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Study on Clinico-Epidemiology and Quality of Life in Patients of Acne Vulgaris in a Tertiary Health Care Centre

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ABSTRACT

Background: Acne is a chronic multifactorial inflammatory disorder of pilosebaceous unit. It is frequently seen in adolescents and young adults. Acne leads to significant psychological distress, social anxiety and impairs quality of life in patients

Aim: To assess demographic variables and Quality of life in patients with Acne vulgaris.

Method: This was a hospital-based, observational, pre-structured, questionnaire-based study done in 1015 patients who attended the Skin and VD, OPD of Mahatma Gandhi Medical College and Hospital, from January 2021 to June 2022.

Results: A total of 1015 patients were included in the study with a female to male ratio of 1.2:1. The age of the patients ranged from 14-35 years. Majority of the study participants were students (51.4%). Most common site affected was face (68%). Dermatology life quality index (DLQI) score ranged from from 1 to 20 with mean score of 8.18 ± 4.45. Overall quality of life assessment showed moderate to very large effect in patients with Acne Vulgaris depending on the severity of the disease.

Conclusion: Acne Vulgaris negatively impacts quality of life. This effect is more pronounced in female patients and young adults with severe acne. Proper counselling and psycho-social support should be provided to improve the Quality of life in these patients.

Key Words: *Clinico-Epidemiology; Acne Vulgaris*

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INTRODUCTION

Acne Vulgaris is amongst one of the leading dermatological conditions affecting all races and ethnicities across the world [1]. It is a chronic, multifactorial, complex inflammatory disorder of the pilosebaceous unit. The chronicity of the disorder can be accredited to slow onset, prolonged course.

Acne vulgaris is most frequently seen in adolescents and young adults, however; it can present as a continuation of acne till later in life and can present as persistent acne. A new variant known as recurrent acne, has been recently explained in the studies. It is characterized by presence of lesions during adolescence, improvement for a significant duration of time and recurrence in adulthood [2].

The lesions are classified into inflammatory type and non-inflammatory type based on their clinical appearance. Non-inflammatory acne presents with open and closed comedones. Open comedones or blackheads have an apparent dilated follicular opening that is filled with a dense core of shed keratin. While closed comedones are characterized by small, skin-colored papules with no associated erythema or distinct follicular opening.

Inflammatory acne morphologically presents as papules, pustules, and nodules of varying severity [3].

The multi-factorial etiopathogenesis of acne vulgaris involves a complex interaction between four major elements [4] –

1) Excess sebum production
2) Follicular hyper-keratinization

3) Bacterial colonization mainly by Cutibacterium acnes
4) Peri-glandular dermal inflammation.

Certain factors that may trigger or aggravate acne include genetics, menstruation, diet, smoking, emotional stress and cosmetics

Indian authors [5] have classified acne vulgaris using a simple grading system as follows -
Grade I: Comedones, few papules
Grade II: Comedones, many papules and occasional pustules
Grade III: Predominant pustules, nodules, abscesses
Grade IV: Mainly cysts or abscesses and widespread scarring

Acne is not considered as a life-threatening condition, but it can result in significant psychological distress including lowered self-esteem, social impairment and depression. Hence, leading to a substantial morbidity. Assessment of the impact of Acne Vulgaris on Quality of life (QoL) is required to represent the overall disease burden and effectiveness of the treatment [6].

MATERIALS AND METHOD

This was a hospital-based, observational, pre-structured, questionnaire-based study done in 1015 patients who attended the Dermatology outpatient department of Mahatma Gandhi Medical College and Hospital, from January 2021 to June 2022, after obtaining approval from Institutional Ethics Committee.

Informed consent from study participants was taken and detailed clinical history pertaining to the following parameters like:
1) Demographic variables,
2) Factors aggravating acne,
3) Personal history,
4) Family history and
5) Treatment history was obtained.

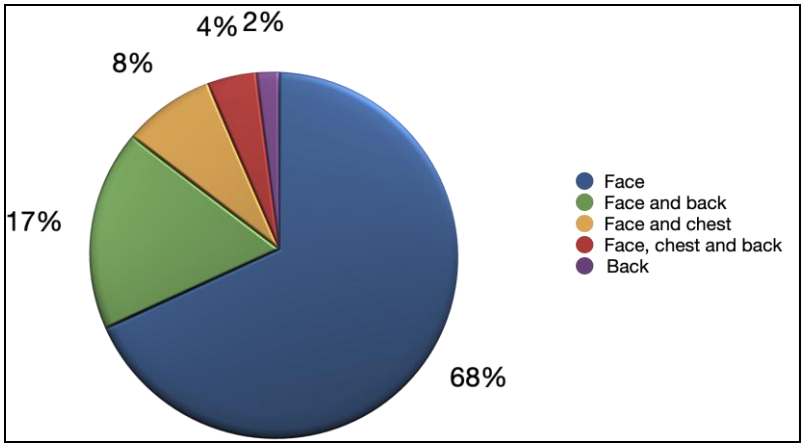
Quality of Life (QoL) was assessed using a Dermatology Life Quality Index questionnaire (DLQI). The DLQI grades QoL by giving a score to each domain.

