## Quality of life in patients of Acne Vulgaris.

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**Abstract:**

**Background :** Acne is a chronic inflammatory disease of pilosebaceous units. Although the acne is not a life threatening disease, studies have revealed that it has significant effect on self-image and quality of life. Aim : To study the quality of life in patients of acne vulgaris and its correlation with disease duration and severity. **Materials and methods :** Total 100 patients of acne vulgaris were enrolled. Severity of acne was graded and quality of life was assessed by dermatology life quality index (DLQI)questionnaire. **Results :** Mean DLQI was 8.9.± 4.9. .A statistically significant correlation was found between DLQI and age, residemce marital status of patient as well as with duration and severity of acne. Quality of life in acne was not influenced by gender. **Conclusion :** Acne adversely affects quality of life in Indian patients. Through knowledge of every aspect of acne along with Proper treatment and counselling is utmost importance for a health care professionals.

**Key words :** Acne, Adolescents, Quality of life.

**Introduction :** Acne vulgaris is one of the most common dermatoses encountered in skin OPDs. It is a chronic inflammatory disorder of pilosebaceous glands that presents with formation of comedone, papule, pustule, and nodule.[1] The major complications of acne are scarring and hyperpigmentation. Although it is not a life threatening condition, but it can cause serious problems in patients' body image, self-esteem, and socialization and even may lead to feel of anger.[2] Acne vulgaris mainly affects face and lesions on this are difficult to hide. Also, it is more prevalent in adolescence, a phase of life with great importance in the development of self-confidence and social abilities. So, acne is not considered a trivial disease by dermatologists.

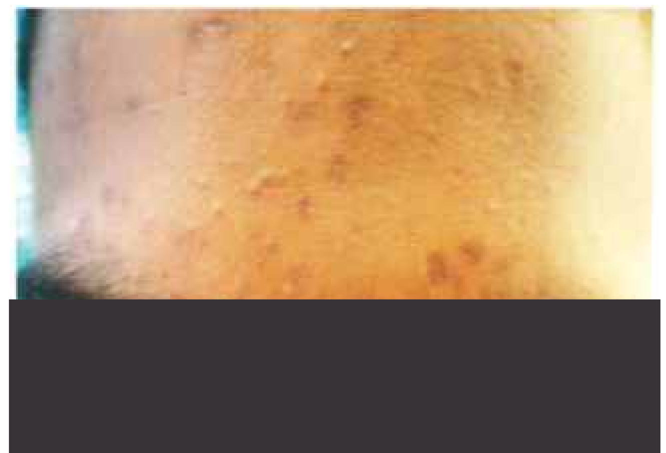
There are many studies worldwide revealing effect of acne on various psychological factors including depression, anxiety, personality and self esteem. [3,4]

After the validated scale like DLQI (Dermatology life quality index) came into light, the shift occurred from measuring psychological correlates towards measuring quality of life in acne vulgaris patients. However, there are only few studies from India. Considering the paucity of data on how acne affect quality of life in patients of acne, we conducted this study in order to evaluate DIQI score in acne patients and its correlation to acne grade and other parameters.

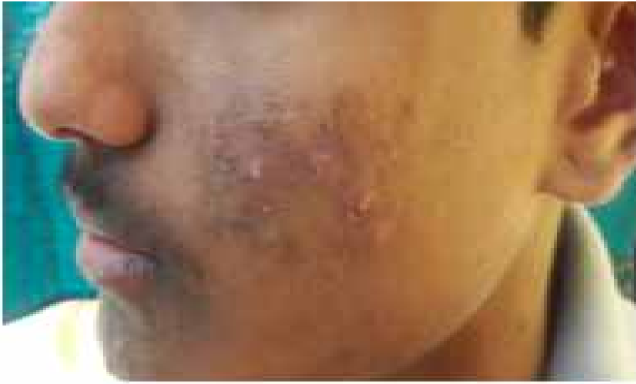
**Materials and methods :** It was a hospital based cross sectional study conducted during a period of six months (June 2016 to November 2016) in the department of Dermatology and Paediatrics of a tertiary health center of central India after approval by the Institutional Ethical Committee.

