

# Quality of Life of Females with Acne Vulgaris in Southeastern Nigeria

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**Running head:** Quality of Life of Women with Acne

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## ABSTRACT

**Background:** Skin diseases, including acne vulgaris, affect the quality of life of affected patients.<sup>1</sup> Although acne vulgaris is not life-threatening, its attendant post-inflammatory hyperpigmentation and scarring may lead to interpersonal difficulties, unemployment, low self-esteem, anxiety, and depression.<sup>2</sup>

**Objective** The study investigated the impact of acne vulgaris on the quality of life of affected females and also assessed the correlation between their quality of life and acne severity and duration.

**Methods:** Between April 2016 and October 2016, 70 consecutive female patients with acne vulgaris were recruited into the study. Global Acne Grading severity was used in measuring the severity of acne and the Dermatology Quality Life Index was used to assess the quality of life of these females.

**Results:** The mean age and standard deviation of the participants was 27.09 ± 7.28 years. Mild and moderate acne was seen in 18.6% and 65.7% of the patients respectively while 15.7% of the patients had severe acne. Quality of life was affected in 62.8% of subjects (p-value < 0.001) and this was more impaired in patients with severe acne vulgaris.

**Conclusion:** This study showed that acne vulgaris affected the quality of life of the subjects and there was a positive correlation between the severity of acne vulgaris and the impairment of quality of life.

**Keywords:** Acne vulgaris, Quality of Life, Global Acne Grading, Dermatology Life Quality Index

## Qualité de vie chez les femmes atteintes d'acné vulgaire dans le sud-est du Nigéria

### Abstrait

**Contexte :** Les maladies de la peau, y compris l'acné vulgaire, affectent la qualité de vie des patients touchés.<sup>1</sup> Bien que l'acné vulgaire ne mette pas la vie en danger, l'hyperpigmentation et les cicatrices post-inflammatoires qui l'accompagnent peuvent entraîner des difficultés interpersonnelles, le chômage, une faible estime de soi, de l'anxiété et de la dépression.<sup>deux</sup>

**Objectif:** L'étude a examiné l'impact de l'acné vulgaire sur la qualité de vie des femmes touchées et a également évalué la corrélation entre leur qualité de vie et la gravité et la durée de l'acné.

**Méthodes:** Entre avril 2016 et octobre 2016, 70 patientes consécutives atteintes d'acné vulgaire ont été recrutées dans l'étude. La gravité globale de la classification de l'acné a été utilisée pour mesurer la gravité de l'acné et l'indice de qualité de vie en dermatologie a été utilisé pour évaluer la qualité de vie de ces femmes.

**Résultats :** L'âge moyen et l'écart-type des participants étaient de 27,09 ± 7,28 ans. Une acné légère et modérée a été observée chez 18,6% et 65,7% des patients respectivement, tandis que 15,7% des patients présentaient une acné sévère. La qualité de vie a été affectée chez 62,8% des sujets (valeur p < 0,001) et cela était plus altéré chez les patients atteints d'acné vulgaire sévère.

**Conclusion:** Cette étude a montré que l'acné vulgaire affectait la qualité de vie des sujets et qu'il existait une corrélation positive entre la gravité de l'acné vulgaire et l'altération de la qualité de vie.

**Mots-clés:** Acné vulgaire, Qualité de vie, Classement mondial de l'acné, Indice de qualité de vie dermatologique

## Introduction

Acne vulgaris is one of the common skin dermatoses that affect teenagers and adults. It is the chronic inflammation of the pilosebaceous glands and its presentation includes comedones, papules, pustules, nodules, and cysts. Acne vulgaris can be complicated by scars such as ice-pick scars, boxcar scars, and rolling scars.<sup>3</sup> Sinus tracts are also complications of acne vulgaris. Post-inflammatory hyperpigmentation, keloids, and hypertrophic scars may ensue in scar-prone patients.<sup>4</sup> These can impact the quality of life of acne patients.

Dermatologic diseases affect patients' lives in various ways. They may cause pain, itching, disruption of daily activities, psychological problems such as low self-esteem and nervousness. In addition, they may cause relationship-related problems and treatment-related issues such as adverse drug reactions.<sup>5</sup> Evaluating the treatment procedure and recording the quality of life can advance the dermatologist's knowledge of psychosocial stress associated with skin disease.<sup>6</sup> Several studies have shown the negative impact of acne vulgaris on patients' psyche especially those with severe acne and this impact appears to be worse in female patients,<sup>7-11</sup> thus, the importance of assessing patients' quality of life cannot be overemphasized.

