Leprosy, Rohilkhand Medical College and Hospital, during the period January 2013 to December 2013. A total of 60 patients, fulfilling the following criteria, were included in this study. Initially a detailed history was recorded for all the patients with reference to the name, age, sex, duration of disease, precipitating factors, family history and treatment history was recorded. Age and sex matched controls were taken up. A detailed cutaneous examination was done; morphology, site and number of lesion were recorded.

Regular follow up of the patients was done. Clinical photographs of site of lesion were taken before and after treatment in comparable settings.

### Inclusion Criteria :

1. Patients clinically diagnosed as acne vulgaris.
2. Patients belonging to either sex.
3. Patients above 18 years of age.
4. Patients who have not received any treatment for acne for a minimum period of four weeks prior to the recruitment.

### Exclusion Criteria

1. Patients having other cosmetically disfiguring dermatological problems e.g. vitiligo, warts, rosacea etc.
2. Patients on drugs known to cause acneiform eruption.
3. Patients with clinical features suggestive of hyper-androgenism e.g. hirsutism.
4. Known physical or mental illness either at the time of recruitment or during course of the study.

### Materials:

For assessment of Quality of Life in acne vulgaris:  
 - The Cardiff Acne Disability Index is designed for use in teenagers and young adults with acne. It is self-explanatory and will be simply handed to the patient who is asked to complete it without the need for detailed explanation. It is usually completed in one minute<sup>10</sup>.

### Method:

The Cardiff Acne Disability Index (CADI) (Motley and Finlay, 1992) CADI<sup>4</sup>, a five-item questionnaire.

Question 1 -"As a result of having acne, during the last month have you been aggressive, frustrated, or embarrassed?"

Question 2 -"Do you think that having acne during the last month interfered with your daily social life, social events or relationships with members of the opposite sex?"

Question 3 -"During the last month, have you avoided public changing facilities or wearing swimming costumes because of your acne?"; measure social functioning,

Question 4 -"How would you describe your feelings about the appearance of your skin over the last month?"; measure feelings, and

Question 5 -"Please indicate how bad you think your acne is now" measures perceived severity.

Each question contains 4 possible answers with a score of 0~3.

The scoring of each answer is as follows:

A=3 ; B=2 ; C=1 ; D=0

- The CADI score will be calculated by summing the score of each question resulting in a possible maximum of 15 and minimum of 0.
- CADI scores is graded as low (0–4), medium (5–9) and high (10–15).
- The lower the cumulative CADI score, the lower the level of disability experienced by the patient while a higher score indicated a higher level of disability.

Patients with severe psychiatric or psychological comorbidities or any evidence of scarring warrant more aggressive initial therapies. Despite the side-effects of isotretinoin, it offers rapid improvement of acne with potential long-term improvement or cure, and it facilitates psychosocial and psychiatric improvement in patients<sup>5</sup>.

Patient with mild acne usually receive topical therapy alone; patients with moderate acne receive oral and topical therapies; patients with severe acne should immediately receive oral isotretinoin unless contraindicated<sup>6-9</sup>. The choice of treatment should also be based on a logical understanding as to how the treatment influences the aetiology of acne<sup>11</sup>.

### Observation and Results

In this study, 52 patients with mild, moderate and severe acne vulgaris attending the outpatient Department of Dermatology, Rohilkhand medical college and hospital over a period of 1 year (January 2018 to December 2018) completed the study and seven females and one male had left the treatment.

. A total of fifty two (25 males and 27 females) patients of acne vulgaris were analyzed. The youngest patient was 18 years old and the oldest was 30 years (mean age 21.21 + 2.96 years). Males range from age 18 years to 28 years (mean age 20.72 + 2.85 years). Females range from age 18 years to 30 years (mean age 21.67 + 3.04 years). The difference between age of male and female patients was not statistically significant ( $p > 0.05$ ).

Male to female ratio was M: F = 1: 1.08. There were 25 males and 27 females having acne vulgaris. The difference between number of males and females cases was not statistically significant ( $p > 0.05$ )

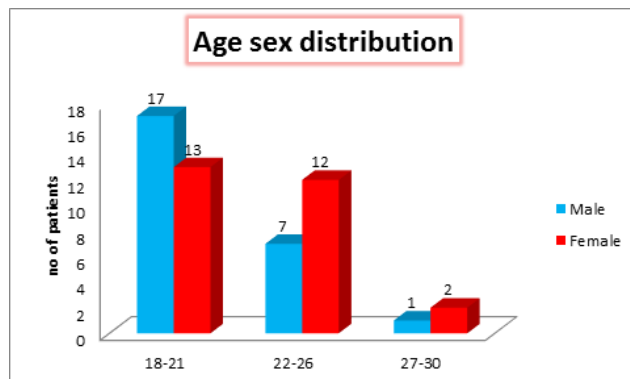


Figure 1. Age sex distribution

Figure 1 shows age and sex distribution of patients. 68% of male patients and 48.14% of female patients belong to 18-21 years of age group.