OBSERVATION AND RESULTS

A total of 1015 consenting individuals were included in the study with a female to male ratio of 1.2:1. The age of the study population ranged from 14-35 years. Majority of the study participants were students (51.4%). 68% of the study participants had lesions on the face, 17.3% had lesions on both face and back, 8.2 % had lesions on both face and chest followed by involvement of face, chest and back in 4.4% and only back in 2.1%.

Table 1: Site of lesions

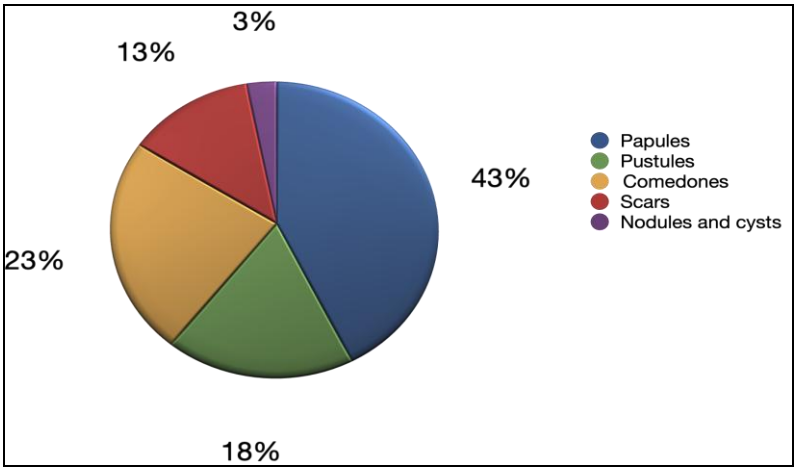
Site	No. of cases	%
Face	690	68
Face and back	176	17.3
Face and chest	83	8.2
Face, chest and back	45	4.4
Back	21	2.1
Total	1015	100



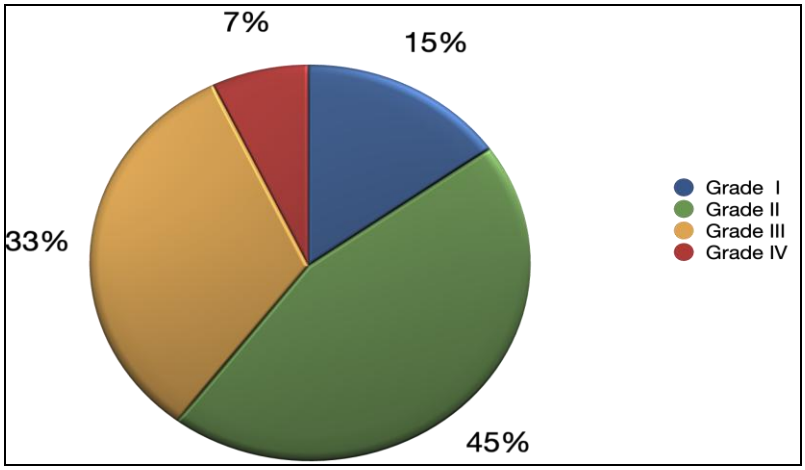
Majority of the patients had papules (42.7%), followed by comedones (23.3%), pustules (17.9%), scars (13%) and nodules and cysts (3.1%).

Table 2: Morphology of lesions

Morphology	No. of cases	%
Comedones	236	23.3
Papules	433	42.7
Pustules	182	17.9
Scars	132	13
Nodules and cysts	32	3.1
Total	1015	100

