

An Observational Cross Sectional Study to Assess the Quality of Life of Patients Having Lesions of Acne Vulgaris on Their Face in a Tertiary Care Centre of West Bengal

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ABSTRACT

BACKGROUND

Acne vulgaris is a common disease mostly affecting the adolescents. The lesions can be distributed over the sebaceous rich areas of the body like face, chest, back and upper arm. The commonest location is face. Face is psychologically the most important part of the body. So, the presence of lesions on the face can have significant effects on the quality of life of the patients. The purpose of this study was to assess the effect on the quality of life (QOL) of the patients who have acne vulgaris on their face. Along with that this study was planned to assess as to whether the effect on QOL is related to two demographic factors - age & gender and two clinical factors - duration of disease and grade of acne vulgaris.

METHODS

81 patients having acne vulgaris on their face who attended the Dermatology OPD were assessed using the Dermatology Life Quality Index (DLQI) questionnaire.

RESULTS

Acne vulgaris of the face had significant adverse effect on the QOL of the affected patients. DLQI score was found to be more with increase in age of the patients. There was no significant association between DLQI score & gender. The clinical factors, duration of disease and the grade of acne vulgaris had statistically significant positive correlation with DLQI score.

CONCLUSIONS

Acne vulgaris had an adverse effect on the QOL of the patients. QOL was more affected with increase in age of the patients. Duration of the lesions and grade of acne vulgaris had a positive correlation with the effect on the QOL of the patients. The lesions can be controlled with treatment. Proper counselling is also very important.

KEYWORDS

Acne Vulgaris, Quality of Life (QOL), Dermatology Life Quality Index (DLQI)

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DOI: 10.18410/jebmh/2021/348

How to Cite This Article:

Das NK, Basu SS, Haldar A. An observational cross sectional study to assess the quality of life of patients having lesions of acne vulgaris on their face in a tertiary care centre of West Bengal. J Evid Based Med Healthc 2021;8(22):1846-1851. DOI: 10.18410/jebmh/2021/348

*Submission 03-12-2020,
Peer Review 12-12-2020,
Acceptance 09-04-2021,
Published 31-05-2021.*

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BACKGROUND

Acne is a chronic inflammation of the pilosebaceous unit. Several factors are involved in the etiopathogenesis of acne vulgaris. Several factors also determine the severity of the disease. The important factors involved are androgens, sebaceous hyperplasia, changes in cornification and differentiation, presence of microbial flora in the duct, immune response, inflammation, diet. The sequence of events begin with altered keratinization which causes blockage of the sebaceous canal. This leads to retention of sebum. Inflammation results which is further aggravated by colonization by microbial flora. This leads to papule & pustule formation. The sebaceous gland gets ruptured because of further retention of sebum. Collection of inflammatory cells in the dermis results in formation of nodules. There can be confluence of the affected glands and that results in the formation of cysts. Clinically there are open & closed comedones, papules, pustules, cysts & nodules.¹ Scarring is a common final result. Commonly affected areas are face, upper chest & upper back. A huge number of adolescents suffer from acne.²

The usual age of onset is near puberty. The incidence is highest in the teenage in both males & females. The incidence of acne generally decreases after the teenage. However, acne often continues in the twenties & thirties. WHO has defined Quality of Life (QOL) as "the individual's perception of their position in the context of culture & value systems in which they live & in relation to their goals, expectations, standards & concerns."³

Physical activity, psychological conditions, social relationships etc. are important aspects of the concept of quality of life.⁴ Dermatological diseases can have debilitating effects in many ways. Specially the dermatological diseases which are chronic, and treatment provides only temporary relief, can have significant effects on the quality of life. This knowledge about the effect on QOL gives the clinician a better idea about the overall condition of the patient. The knowledge about the effect on QOL can help the clinician or physician to treat the patient holistically. So the use of QOL measurement tools have increased greatly in research and also in regular day to day clinical practice. QOL can be adversely affected by acne. The most common site of acne is face.⁵ Naturally the presence of acne on the face has an impact on the perception of body image. Negative perceptions about the body image can lead to psychosocial disabilities.⁶ Daily activities & social relations can get affected. Certain demographic & clinical factors can have important relation to the effect of acne vulgaris on the QOL of the affected patients. There are not many studies in our country regarding the effect of acne vulgaris on QOL.

Objectives

1. To assess the effect of acne vulgaris of the face on the quality of life of the affected patients.
2. To assess whether selected demographic criteria like age and gender and clinical factors like grade of acne and duration of disease have any relation to the effect on QOL.

