



Pattern of Male Acne and Its Associated Health Related Quality of Life

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Authors' contributions

This work was carried out in collaboration among all authors. Author ELA designed the study, wrote the protocol, and wrote the first draft of the manuscript. Authors RIO and MOCA contributed to the protocol and managed the analyses of the study. All authors read and approved the final manuscript.

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ABSTRACT

Background: Documentations on pattern of acne and quality of life are mostly in adolescents and adult females. Female acne is said to be different from adolescent acne. It is not known if male acne is different. The aim of this study was to document the pattern of male acne vulgaris, compare with adolescent acne, determine the quality of life and the associated factors.

Methodology: This was a cross-sectional prospective study of 64 male acne patients over a one year period. Socio-demographic parameters and clinical history was documented using a data questionnaire. Clinical examination to assess lesion type, anatomical location and severity of acne was conducted. Quality of life was assessed using the Cardiff Acne Disability Index. Data was analyzed with SPSS version 22 and a p value of <0.05 was adjudged to be significant for all tests.

Results: Mean age of the group was 22.8±7.4 years. Family history of acne was present in 45.3%, self-medication for acne in 47%. Duration of acne was >5years in 39.1%. Acne was located only on the face in 76.7%, lesions were non-inflammatory in 67.2%. Acne scar was present in 78.1%. Severity of acne was moderate in 42.2%. Quality of life was impaired in 98.4%; this was moderate 40.6%. Mean CADI was 7.4±3.3. All items on the CADI were impaired in 98.4% of the patients.

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Study Limitations: Inability to compare male teenage to post-adolescent acne.

Conclusion: The pattern of male acne is no different from the adolescent pattern. Quality of life is impaired in most males.

Keywords: Male; acne; quality of life; pattern; acne scars.

1. INTRODUCTION

Acne vulgaris (pimples) is a common dermatologic presentation especially in adolescents amongst whom prevalence ranges from 42% to 96% [1,2]. In adults, prevalence is said to be 12-14% in females and 3% in males [3]. Most of the studies on acne have been in adolescents and recently in adult females [4-6]. In most adolescents, acne affects mainly the face, neck, chest, upper back and shoulders which have a high density of sebaceous glands [7]. These studies in adolescents did not document a difference in pattern of acne between males and females. In adult females, acne is found on the whole face but worse on the cheeks and chin [8]. A study of acne in adolescent males in Brazil showed the whole face and back to be affected by acne [7].

Acne remits spontaneously in most individuals leaving scars in 21-46% of acne sufferers [8,9]. Acne scars vary from hyperpigmented spots (post inflammatory hyperpigmentation) [8-10] to pits on the face referred to as icepick, box and rolling scars depending on their depth and shape to hypertrophic or keloidal scars [11]. These studies of acne scars were in mostly in females and scarring occurred in 11% to 49% [9,10]. The studies on male adolescents who had acne scars, showed scarring in 21 and 89.4% [7,12].

Acne vulgaris has been shown to have a negative impact on quality of life (QOL) [4,5]. Acne is also known to affect self-esteem and lead to suicidal ideation in acne sufferers [13,14]. This impact of acne on self-esteem and suicidal ideation is however, worse in females [13,14]. Although these studies were in adolescents and not limited to males only, the negative impact of acne on the psychology of patients is demonstrated. Most studies on QOL affectation by acne have been in adolescents and adult women with just one in adolescent males [4,9,13-15]. Several factors affect QOL in people who have acne. These factors include; treatment [4], severity of acne [16], female gender [17], location of acne on the face [18], presence of scars [18].

A lot has been written about adolescent and adult female acne but not much about acne in males. It is not known if the pattern of acne in this gender is different from that in adolescents and females. Quality of life affectation in males and what specific aspects of QOL is affected is not known. Clinical characteristics in this group (severity, lesion types, scars and scar types) is not documented.