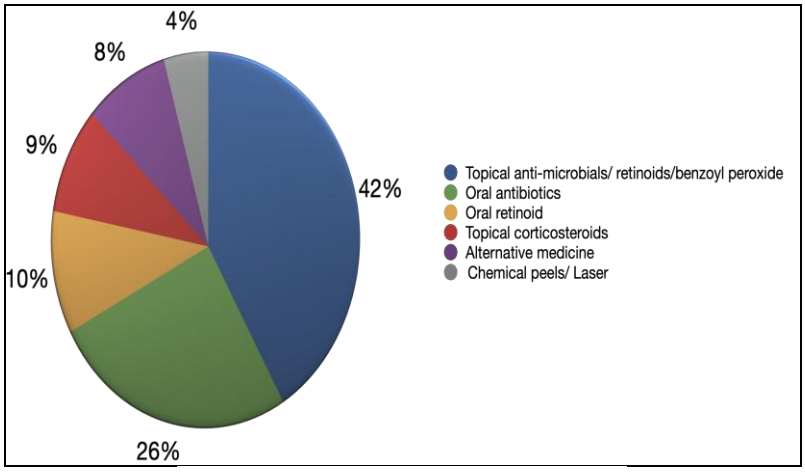


45% patients presented with Grade II acne followed by Grade III in 33% patients, Grade I in 14.9% patients and Grade IV in 6.9% patients.



Graph 1: Grading of acne

History of previous treatment of acne was acknowledged by 54% of the patients. Out of 548 total patients who acknowledged history of previous treatment, 41.7% applied topical anti-microbials, retinoids, benzoyl peroxide, followed by history of oral antibiotics in 26.1% patients and oral retinoids in 10.5 % patients. History of application of topical corticosteroids was reported by 9% patients, 8.2% tried alternative medicine (homeopathic or ayurvedic) and only 4.5% patients had history of undergoing chemical peels or laser.



Graph 2: History of previous treatment

Out of 1015 patients, 40.6% recalled aggravation of acne due to any stressful event, 38.3% reported increase in number of lesions due to use of cosmetics, followed by seasonal variation in 36.4% and high glycemic diet in 18.1%. Only 8.8% of patient correlated aggravation of acne to smoking and alcohol. Amongst the 519 female patients, 65.6% reported pre-menstrual flare.

Table 3: Aggravating factors

Factors	No. of cases (n=1015)	%
Cosmetics	388	38.2
Stress	412	40.6
Seasonal variation	369	36.4
High glycemic diet	183	18.1
Smoking and alcohol	89	8.8

Factors	No. of cases (n=519) (females)	%
Pre-menstrual flare	340	65.6

Dermatology Life Quality Index scores

Dermatology Life Quality Index scores ranged from 1 to 20 with mean DLQI score of 8.18 ± 4.45 which showed impairment of 25 %. Mean DLQI score was highest in age group of 20-25 years followed by age group of 30 years and above and was found to be slightly higher in female patients (8.95).

Table 4: DLQI -Age distribution

Age (years)	DLQI
< 20	7.04
20-25	11
> 30	8.31

Mean DLQI was highest in Grade IV, followed by Grade III, Grade II and Grade I acne.

Table 5: DLQI – Grading of Acne

Grades	DLQI
Grade I	3.01

Grade II	7.96
Grade III	12.02
Grade IV	17.88

Mean DLQI score was significantly higher in patients with duration of acne more than 5 years.

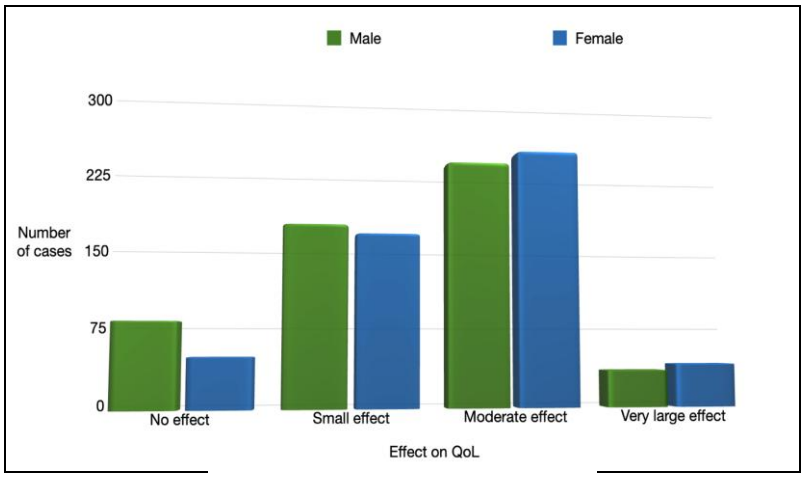
Table 6: DLQI – Duration of Acne

Duration	DLQI
< 1 year	6.03
1-2 years	6.67
3-5 years	9.21
> 5 years	9.78

Overall quality of life assessment showed moderate to very large effect in patients with acne vulgaris.

