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Quality of Life of Assessment in Adolescents with Facial Acne Vulgaris: Impact of Family History, History of Treatment

Ehiaghe L Anaba*

*Department of Medicine, Lagos State University Teaching Hospital, Lagos, Nigeria.

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ABSTRACT

Background: Acne vulgaris has been documented to impair Quality of Life (QOL) in adolescents. In Nigeria, quality of life studies in adolescents who have acne vulgaris are few.

Aims and objectives: To assess QOL impairment in adolescents who have acne vulgaris. To correlate clinical severity, gender, history of previous acne treatment, family history with QOL impairment and to determine what items on the QOL questionnaire are impaired.

Methodology: This was a cross-sectional study on adolescents from four co-educational secondary schools. Students were clinically evaluated for acne and severity was graded. Quality of life was assessed using the Cardiff Acne Disability Index (CADI). Data was analysed using SPSS16. Level of significance was set at $P<0.05$.

Results: 574 students were studied, 48.9% males and 51.0% females. Median QOL was 2 ($p=0.033$) in adolescents with and without a family history of acne. Median QOL was 3 for persons that had a history of previous treatment of acne and 1 (3.00), $P<0.001$ in those that did not have a history of previous treatment of acne. The median quality of life was 2 for mild acne and 3 for moderate/severe acne and this was significant at $P<0.001$.

Conclusion: History of previous treatment, severity and family history of acne impairs QOL but not gender.

Keywords: Acne, Quality of life, Family history, Treatment and adolescence

Abbreviations: WHO: World Health Organization; QOL: Quality of Life; CADI: Cardiff Acne Disability Index; CASS: Comprehensive Acne Grading Scale

INTRODUCTION

Adolescence is defined as the period between ten and nineteen years of age [1]. This is the period when body and self-image is formed, a time of concern with physical appearance, when the opinion of peers on body image is strong [2,3]. There is additional pressure on adolescents to have the perfect face with the advent of television adverts and cosmetology [4]. Acne vulgaris is recognized to impact negatively on the quality of life (QOL) of adolescents [5-12]. Acne affects the face commonly and facial appearance represents an important aspect of one's perception of their body image with a resultant negative impact of facial acne on psychosocial well-being [10,13]. Despite the high prevalence of adolescent acne and the vulnerability of adolescents to the psychosocial effects of acne and QOL impairment; little research attention on QOL has been paid to this age group. Instruments for QOL assessment both generic and specific have been used in the few studies on adolescents who have acne [6,7,14-17]. Studies of QOL in Nigerian adolescents who have acne are few with even fewer reports of specific item affectation with QOL questionnaires [7,18-20]. The aim of the study was to assess QOL impairment in adolescents who have facial acne vulgaris. To correlate clinical severity, gender, history of previous acne treatment, family history with quality of life impairment and to determine what items on the QOL instrument are impaired.

MATERIALS AND METHODS

This was a cross-sectional population based study of 574 students aged 9-20 years from four co-educational secondary schools in Ibadan, Nigeria. Permission to carry out the study was obtained from the Ministry of Education and the various

Corresponding author: Ehiaghe L Anaba, Department of Medicine, Lagos State University Teaching Hospital, 1-5 Oba Akinjobi Way, Ikeja, Lagos, Nigeria, E-mail: ehianaba@yahoo.com

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school heads. Informed consent was obtained from the parents. Ethical approval was given by the research and ethics committee of the University College Hospital Ibadan before the study was undertaken Students were clinically evaluated for facial acne vulgaris and QOL was assessed using the Cardiff Acne Disability Index (CADI) questionnaire [21]. Lesion count and types were noted and severity of acne was graded using the comprehensive acne grading scale (CASS) [22]. Aproforma for data collection was also administered.

Cardiff Acne Disability Index (CADI)

The CADI, a well validated disease specific instrument for acne, designed for use in teenagers and young adults who have acne is made up of five (5) questions with four responses [8,16,17,23]. The five questions relate to feeling of aggression, frustration, interference with social life, avoidance of public changing facilities and appearance of the skin (all over the last month) and an indication of how bad the acne is now. Walker et al. [8] stratified the CADI as follows; CADI scores of <4 is interpreted as mild, scores of 5-9 as moderate and scores of 10-15 as severe impairment of QOL. Data was analyzed using the Statistical Package for the Social Sciences, (SPSS) version 16 [24]. Univariate descriptive statistics such as means, medians, frequencies and proportions are presented. Associations between categorical variables were tested using the chi-square test while differences in means of groups were tested using the t-test and analysis of variance. Associations between quantitative variables were tested using Spearman's correlation coefficient due to non-normal distribution. Logistic regression analysis was used to identify predictors of acne and severity of acne, odds ratio and 95% confidence intervals are reported. Level of significance of all tests was set at $p<0.05$.