The aim of this study is to document the pattern of male acne vulgaris (anatomical location, lesion type, severity, prevalence of scarring and the type of scars). To determine if pattern of acne in males is different from the pattern in adolescents. Also, to determine QOL of these males with acne vulgaris and to determine the clinical and socio-demographic factors that affect their QOL.

2. MATERIALS AND METHODS

This was a prospective clinical questionnaire based, cross sectional descriptive study of 64 males who had acne at the dermatology outpatient clinic of the Lagos state university teaching hospital, Nigeria. The study was conducted over a one year period (December 2017 to November 2018) following ethical approval by hospital's ethics review board.

Socio-demographic parameters (sex, age) and clinical history was documented using a data collection proforma (duration of acne, age at onset, family history of acne). A full clinical examination to assess lesion type, anatomical location and severity of acne was conducted. Assessment of QOL was done using the Cardiff Acne Disability Index (CADi) a disease specific instrument with five (5) questions and four responses [19]. 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. Scores range from 0-3 per question with total scores of 0-15 and high scores inferring poor QOL and low scores little or no impairment of QOL.

In this study, severity of acne was graded using the Combined Acne Severity Scale (CASS) which was developed in 2007 [20]. The CASS is comprised of three categories: mild, moderate and severe acne.

The Statistical Package for Social Sciences (SPSS) IBM version 22 was used to enter and analyze the data. Percentages, mean and standard deviation of numerical variables was determined. Histogram plot was used to assess if the outcome variable (quality of life scores) was normally distributed. Mean of independent groups were compared using Student 't' test while Chi squared test was used to compare categorical variables. For all statistical test p value <0.05 was adjudged to be significant. Microsoft excel was used to draw charts.

3. RESULTS

A total of 193 new male patients visited the clinic during the study period of which 64 had acne giving a prevalence of 33.2%. The mean age of the group was 22.8±7.4 years, age range was 15-45 years. Mean age of onset was 16.7±6.3 years. Level of education was primary, secondary, tertiary and informal in 14.1%, 18.8%, 62.5% and 4.7% respectively. Marital status was single in 87.5% and married in 12.5%. Response to a family history of acne was yes, no and I don't know in 45.3%, 42.2% and 12.5% respectively. Previous treatment for acne was noted in 78.1%. Treatment modality was self-medication in 47%, non-dermatology clinic in 26%, pharmacist in 5% and none in 22%. In those who had engaged in self medication, this was triple action creams in 46.9%, antibiotics in 17.7%, antiseptic soaps in 22.9% and Sulphur based creams in 12.5%. 92.2% thought that acne was curable, 90.6% rub/burst their pimples. Cause of acne was believed to be food in 30.5%, infection in 22%, creams in 5.1%, being dirty in 5.1%, drugs in 3.4%, being dirty in 1.7% and I don't know in 32.2%. Duration of acne was >5years in 39.1%, source of information about acne was general practitioners in 31.3% (Table 1).

Clinically, acne was located only on the face in 76.7%, face, chest and back in 15.7%, face and chest in 7.9%. In those who had acne on the face only; 85.7% was on the whole face, forehead and cheeks in 10.2%, cheeks only in 2% and forehead only in 2%. Lesions were in inflammatory in 32.8% and non-inflammatory in 67.2%. Acne scar was present in 78.1% and this was ice pick only in 12%, post-inflammatory

hyperpigmentation (PIH) only in 52%, ice pick and post inflammatory hyperpigmentation in 36%. In those who had PIH, this was located on the face only in 70.5%, face, back and chest in 18.2%, face and chest in 11.4%. On the face, PIH was on the whole face in 85.7%, forehead and cheeks in 10%, forehead in 2% and cheeks in 2%. None of the assessed factors were found to be associated with scarring (Table 2). Severity of acne was moderate in 42.2% (Fig. 1).

