Original Research Article

Dermatology life quality index in patients of acne vulgaris presenting to a tertiary care hospital: an observational study

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ABSTRACT

Background: Acne vulgaris is a common, chronic disorder resulting from the inflammation of pilosebaceous unit, present with clinically various forms. It is usually prevalent in adolescent may persist in adulthood. This study was conducted to evaluate the quality of life (QoL) in patients suffering from acne vulgaris.

Methods: Hospital based cross sectional study was conducted in 60 patients. Dermatology life quality index (DLQI) questionnaire was used to observe the effect of acne among patients.

Results: Total numbers of patients enrolled were 60 (43 females,17 males). The mean age was 24.85±5.63 years. Maximum patients were of the age group 26-30 years (22 patients; 36%) and least were of 31-36 age group. Out of 60 patients, 29 patients had grade II acne followed by 20 with grade I acne, grade III acne was present in 11 patients. Most of the patients 31 (52%) were having "moderate impact" on quality of life followed by 23 (38%) with "small impact" on QOL. There was a significant positive correlation between grade of acne and DLQI (Pearson correlation=0.753, p=0.00).

Conclusions: Our study showed significant impairment of QoL in acne patients. DLQI increases with increase in severity of acne. Treatment of acne should not be guided only by the clinical grade of acne, but take into consideration the psychosocial impact the condition has on the patient. Adequate counselling along with early treatment of acne vulgaris is essential in order to reduce the disease related psychosocial sequelae and increase treatment efficacy.

Keywords: Acne vulgaris, Dermatology life quality index, Quality of life

INTRODUCTION

Acne vulgaris is a chronic inflammatory disease of the pilosebaceous unit characterized by seborrhoea, open and closed comedones, papules, pustules and in more severe cases, nodules and pseudocysts and scarring. It commonly affects the face, upper chest and upper back.[1] More than 80% of adolescents suffer from acne and in 50 % of cases, it extends to adulthood.[2] Sebum overproduction under the influence of androgen with abnormal follicular desquamation causes plugging of the follicles which results in increased growth of *Propionobacterium* acnes. This results in increased inflammation in the pilosebaceous units. Scarring and psychological impact are major complications of it which remains even after fading of active lesion for longer time.[3] Patients experience psychological burdens like depression, anxiety and low esteem and are more prone to embarrassment, social withdrawal.

World Health Organization (WHO) defines QoL as the "individual's 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."[4] The use of QoL questionnaires can help us adequately understand how acne affects the patient on a day-to-day

basis and can aid in assessing the efficacy of therapy and design more targeted interventions. One such questionnaire is the Dermatology Life Quality Index (DLQI). Developed by Finlay and Khan, DLQI is widely used in research and clinical practice to assess changes in health-related QoL, as it is a sensitive measure.[5,6] There is paucity of data have been conducted in India. The objective of this study was to assess the impact of acne, and its sequelae on the QoL in patients visiting a tertiary care hospital.

METHODS

This hospital based, retrospective, cross sectional study was conducted in Department of Dermatology and Venereology of a tertiary care teaching hospital from November 2020 to January 2021 after obtaining the approval by Institutional Research and Ethics Committee. All the patients of acne vulgaris above the age of 15 years attending dermatology OPD after obtaining informed written consent. Patients suffering from mental disorders or on drugs likely to interfere with assessment of acne were excluded from the study.

A detailed history pertaining to the following parameters like demographic data, presenting illness, personal history/factors aggravating acne, presence of medical/surgical diseases, family, and treatment history were elicited.

A thorough dermatological examination was performed to look for the following: Type of lesion, site, and grading.

Acne vulgaris was graded using a simple grading system as follows:[7]

Grade 1 - comedones, occasional papules, Grade 2 - papules, comedones, few pustules (Figure 7), Grade 3 - predominant pustules, nodules, abscesses, Grade 4 - mainly cysts, abscesses, widespread scarring.

