Original Research

The impact of acne treatment on quality of life and self-esteem: A prospective cohort study from Lebanon

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ABSTRACT

Background: Acne is highly prevalent among teenagers and young adults, with proven negative psychological and emotional impact. To our knowledge, no study has been conducted to quantify the repercussions of acne on quality of life (QoL) and self-esteem in Lebanon.
Objective: This study aimed to highlight the effect of acne treatment on QoL and self-esteem of Lebanese adolescents and young adults.
Methods: In this observational prospective study, patients between 15 and 40 years old with moderate-to-severe acne were allocated to one of two treatment groups (isotretinoin vs. systemic antibiotics combined with topical treatments) and followed for a period of 6 months. The effect of acne on QoL was measured using the Dermatology Life Quality Index, Cardiff Acne Disability Index, and Rosenberg Self-esteem Scale before treatment initiation (T1), after 3 months (T2), and after 6 months (T3). A multivariate analysis of covariance model was used.
Results: Sixty-two patients were included, of whom 79% were female and 61.3% had moderate acne. Fifty-five percent of patients were treated with systemic antibiotics combined with topical treatments, and 45% received isotretinoin. Mean scores of Cardiff Acne Disability Index, Dermatology Life Quality Index, and Rosenberg Self-esteem Scale at T1 were comparable between the two groups. A significant improvement was noticed in both groups at T2 and T3. The multivariate analysis of covariance model showed an interaction of time and age that concerned 25- to 40-year-old patients in both groups, who were the most negatively affected by acne at T1 and improved the most at T3.
Conclusion: This study demonstrated the equivalence between acne treatments in improving QoL and revealed the social obstacle that acne creates and its recrudescence in the subgroup of women of childbearing age.

Introduction

Acne vulgaris is a chronic dermatosis that affects approximately 85% of adolescents and young adults (El-Khateeb et al., 2014; Zaenglein et al., 2016) and is considered the eighth most prevalent disease worldwide (Tan and Bhate, 2015). The condition persists in some cases into adulthood, with a prevalence of up to 12% in adult women (El-Khateeb et al., 2014; Zaenglein et al., 2016). Genetic and environmental factors contribute to the pathophysiology of acne (Suh and Kwon, 2015). The burden of this skin disorder is multidimensional because not only does it cause an identity crisis, but it is also responsible for relational, social, and cultural issues (Gallitano and Berson, 2017). Furthermore, acne is a source of anxiety, depression, and low self-esteem (Gieler et al., 2015). Numerous treatments, such as topical retinoids, topical benzoyl peroxide, oral antibiotics, and oral isotretinoin, are widely available (Zaenglein et al., 2016) and can offer an improvement of acne severity and quality of life (QoL; Ng et al., 2002).

In Lebanon, acne is a common skin condition that accounts for >23% of skin complaints among Lebanese adolescents and young adults attending an outpatient clinic (Khattar et al., 2010). There is, however, a paucity of data describing the psychological impact of acne treatment on the population of Lebanon or other Middle Eastern countries. Accordingly, the objective of this prospective cohort study was to assess the improvement in QoL after acne

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treatment in Lebanese patients using the Dermatology Life Quality Index (DLQI), Cardiff Acne Disability Index (CADI), and Rosenberg Self-esteem Scale (RSES).

Methods

Study design and population

After approval by the local institutional review board (tfem/2017/47), this study was conducted at the dermatology outpatient clinic of Hôtel-Dieu de France University Hospital in Beirut, Lebanon. Patients were recruited between January 2017 and August 2017, and all patients involved in the study provided written informed consent.

To be included, patients had to be age 15 to 40 years at diagnosis and had to have moderate-to-severe acne according to the Global Acne Grading System. Patients with mild acne or those previously treated with oral isotretinoin and patients with psychiatric diseases (diagnosed or treated) were not eligible for the study.

Study participants were allocated to one of two treatment groups and followed for a period of 6 months. The first group was treated with isotretinoin (up to a cumulative dose of 150 mg/kg over 6 months), and the other group was treated with systemic antibiotherapy using either doxycycline (100 mg daily) or lymecycline (300 mg daily) for 3 months, with a concomitant 6-month course of topical treatment including benzoyl peroxide 5%, topical retinoid 0.05%, and topical antibiotics (erythromycin, clindamycin). Group allocation was not random and was left at the discretion of the participating dermatologist based on his or her best clinical judgment.