Table 1. Clinical history of respondents

Variables	N=64	%
Age at presentation (years)		
<21	31	48.4
21-30	25	39.1
31-40	6	9.4
>40	2	3.1
Age at onset of acne (years)		
<10	5	7.8
10-19	45	70.3
20-29	10	15.6
>30	4	6.3
Duration of acne (years)		
<1	8	12.5
1-2	14	21.9
3-4	17	25.0
≥5	25	39.1
Source of information		
General practitioners	20	31.3
Nurse	6	9.4
Parent	5	7.8
Chemist/Pharmacist	15	23.4
Friend	11	17.2
No response	7	10.9

Quality of life was impaired in 98.4%; this was mild, moderate and severe in 28.1%, 40.6% and 31.3% respectively. Mean CADI was 7.4±3.3, minimum was 0 and maximum was 14. (Fig. 2).

There was no clinical factor significantly associated with QOL impairment. Age of onset P=0.544, age, P= 0.168, marital status, P=0.800, duration of acne P=0.382 (Table 3).

On the CADI, all items were impaired. In almost all the patients, embarrassment, social life and relationship with the opposite sex, perception of how bad acne is and feelings about the skin were impaired (Table 4).

4. DISCUSSIONS

Acne is a common skin disease amongst adolescents. Adult female acne is increasingly

being recognized. There are thus far, three studies on males and these studies were in adolescents [7,12,15]. In this study, we have demonstrated a low prevalence of acne in males, an adolescent onset in most of the patients, a poor knowledge of acne, non-inflammatory acne, moderate severity and impaired QoL in almost all the patients.

The prevalence of acne in males in this study was not high but within the range of the only other two studies reporting on prevalence of male acne [9,12]. This study was in males of all ages unlike the studies by Lauerma et al and Duquia et al which were specifically in

adolescent males. Acne typically has a high prevalence in adolescents [1,4,7,15]. Majority of the patients were in their second and third decades of life and prevalence was noticed to decrease with age especially after age 40 years. The predominance of acne in those less than 30 years of age and decrease in prevalence with increasing age can be explained by acne being mostly an adolescent skin disease with resolution in most affected individuals in their early twenties. The decrease in prevalence with increasing age is similar to that reported by Perkins et al although their study was of post adolescent female acne [21].