### Acne vulgaris and Quality of life between pre-treatment and post-treatment patients:

The response to various questions of CADI and the correlation between the Quality of life in pre-treatment and post-treatment patients of acne is depicted as:

- Out of the 52 patients, 35% pre-treatment patients were “more” aggressive, frustrated or embarrassed during last month as opposed to 0% of post-treatment patients. 50% pre-treatment patients were graded as “little” aggressive, frustrated or embarrassed as opposed to 7.69% post-treatment patients showed little aggressiveness, frustration or embarrassed. 15.3% pre-treatment patients showed no aggressiveness, frustration, or embarrassment. The mean score of the pre-treatment and post-treatment patients was 1.27 and 0.08 respectively. The difference between the two groups was found to be statistically significant ( $p < 0.001$ ).
- Eight (15.3%) pre-treatment patients rated that having acne during last month “severely” interfered with their social life and relationship with members of opposite sex. Twelve (23%) pre-treatment patients were “moderately affected”. Twenty Two (42.3%) pre-treatment patients showed occasional interference in social life and twelve (23%) pre-treatment patients rated their social life was unaffected due to acne as opposed to only 67.3% in the post-treatment group. Mean score of the pre-treatment and post-treatment patients was 1.35 and 0.42 respectively. The difference in response between the two groups was statistically significant ( $p < 0.001$ ).
- Analyzed the response that whether the physical pain due to the disease (manifestation of the disease) is preventing them from doing routine work. It was found that acceptance of physical appearance was affected “all of the time” in 23% of pre-treatment patients as compared to 15.3% in post-treatment patients. Eleven (21%) pre-treatment patients were affected most of time as compared to eight (15.3%) post-treatment patients whereas twenty pre-treatment and eighteen post-treatment patients were affected occasionally. The difference between the two groups was found to be statistically significant ( $p < 0.001$ ). Mean score of the pre-treatment patients and post-treatment patients was 1.50 and 1.12 respectively.

- Sixty percent (60%) pre-treatment patients rated their acne as “worst” it could possibly be as opposed to zero percent (0%) of the post-treatment. Twenty five percent (25%) pre-treatment patients thought it as “a major problem” as opposed to eleven point five three percent (11.53%) post-treatment patients. The difference in the two groups was statistically significant ( $p < 0.001$ ). Mean score of the pre-treatment patients and post-treatment patients was 2.40 and 0.85 respectively.

The CADI score of 34.6% of pretreatment acne patients was high, 51.9% medium and 13.46% was low. Lower the CADI score, the lower level of disability experienced by the patients. 73.03% of post treatment patients showed low CADI score.

### Discussion

CADI is one of the disease-specific instruments, to measure acne impact on a patient’s life. We found that the CADI score correlated with the severity of acne ( $p < 0.001$ ), which is in agreement with Salek et al<sup>18</sup> and Clark et al., The mean CADI score in our study was  $8.38 \pm 3.23$ , which is higher than some other studies,<sup>3</sup>.

The overall prevalence of acne in this study is 85.9%. However, the prevalence of acne was reported lower in some studies<sup>12,13</sup>. Males tend to have more severe acne as compared to females because they have oilier complexion and their androgen levels are higher<sup>4,10</sup>. In this study, the male students were found to have more moderately severe acne compared to female students ( $p = 0.003$ ). The findings are consistent with previous studies done in other countries<sup>14-16</sup>.

The QOL is more affected negatively in the age group 21–25 years which is in accordance with the study conducted in Spain.<sup>17</sup>.

### Summary and Conclusion

Facial acne is common among adolescents and can cause major impact on their quality of life. There is a correlation between patient’s quality of life and acne severity. Quality of life is similar in both genders. It is important for the health professionals to incorporate quality of life measurements when managing adolescents with acne. Health education is needed in our secondary schools to ensure that adolescents understand their disease, know what treatments are available and from whom they should seek advice. Health professionals

should be aware that early acne treatment can prevent progression of the disease and its complication.

The Quality of life was assessed using instrument Cardiff Acne Disability Index (CADI):

1. Among patients, 25 were males and 27 females with M: F equal to 1:1.08 and mean age was  $21.21 \pm 2.96$  years.
2. Most of the patients belonged to  $< 25$  years of age group.
3. The Quality of life on the whole was also found to be significantly affected in pre-treatment acne patients as compared to post-treatment acne patients ( $p < 0.001$ ).
4. In married patients (both pre-treatment and post-treatment cases) the facet on satisfaction with sexual life was significantly affected ( $p < 0.001$ ). Also the social relationship was significantly affected in married subjects ( $p < 0.001$ ). There was significant effect on overall Quality of life ( $p < 0.001$ ).
5. Quality of life of both males and females suffering from acne vulgaris were equally affected.
6. The CADI score correlated with the severity of acne ( $p < 0.001$ ). In summary, the findings of the present study indicate that CADI is a reliable and valid measure of acne impact on quality of life in patients with this condition. Dermatologists need to become more adopted at diagnosing and treating causative, concomitant, and resultant psychiatric disturbances in patients with acne. Acne vulgaris significantly affects patient’s quality of life.

### Conclusion

- Facial acne is common among adolescents and can cause major impact on their quality of life.
- There is a correlation between patient’s quality of life and acne severity.
- Quality of life is similar in both genders.
- It is important for the health professionals to incorporate quality of life measurements when managing adolescents with acne.
- Health education is needed in our secondary schools to ensure that adolescents understand their disease,

know what treatments are available and from whom they should seek advice.

- Health professionals should be aware that early acne treatment can prevent progression of the disease and its complication.
- On the whole quality of life was significantly affected in acne patients pre-treatment as compared to post treatment.
- The quality of life depends upon the severity of acne.
- The CADI questionnaire is a reliable, valid, and valuable tool for assessing the impact of acne on a patient's life.
- The impact of acne on quality of life can be measured using general health measures, dermatology-specific measures or acne-specific measures.
- In order for quality of life measures to be used more frequently in the routine clinical work, they need to be easy to use, the scores need to be meaningful and they need to be readily accessible.
- Quality of life measures can influence the choice of therapy. In patients with a severe impact on their quality of life, a more aggressive therapy may be justified.

**Ethical Clearance-** Had been Taken from Ethical committee of Rohilkhand medical college Bareilly.

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**Conflict of Interest -** Nil

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