The DLQI questionnaire, first introduced by Finlay and Khan, in 1994[5] was used as the study instrument for this study after obtaining a formal written permission. DLQI is a validated questionnaire which grades QoL by assessing the following domains: (a) physical symptoms and feelings (questions 1 and 2), (b) daily activities (questions 3 and 4), (c) leisure (questions 5 and 6), (d) work/school (questions 7), (e) personal relationships (questions 8 and 9), and (f) treatment (question 10). Each question is scored as "very much" (score 3), "a lot" (score 2), "a little" (score 1), and "not at all" (score 0), keeping in mind the problems faced the previous week due to the disease. Final DLQI score is the sum of all scores (range 0–30). High scores indicate poor QoL.

DLQI score interpretation is done as follows: 0–1 no effect on patient's life, 2–5 small effect on patient's life, 6–10 moderate effect on patient's life, 11–20 very large effect on patient's life, 21–30 extremely large effect on. patient's life.

Statistical analysis

Data was analysed using Statistical package for social sciences (SPSS) software version 16, qualitative data presented as frequency and percentage while quantitative data in mean and standard deviation. Independent variable was compared by unpaired t test. P value less than 0.05 considered as significant.

RESULTS

The study population included 60 cases with 43 (71.66%) females outnumbering 17 males (Figure 1). The mean age was 24.85±5.63 years with highest 36 and lowest 15 years. Maximum patients 22 (36%) were among 26-30 years followed by 18 (30%) patients in 16-20 years of age group (Figure 2). 21 out of 60 patients were married while 16 patients had a history of smoking and alcohol addiction. Grade II acne was the most common clinical type seen in 29 (48.3%) cases followed by 20 (33.3%) with grade I acne, grade III acne was present in 11 (18.3%) patients (Figure 3). Mean DLQI among study subject was 5.97±3.01, with highest 12 and lowest 1. 31 (52%) patients were having moderate effect on quality of life followed by 23 (38%) with small effect on QOL. 3 (5%) subjects each with large effect and no effect on quality of life (Figure 4).

Table 1: DLQI corelation with gender and marital status.

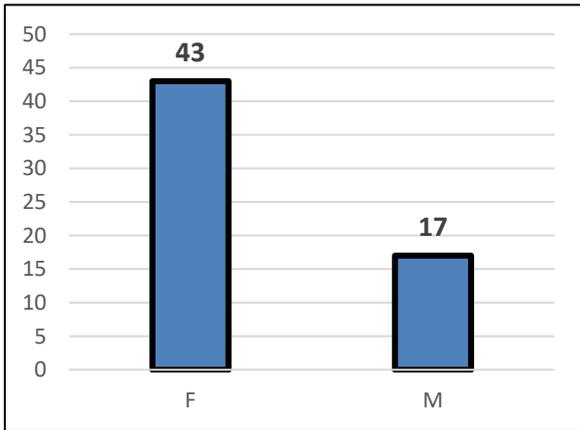| Variable	Marital status	N	Mean	Std. Deviation	Std. Error Mean	P value
Acne grade	M	17.00	1.76	0.66	0.16	0.562
	F	43.00	1.88	0.73	0.11	
DLQI	M	17.00	5.76	2.84	0.69	0.752
	F	43.00	6.05	3.18	0.49	
Acne grade	Married	21	1.52	0.51	0.112	0.008
	Unmarried	39	2.03	0.74	0.119	
DLQI	Married	21	4.71	2.49	0.544	0.019
	Unmarried	39	6.64	3.17	0.507	