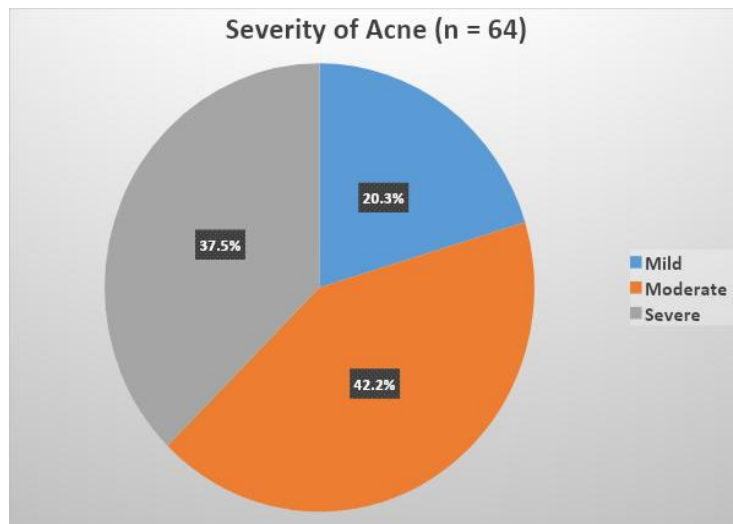


Fig. 1. Clinical severity of acne

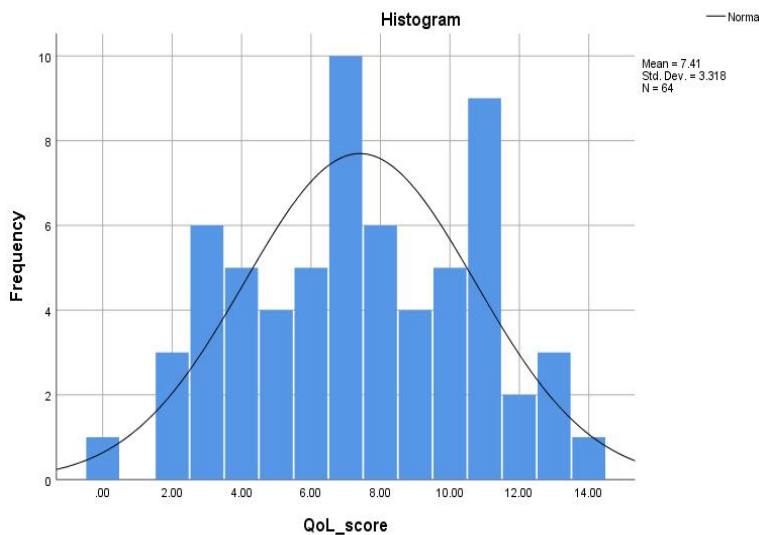


Fig. 2. Histogram of distribution of QoL scores

Table 2. Associated factors with scarring

Variables	Scarring n=50 (%)	No scarring n=14 (%)	P
Age group (years)			
<15	4(8.0)	3(21.4)	0.488
15-24	29(58.0)	7(50.0)	
25-34	11(22.0)	3(31.4)	
35-44	5(10.0)	0(0.0)	
≥ 45	1(2.0)	1(7.1)	
Age at onset			
<10	3(6.0)	2(14.3)	0.658
10-19	35(70.0)	10(71.4)	
20-29	8(16.0)	2(14.3)	
≥30	4(8.0)	0(0.0)	
Family history of acne			
Yes	24(48.0)	5(35.7)	0.438
No	20(40.0)	7(50.0)	
I don't know	6(12.0)	2(14.3)	
Duration of facial acne			
<1	5(10.0)	3(21.4)	0.135
1-2	9(18.0)	5(35.7)	
3-4	13(26.0)	4(28.6)	
≥5	23(46.0)	2(14.3)	
Acne severity			
Mild	10(20.0)	3(21.4)	0.334
Moderate	19(38.0)	8(57.1)	
Severe	21(42.0)	3(21.4)	
Pattern of acne			
Inflammatory	17(34.0)	4(28.6)	0.485*
Non-inflammatory	33(66.0)	10(71.4)	

NB # = No part of the analysis; *= Fischers exact p value

Table 3. Association of clinical and sociodemographic factors with QOL

Variables	n	QOL	Test	P
Educational status				
Primary	9	7.9±4.6	0.139**	0.871
Secondary	12	7.2±3.3		
Tertiary	40	7.3±3.2		
Anatomical sites				
Face only	49	7.7±3.5	1.351*	0.182
Face and other sites	15	6.4 ±2.3		
Severity				
Mild	13	7.6±3.0	0.680**	0.510
Moderate	27	6.9±3.7		
Severe	24	7.9±3.0		
Duration of acne				
< 1year	8	8.4±3.9	0.881*	0.382
≥ 1 year	56	7.3±3.2		
PIH				
Yes	20	7.7±3.8	0.394*	0.695
No	44	7.3±3.1		
Presence of scarring				
Yes	50	7.4±3.2	0.062*	0.951
No	14	7.4±4.0		

NB ** = F test; * = Student 't' test

Table 4. Cardiff acne disability index

Index parameter	n=64	%
Aggression, frustration and embarrassment in the last month		
Not at all	10	15.6
Yes	54	84.4
Interference with social life, social events or relationship with opposite sex		
Not at all	22	34.4
Yes	42	65.6
Avoided public changing facilities, or wearing spaghetti hand blouses and singlets because of pimples		
Not at all	34	53.1
Yes	30	46.9
Feelings about appearance of skin over the last one month		
Not bothered	2	3.1
Bothered	62	96.9
Perception of how bad pimples were		
Not a problem	2	3.1
A problem	62	96.9

The age of onset of acne in over half the patients was in keeping with teenage onset (second decade). The mostly teenage onset is attributable to over half of the patients being less than 25 years old and just overcoming adolescent acne. This age of onset is comparable to that documented in the only other study of male acne [7]. The duration of acne reflected the age of the population studied varying from one to two years in the younger patients to more than 5 years in the older patients. Studies of acne typically show a varied duration like what we are reporting [22]. The duration of acne tends to vary because acne is one of the reported dermatological diseases that patients engage in self-medication and only seek professional help when they it does not resolve [23].