Outcome measures

At the baseline consultation and before initiation of the prescribed treatment (T1), patients were required to fill out three well-validated, self-administered questionnaires: DLQI (total score range 0–30 and higher score indicating greater QoL impairment; Basra et al., 2008), CADI (total score range 0–15 and higher score indicating greater QoL impairment; Motley and Finlay, 1992); and RSES (total score range 0–30, where a score <15 may indicate problematic low self-esteem; Rosenberg, 1992). The DLQI consists of 10 questions exploring six aspects of life affected by acne: symptoms and feelings, daily activities, leisure, work and school, personal relationships, and treatment. A total DLQI score of 0 to 1 indicates no effect on a patient's QoL, 2 to 5 a small effect, 6 to 10 a moderate effect, 11 to 20 a very large effect, and 21 to 30 an extremely large effect (Basra et al., 2008). The CADI is a 5-item questionnaire used to assess the level of disability caused by acne. A CADI score <5 reflects low disability caused by acne, 5 to 9 medium disability, and 10 to 15 high disability (Motley and Finlay, 1992). The RSES uses a 5-point Likert scale from strongly agree to strongly disagree to rate a series of 10 statements (Rosenberg, 1992).

The questionnaires were presented in English or their validated French or Arabic versions available from the original scales' websites, depending on each patient's linguistic preference. Follow-up information was retrieved by the principal investigator (J.K.) to complete the same three questionnaires by phone at 3 months (T2, mid-treatment period) and 6 months (T3, end of treatment). The call duration was on average 6 minutes and 30 seconds.

Statistical methods

Categorical variables were expressed as counts and percentages. Scores and continuous variables were assessed for departure from normality using Kolmogorov–Smirnov and Shapiro–Wilk tests, as
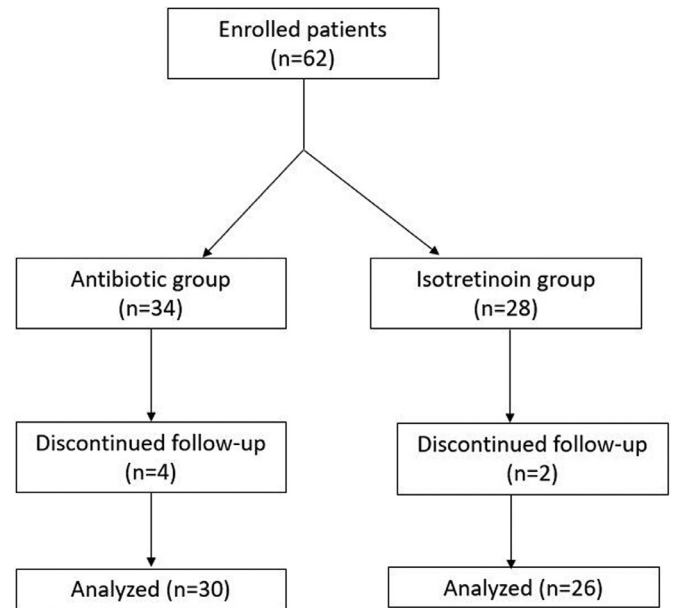

Fig. 1. Study flow chart.

well as Q-Q plots. A comparison of baseline qualitative characteristics relied on χ^2 tests. Baseline scores were compared using independent *t* tests. For the few missing assessments at T2 and T3 (<5%), the principle of the last observation carried forward was applied.

A repeated-measure multiple analysis of covariance (MANCOVA) was conducted using CADI, DLQI, and RSES as dependent variables, group of treatment as the between-subject factor, and time (T1, T2, T3) as the within-subject factor, adjusting for acne severity and age as covariates. Wilk's lambda was used to assess overall significance, followed by univariate *F* tests to assess individual effects. An interaction term (time by group) was introduced in the model and depicted graphically using a nonparametric locally weighted regression. A heatmap was used to show the evolution of scores with time and by group. A MANCOVA model was privileged over multiple univariate comparisons to control for type 1 error risk and to adjust on the effect of covariates resulting from the nonrandomized allocation of participants. A MANCOVA subanalysis was additionally performed on the female participant subgroup.

All statistical analyses were performed using SPSS, version 22 (IBM Corp., Armonk, NY). The statistical analysis code and anonymized dataset can be made available upon reasonable request to the Clinical Research Center of the Faculty of Medicine, Saint Joseph University. All statistical tests are two-sided, and a *p*-value of < .05 was considered statistically significant.