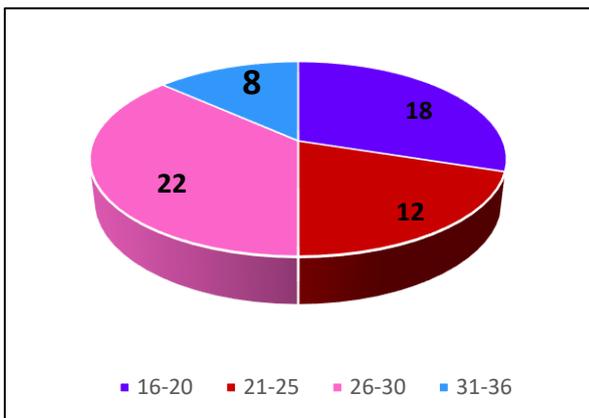**Figure 1: Sex distribution of acne.**
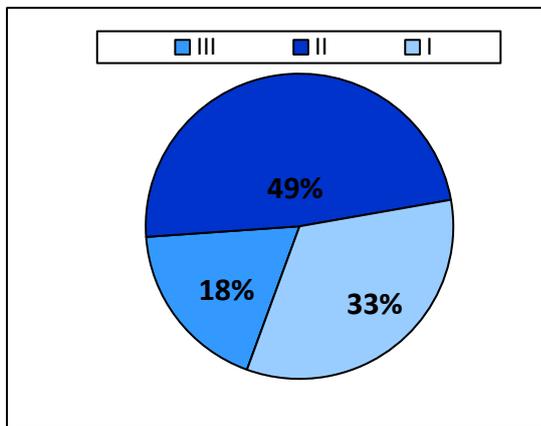

Figure 2: Age distribution of acne.

Figure 3: Acne grade.

Out 17 males 9 had a moderate impact and 6 males had a small impact and out of 43 females 22 had moderate impact, 17 had small impact on DLQI. There was highly significant positive correlation between acne grades with DLQI, means as grade of acne increased from comedones to pustule, the DLQI value increased (Pearson correlation=0.753, p=0.00) (Figure 5, Table 1). Between 16-20 years and 31-36 years there was small-moderate impact on DLQI although, age had a weak positive not

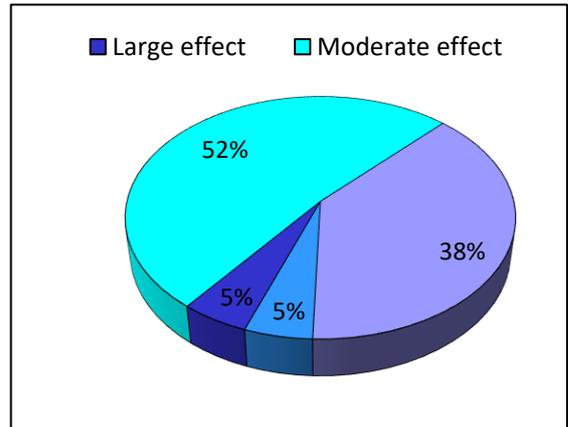significant correlation with DLQI (Pearson correlation=0.032, p=0.811). (Figure 6)

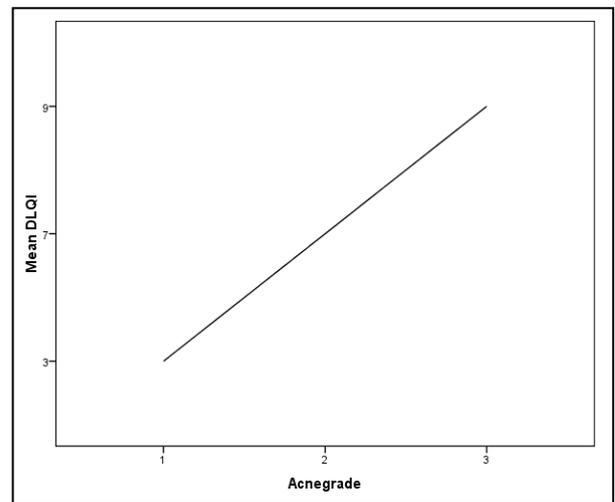**Figure 4: Effect of acne on DLQI.**

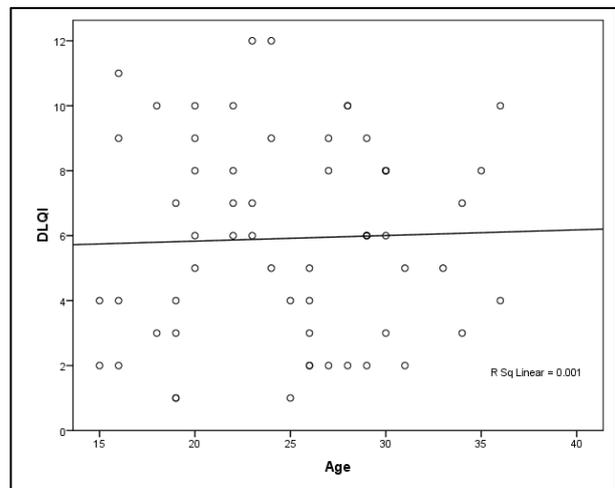**Figure 5: Correlation between grade of acne and DLQI.**