METHODS

The study was conducted in the Department of Dermatology, of a tertiary care centre of West Bengal from October 2018 to September 2020. This is an institution-based observational cross sectional study.

Inclusion Criteria

1. All new patients presenting with clinical signs of acne vulgaris on the face.
2. Patients aged from 16 years to 30 years.

Exclusion Criteria

1. Acne patients with any other debilitating disease, psychiatric conditions and other medical problems which may have an impact on quality of life.
2. Patients who did not consent to participate in the study

Sample size

Considering an expected frequency of 66.4 % of acne patients showing moderate or more effect on QOL, 95 % confidence level and 10 % relative error (confidence limits) among approximate 1500 OPD patient population, sample size was calculated to be 81, by Statcalc software (CDC, Atlanta, USA).

Data Collection Procedure

New patients attending the dermatology OPD with acne vulgaris on face were informed about the study. They were assured of confidentiality of data and after that written informed consents were taken from the willing patients. Proper history was collected from the patient. The required clinical examination of the patient was done. The relevant findings from history and clinical examination were recorded in a case record form. A trained researcher applied the DLQI questionnaire to every patient individually. DLQI scores were calculated. The scores were evaluated at the end of the study.

Study Tool

We have used the Dermatology Life Quality Index (DLQI)⁷ as the tool for assessing the QOL. DLQI has been formulated by Prof. A Y Finlay & his colleagues. The DLQI is a validated questionnaire. It has been used to study the effect on quality of life of many dermatological diseases in many countries. It is available in Hindi, English and Bengali. DLQI is available in ninety languages. The questionnaire was applied to each patient individually by the same investigator. The questionnaire has 10 questions. Question number 1 & 2 covers 'symptoms & feelings'. Question number 3 & 4 covers 'daily activities'. Question number 5 & 6 covers 'leisure'. Question number 7 is related to 'work & school'. Question number 8 & 9 is regarding 'personal relationships'. Question number 10 covers 'treatment'.

The options for answer for each question are as follows, - 'not relevant', 'not at all', 'a little', 'a lot', 'very much'. The scoring of each question is assigned on a scale of 0 to 3. Option 'not relevant' carries a score of '0'. Option 'not at all' carries a score of '0'. Option 'a little' has a score of '1'. Option 'a lot' carries a score of '2'. Option 'very much' has a score of '3'. The total DLQI score can vary from 0 to 30. Higher score signifies more impairment of QOL with the following interpretation:

- 0 – 1 -- no effect
- 2 – 5 -- small effect
- 6 – 10 -- moderate effect
- 11 – 20 -- very large effect
- 21 – 30 -- extremely large effect

Operational Definition

Duration (in months) of disease was grouped as follows, ≤ 2, > 2 to 6, > 6 to 12, > 12 to 24, > 24 to 36, > 36.

Grading of Acne was done as follows⁸

- Grade 1: Comedones, occasional papules.
- Grade 2: Papules, comedones, few pustules.
- Grade 3: Predominant pustules, nodules, abscesses.
- Grade 4: Mainly cysts, abscesses, widespread scarring.

Data Analysis

Data were entered in MS Excel 2016. Data were analysed with percentages and Fisher’s exact test chi square for proportions as well as bivariate correlation using Spearman’s rho correlation coefficient. Statistical software used was Medcalcv 17.6.

RESULTS

Acne vulgaris on the face had significant adverse effects on the QOL of the affected patients. Distribution of patients according to effect on QOL and gender is depicted in Table 1.

Effect on QOL	Female	Male	All Patients
No effect	5 (9.8 %)	1(3.3 %)	6 (7.4 %)
Small effect	14 (27.5 %)	8 (26.7 %)	22 (27.2 %)
Moderate effect	20 (39.2 %)	12 (40.0 %)	32 (39.5 %)
Very large effect	10 (19.6 %)	6 (20.0 %)	16 (19.8 %)
Extremely large effect	2 (3.9 %)	3 (10.0 %)	5 (6.2 %)
Total	51 (100.0 %)	30 (100.0 %)	81 (100.0 %)

Table 1. Distribution of Patients According to Effect on QOL and Gender (N = 81)

Fisher’s exact test chi-square = 2.207; dF = 4; P = 0.69776; not significant

The DLQI score has increased along with age & this shows that the QOL is more adversely affected in patients with acne vulgaris with increase in age, but no correlation exists of DLQI score with gender. Strong positive correlation was found between grade of acne vulgaris and the DLQI score, signifying more impairment of QOL with higher grade of disease. It is also statistically significant. With rise in duration of acne vulgaris the DLQI score is increasing & QOL is more adversely affected. There is statistically significant

strong positive correlation between duration of acne vulgaris & DLQI score. These are depicted in Table 2.