Table 7: Effect on Quality of Life

Impact	Male	Female	Total	%
No effect	81 (15.6 %)	48 (9.7%)	129	12.7
Small effect	171 (32.9 %)	163 (33%)	334	32.9
Moderate effect	232 (44.7 %)	244 (49.1%)	476	46.8
Very large effect	35 (6.8 %)	41 (8.2%)	76	7.4
Total	519	496	1015	100



Graph 3: Effect on Quality of Life

DISCUSSION

Acne Vulgaris is a disorder of the pilosebaceous unit, characterized by comedones, papules, cysts, nodules and scarring. It typically starts around the age of 12 to 14 years but tends to manifest earlier in female patients. The age of onset has changed over time, paralleling the earlier onset of puberty reported in recent years, which may also relate to diet/obesity and other lifestyle factors [7].

It is a self- limiting condition characterized by presence of non-inflammatory and/or inflammatory lesions. Most cases of acne are pleomorphic affecting the face, back and/or chest. Post inflammatory macules, pigmentary changes and scarring commonly occur.

Acne has an undeniable psychosocial impact and affected individuals have an increased likelihood of self-consciousness, social isolation, anxiety disorders, depression and even suicidal ideation [7].

In our study, 62% (629) of total 1015 study participants belonged to the age group of less than 20 years, which corresponds well to the fact that acne is most commonly seen in adolescents and young adults. During puberty, hormone production increases, which stimulates the sebaceous glands to produce excess sebum, leading to clogging of pores and development of acne. Results similar to our study were reported by Cohen et al [8] in their study, which showed the prevalence in teenagers aged 15-17 years to be 85%. Smithard A et al [9] observed that maximum number of patients belonged to the age group of 14-16 years.

Majority of the patients in our study were students (51.4 %). Similar indices were observed by A. Gupta et al [10] who studied 100 Acne Vulgaris patients and found that majority of them were students (57 out of 100).

45% patients in our study presented with Grade II acne followed by Grade III in 33% patients, Grade I in 14.9% patients and Grade IV in 6.9% patients. Grading of acne is done to assess severity and can be influenced by variety of factors like individual's age, skin type and overall lifestyle. Our study is in concurrence with a study conducted by Surekha et al [11] where most patient (59%) patients had grade II acne. In another study by S. Biswas et al [12] it was observed that 32%, 45%, 16% and 7% belonged to grade I, II, III and IV of acne vulgaris, respectively.

Distress was found to be the most common factor leading to acne exacerbation. Majority of patients (40.6%) in our study reported aggravation of acne due to any stressful event. Stress can affect the body in a number of ways, including alteration of hormone production and immune function. These changes can lead to the development or worsening of acne. Our data correlates well with the study done by Green and Sinclair [13] which concluded that 67% of students believed that stress played a role in acne exacerbation. In the study by A. Pearl et al [14], 57.4% patients believed stress to be a contributing factor to acne flare up.

Dermatology Life Quality index

Dermatology life quality index score of our study ranged from from 1 to 20 with mean DLQI score of (8.18 ± 4.45) with impairment of 25%. Mean DLQI score was highest in age group 20-25 years followed by age group of 30 years and above.

Our results slightly differed from the study conducted by N Hazarika and R.K Rajaprabha [15] which reported highest mean DLQI score in age group >25 years.

Our study concluded that Mean DLQI was found to be slightly higher in female patients (8.95). The findings of our study correlated well with a study by Kundale DR et al [16] which showed higher DLQI score in females as compared to males.

Mean DLQI score in our study was significantly higher in patients with duration of acne more than 5 years followed by duration of 3-4 years. N Hazarika and R.K Rajaprabha [15] observed that Mean DLQI score was significantly higher in patients suffering from acne for 25-36 months.

Our data concluded that Quality of life was significantly impaired in patients with Grade IV acne (17.88), followed by Grade III (12.02), Grade II (7.96) and Grade I (3.01) acne. Study by N Hazarika and R.K Rajaprabha [15] reported similar findings with highest mean DLQI in patients with Grade IV acne (16.50).

Our study revealed that there was a significant impact of acne vulgaris on Quality of Life. As per the DLQI scores of our study, there was a moderate to extremely large impact on the Quality of Life in 54.2% of patients. Similar to findings of our study, H. Safizadeh et al [17] found that acne influenced largely the quality of life in 51.8% of the patients based on DLQI score.

CONCLUSION

Acne vulgaris most commonly affects adolescents and young adults, hence majority of study population includes students. Females tend to be more prone due to several factors like menstruation, medications, cosmetics etc. Grade II acne was most commonly encountered characterized by papules and pustules. Acne vulgaris can have significant impact on quality of life. Even mild form of acne vulgaris can lead to social anxiety and psychosocial distress. Hence proper counselling and psycho-social support should be provided to improve the Quality of life in these patients. Early treatment and awareness can help reduce the burden. Conducting research within a community setting with a larger sample size will provide a better perception towards actual burden of acne vulgaris on the general population.

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