Results

Baseline characteristics

The study enrolled 62 patients between the ages of 15 and 40 years who were diagnosed with acne vulgaris of the face. Most participants were female (79%) and young (mean age: 22.6 years), and 61.3% had moderate acne while 38.7% had severe acne. Overall, 55% of patients were allocated to the antibiotic group and 45% to the isotretinoin group (Fig. 1). During follow-up, 4 patients were lost at T2 (6.5%) and 2 additional patients at T3 (9.5%), and their missing values were imputed using the last observation carried forward strategy. Baseline characteristics were overall balanced between the two treatment groups (Table 1). However, acne severity at baseline was statistically significantly different between the two

Table 1
Baseline characteristics of the treatment groups

Variable	Antibiotic group (N = 34)	Isotretinoin group(N = 28)	p-value
Male, n (%)	8 (23.5)	5 (17.9)	.585
Female, n (%)	26 (76.5)	23 (82.1)	
Age, years	21.6 ± 4.7	23.6 ± 6.2	.151
Moderate acne, n (%)	31 (91.2)	7 (25.0)	<
Severe acne, n (%)	3 (8.8)	21 (75.0)	**.001**
Baseline CADI score*	6.0 ± 2.5	6.6 ± 2.8	.322
Baseline RSES score†	23.1 ± 4.9	21.1 ± 5.6	.142
Baseline DLQI score‡	6.1 ± 4.6	7.3 ± 5.4	.334
Ordinal DLQI (effect on QoL), n (%)			
No effect at all	2 (5.9)	2 (7.1)	
Small effect	16 (47.1)	10 (35.7)	
Moderate effect	10 (29.4)	9 (32.1)	
Very large effect	5 (14.7)	6 (21.4)	
Extremely large effect	1 (2.9)	1 (3.6)	
DLQI domains§			
Feelings	4.17 ± 2.54	4.17 ± 2.66	
Activities	1.76 ± 2.43	2.26 ± 2.49	
Leisure	1.76 ± 1.79	2.32 ± 2.81	
Work	1.08 ± 2.28	1.79 ± 3.57	
Relationships	1.13 ± 1.82	1.49 ± 1.94	
Treatment	1.47 ± 2.20	2.02 ± 2.28	

CADI, Cardiff Acne Disability index; DLQI, Dermatology Life Quality Index; QoL, quality of life; RSES, Rosenberg Self-esteem Scale
All data are expressed as mean ± standard deviation, unless otherwise indicated.
  * DLQI score varies from 0 to 30, with 0 the less and 30 the most affected.
  † CADI score varies from 0 to 15, with 0 the less and 15 the most affected.
  ‡ RSES score varies from 0 to 30, with 0 the lowest and 30 the best self-esteem.
  § For each DLQI domain, with the exception of work and treatment, the maximum score is 6. For work and treatment, the maximum score is 3.

treatment groups ($p < .001$) but was accounted for in the subsequent analysis using multiple analysis of covariance.

Variations of quality-of-life scores throughout the study

Mean CADI, DLQI, and RSES scores at T1, T2, and T3 are depicted in Table 2, suggesting no notable difference between the two treatment groups in QoL variation throughout the study. QoL, as reflected by CADI and DLQI scores, progressively improved from moderately affected at T1 to mildly affected at T2 in both groups. The improvement continued during the three following months (mean CADI score at T3: 2.4, 2.0; mean DLQI score at T3: 2.1, 2.5 for the antibiotic and isotretinoin groups, respectively). At T2, both therapeutic strategies were also useful in improving self-esteem, as shown by the elevation of mean RSES score (24.1 and 22.5 for the antibiotic and isotretinoin groups, respectively). At the end of treatment, self-esteem scores were even higher, and patients were more assertive (mean RSES score at T3: 24.9 for both groups).

Multiple analysis of covariance findings

Using the MANCOVA model (Table 3), Wilk's lambda showed a significant time by age interaction ($p = .028$; effect size: 0.231; post hoc power: 81% at alpha 5%). The effect of age considered as a covariate was not significant ($p = .752$) for the severity of acne ($p = .323$) or the treatment group ($p = .593$). The within-subject time effect did not reach statistical significance ($p = .155$). To reveal the individual component that has driven the significant time by age interaction, post-MANCOVA univariate *F* tests were performed, showing that the CADI score was underlying the interaction ($p = .030$; observed power: 81%), albeit with a dismal effect size (partial eta$^2 = .06$). The time-by-age interaction is graphically depicted in Figure 2 using a nonparametric locally weighted regression, illustrating that 25- to 40-year-old patients were more negatively affected by acne than younger age groups. A heatmap presentation was also built to emphasize the effect of the interaction (Fig. 3). The additional MANCOVA subanalysis performed on the female participant subgroup confirmed the findings of the main MANCOVA analysis (Table 4).