Psychological effects of acne range from anxiety disorder to suicidal ideation<sup>12</sup> and are worse in females.<sup>13</sup> Studies carried out in other parts of Nigeria showed contradictory findings. Ogedengbe et al<sup>7</sup> reported a weak correlation between the psychosocial impact of acne and severity of acne in adolescents in South-Western Nigeria. Yahya<sup>14</sup> in Kaduna found little or no psychosocial impact in the daily lives of adolescents studied. These findings were in adolescents and may not be representative of the older female population. This study was aimed at addressing all populations of females prone to acne vulgaris.

It is also hoped that the findings from this study will shed more light on the quality of life of adult female acne patients in south-eastern Nigeria where such studies are sparse.

## Aim

The aim of this study is to assess the impact of acne vulgaris on the quality of life among females in South-Eastern Nigeria.

## Methods

We conducted a hospital-based, cross-sectional study which was carried out in the dermatology clinic of the University of Nigeria Teaching Hospital, Ituku Ozalla. The study lasted from April to October 2016. Ethical approval was obtained from the Ethics Review Board of the institution. The sample size was calculated based on the prevalence of acne vulgaris in a neighboring state, Enugu<sup>15</sup>, and a minimum of 63 was obtained (including an attrition rate of 10%), this was increased to 70. Seventy females with acne were recruited using a consecutive sampling method. The participants were aged 16 years and above. Informed consent was obtained from all the participants. The exclusion criteria included participants who were on anti-acne medications, who did not give consent, pregnant and lactating mothers. Questionnaires containing variables such as biodata, history of acne, medical and drug history were administered to the participants. The participants were examined by the dermatologists under proper lighting. The Global Acne Grading System was used to grade the severity of acne and the Dermatology Life Quality Index (DLQI) was used to assess the subjects' quality of life.

### Global Acne Grading System

It calculates acne severity by assessing the nature of acne lesions (comedones, papules, pustules, and nodules) and the anatomic locations of these lesions (forehead, cheeks, nose, chin, chest, and back). The scores range from 0 (none), 1 – 18 (mild), 19 – 30 (moderate), 31 – 38 (severe) and > 38 (very severe).<sup>16</sup>

### Dermatology Life Quality Index

It is a questionnaire used to assess the quality of life of adults with dermatological conditions. It consists of 10 questions and each question is scored 0 (not at all), 1 (a little), 2 (a lot), and 3 (very much). The total score is calculated by summing the score of all the questions resulting in a minimum of 0 and a maximum of 30. The higher scores imply greater impairment to QOL.<sup>17</sup>

**Data Analysis**

Data analysis was performed using the Statistical Package for Social Sciences (SPSS™) Version 21.0 (SPSS Inc., Chicago, Illinois, USA). Normally distributed variables such as the age of the participants and DLQI were computed using means and standard deviations. Frequencies and percentages were used to present categorical variables such as the severity of acne and acne duration.

The student's t-test was used to compare continuous variables and Spearman's correlation coefficient was used to measure the correlation between the variables. A p-value of  $\leq 0.05$  was considered statistically significant.

**Results**

The mean age and standard deviation of the participants was  $27.09 \pm 7.28$  years old.

Almost half (48.6 %) of the subjects had acne for more than 5 years whereas about one-tenth (12.9%) of them had acne for less than a year. (Table I)

Using the Global Acne Grading system, about two-thirds of the participants (65.7%) had moderate acne, 18.6% had mild acne and 15.7% had severe acne. (Figure 1)

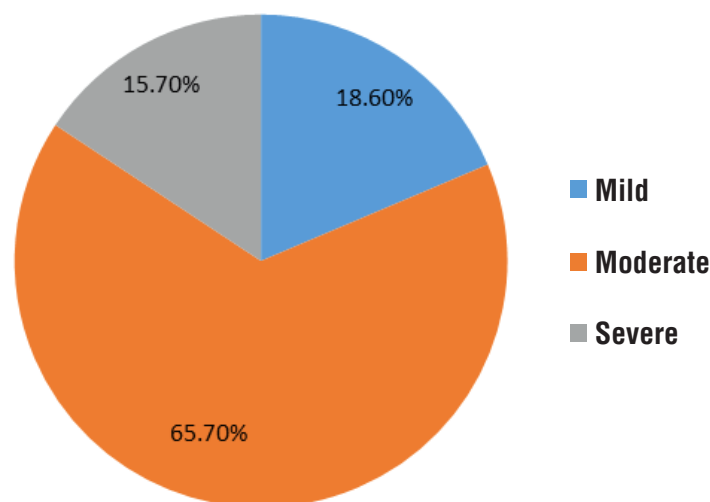
Concerning DLQI scores, about two-thirds of the patients reported some effect on their quality of life ranging from a small to a very large effect, although the overall mean and SD of DLQI among the subjects was  $4.81 \pm 1.44$ . (Table II)

DLQI scores increased significantly with acne severity ( $F = 7.947, p = 0.001$ ). Although DLQI scores were not significantly different across age groups, participants in the 15-29 years age group had higher scores than the other age groups. (Table III)

No statistical correlation was seen between DLQI and disease duration ( $p = 0.496$ ).

