Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: www.saspublishers.com

OPEN ACCESS

Dermatology

A Study on the Quality of Life among Acne Vulgaris Patients

Dr. DM Nasir Uddin[1*], Dr. SM Akhter-ul-Alam[2], Dr. Tunergina Akhter[3], Dr. Md. Ismail Hossain[4], Dr. Md. Nazrul Islam[5]

[1]Assistant Professor, Department of Dermatology, Shaheed M. Monsur Ali Medical College, Sirajganj, Bangladesh
[2]Assistant Professor, Department of Dermatology, Pabna Medical College, Pabna, Bangladesh
[3]Assistant Professor, Department of Physiology, Army Medical College Bogura, Bangladesh
[4]Senior consultant (Dermatology), 250 bedded General Hospital, Jamalpur, Bangladesh.
[5]Lecturer, Pabna Medical College, Pabna, Bangladesh

DOI: 10.36347/sjams.2019.v07i08.010 | **Received:** 02.07.2019 | **Accepted:** 25.07.2019 | **Published:** 18.08.2019

***Corresponding author:** Dr. DM Nasir Uddin

Abstract **Original Research Article**

Acne vulgaris is believed to be the most common disease of the skin. There is a very few studies in Bangladesh. Although acne vulgaris is not considered as a serious disease but it has some negative effects on the regular life of the patients with acne vulgaris. The aim of the study was to determine the impact of acne and its clinical severity on quality of life among the patients with acne vulgaris. This cross sectional study was conducted in Department of Dermatology, Shaheed M. Monsur Ali Medical College, Sirajganj, Bangladesh during the period from January 2018 to December 2018. In total 120 patients with acne vulgaris were selected as the study population. The age range of the participants was 16-35 years. A detailed history was taken after obtaining consent from all the participants of study. Cardiff Acne disability index (CADI) and Dermatology life quality index (DLQI) were administered on patients to determine the impact of acne vulgaris on quality of life (QOL). In our study we found according to DLQI scores of acne showed no effect in 5.83% of the patients, small effect in 24.17% of the patients, moderate effect in 39.17% of patients, very large effect in 27.50% of patients and extremely large effects on only 3.33% of patients. According to CADI scores of acne showed low effect in 34.17% of the patients, majority had medium effect in 55% of patients and high effect was seen on 10.83% of patients. This was a single centered study with a small sized sample. So the findings of this study may not reflect the exact scenario of the whole country. Overall our study showed that, the quality of life is significantly impaired in patients of severe acne vulgaris.

Keywords: Quality of life, Acne vulgaris, Cardiff Acne disability index (CADI), Dermatology life quality index (DLQI).

Copyright © 2019: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

INTRODUCTION

Acne vulgaris is a chronic inflammatory, multifactorial androgen dependent disease of the pilo-sebaceous follicle characterized by comedones, papules, nodules, cysts and often scars [1]. It has several distinct clinical forms. Of them comedonal, pustular and pustulo-nodular forms are considered as the most severe and distressing [2]. The primary defect in acne is the formation of a keratinous plug in the lower infundibulum of the hair follicle. Acne vulgaris is a follicular disease with comedo formation produced by the impaction and distension of the follicle with tightly packed horny cells [3]. Disruption of the follicular epithelium permits discharge of the follicular contents into the dermis. This in turn, causes formation of inflammatory papules, pustules, pustulo-nodular and cystic lesions. Comedo formation is caused by stickiness of the horny cells. Bacterial lipase acts on the sebum to produce free fatty acid. Free taffy acids are chemotactic to the components of inflammation. Histologically they are characterized by predominant neutrophil infiltration and clinically by prolong, protracted course, poor staggering response to conventional treatment. Short remission and frequent relapse and at resolution leave behind ugly looking hyperpigmentation and atrophic scar which attribute psychological trauma to the patients and compromise social life [4]. It is said that, acne vulgaris affects at least 85 percent of adolescents and young adults.1 In India, prevalence data from dermatology clinic in a teaching hospital in Varanasi reported acne in 50.6% of boys and 38.13% of girls in the age group 12-17 years. Acne affects 80% of individuals between puberty and 30 years of age. It was also recorded in 54% of women and 40% of men over 25 years of age [5]. Though it is considered to be merely a cosmetic problem, it is associated with considerable psychological impairment