Discussion

Our studied population was affected by an apparent dermatological disease, which is most probably responsible for the disturbed scores of the three questionnaires at baseline (T1). These data were consistent with previous international studies reported in the literature (Shahzad et al., 2011). These initial results evinced the psychological impact that acne vulgaris has on patients' daily life. Acne can negatively affect QoL, similarly to epilepsy, asthma, diabetes, and some rheumatic diseases (Cyrulnik et al., 2012). Facial skin defines an identity, an image, and is important in creating professional and relational bonds (Gallitano and Berson, 2017). Treatment reduced acne severity and brought an important improvement in QoL and self-esteem based on our results. Indeed, both groups improved their scores during T2 and T3.

We decided to evaluate QoL and self-esteem scores during different stages of treatment to detect possible worsening caused by the numerous side effects of both treatments. These effects, if present, could have been a serious exacerbating factor of depressive symptoms and anxiety disorders (Kaymak et al., 2009). However, QoL and self-esteem progressively improved in our study population. Isotretinoin was shown to be more effective than oral antibiotics combined with topical treatments (benzoyl peroxide 5%, topical retinoid 0.05%, and topical antibiotics [erythromycin, clindamycin]) in reducing acne severity (Zaenglein et al., 2016). However, our study did not show any statistically significant difference between the two groups when comparing CADI, DLQI, and RSES scores at T2 and T3. These results are consistent with those of previous studies where both isotretinoin and topical treatment (i.e., clindamycin/topical benzoyl peroxide or adapalene/benzoyl peroxide) were useful in improving QoL (Gieler et al., 2015; Kaymak et al., 2009). We found similar degrees of subjective improvement in both treatment groups. However, we cannot conclude that
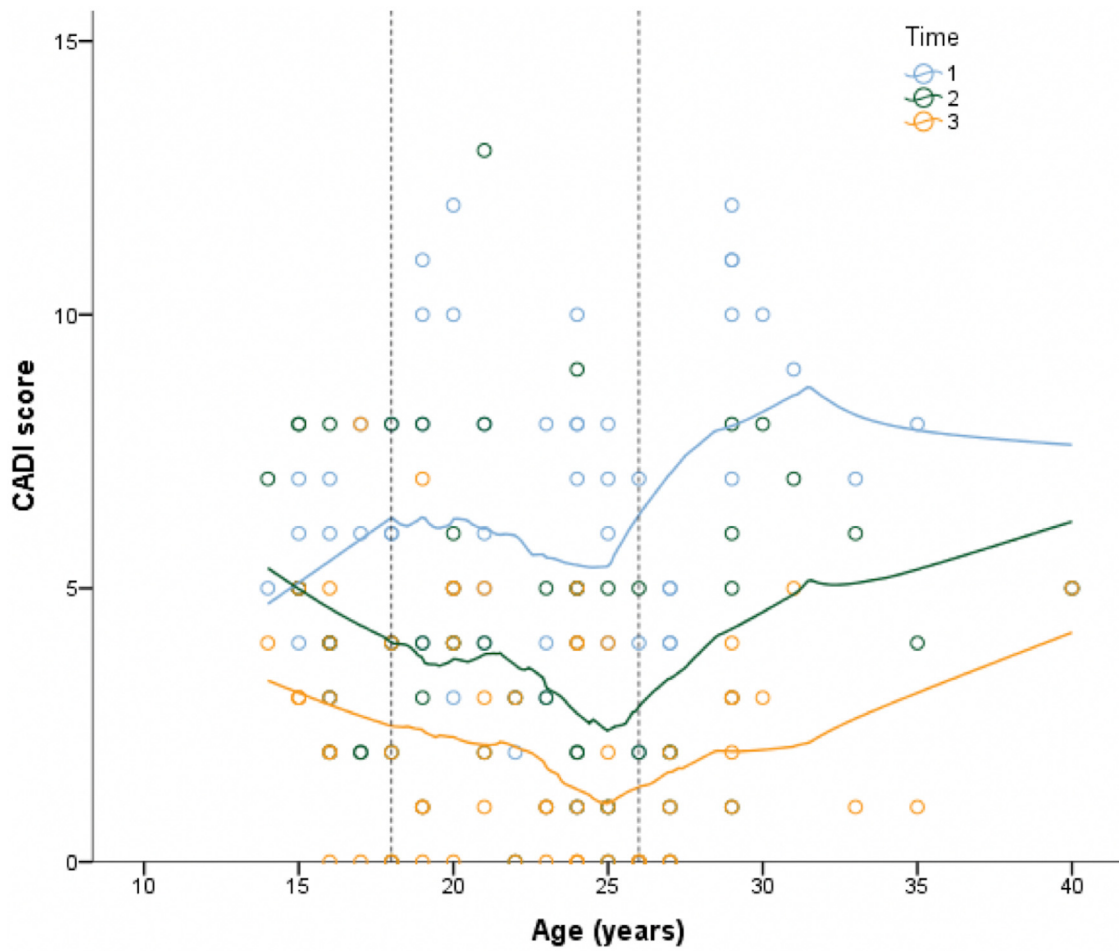
Fig. 2. Graphical representation of the Cardiff Acne Disability Index using locally weighted regression.
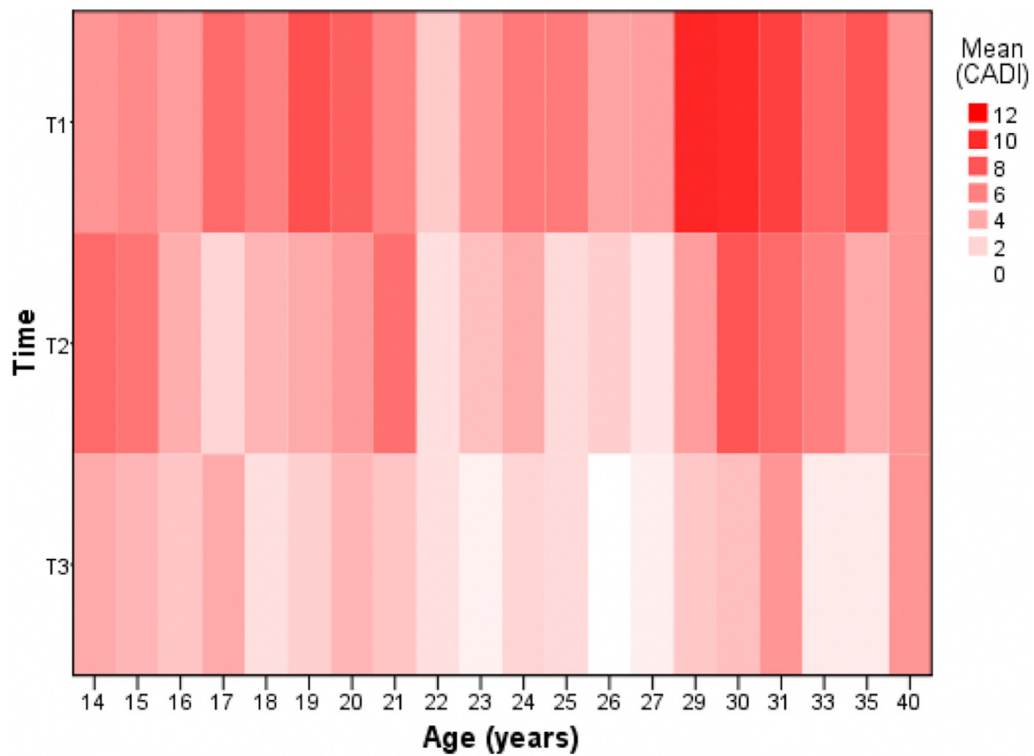

Fig. 3. Heatmap showing time-by-age interaction with color intensity proportional to Cardiff Acne Disability Index score level.