RESULTS

Socio-demographic characteristics

574 students were studied; 281 (4.8.9%) males and 293 (51.0%) females. Age of the students ranged from 9-20 years. History of previous treatment of acne was acknowledged by 312 (54%) of students. Family history of acne was found in 252 (44%) of the students. On clinical examination, 386 (67.2%) persons were found to have clinically mild acne, 166 (28.9%) had clinically moderate acne and only 5 (0.9%) were found to be severe.

Quality of life

The median CADI was 2 with an inter-quartile range of 4. The highest score was 14 and the lowest was 0 **(Table 1)**.

Table 1. Distribution of quality of life scores.

Variable	Mean (S.D)	Median	Inter-quartile range
CADI score	2.62(2.78)	2.00	4.00

Summary of CADI

The statistics of the CADI among the gender revealed that, both males and females had a median Cardiff Quality of Life of 2 with an inter-quartile range of 4. The highest Cardiff score for males was 13 and the lowest was 0. The highest was 14 for females and the lowest was 0.

Gender and CADI

Figure 1 shows the overall gender distribution of the Cardiff scores. Quality of life was impaired in 66.8% of the adolescents and this occurred in 63.9% of males and in 69.9% of females.

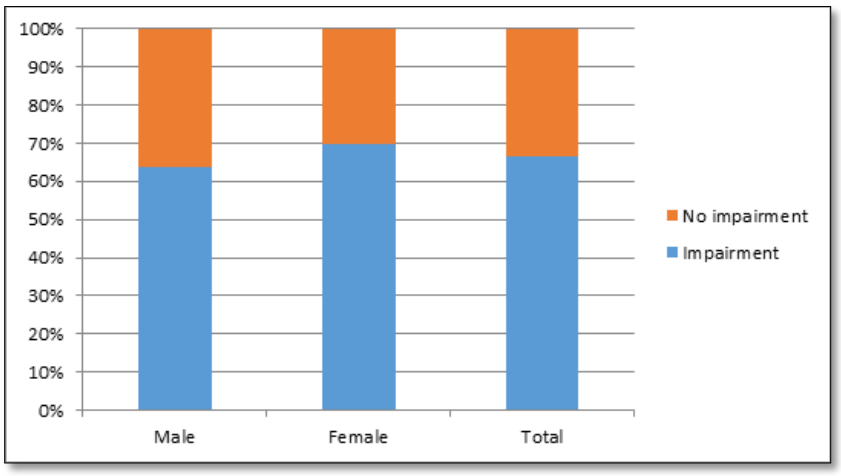

Figure 1. Histogram of quality of life impairment on the cadi scale.

Specific response to CADI

Responses to the individual items of the Cardiff quality of life scale is displayed in **Figure 2**. 35.9% of the adolescents felt aggressive, frustrated, or embarrassed because of acne especially females. 18% experienced interference with their social life. 17.3% of males and 14.6% of females admitted to the avoidance of public facilities. On the item on feelings about the appearance of the skin, 50.7% reported impairment.

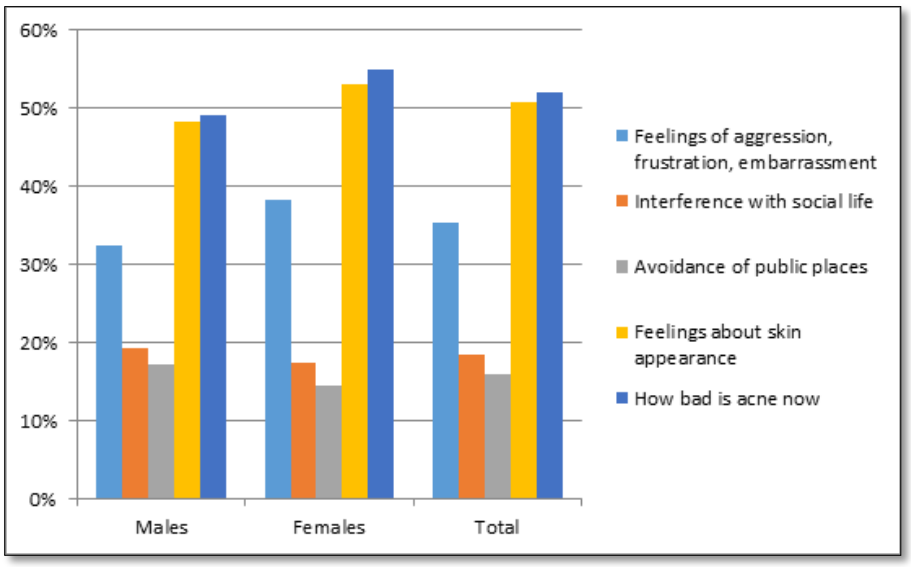

Figure 2. Histogram of impairment on the items of the cadi scale according to gender.