Independent Variables	Correlation Coefficient (Spearman’s Rho)	P Value	Remarks
Age	0.67	< 0.001	Medium correlation, highly significant
Grade of acne	0.76	< 0.001	Strong correlation, highly significant
Duration of disease	0.79	< 0.001	Strong correlation, highly significant

Table 2. Correlation of DLQI Score with Various Demographic and Clinical Characteristics (N = 81)

DISCUSSION

Our study included 81 patients. Most of the patients belonged to lower middle class & poor section of the society. A few patients belonged to upper middle class and rich section of the population. There were 51 (63.0 %) female patients and 30 (37.0 %) male patients. A study conducted in Iran included 70 patients.⁹ A study conducted in Chennai, India included 114 patients of which 57% were females.¹ Another study had 100 patients among whom 55% were females.¹⁰

The patients in our study were 16 to 30 years old. A study conducted in India had patients who were 15 to 40 years old.¹⁰ A study conducted in Iran had patients in the age range 15 to 34 years.⁹ There were other studies which had included patients of 15 years & above.¹

In our study 16 (19.75%) patients had grade 1 acne vulgaris, 34 (41.97 %) patients had grade 2 acne vulgaris, 17 (20.98 %) patients had grade 3 acne vulgaris and 14 (17.28 %) patients had grade 4 acne vulgaris. That is most of the patients in our study had grade 2 acne vulgaris. There were other studies where the commonest clinical type was grade 2 acne vulgaris.^{1,10}

In our study duration of disease was less than 2 months in 14 (17.28 %) patients, 2 to 6 months in 13 (16.04 %) patients, 6 to 12 months in 12 (14.81 %), 12 to 24 months in 20 (24.69 %), 24 to 36 months in 14 (17.28 %) patients and more than 36 months in 8 (9.87 %) patients.

We have used the Dermatology Life Quality Index (DLQI)⁷ as the tool for assessing the QOL. DLQI has been used as a tool to assess the effect of acne vulgaris on the QOL of the patients in many other studies.^{10,11,12,13,14}

There are several other tools which have been used all over the world in studies to find the effect of dermatological diseases on QOL. Some of these are - Cardiff Acne Disability Index,¹⁵ Family Dermatology Life Quality Index,¹⁶ Skindex-16,¹⁷ Dermatology Quality of Life Scales (DQOLS),¹⁸ Dermatology-Specific Quality of Life instrument,¹⁹ Skindex-29,²⁰ Freiburg Life Quality Assessment.²¹

Dermatology life quality index (DLQI) has been used extensively throughout the world to assess the effect on QOL of patients affected by dermatological diseases. DLQI has been used to measure the effect on QOL caused by atopic dermatitis,²² seborrheic dermatitis,²³ alopecia areata,²⁴ psoriasis,²⁵ vitiligo²⁶ etc.

We found in our study that acne vulgaris had an adverse effect on the QOL of the affected patients. Similarly, several

other studies have reported that QOL is adversely affected by acne vulgaris.^{1,6,9,27,28}

According to our opinion this negative impact of acne vulgaris on the QOL has the following reasons. The most common site of the lesions in acne vulgaris is the face. As stated earlier we have considered patients for this study who had lesions in the face only. Face is the most visible & psychologically the most important part of the body. Lesions on the face makes the patient feel that the personal image is deteriorating. Naturally people are seriously concerned about lesions on the face. Moreover, acne vulgaris affects mostly adolescents & young adults. People of this age are very concerned about issues related to personal beauty. The lesions of acne vulgaris are often painful. Acne vulgaris also persists for a prolonged period of time. Moreover, after acne there is often post inflammatory hyperpigmentation. The acne lesions are often followed by scars also. All these together is psychologically very disturbing for the affected person and the QOL is hampered.