All patients attending the skin and /or pediatrics OPD and having age 15 years or older who gave written consent in Hindi/Marathi or English were included in the study. The diagnosis of acne vulgaris was made by two senior dermatologists. Patients suffering from medical disorders or on drugs likely to interfere with assessment of acne and nonconsenting patients were excluded from the study.

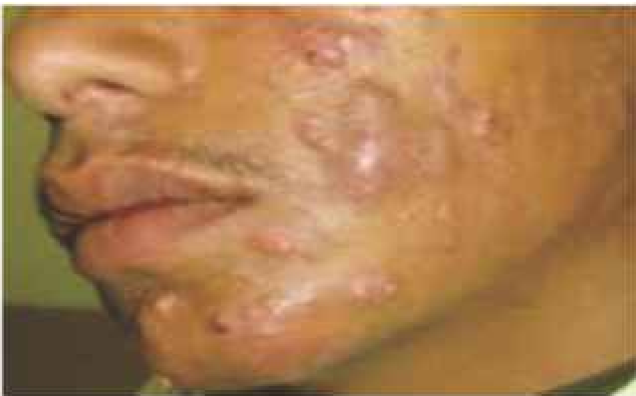
A detailed history pertaining to the various parameters like demographic data, presenting illness, personal history/factors aggravating acne, presence of medical/surgical diseases, family, and treatment history were noted. A thorough dermatological examination was performed to look for the following: Type of lesion, site, and grading.[Figure-1,2,3]



**(Fig.1 : Grade 1)**



**(Fig.2 : Grade 2)**



**(Fig.3 : Grade 3 & 4)**

**Acne vulgaris was graded using a simple grading system as follows.**[5]

- Grade 1 - comedones, occasional papules
- Grade 2 - papules, comedones, few pustules
- Grade 3 - predominant pustules, nodules, abscesses
- Grade 4 - mainly cysts, abscesses, widespread scarring.

Quality of life (QoL) was measured using a Dermatology life quality index (DLQI). It is a simple set of ten questions assessing six different domains including a) physical symptoms and feelings (Q- 1 and 2), daily activities (Q- 3 and 4), leisure (Q-5 and 6), work/school (question 7), personal relationships (Q- 8 and 9), and treatment Q-10). The response for each question could be in a score from 0 to 3 ( not at all, a little, a lot and very much respectively). Total DLQI score (range from 0 to 30) was calculated by simply adding score for each individual question.. A final score was interpreted as follows.[6]

- 0–1- No effect of the disease on the patient's QoL,
- 2-5- small effect,
- 6-10- moderate effect
- 11-20- great effect
- 21-30- very important effect.

**Statistical analysis :** The data was analyzed using SPSS Statistics software version 16. Comparison of qualitative variables between independent groups was done with Chi - square test. For comaparision of means, unpaired t test and ANOVA was used as appropriate.value of $P < 0.05$ was considered significant.

**Results :** In the present study, a total of 100 patients of acne were examined, of whom n= 66(66%) were females and n=34(34%) were males with F:M ratio of 1.94. Mean age of presentation was 21.1 ±1.4 years. Most of patients (48%) were in age group of 20-25 years, followed by in age group of 15-20 years (39% ) and then >25 years (13%).

Number of urban patients exceeded the rural one (59% vs 41%). Majority of patients were in middle (34%) and upper middle (23%). socioeconomic class.

Mean duration of disease was 1.7±0.4 years. Out of 100 patients, most of the patients , n=19(19%) were having grade-I acne while least were having grade- III.