**Table I: Duration of Acne vulgaris in subjects**

Duration of disease (years)	Frequency	Percent
<1 year	9	12.9
1 - 5 years	27	38.6
>5 years	34	48.6
Total	70	100.0



**Figure 1: Severity of Acne Vulgaris using the Global Acne Grading System**

**Table II: DLQI Scores: Impact of Acne Vulgaris on patient's quality of life (QOL)**

DLQI Interpretation	Subjects n (%)
No effect 0-1)	26 (37.1)
Small effect (2-5)	19 (27.1)
Moderate effect (6-10)	12 (17.1)
Very large effect 11 -20)	13 (18.6)
Extremely large effect (21-30)	0 (0.0)

**Table III: Comparison of mean DLQI across age groups and severity of acne**

	Mean DLQI	SD	F	p-value
<b>Age group (years)</b>				
15 – 19	5.78	6.32	0.361	0.901
20 – 24	5.17	5.47		
25 – 29	6.33	6.73		
30 – 34	3.89	4.45		
35 – 39	3.71	6.55		
40 – 44	3.50	4.95		
45 & above	2.00	-.		
<b>Severity of acne</b>				
Mild	2.08*	3.33	7.947	0.001
Moderate	4.37*	5.09		
Severe	9.91	5.96		

**Table IV: Relationship between severity of acne and quality of life**

Acne vulgaris severity	Quality of life			
	No effect at all n (%)	Small effect n (%)	Moderate effect n (%)	Very large effect n (%)
Mild	3 (37.5)	3 (37.5)	1 (12.5)	1 (12.5)
Moderate	16 (34.8)	15 (32.6)	10 (21.7)	5 (10.9)
Severe	2 (18.2)	1 (9.1)	1 (9.1)	7 (63.6)

$\chi^2 = 21.110, P = 0.002$

## Discussion

This study revealed that about half of our subjects (48.6%) had suffered from acne vulgaris for over 5 years. The reasons for this finding may not be farfetched. Acne vulgaris is not seen as a disease by many people and so some do not bother to seek treatment except when the lesions become more profuse. Furthermore, the multiplicity of beauticians and other unlicensed health vendors give room for the patronage of these alternative

caregivers, as it appears easier and somewhat cheaper to visit them. The bottlenecks in accessing care in government hospitals could discourage some people who might be willing to present early for treatment at these facilities. Finally, the unavailability of health insurance for most people deters those with financial difficulties from seeking proper medical, albeit dermatological consultation.

In our study, about two-thirds of the subjects (62.3%) reported that acne had some effects ranging

from small to severe on their lives. In a study by Safizadeh<sup>18</sup>, 51.8% of the patients with acne reported it affected their quality of life. This is different from ours and a possible explanation might be that a greater proportion of their subjects had mild acne in contrast to our study where our subjects had moderate acne. Findings from the studies by Chowdary et al<sup>19</sup> and Samanthula et al<sup>8</sup> showed that 90% and 92.1% of their patients with acne vulgaris respectively had some impairment of quality of life. Individual perception may explain this variation. Another possible explanation could be the inclusion of males with acne vulgaris in these studies. Males usually have severe acne and this impacts their quality of life.

### Mean DLQI and Acne Vulgaris

This study also assessed the impact of acne vulgaris on the quality of life of the study participants. A significant association was seen between acne severity and its impact on the quality of life of study subjects using the DLQI questionnaire.

The mean DLQI of the subjects was 4.8 which is similar to 4.6 reported by Yap<sup>156</sup> in Malaysia among females with acne. Yap suggested that the mean DLQI score could be attributed to the socio-cultural setting of his study population that encouraged stoicism as people do not openly express their feelings.<sup>20</sup> We think that this also applies to our environment, as people were not free to express their feelings. Some cultures in our study environment believe that being too vocal or expressive with your feelings was a sign of weakness and people especially females are encouraged to endure hardships.<sup>21,22</sup>

The mean DLQI score of the patients in this study was lower than what was observed in the study by Chowdary et al<sup>19</sup>. A possible explanation may be that a large proportion of the subjects in this study had moderate acne which might account for a lower DLQI value while more than half of their participants had severe acne.