In our study we found that there is a statistically significant positive correlation between age & DLQI score. That is the QOL is more affected with increasing age of the patients. There are studies conducted in India where it has been shown that the effect on QOL is more with increasing age.^{1,28} There are other studies which have shown that there is no relation between age & the effect on QOL.⁹

We feel that the adverse effect on QOL is increasing with age because the affected persons grow more concerned regarding their physical appearance with increasing age. As one grows into adulthood from adolescence their social interactions & relations develop in diverse ways where self image becomes an important issue. In the teenage, girls & boys mainly remain associated with the close family members. The issue of personal appearance does not get so much importance. However, in the twenties & thirties people come in contact with friends, colleagues & huge number of other persons in the educational institutions & also in the places of work. Naturally personal appearance & image following prevalent social concepts of looking good & beautiful becomes an important issue. The presence of the lesions of acne vulgaris and the resultant scars on the face leads to an overall negative impact on the personal image of the affected person. This has been reflected in our study where we have found that the negative effect on QOL due to lesions of acne vulgaris on the face increases with the increase in age.

In our study we found that there is no correlation between gender & the effect on QOL due to acne vulgaris. There are several other studies which have found similar results.^{6,9,11,29} However there are other studies which have found that the adverse effect on QOL due to acne vulgaris is more in case of females than in males.^{10,30}

We feel that there is no significant association between gender & the effect on QOL because both females & males are concerned about the lesions on their face. People of both gender that is males & females are concerned about self-image & appearance. People of both gender living in a region under similar conditions are having more or less similar effects on their QOL. The age old idea that only females are concerned about beauty & personal appearance has

changed. Nowadays both females & males are interested in maintaining a proper personal appearance & image following the current social trends. Gender playing an important role on the effect on QOL as reported by some other studies maybe due to difference in social, cultural, economic situation & concepts.

We found in our study that there is a significant positive correlation between the duration of acne vulgaris & the DLQI score. That is more the duration of disease more is the adverse effect on the QOL of the patient. There are other studies which have shown similar results.^{1,28} However there are not many studies which have assessed the effect of duration of acne vulgaris on the impact on the QOL of the patients.

The body image is getting hampered & the suffering is persisting for a longer period of time. The presence of the lesions of acne vulgaris on the face for a longer duration of time from the affected patient's point of view is having a negative impact on her or his personal appearance for a prolonged time. The associated pain also causes more trouble with increase in duration of the disease. The presence of the lesions on the face which is the most visible part of the body for a prolonged duration sometimes also leads to social stigma. The affected person has to spend more time for the prolonged treatment of the disease.

In our study there is a statistically significant positive correlation between the grade of acne vulgaris & the DLQI score. That means that with increasing grade of acne vulgaris the negative impact on the QOL of the patient is increasing. There are studies conducted in India,¹ Pakistan,³⁰ Greece²⁹ which have reported that the adverse effect on QOL increases with the increase in grade of acne vulgaris. Several other studies also have shown similar results.^{6,10,11,28} However there is a study which stated that the impairment of QOL does not have any relation with severity in patients of acne vulgaris.³¹

According to our opinion the more adverse effect on QOL in patients of acne vulgaris with increase in grades is because the increased severity of the disease leads to more sufferings. The lesions are more painful. The lesions are more prominent & more visible. The lesions persist for a longer period of time. The patient psychologically feels that her or his personal appearance & body image is getting hampered to a greater degree. Lesions of acne vulgaris of higher grades also often leads to more post inflammatory hyperpigmentation. Lesions of higher grades also often leads to more prominent scars. The treatment required to control the condition is also more prolonged & leads to greater economic burden.

CONCLUSIONS

This study shows that there is significant impairment of QOL of patients with acne vulgaris on their face. The adverse impact on QOL increases with age, duration & grade of acne vulgaris. The ultimate goal of treatment of any disease is to improve the QOL of the affected person. It is important to assess the effect of a disease on the QOL so that

improvement in QOL after treatment & interventions can be determined. A clear idea about the effect on QOL will be the help of the treating physician to get a better concept about the real condition of the patient. A clear idea about the effect on QOL of an affected person due to a disease will certainly help all concerned to understand the depth of the sufferings. This will certainly go a long way to ensure a holistic approach of treating a patient. Research work must continue further to establish the negative effect of acne vulgaris on QOL. This will certainly help to modify the treatment modalities so that better overall results can be achieved. Research & experiments regarding treatment methods & interventions which can give faster & better results must be promoted. Early diagnosis & treatment is an important aspect which can control the condition & lead to improvement of QOL. Proper counselling & development of awareness is also bound to improve the QOL.

Data sharing statement provided by the authors is available with the full text of this article at jebmh.com.

Financial or other competing interests: None.

Disclosure forms provided by the authors are available with the full text of this article at jebmh.com.

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