Association between variables and QOL

Significant associations were found for history of treatment and clinical severity of acne **(Table 2a)**. The median quality of life was 2 for mild acne and 3 for moderate/severe acne and this was significant at P<0.001.

Table 2a. Relationship between the cadi scores/variables.

Variables	Quality of life score			
	Median (IQ range)	Mean (S.D)	Z score	P value
Family history				
Yes	2.00 (4.5)	2.87 (2.93)	-2.138	0.033
No	2.00 (4.00)	2.25 (2.53)		
Ever treated acne				
Yes	3.00(4.00)	3.31(2.89)	-7.077	<0.001
No	1.00(3.00)	1.81(2.45)		
Clinical severity				
Mild	2.00(4.00)	2.15(2.44)	-5.970	<0.001
Moderate/Severe	3.00(5.00)	3.75(3.18)		

Variables that were significantly associated at the 10% level of significance were entered into a logistic regression model **(Table 2b)**. A family history of acne, history of treatment of acne and clinical severity are the variables that remained significant. Persons with a history of acne treatment were about 2 times more likely to have an impairment in their quality of life than persons who had not treated acne (P=0.01). Respondents with clinically mild acne were 2 times less likely to have impairment in their quality of life compared to those that have clinically moderate/severe acne.

Table 2b. Logistic regression of cadi impairment on variables.

Variables	Odds ratio	95% CI OR	P value
Family history	1.135	0.695-1.854	0.614
Ever treated acne	1.889	1.161-3.072	0.010
Clinical severity	0.446	0.248-0.803	0.007

DISCUSSION

This study revealed a statistically significant impairment of QOL in a large percentage of the adolescents, showing that, the presence of facial acne vulgaris negatively impacts on QOL of Nigerian adolescents. This is similar to the report of the only study of QOL in Nigeria where CADI was used for QOL assessment in adolescents with acne vulgaris [7] and at variance with a study from Serbia where QOL was not impaired in most of the adolescents' studied [6]. In this study, QOL impairment was mild. The mild impairment of QOL in theses adolescents may have been due to clinical severity of acne being mild in most of these adolescents. Also, the fact that, their friends had acne may have made them to be less concerned. Some adolescents in this study demonstrated no impairment of QOL and this was not unexpected as not everybody is affected by the appearance of their face especially in this young age group. The results in this study is comparable to that in other studies of QOL in adolescents acne, where QOL impairment is found to be mild and QOL was not impaired in some adolescents [6-8,12].