Source of information about acne was Pharmacists and General practitioners. This was interesting as it meant, counselling and drug adherence could potentially be good. Obtaining information from non-medical sources has the drawback of misleading patients and unreasonable expectations.

The patients were well educated as a tertiary level of education was attained by over two thirds of the patients. A high level of education can become important when it comes to educating patients about cause, treatment modalities, clinic attendance and drug adherence. The high level of education also explains why source of information about acne was from medical personnel.

Almost all the patients were single. The patients in this study were young hence the single marital status. Marital status has nothing to do with pathogenesis and clinical profile of acne and it is not known to influence quality of life [24]. A family history of acne was recorded in less than half the patients studied. Dreno et al in their study of acne in four European countries, reported a higher prevalence of a family history of acne in males compared to females [8]. In addition, a family history of acne is said to result in an earlier onset of acne, severe and difficult to treat acne [8].

Treatment before dermatology consultation was reported in majority of the patients but this was mostly self-mediation despite the high level of education of these patients. Also, triple action creams was the preferred modality of self-medication. Reports of self-medication amongst dermatology patients, reveal triple action creams to be a common treatment option [23]. These triple action creams contain steroid which have a potential for resulting in steroid induced acne or worsening of acne.

Knowledge of acne and practices of the patients was poor as almost all the patients thought that, acne was curable and rubbed/burst their acne. The cause of acne was not known in a third. In those who claimed a knowledge of the cause of acne, half said that, acne was caused by food and infection. Food and infection are not documented to be pathogenic mechanisms for acne although a diet rich in vegetables and fruits reduces the occurrence of acne [25]. Studies of

knowledge of acne and practices by acne patients are few and acne patients tend to have a poor knowledge of acne [22].

Clinically acne was located on the face only in majority of the patients followed by the face, chest and back. In those who had acne on the face only, the whole face was predominantly affected.

This pattern of distribution is no different from the distribution in adolescents and adult females [6]. Duquia et al in their study of adolescent male acne reported a similar distribution of lesions [7]. Non-inflammatory acne was the main type of acne seen. The lesions of acne reported in studies vary; being non-inflammatory in adolescents and mixed inflammatory in adult females [6,7]. The pattern of acne in these males is in keeping with an adolescent pattern and in consonance with the study of pattern of acne in adolescent males in Brazil [7]. Our study did not differentiate between post adolescent and adolescent acne. It would have been interesting to see if there is a difference in lesion type as observed in comparison of adolescent and post adolescent female acne [6].

Acne scars were common and this was mostly post-inflammatory hyperpigmentation. In a few patients it was a mix of ice pick and post inflammatory hyperpigmentation. Post-inflammatory hyperpigmentation was mostly facial following the predominant location of acne on the face only. For those who had PIH on the face, this was on the whole face in almost 90% followed by the forehead and cheeks, the forehead only and cheeks only. Age at presentation, age at onset, family history of acne, duration of facial acne, acne severity, pattern of acne were not significantly with scarring in these males. Thus, scarring from acne is irrespective of if the lesions are inflammatory or non-inflammatory rather it is having acne itself which is the risk factor for scarring. In the only other study of male acne scar, scarring was common similar to our study [12]. In this study by Lauer mann et al like our study, level of education was not associated with scarring but rather it was the severity of acne [12]. In other studies of acne scars, acne scars were common and associated with severity of acne, a family history of acne and the duration of acne [9,26,27]. These studies highlight the common occurrence of acne scars and the need for early treatment to prevent scarring as a long duration between onset and effective treatment is associated with scarring [26].