which is comparable with certain chronic diseases like asthma, epilepsy, diabetes and arthritis. Acne patients are prone to low self-esteem, low self- confidence and social dysfunction which may lead to anxiety, depression, obsessive compulsiveness and sometimes suicidal ideation. Acne affects the functional abilities of individuals and patients have higher rate of unemployment when compared to those without acne [5]. Acne is the most common problem that presents to dermatologists. Acne commonly involves face. Facial appearance represents an important aspect of one's perception of body image. Therefore it is not surprising that a susceptible individual with facial acne may develop significant psychosocial disability. As a part of emotional impact increased level of anxiety, anger, depression and frustration are observed in patients with acne. The majority of studies on psychosocial impact of acne have been conducted among patients groups in US and Europe, but there is poor understanding of this among the Indian population [5]. Acne also may have negative impact on personal relationships, sports activities and employment opportunities in teens and young adults. The management of acne must take into account the impact of acne on the patient's quality of life. This is important in particular, because there are effective therapies of acne available and administration of these agents can cause an improvement in quality of life and psychological health. Increased awareness and early intervention for the psychological and psychiatric squeal of acne can benefit patients. Measurement of quality of life changes gives insight into the impact of acne from a patient's perspective and can also measure treatment success [6]. This study was carried out to determine the impact of acne and its clinical severity on quality of life among patients of different grades of acne patients in various age groups using two questionnaire Cardiff acne disability index and Dermatology life quality index.

MATERIAL AND METHODS

It was a cross sectional study and was conducted in the Department of Dermatology, Shaheed M. Monsur Ali Medical College, Sirajganj, Bangladesh during the period from January 2018 to December 2018. In total 120 patients with acne vulgaris were selected as the study population. The age range of the participants was 16-35 years. A written consent was taken from the participants before the study and a predesigned questionnaire was used to collect the data of the participants. The inclusion criteria were 'patients diagnosed as acne vulgaris for more than 3 months duration and 16-35 years of age'. On the other hand, the exclusion criteria were: a) Patients below 16years of age b) Patients above 35 years of age c) All other types of acne except acne vulgaris d) Known case of psychiatric illness in present or in the past e) Presence of any other associated dermatological disorder which may affect QOL in pateents and f) Patients who are not willing to participate in the study. The procedure of the study started with identifying the participants for the study. Following this identification, before the collection of the data, informed consent was taken from all the participants and they were assured about the confidentiality by telling them about the purpose of the study. A detailed history was taken after obtaining consent from all the participants of study. Acne was graded into 4 types (Grade I, II, III, IV) according to Indian classification based on number, type and severity of lesion. Cardiff Acne disability index (CADI) and Dermatology life quality index (DLQI) were administered on patients to determine the impact of acne vulgaris on quality of life (QOL) [7]. CADI is a questionnaire which is specific for acne and contains 5 questions-related to the last month- about feelings, interference with social life and interaction with the opposite gender, avoidance of public places, appearance of the skin and perceived severity of disease state. Each question is scored from 0-3 leading to a total score of 0-15. A higher score shows a very large impact on quality of life. In our study a CADI score <8 is considered to have a small effect on quality of life and a score >8 is considered as having a larger effect on QOL. Both the questionnaires have Persian equivalents with confirmed reliability and validity. DLQI is a general questionnaire for evaluation of quality of life in dermatology patients and consists of 10 questions about disease symptoms, feelings, daily activities, type of clothing, social or physical activities, exercise, job or education, interpersonal relationships, marriage relationships and treatment. Its domain is from zero (without any effect on quality of life) to 30(extremely large effect on quality of life). According to the score obtained, the effect of disease on quality of life can be divided into 5 classes which are- without effect, low effect, moderate effect, very large effect and extremely large effect. Data was entered into SPSS version 20 and represented in proportions and percentages. Data was analyzed to compare the quality of life indices (CADI & DLQI) for duration and severity of acne vulgaris.

RESULTS

Among total 120 participants the highest number were come from 21-25 years' age group which was 45%. Then from 28 (23%) from 16-20 years', 26 (21%) from 26-30 years' and 12 (11%) from 31-35 years' age group. In this study in total male were 63 (52.5%) and female were 57 (47.5%). So male were dominating and male female ratio was 1.1:1. Most cases of acne vulgaris were found in unmarried people and it was 85.83% where it was found only 14.17% in married population. Among total study population students acquired the highest ratio and it was 81 in number or 67.50%. Then service holder or worker 32 (26.67%) and housewife 8 (6.67%). In this study we found maximum 77.50% of patients presented with lesions over face followed by 22.50% of patients having lesions over face and back. Besides these there was no presence of scar and PIH seen in maximum 42.50% of patients followed by having PIH 29.17%, with scar only 17.50% and scar & PIH both 10.83%. In

our study we found according to DLQI scores of acne showed no effect in 5.83% of the patients, small effect in 24.17% of the patients, moderate effect in 39.17% of patients, very large effect in 27.50% of patients and extremely large effects on only 3.33% of patients. According to CADI scores of acne showed low effect in 34.17% of the patients, majority had medium effect in 55% of patients and high effect was seen on 10.83% of patients.