Table 2
Variations of CADI, DLQI, and RSES scores during follow-up

Variable	Antibiotic group (N = 34)	Isotretinoin group(N = 28)
CADI score*		
At T1	6.0 ± 2.5	6.6 ± 2.8
At T2	4.4 ± 3.0	3.5 ± 2.4
At T3	2.4 ± 2.1	2.0 ± 2.0
DLQI score†		
At T1	6.1 ± 4.6	7.3 ± 5.4
At T2	4.5 ± 3.6	3.7 ± 3.1
At T3	2.1 ± 2.0	2.5 ± 3.1
RSES score‡		
At T1	23.1 ± 4.9	21.1 ± 5.6
At T2	24.1 ± 5.5	22.5 ± 4.1
At T3	24.9 ± 5.0	24.9 ± 4.5
Ordinal DLQI (effect on QoL) at T2, n (%)		
No effect at all	7 (20.6)	6 (21.4)
Small effect	19 (55.9)	18 (64.3)
Moderate effect	4 (11.8)	2 (7.1)
Very large effect	4 (11.8)	2 (7.1)
Ordinal DLQI (effect on quality of life) at T3, n (%)		
No effect at all	15 (44.1)	13 (46.4)
Small effect	17 (50.0)	11 (39.3)
Moderate effect	2 (5.9)	3 (10.7)
Very large effect	0 (0)	1(3.6)
DLQI domains§ at T2		
Feelings	2.53 ± 1.82	2.07 ± 1.88
Activities	1.62 ± 1.84	0.80 ± 1.74
Leisure	0.96 ± 1.25	1.13 ± 1.85
Work	1.01 ± 2.12	0.40 ± 2.00
Relationships	1.11 ± 1.36	0.73 ± 1.28
Treatment	1.82 ± 2.22	2.80 ± 2.99
DLQI domains§ at T3		
Feelings	1.13 ± 1.25	1.60 ± 1.89
Activities	0.54 ± 1.17	0.40 ± 0.87
Leisure	0.54 ± 0.90	0.53 ± 2.03
Work	0.22 ± 0.83	0.53 ±2.08
Relationships	0.38 ± 0.83	0.27 ± 0.62
Treatment	0.75 ± 1.66	1.87 ± 2.56

CADI, Cardiff Acne Disability index; DLQI, Dermatology Life Quality Index; QoL, quality of life; RSES, Rosenberg Self-esteem Scale; T1, baseline; T2, mid-treatment time; T3, end of treatment
All data are expressed as mean ± standard deviation, unless otherwise indicated.
* DLQI score varies from 0 to 30, with 0 the less and 30 the most affected.
† CADI score varies from 0 to 15, with 0 the less and 15 the most affected.
‡ RSES score varies from 0 to 30, with 0 the lowest and 30 the best self-esteem.
§ For each DLQI domain, with the exception of work and treatment, the maximum score is 6. For work and treatment, the maximum score is 3.

isotretinoin and nonisotretinoin-based treatment regiments have similar efficacy on acne severity.

Seventy-nine percent of included patients in our study were female. This proportion is representative of the gender repartition for patients with acne at our clinical practice. This disparity was also found in a survey evaluating acne-related problems in the Middle East, conducted by dermatologists from Kuwait, Lebanon, Saudi Arabia, and the United Arab Emirates, which displayed a gender repartition among presenting patients similar to that found in our study (81.4% vs 18.6%; Abanmi et al., 2019). This epidemiological finding was also highlighted in a study conducted in Turkey (70.1% vs 29.9%; Gokalp et al., 2017). Moreover, based on other studies and similar to other dermatological diseases, female patients who present with acne have a higher tendency to report feelings of embarrassment and psychological impact related to their skin conditions (Wu et al., 2019). Therefore, although acne concerns both sexes, the proportion of women and men in our study could be related to a higher impact of this disease in the female population, leading to a higher disturbance in QoL which, in turn, leads to a higher rate of medical advice and consultation.

In multivariate data analysis, we observed that the 25- to 40-year-old individuals were more negatively affected by acne than 15- to 25-year-old individuals in both groups. Furthermore, in 25- to 40-year-old patients, QoL and self-esteem were improved to a

greater extent at T2 and T3. This difference may be linked to several factors. Older patients with acne usually have had chronic untreated acne since adolescence, and demographic studies have shown that those with acne >10 years are the most affected (Tan et al., 2008). The comparison of QoL between teenagers with and without acne did not show any significant difference in some studies, despite score changes found in both groups. The authors described these patients as "victims of their body's inadequacy" (Unal et al., 2016). Furthermore, adolescents are usually not well informed about the cause, consequences, and therapeutic possibilities of their condition (El-Khateeb et al., 2014). Some people consider acne a transient disease or find it a normal situation resulting from the multiple physiological transformations that occur during adolescence; this is the case for Egyptians and Saudis, who seem not to be aware of a problem, based on epidemiologic and demographic studies (Al-Natour, 2017; El-Khateeb et al., 2014).