Acne is not a life threatening disease, a skin disease for which dermatology patients self-medicate and only come for medical intervention when it does not resolve with the self-help measures. This usually results in a long duration before presentation to clinics. The duration of acne was longer than five years in most of the patients. Park et al in their study of acne scar which was not in males only, found a long duration and ineffective treatment of acne to be responsible for scarring [22]. Our study unlike that of Park et al did not show the duration, lesion type nor the severity of acne to be the reason for scarring. Tan et al in their study of acne in agreement with us concluded that, acne scar is independent of lesion type [26].

The severity of acne was moderate in a large proportion of the patients. Duquia et al in their study of pattern of male acne did not report on severity of acne [7]. However, in studies of adolescent acne who make up a large percentage of our study, contrary to our study, mild acne is commonly reported [17,28]. In a study comparing adult and adolescent acne, the males in the study were found to have mild acne irrespective of age [17]. Thus, our study differs from that of others. This study highlights the difficulty in comparing studies when different acne scales are used in severity of acne grading.

Quality of life was impaired in almost all the patients and this was high like in the study of males by Isaacsson et al. [15]. This proportion of QOL impairment can be explained by the common belief that acne is a teenage problem. Also, a lot of the patients had acne scar which would have made them to be self-conscious. The mean CADI in this study was high and comparable to that reported by Gupta et al and the level of QOL impairment was moderate to severe like that reported in other studies of acne QOL [24]. The patients in this study were young, single and the age group who would be concerned about their looks especially in this age of social media and concerns about cosmesis.

None of the assessed clinical (anatomical sites, severity, PIH, presence of scarring) and social demographic factors (age at presentation, age at onset, level of education, marital status, duration of acne) were associated with QOL impairment. Rather, it was having acne itself which impaired their QOL. This is contrary to the study by Isaacsson et al in their study of dissatisfaction in male adolescents with acne. They found a lower

educational level and low income to be associated with increased dissatisfaction [15]. Other studies on QOL in acne although, not specifically in males show QOL impairment to be impacted in a variable manner by patient factors. Some studies like ours do not show marital status, age of onset, duration and anatomical site of acne to impair QOL.^{13,22} While others show QOL to be impaired by age at presentation, a family history of acne, presence of scars on the face and acne scars to adversely affect QOL [18,24,27].

All items of QOL (CADI) were impaired especially the item of "perception of how bad pimple were". The other items impairment were; "aggression, frustration and embarrassment", "interference with social life, social events or relationships with opposite sex" and "feelings about appearance of skin" Acne occurs in a visible anatomical site (face) making it difficult to camouflage or hide the lesions and the associated scars.

In these days where the media makes out a flawless face as the norm and something to be attained by all, aesthetic practices and products are readily marketed, this impairment of QOL becomes understandable. Most of these males were single and reported impairment in social life and relationship with the opposite sex. Acne lesions and the associated scars which was observed in many of the patients would have made dating embarrassing and difficult. Though not specifically in males, studies of QOL impairment show a similar level of impairment as in our study [24,29,30]. Gupta et al reported embarrassment, affectation of social life and perception of the skin in the males in their study [24].

5. CONCLUSION

In conclusion, the prevalence of acne is high in males and the pattern is no different from that in adolescents. In males acne is mainly non-inflammatory, located on the face and not associated with a family history of acne. Scarring is common and this is mainly, post inflammatory hyperpigmentation. Quality of life although impaired in most males by acne is not impacted by any specific patient factor (age, level of education and marital status). All items on the CADI are impaired by acne in males.

A limitation to our study was the number of patients. This made comparison of teenage to post-adolescent acne in males difficult. More

studies on male acne are needed. Also, early treatment of acne is advocated to prevent scarring.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The study was conducted over a one year period (December 2017 to November 2018) following ethical approval by hospital's ethics review board.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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