Specific aspects of QOL affectation

Specific responses to the items on the CADI concerning QOL affectation revealed embarrassment, aggression and frustration from having acne although, the percentage report was low. These adolescents may have had these negative feelings as the face is the most obvious part of any human being and most people want a smooth face. More females in this study felt embarrassed than the males. Females are much more likely than males at this age to be interested in their appearance thus and more embarrassed by blemishes on their face low percentage report of embarrassment was the result of from other studies [6-8]. However, Jankovic et al. [6] in their study also found more females reporting embarrassment from acne. Interference with social life and avoidance of public facilities was reported by a low percentage of the adolescents. This low percentage report of interference with social life may be due to the fact that the predominant form of facial acne in adolescents is mild with minimal scarring of the face. This study however, reveals that in some adolescents, presence of acne can led to social inhibition. Social life affectation in a low percentage of adolescents has also been noted in other studies [6-8]. Avoidance of public changing facilities for swimming or physical education was not very much affected in this study with only 15.9% of the adolescents reporting this. This study is on facial acne vulgaris and the face is already exposed. This may have been responsible for the low report of avoidance of public changing facilities. Also, this study did not specifically lookout for how many people participate in sporting activities. It is not known if this low report of influence of facial acne vulgaris on of public changing facilities is due to a low participation in sporting activities. A similar study of QOL in adolescents with acne vulgaris reported a low response on the item on avoidance of public changing facilities as in this study [7]. Almost equal proportions of respondents registered some concern about their skin appearance and saw their acne as a problem. Of those that saw their acne as a problem, most saw the skin problem as little. This study shows that, some adolescents with facial acne are concerned about the appearance of their skin and think their skin is a problem. It is not unlikely that these adolescents are teased by their peers in school, making them self-conscious and worried about the appearance of their skin. Walker et al. [8] in their study reported occasional concern about the skin in adolescents. However, Ogedengbe et al. [7] in their study reported as in this study, a high percentage concern about the appearance of the skin. The study by Walker et al was on Caucasian skin unlike this study and that by Ogedendgbe et al. [7] which are on dark skin types. The scars of acne tend to be more obvious on the dark skin. On the item on how bad the adolescents thought their pimples was now; more than half of the adolescents thought that their pimples was presently bad. The proportion of females reporting this was slightly higher than that in the males. A high proportion of adolescents in this study thought that the pimples on their face were bad despite the clinical assessment of mild acne in most of them. These adolescents may have felt this way because they did not have a smooth face which is the desire of most people. Also they may have been teased by their peers or had uncomplimentary comments made about their face. The females also may have had a slightly higher percentage report compared to the males because, although undocumented, females are said to be more self-conscious and more concerned about their appearance compared to males. Jancovic et al like in this study noted more female report of how bad the acne was [6]. Ogedengbe et al. [7] reported a high impairment in this variable. They thought that, this question allowed for more articulation of thoughts than the other questions leading to high percentage impairment. On the other hand, in a study in Scotland, the authors reported a low response of how bad the

adolescents thought their skin was [8]. The reason for this difference in percentage report maybe due to the fact that, QOL is a subjective phenomenon which is affected differently in different individuals. Previous studies on QOL of life in adolescents in Nigeria are at variance with some of the results of this study [18,19]. Yahaya [18] in Kaduna reported no effect on social life by acne and in Ife [19], the adolescents were not bothered that they had acne. The reason for this difference in response between this study and the other Nigerian studies can be adduced to the use of different instruments. A disease specific instrument (CADI) was used in this study while non-standardized instruments were used in the other Nigerian studies. The only Nigerian study where CADI was used [7] reveals comparable results to this study on some of the variables assessed.

Relationship between the quality of life and variables

Severity of adolescent facial acne was found in this study to correlate with QOL impairment. Severe acne implies more lesions on the face and presence of inflammatory acne. These groups of adolescents are also more likely to seek treatment with people constantly commenting on the appearance of their face. All of this will cumulatively lead to a worse QOL impairment with severe acne. This study report is at variance with that from Hong Kong, in which, Law et al. [23] reported no strong correlation between acne severity and QOL impairment but in agreement with studies from Nigeria and Malaysia [7,10]. There was a lack of correlation between gender and QOL impairment in this study. This lack of correlation is difficult to explain in this study. Although as already discussed above, looking at specific items of QOL impairment, females were found to be more embarrassed at having acne. Ogedengbe et al. [7] reported no gender difference in QOL impairment as in this study but Yeung et al. [25] and Jankovic et al. [6] found females to have a worse QOL than males. Family history of acne was found to significantly impair QOL. Adolescents, who have a family history of acne, have seen family members having acne and being treated for acne. They may have realized that acne is a chronic skin lesion and known that treatment is not a one off thing. They may also have seen family members who had severe acne with scarring and may fear having the same lesions. This may have led to the significant QOL affectation. Other studies on adolescent acne have not looked at the relationship between family history of acne and QOL impairment and so it was difficult to compare this finding with another study.

History of previous treatment of facial acne vulgaris was significantly associated with QOL impairment. It is postulated that, adolescents who have had treatment may have gotten tired of the long duration it takes for clearance of acne lesions and this age group is usually not associated with patience. Also, the cost of treatment may have contributed to this impairment of QOL. There was no study to compare this finding with as it has not been documented in other studies of adolescent acne.

CONCLUSION

Facial acne vulgaris is associated with QOL impairment and this impairment is mostly mild. Specifically, facial acne vulgaris leads to embarrassment, feelings of aggression, negative feelings about appearance of the skin and how bad acne on the face is. History of previous treatment of acne, severity of acne and family history of acne negatively impacts on QOL. Gender does not influence QOL impairment in adolescents who have acne.