Table-1: Socio demographic status of participants. (N=120)

Components	n	%
Age (Yrs.)		
16-20	28	23
21-25	54	45
26-30	26	21
31-35	12	11
Sex		
Male	63	52.5
Female	57	47.5
Marital status		
Unmarried	103	85.83
Married	17	14.17
Occupation		
Housewife	8	6.67
Job/work	32	26.67
Student	81	67.50

Table-2: Duration and grading of acne vulgaris among study population. (N=120)

Duration of acne vulgaris		
Components	**n**	**%**
≤1 Year	51	42.50
>1 Year	69	57.50
Grading of acne		
Grade I	29	24.17
Grade II	44	36.67
Grade III	34	28.33
Grade IV	13	10.83

Table-3: Distribution of study population according to scar, post inflammatory hyper pigmentation (PIH) and location of lesion. (N=120)

Scar and PIH	n	%
No Scar or PIH	51	42.50
Scar	21	17.50
PIH	35	29.17
Scar and PIH	13	10.83
Location of lesion		
Face	93	77.50
Body & Face	27	22.50

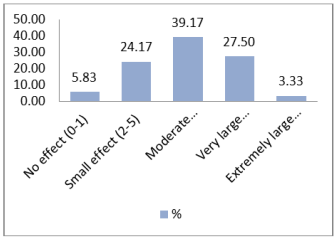

Fig-1: Distribution of participants regarding Dermatology Life Quality Index (DLQI) grade. (N=120)

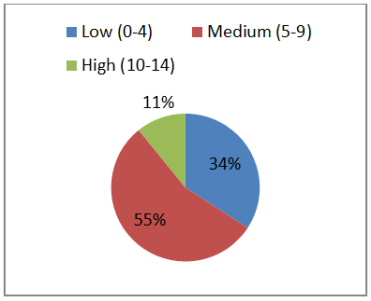

Fig-2: Distribution of participants regarding Cardiff Acne Disability Index (CADI) grades

DISCUSSION

The results of this study revealed that majority 45% of participants belong to age group of 21 to 25years with majority of students. Similar to the study done by Smithard *et al*., in present study, out of the total number of 120 patients between age group 16 to 35years, 63 patients (52.5%) were males and 57 patients (47.5%) were females. There was an overall male preponderance, the male to female ratio being 1.1:1 [8]. In the present study, out of 120 total, 81 (67.5%) were students mostly high school and college going ones followed by 32 (26.67%) of working population doing job and rest about 8 (6.67%) were housewives. Thus a significant proportion of patients in the present study were students which compares well with the fact that acne is often considered to be a disease of adolescents. In our study we found 51 (42.50%) patients had lesions since <1year of duration and 69 (57.5%) patients had lesions since >1 year of duration. Tan et al in their study observed that 74% of patients had duration of more than 1 year before seeking medical attention. In all, 25% of patients had duration of disease <1 year. Thus the results of the present study were almost similar to the above study [9]. We found, out of 120 patients grade II acne was the most prevalent one (36.67%) followed by grade III (28.33%). Comedones, papules, pustules were present in all the patients and predominant lesions were comedones. In the study by Adityan *et al*., grade I acne was the most prevalent (60.2%), grade II (27.5%), grade III (2.6%), grade IV (9.7%). In the study by Supreethi Biswas *et al*., grade II acne was the most prevalent one (45%), grade III (16%) and grade IV (7%) [10]. According to Cohen et al, acne vulgaris is a dynamic disorder characterized by the presence of comedones and usually but not always by papules, pustules, nodules and scars. Comedones are the primary lesions of acne; the inflammatory lesions vary from small papules, to pustules to large tender fluctuant nodules. True cysts are rarely found in acne. The results of the present study are almost in concurrence with the above study [11]. The present study is almost in concurrence with the study by Cunliffe and Cotterill in which face was the most common site involved followed by face, back and chest, then face and back [12]. This may be due to the fact that acne lesions generally occur in sebaceous gland connected with

vellus hair and due to regional differences in the activity of type 1, 5-alpha reductase in isolated sebaceous glands [13]. We found, 35 patients (29.17%) of patients had post inflammatory hyper pigmentation. The incidence of post inflammatory hyper pigmentation in our study was lower compared to that in earlier studies [14]. Post-acne scarring was noticed in 13% of our acne patients. We also observed that patients with longer duration of the disease were more likely to have post- acne scarring. This is an expected finding, which is also reported in earlier studies [15]. In present study, we graded the severity of acne vulgaris, using a simple and quick system of classification using a four-grade system [16]. The result of the present study show clear impact of acne on patient's quality of life. Previous studies revealed that patients with chronic skin diseases such as psoriasis, atopic eczema and acne experience a greater impairment in their QOL than patients with other skin diseases [17]. In our study we found a great mental effects of acne vulgaris on the patients which affect to their regular lives.