### DLQI and Age

There was no statistically significant difference between the age of subjects and impairment of the quality of life. The reason for the lack of statistical relationship between the age of subjects and the DLQI might be that most females irrespective of age

had anxiety over facial blemishes. A Pakistani study by Chowdary et al,<sup>19</sup> however, reported that subjects aged 18 to 21 years had the highest DLQI score, and thus had more impairment than other groups. The difference between their findings and this study could be related to differences in socio-cultural settings and the inclusion of males in their study. However, more comparative studies are needed to look at the association between DLQI and the age of females in other countries.

### DLQI and Duration of the Disease

This study did not reveal any correlation between DLQI and the duration of disease, a finding consistent with that of Safizadeh and Kokandi.<sup>9,18</sup> This may probably be because the impact of acne on quality of life may not depend on the duration of the disease. The extent to which people allow it to affect their daily lives differs from person to person and the ability of the patients to accept and cope with it may also be important. Furthermore, the severity of the disease may also be a factor as a patient with uncomplicated, moderate acne for an extended period may have a lower DLQI score than a patient with severe acne for a shorter time.

However, an Egyptian study<sup>1</sup> demonstrated a significant positive correlation between the duration of the disease and DLQI. They stated that this could be due to traditional and cultural factors in their study location.<sup>1</sup>

### Severity of Acne and Quality of Life

This study was able to demonstrate that the quality of life of patients with severe acne was significantly affected as acne had a very large effect on their quality of life. This was different from findings observed in subjects with mild and moderate disease whose quality of life were not significantly impaired. In comparison with our findings, Kouotou et al<sup>23</sup> reported a positive correlation between acne severity and impairment of quality of life of their participants. Additionally, they observed a positive correlation between the severity of acne and depression and anxiety. Akinboro et al<sup>24</sup> observed that severity of acne correlated with impaired quality of life among their study participants, and this was further worsened by the presence of post-inflammatory hyperpigmentation leading to feelings of aggression, frustration, and reduced self-worth.<sup>24</sup>

However, Ogedengbe et al<sup>7</sup> reported a weak relationship between acne severity and its psychosocial impact although, in this study, only one out of 160 subjects had severe acne. The vast majority (89.4%) of their subjects had mild acne; hence, this may account for the weak relationship. This is similar to the findings of Yahya<sup>14</sup> carried out in the northern part of Nigeria in which most of his respondents reported that acne had little or no impact on their family and friend relationships or academic work. This may be because these respondents were aged 11 – 19 years and a large proportion (93.1%) had mild acne.

Ilgem and Denya<sup>25</sup> did not observe any significant relationship between acne severity and DLQI scores stating that other factors could affect the QOL apart from acne severity. These factors included emotional, social, personal, and school-related problems of the patient. Thus, they concluded that DLQI was not a suitable tool for evaluating QOL. Although, a large proportion of their patients (72.3%) had mild to moderate acne severity which was similar to the finding of this study. However, in their study, the age of patients ranged from 18 to 24 years (mean age = 19.5 years) and this age group may be too narrow to determine its impact on QOL. This present study, however, allowed for the assessment of the impact of acne on the QOL among various age groups. Furthermore, all the patients in their study were university students whereas the majority of subjects in this study were not students and some were unemployed. This diversity among the patient groups might also contribute to the different findings observed.

Studies that used Cardiff Acne Disability Index (CADI) to assess the QOL reported variable findings on the relationship between acne severity and QOL.<sup>1,11,18,9,26,27</sup> This could be a result of the age and sex of the study population and the location where these studies were carried out. Mallon et al<sup>28</sup> investigated the correlation of acne severity using Leeds grading technique and DLQI, they found there was no correlation. This rather contradictory result was explained that the disability caused by acne depended on the personal environment (social and occupational).

<sup>28</sup>

## Conclusion

The study showed that the majority of the patients with acne vulgaris had moderate to severe disease. It was also found that acne vulgaris had a significant impact on the quality of life of patients with severe disease. It is therefore important to assess the quality of life of patients presenting with acne vulgaris and especially those with moderate to severe diseases. This will help in the holistic management of these patients including instituting psychotherapy as appropriate.

Since many patients may present with moderate to severe disease, treatment must be started early with appropriate medications as this will help reduce the long-term sequelae of post-inflammatory pigmentation, scarring, and attendant impairment in quality of life. It is therefore imperative that medications beneficial in the treatment of moderate to severe acne be included in the National Drug formulary.

## Limitations

DLQI was the only quality of life tool used and is limited in diagnosing anxiety or depression.

## Recommendations

The role of clinical psychologists and psycho-dermatology in the management of patients with dermatological needs should be integrated into the overall patient management so as to improve patients' quality of life. Early intervention is key and awareness of this important aspect of patient care should be created at the level of dermatological training.

A multidisciplinary approach to management especially with endocrinologists and gynaecologists in patients exhibiting features requiring such interventions should be highly encouraged.

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