We also found that women age 25 to 40 years had the best benefit of treatment. Indeed, their CADI scores improved more than younger patients. Similar results were also described in other studies. In a study of 862 patients, the most severe acne was found in young male patients who had the problem from 1 to 5 years. However, older women who had acne for >5 years were the most affected in terms of QoL (Tan et al., 2008).

Table 3

MANCOVA model using the CADI, DLQI, and RSES scores as dependent variables, time (T1, T2, and T3) as a within-subject factor, treatment group (antibiotherapy vs. isotretinoin) as the between-subject factor, adjusting for age and severity of acne as covariates

MANCOVA model Wilks' Lambda			
Effect	p-value	Partial eta²	Observed power
Between subjects			
Intercept	.000	.750	1.000
Age	.752	.021	.125
GAGS	.323	.061	.302
Group	.593	.034	.175
Group–age	.670	.028	.149
Within subjects			
Time	.155	.159	.575
Time–age	*.028*	**.231**	***.808***
Time–GAGS	.576	.084	.287
Time–group	.711	.067	.226
Time–group–age	.757	.061	.206
Post-MANCOVA *F* tests Source: Time–age			
Measure	p-value	Partial eta²	Observed power
CADI*	.030	.060	.659
DLQI†	.738	.005	.098
RSES‡	.558	.010	.145

GAGS, Global Acne Grading System; CADI, Cardiff Acne Disability index; Df: Degrees of freedom; DLQI, Dermatology Life Quality Index; MANCOVA, multiple analysis of covariance; RSES, Rosenberg Self-esteem Scale; T1, baseline; T2, mid-treatment time; T3, end of treatment

Post-MANCOVA *F* tests are shown for CADI score. Partial eta² is an estimation of effect size.

  * DLQI score varies from 0 to 30, with 0 the less and 30 the most affected.

  † CADI score varies from 0 to 15, with 0 the less and 15 the most affected.

  ‡ RSES score varies from 0 to 30, with 0 the lowest and 30 the best self-esteem.

Table 4

Subanalysis performed on female participants (79% of sample) using a MANCOVA model with CADI, DLQI, and RSES scores as dependent variables, time (T1, T2, and T3) as a within-subject factor, treatment group (oral antibiotherapy + topical treatments vs. isotretinoin) as the between-subject factor, adjusting for age and severity of acne as covariates

MANCOVA model Wilks' Lambda			
Effect	p-value	Partial eta²	Observed power
Between subjects			
Intercept	.000	.692	1.000
Age	.770	.026	.118
GAGS	.387	.069	.261
Group	.690	.034	.141
Group–age	.666	.036	.149
Within subjects			
Time	.034	.283	.783
Time–age	*.012*	**.328**	***.875***
Time–GAGS	.558	.113	.286
Time–group	.421	.137	.356
Time–group–age	.471	.128	.329
Post-MANCOVA *F* tests Source: Time–age			
Measure	p-value	Partial eta²	Observed power
CADI*	.066	.060	.539
DLQI†	.296	.027	.263
RSES‡	.260	.030	.287
Source: Time–group			
Measure	p-value	Partial eta²	Observed power
CADI*	.051	.065	.580
DLQI†	.995	.000	.051
RSES‡	.938	.001	.059

CADI, Cardiff Acne Disability index; Df: Degrees of freedom; DLQI, Dermatology Life Quality Index; MANCOVA, multiple analysis of covariance; RSES, Rosenberg Self-esteem Scale; T1, baseline; T2, mid-treatment time; T3, end of treatment

Post-MANCOVA *F* tests for specific interaction terms are shown. Partial eta² is an estimation of effect size.

  * DLQI score varies from 0 to 30, with 0 the less and 30 the most affected.

  † CADI score varies from 0 to 15, with 0 the less and 15 the most affected.

  ‡ RSES score varies from 0 to 30, with 0 the lowest and 30 the best self-esteem.

A 2011 cross-sectional study using the CADI to determine the impact of acne and its clinical severity on health-related QoL among 510 patients attending a private dermatology clinic in Erbil City, Iraq, established different factors that can modulate the impact of acne on QoL. Patients between 21 and 25 years of age seemed to be the most negatively affected by acne. This was attributed to maturity, the absence of organic dangerous diseases in this healthy age group, and the attention given to skin imperfections. This age category was also concerned by engagements, weddings, and developing a family in this city. The article mentioned the apprehension of women toward relationships because of their acne (Ismail and Mohammed-Ali, 2012).