Limitation of the Study

This was a single centered study. So these findings may not reflect the exact scenario of the whole country.

CONCLUSION AND RECOMMENDATIONS

Overall present study showed that quality of life is significantly impaired in patients of severe acne vulgaris. The impact of acne on QOL can be measured using general health measures, dermatology specific measures and acne specific measures. The study demonstrated that CADI and DLQI were easily understood by general population and quickly completed. So we recommend that use of these simple QOL measures as a part of integral clinical strategy when assessing patients for acne therapy will provide additional information on QOL impairment thus highlighting those patients requiring therapeutic intervention as early as possible. For getting more specific findings we would like to recommend for conducting more studies regarding acne vulgaris.

REFERENCES

1. Lever WF, Schaumburg L. Histopathology of the Skin 7th Ed. JB. Lippin Cott Company, 1990; 218-219.
2. Odom RB, James WD, Berger TG. Andrew's Diseases & the skin 9th edition, WB Sanders Company 2000; 284-297.
3. Goll nick HPM and colleagues. Pathogenesis and pathogenisis- related treatment of acnes. J Dermatol, 1991; 18: 489-99.
4. Greenwood R, Burke B, Cunliffe WJ. Evaluation of a therapeutic strategy for the treatment of acne vulgaris with conventional therapy. British Journal of Dermatology. 1986 Mar;114(3):353-358.
5. Goulden V, Stables GI, Cunliffe WJ. Prevalence of facial acne in adults. Journal of the American Academy of Dermatology. 1999 Oct 1;41(4):577-580.
6. Pruthi GK, Babu N. Physical and psychosocial impact of acne in adult females. Indian journal of dermatology. 2012 Jan;57(1):26-29.
7. Aghaei S, Sodaifi M, Jafari P, Mazharinia N, Finlay AY. DLQI scores in vitiligo: reliability and validity of the Persian version. BMC dermatology. 2004 Dec;4(1):8.
8. Al-Ameer AM, Al-Akloby OM. Demographic features and seasonal variations in patients with acne vulgaris in Saudi Arabia: a hospital-based study. International journal of dermatology. 2002 Dec;41(12):870-1.
9. Rothman KF, Lucky AW. Acne vulgaris. Advances in Dermatol. 1993; 8:347-73.
10. Adityan B, Thappa DM. Profile of acne vulgaris – A hospital based study from South India. IJDVL. 2009; 75:272-278.
11. Cohen BA, Prosen P, Schachner AL. Acne. In: Schachner AL, Hansen CR, Editors. Paediatric dermatology, 2nd Edn, Vol. 2, NewYork: Churchill Livingstone Inc. 1995:661-83.
12. Cunliffe WJ, Cotterill JA, editors. Clinical features of the acnes. In: The acnes - Clinical features, pathogenesis and treatment. London. W.B. Saunders Co. 1976; 66 (1):10-49.
13. Tutakne MA, Chari KVR. Acne, Rosacea and perioral dermatitis. In: Valia RG, Valia AR, Editors. IADVL text book and Atlas of dermatology: Mumbai: Bhalani Publishing House. 2001; 689-710.
14. Simpson NB, Cunliffe WJ. Disorders of sebaceous glands. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. Rooks Textbook of Dermatology, 7th ed., Oxford: Blackwell Publishing. 2004; 43:1ñ43.75.
15. Kilkenny M, Merlin K, Plunkett A, Marks R. The prevalence of common skin conditions in Australian school students: 3, Acne vulgaris. British Journal Dermatol, 1998; 139:840-5.
16. Simpson NB, Cunliffe WJ. Disorders of sebaceous glands. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. Rookís Textbook of Dermatology, 7th ed., Oxford: Blackwell Publishing. 2004:43.1ñ43.75.2
17. Finlay AY, Khan GK. Dermatology Life quality index (DLQI): a simple practical measure for routine clinical use. Clinical and experimental dermatology, 1992;17(1);1-3.