Mean DLQI was 8.9.± 4.9, which means moderate effect on quality of life. Correlation of DLQI score with various parameter is shown in **[Table.1]**

**Table-1: Descriptive characteristics of cases and their correlation with DLQI**

| Parameters | Mean DLQI ± SD | P value (test used) |
|---|---|---|
| **Age** | | |
| 15-20 year (n= 39 ) | 8.7 ± 4.4 | **0.001** (ANOVA) |
| 20-25 years (n= 48) | 11.4 ± 3.8 | |
| >25 years (n= 13) | 13.1 ± 4.2 | |
| **Gender** | | |
| Male (n= 34 ) | 10.1 ± 5.2 | 0.34 (Unpaired t test) |
| Female (n= 66 ) | 8.8 ± 7.1 | |
| **Residence** | | |
| Rural (n= 41) | 9.2 ± 5.9 | **0.020** (Unpaired t test) |
| Urban (n= 59) | 12.3 ± 6.8 | |
| **Socioeconomic status (Updated B.G Prasad classification)** | | |
| Class-1 (Upper) (n=19 ) | 12.9 ± 6.4 | **0.0028** (ANOVA) |
| Class-2 (Upper middle) (n= 23) | 12.1 ± 5.6 | |
| Class-3 (Middle) (n= 34) | 10.4 ± 6.2 | |
| Class-4 (Lower middle) (n= 18 ) | 7.5 ± 3.9 | |
| Class-5 (Lower) (n= 6) | 4.4 ± 3.6 | |
| **Marital status** | | |
| Married (n= 27 ) | 9.8 ± 4.8 | **0.048** (Unpaired t test) |
| Unmarried (n=73) | 12.4 ± 6.1 | |

**Out of 100 patients, most patients experienced moderate (38%) to small (31%) effect on their quality of life. Only one patient in our study had very important effect on his quality of life. [Table-2]**

**Table-2: Frequency distribution of DLQI**

| Effect on quality of life | Percentage of paients affected |
|---|---|
| No effect | n=26(26%) |
| Small effect | n=31(31%) |
| Moderate effect | Moderate-n= 38(38%) |
| Great effect | n=4(4%) |
| V.important effect | n=1(1%) |

There was an inverse correlation between age and DLQI score (P value= 0.001). In contrast, no significant difference was found in Qol between males and females (P value= 0.34). Urban population had simply higher score (12.3 ± 6.8) than its rural counterpart (9.2 ± 5.9), which was statistically significant (P value= 0.020). We observed that quality of middle, upper middle and upper scocioeconomic class acne patients was significantly low quality than that of lower class (P value= 0.0028).

Correlation of marital status with DLQI score, revealed that unmarried patients were more bothered than married one about their acne resulting into higher DLQI score (12.4 6.1 vs 9.8 4.8 P= 0.048).

Severity of acne was directly correlated with DLQI score. Patients with higher grade acne were had low quality of life. (Mean DLQI = 8.8 ± 7.2, 9.7 ± 6.3, 11.2 ± 3.3 and 14.1 ± 5.8 in Grade-I, II, III and IV respectively, P value= 0.0169). **[Table-3]**

**Table-3: Correlation between acne severity and DLQI**

| Grade of acne | Mean DLQI ±SD | P value (test used) |
|---|---|---|
| Grade- I (n=27) | 8.8 ± 7.2 | 0.0169 (ANOVA) |
| Grade-II (n=32) | 9.7 ± 6.3 | |
| Grade-III (n=19) | 11.2 ± 3.3 | |
| Grade- IV (n=22) | 14.1 ± 5.8 | |

Regarding the mean DLQI score with respect to duration of acne, we observed that longer the duration of acne Higher is the DLQI scores(P value= 0.022), as mean DLQI for acne duration ,1 year was 8.8. 5.2 , while 10.9 7.1 for acne duration of 1-2 years and much higher score of 13.8 6.3 for the acne duration of > 2 yers. [**Table-4]**

**Table-4: Correlation between duration of acne and DLQI**

| Grade of acne | Mean DLQI ±SD | P value (test used) |
|---|---|---|
| <I year (n=34) | 8.8 ± 5.2 | 0.022 (ANOVA) |
| 1-2 years (n=43) | 10.9 ± 7.1 | |
| >2 Years (n=23) | 13.8 ± 6.3 | |