Cultural background seems to be a capital factor in the perception of this apparent disease. This reminds us of the Lebanese culture, which shares the same commitment issues and social condemnation of single women's life. In the Middle East, a great challenge exists in conjugality due to the peer pressure of a society that condemns single adult women and highly values beauty traits. Thus, Middle Eastern women, and particularly Lebanese women, resort to esthetic procedures and plastic surgery in response to the beauty ideals promoted by their society (Ismail and Mohammed-Ali, 2012). The impact of an apparent disease such as acne is particularly interesting in the Lebanese population due to the importance given to physical appearance. An article in *The New York Times* mentioned in 2016 that "Beirut, in the words of one designer, is like a third world city that's put on some makeup" (Lollini, 2019).

Although Lebanese women put a high value on their career development and education, they put a greater priority on marriage and motherhood because this corresponds with their family's expectations (Lollini, 2019). From this perspective, treating acne in this specific population is not only curing a common chronic dermatosis but also helping to solve a social problem that is particularly inherent to women of this society.

Because Lebanon is well known for the diversity of its population in terms of denominations, beliefs, and lifestyle, it would be interesting to know if factors such as religion or dressing habits (e.g., wearing a Hijab) have an impact on the results. However, the only information we were able to access was that 66% of patients were Christian and 33% were Muslim. We could not record the proportion of covered women. Of note, recording this information during data collection in Lebanon is discriminatory and could be a source of conflict, which would not be approved by the national ethical committee, even for scientific ends. At the Hôtel-Dieu de France University Hospital, patients are at the center of care, which means care is provided without discrimination on the basis of race, sex, religion, sexual orientation, or financial resources within the framework of laws and regulations applicable within the Lebanese state.

In some countries where women have more of a tendency to wear a Hijab, QoL related to acne seems to be more affected than in countries where the majority of women do not cover specific parts of their body. In studies from Iran, the mean CADI score was 5.97 (Safizadeh, 2012), but in Scotland and Hong Kong, the mean CADI scores were 1.9 and 2.56, respectively (Law et al., 2010; Walker et al., 2006). However, a European study assessing the impact of acne on Italian, German, and British patients showed that participants reported self-confidence issues. Because of their dermatologic condition, patients felt that they were viewed in a neg-

ative way and judged on the basis of their acne (Fabbrocini et al., 2018). In Egypt, the QoL of male patients with acne was shown to be more impaired compared with female patients (Abdel-Hafez et al., 2009). This discrepancy in the impact of the disease has been linked to the tendency of women to cover their faces most of the time and the high proportion of women whose main occupation is running their family's home and managing household affairs (i.e., housewives). Egyptian women may be less exposed than men to social embarrassment (Abdel-Hafez et al., 2009).

In Lebanon, women with dermatological problems, such as acne, could experience an impact on their QoL as a hindrance to social blooming. In ethnographic research conducted in July and August 2016 in Beirut, the author talks about the interconnected and highly visual upper–middle- and upper-class society, where women feel the need to compete by showcasing their beauty and enhancing their social prestige (Lollini, 2019).

Our study has some limitations, including its small sample size, a potential information bias inherent to survey-based research, and its nonrandomized nature. However, randomization was not ethically feasible because several factors, such as previous treatment failure, the severity and duration of the acne, patient preference, and patient concerns about adverse drug effects, influenced the choice of treatment. Nevertheless, the present study is strengthened by the use of well-validated, self-explanatory questionnaires and rigorous statistical methods, as well as by the novelty of its findings, because no previous study has been conducted to quantify the repercussions of acne on QoL and self-esteem in the Lebanese population. This study can consequently provide a roadmap for future studies about QoL of Lebanese patients with acne or other skin diseases.

Conclusion

This prospective cohort study has shown the impact that an apparent disease could have in a country that gives capital importance to appearance. The results also demonstrated the equivalence between oral isotretinoin and oral antibiotics plus topical therapy in improving QoL. However, this does not mean that the treatments have similar efficacy on acne severity. Furthermore, the study revealed the social obstacle that acne creates and its recrudescence in the subgroup of women of childbearing age.

Conflicts of interest

None.

Funding

None.

Study approval

The author(s) confirm that any aspect of the work covered in this manuscript that has involved human patients has been conducted with the ethical approval of all relevant bodies.

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