Figure 6: Correlation between grade of acne and DLQI.

Mean DLQI in female (6.05±3.18) was higher than males (5.76±2.84) but difference was statistically not significant (p=0.75). Mean DLQI in unmarried was higher (6.64+3.17) than married (4.71±2.49) and difference was statistically significant (p=0.019) (Table 1). Patients with acne vulgaris were treated with Benzyl peroxide 2.5% gel (21), Clindamycin 2% ointment and Doxycycline 100 mg twice a day (26) and Salicylic acid peel 20% (13) depending upon their clinical conditions. Majority of patients treated with Benzyl peroxide 2.5% gel had a small impact while those treated with Clindamycin 2% ointment and Doxycycline had moderate effect on DLQI. Patients treated with Salicylic acid had mixed small to moderate impact on DLQI.

Figure 7: 27 years old patients with papules over face.

DISCUSSION

Acne vulgaris is a chronic inflammatory disease with pathogenesis attributed to multiple factors such as increased sebum production, follicular hyper-keratinization, proliferation of Propionibacterium acnes within the follicle, alteration of the quality of sebum lipids, regulation of cutaneous steroidogenesis, androgen activity, interaction with neuropeptides, and exhibition of pro- and anti-inflammatory properties. Inflammation plays a key role and may be the primary process in the pathogenesis, led by the perifollicular T-helper cells through IL-1.[8]

This hospital-based study included 60 cases of acne vulgaris in 3 months. Durai et al included 140 cases over 5 months while Kulthanan et al included 110 cases in 1-year.[9,10]

Female patients were more than males in this study (M:F ratio 1:2.53) similarly female predominance was observed in study conducted by Sivaramakrishnan et al (M: F ratio 1: 1.22) and Hazarika et al.[11,12] Despite of higher mean DLQI in female (6.05) than male (5.76) difference was statistically not significant (p=0.75) while similarly more impact in females was observed by Sivaramakrishnan et al.[11] The mean DLQI in unmarried was higher (6.64±3.17) than married (4.71±2.49) and difference was statistically significant (p=0.019).

Most of patients (48.3%) were having grade II acne (predominantly papule) among study sample which is similar with 46% with grade II in Sivaramakrishnan et al.[11] A significant positive correlation between grade of acne with DLQI (Pearson correlation=0.753, p=0.00), similar observation was made by Sivaramakrishnan et al with mean DLQI scores 2.29 in Grade 1 acne, 12.0 in grade IV acne and in study conducted by Durai et al (r=0.3034, p=0.0003).[11,13]

31 (52%) patients were having moderate effect on quality of life which was similar to moderate effect of (30%) in a study conducted by Sivaramakrishnan et al and Chowdary et al.[11,14] Patients who were on topical treatment had a small impact on QoL while those on topical and systemic both had moderate effect while those on who treated with procedures had small-moderate impact on QoL.

CONCLUSION

Our study has shown that there was significant impairment of QoL in acne patients. Most of them had "moderate impact "on QoL. There was higher DLQI in females than males but was not significant statistically. The results published by our study highlights the importance of early detection of acne as the mean DLQI score increased with increasing grade of acne. There was significant impairment in QoL of unmarried patients. Patients with lower grade on topical treatment had less impact on QoL while as the grade increased, impairment in QoL significantly increased. Hence it is important for dermatologists to incorporate QoL measurements specially in cases with high grade of acne and unmarried patients. Reduction in DLQI scores during follow up becomes an important indicator of treatment success and satisfaction.

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