**Discussion :** WHO defines QoL as the 'individuals' perception of their position in the context of culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns.' [7] Skin diseases are a common health condition responsible for considerable disability.[8] Furthermore, patients' social and physical activities, including sports and work, may be adversely affected because of reluctance to allow others to see their skin disease especially when present on face. Same applies to acne vulgaris also. It disease affects 85% of adolescents and young adults. Owing to the fact, It is essential to meet the rising demand on acne management. Several studies report impact of acne in on quality of life, although there are very few such studies in India.

In the present study, females constituted 66% of total cases while males were 34%. This nearly double number of females corroborated with other studies.[9,10,11] Such a high number of females does not mean that acne is more common in female but rather it means that they are more aware about their facial appearance than males, and they seek for therapy. Maximum patients in our study were 20-25 years of age. Mean age of acne in our study was 21.1 years, which was somewhat higher than that found in other studies.[9]

Mean DLQI in the study the study population was 8.9.± 4.9, which corresponds to moderate effect on quality of life. It reveals 29.6% impairment in quality of life. This data supports study by Hazarika and Rajaprabha[9]. Another study from Malaysia reported mean DLQI 4.1[12]. This difference in quality of life in acne patients can be attributed to different social and cultural upbringings.

We observed increasing trends of DLQI with increasing age. DLQI in >25 years age group was 13.1 ± 4.2, which was higher than 15-20 years and 20-15 years age group. This can be attributed to the fact that people young adults are much keen about their looks and personality as in this age marriage and romantic relationship plays an important part. [13]

We did not found significant difference in DLQI , when it was compared between males and female patients. In this regard, conflicting findings were seen in different studies. No gender difference was noted in DLQI scores in some studies [11] , while in others there was higher DLQI in females with acne. [14]

We also observed significantly higher score of DLQI in urban population.(P=0.020). An increasing trend of DLQI was observed as we move from lower to higher scocioeconomic class. It can be easily explained as in

India people of higher scocioeconomic classes live professional life and so appearance is given more importance by them. This finding was not elicited in previous Indian studies.

Another Important finding in the present study was significantly high DLQI in unmarried population. This may be because unmarried acne patients anticipate or face more difficulties in getting married and they may have fear of rejection.

With respect to severity of acne, the study revealed that DLQI increases with severity of acne. This was in agreement to previous studies. [9,11,15]. This can be explained by the fact that grade I and II acne can be hide by makeup and may not be visible from distance. So patients with less severe acne are less bothered about their disease.

The duration of acne was 1-2 years in maximum patients (43%). A statistically significant correlation was found with duration of acne and DLQI score. This finding help interpret authors that patients with longer duration of acne might have spent their time and money in acne treatment and also faced social isolation for longer duration, resulting in low QoL. Similar finding was reported in studies from India.[9,13]. while study from Iran from other parts of world could not find significant association between acne duration and DLQI.[16].

Despite being a very common skin problem, studies evaluating quality of life in acne patients are very few from India and confined mainly on south Indian population. Our study was conducted on a different set of population. The present study do have its limitations. Firstly being a hospital based study it can not comment on what impact acne has on QOL in people with acne who do not choose to or cannot come to the doctor. Secondly sample size was not large enough to represent entire Indian population. So we look forward for multicentric studies from India in future.

**Conclusion :** Acne vulgairs impairs quality of life. Therefore, attention to the quality of life of these patients is of a great importance. It should be viewd as a psychologically disabling disease by health care professionals and administrators requiring optimal management and resource allocation. Education of junior doctors and medical student is also important.

The Indian Acne Alliance (IAA) has been formulated to further the cause of acne in India and provides acne management guidelines which will help achieve rationalization, improvement in outcomes, and more uniform therapeutic approaches.

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