REFERENCES

1. Michaud AP, Suris JC, Viner R (2004) The adolescent with a chronic condition: Epidemiology, developmental issues and health care provision. WHO Discussion Papers on Adolescence, Geneva 89: 943-949.
2. Baldwin HE (2006) Tricks for improving complications with acne therapy. Dermatol Ther 19: 224-236.
3. Krowchuk DP, Stancin T, Keskinen R, Walker R, Bass J, et al (1991) The psychological effects of acne on adolescence. Pediatr Dermatol 8: 332-338.
4. Kock PE, Ryder HF, Dziura J, Njike V, Antaya RJ (2008) Educating adolescents about acne vulgaris. A comparism of written handouts with audiovisual computerized presentations. Arch Dermatol 144: 208-214.
5. Cheer S, Murrell D (2009) A comparison dermatology life quality index scores in a dermatology practice setting. J Am Acad Dermatol 60: AB94.
6. Jankovic S, Vukicevic J, Djordjevic S, Jankovic J, Marinkovic J (2012) Quality of life among schoolchildren with acne: Results of a cross-sectional study. Indian J DermatolVenereol Leprol 78: 454-458.
7. Ogedegbe EE, Henshaw EB (2014) Severity and impact of acne vulgaris on the quality of life of adolescents in Nigeria. Clin Cosmet Investig Dermatol 7: 329-334.
8. Walker N, Lewis-Jones MS (2006) Quality of life and acne in Scottish adolescent school children: Use of the children's dermatology life quality index and the Cadiff acne disability index. J Eur Acad Dermatol Venereol 20: 45-50.
9. Law MP, Chuh AA, Lee A, Molinari N (2010) Acne prevalence and beyond: Acne disability and its predictive factors among Chinese late adolescents in Hong Kong. Clin Exp Dermatol 35: 16-21.
10. Hanisah A, Omar KO, Shah SA (2009) Prevalence of acne and its impact on the quality of life in school-aged adolescents in Malaysia. J Primary Health Care 1: 20-

25.

11. Zaraa I, Belghith I, Alaya BN, Trojjet S, Mokni M, et al. (2013) Severity of acne and its impact on quality of life. Skin Med 11: 148-153.
12. Perić J, Maksimović N, Janković J, Mijović B, Reljić V, et al. (2013) Prevalence and quality of life in high school pupils with acne in Serbia. Vojnosanit Pregl 70: 935-939.
13. Dalgard F, Gieler U, Holm JO, Bjertness E, Hauser S (2008) Self-esteem and body satisfaction among late adolescents with acne: Results from a population survey. J Am Acad Dermatol 59: 746-751.
14. Kurtalić N, Hadzigrahić N, Tahirović H, Sijercić N (2010) Quality-of-life of adolescents with acne vulgaris. Acta Med Croatica 64: 247-251.
15. Dreno B (2006) Assessing quality of life in patients acne vulgaris. Am J Clin Dermatol 7: 99-106.
16. Motley RJ, Finlay AY (1992) Practical use of a disability index in the routine management of acne. Clin Exp Dermatol 17: 1-3.
17. Lewis-Jones MS, Finlay AY (1995) The children's dermatology life quality index (CDLQI): Initial validation and practical use. Br J Dermatol 132: 942-949.
18. Yahya H (2009) Acne vulgaris in Nigerian adolescents - Prevalence, severity, beliefs, perceptions and practices. Int J Dermatol 48: 498-505.
19. Onayemi O, Aghanwa HS, Soyinka F, Morakinyo O (2005) A descriptive cross-sectional survey of prevalence, knowledge and perceptions of acne vulgaris among secondary school students in Nigeria. Nig Med Pract 48: 73-76.
20. Ikaraoha CI, Taylor GOL, Anetor JI, Igwe CU, Ukaegbu QO, et al. (2005) Demographic features, beliefs and sociopsychological impact of acne vulgaris among it's sufferers in two towns in Nigeria. Shiraz E-Med J 4: 5.
21. Finlay AY (2010) Cardiff acne disability index. Available at: http://www.dermatology.org.uk
22. Tan JK, Tang J, Fung K, Gupta AK, Thomas DR, et al. (2007) Development and validation of a comprehensive acne severity scale (CASS). J Cutan Med Surg 11: 211-216.
23. Law MP, Chuh AA, Lee A (2009) Validation of a Chinese version of the Cardiff acne disability index. Hong Kong Med J 15: 12-17.
24. Statistical Package for Social Sciences (SPSS) (2006) Version 15.0 for Windows. Chicago: SPSS Inc.
25. Yeung CK, Teo LH, Xiang LH, Chan HH (2002) A community-based epidemiological study of acne vulgaris in Hong Kong adolescents. Acta Dermatol Venereol 82: 104-107.