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ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

Assessment of quality of life in patients with acne vulgaris in Greece

OBJECTIVE To assess the quality of life (QoL) and its determinants, in patients with acne vulgaris in Greece. Moreover to investigate the correlation of the degree of disability with the severity of the acne, and identify the factors that exert an adverse effect on QoL. **METHOD** A cross-sectional questionnaire-based study was conducted with a cohort of 150 patients with acne vulgaris, aged 16–30 years, who attended the Outpatient Dermatology Department of the “Evangelismos-Ophthalmiatrio-Polyclinic” General Hospital of Athens over a period of six months. QoL was assessed by the Dermatology Life Quality Index (DLQI) and the Cardiff Acne Disability Index (CADI). The severity of the acne vulgaris was determined using the Leeds scale. Correlation analysis was conducted with demographic and clinical variables. All the patients signed an informed consent form for their participation in the study. The Statistical Package for Social Sciences (IBM SPSS), version 21.0 was used for analysis of the data. **RESULTS** Greater severity of acne vulgaris was shown to be associated with worse scores on the QoL scale. The QoL of women was more severely affected compared the QoL of the men. A higher educational attainment appeared to be associated with worse QoL of patients with acne. Longer duration and greater severity of the disease was associated with worse scores for symptoms and feelings, and with adverse effects on personal relationships. **CONCLUSIONS** Acne vulgaris is a common dermatological disease, occurring mainly in adolescents and young adults. Effective and efficient management of acne vulgaris should take into consideration both the physical and the psychosocial effects of the disease. A comprehensive therapeutic approach to acne vulgaris should address symptoms, QoL impairment and the impact on feelings, personal relationships and leisure time activities, especially for female patients.

Acne vulgaris is a common dermatological disease that occurs mainly in adolescence and young adulthood, and which has both physical and psychosocial adverse effects.¹ Although the pathogenesis of acne vulgaris is complex, specific events have been described that lead to characteristic changes in the pilosebaceous units. These changes are found mainly on the face and upper chest and arms, where the disease is most common. The development of acne vulgaris, or common acne, is based on the four following factors: follicular epidermal hyperproliferation with subsequent plugging of the follicle, excess sebum production, the presence and activity of *Cutibacterium acnes*, and inflammation.²

In 2010, common acne ranked eighth on the list of the most prevalent diseases worldwide.³ In 2019, the global, European and Greek age-standardized incidence rates per

100,000 people were 1.59, 1.94, and 2.67, respectively.⁴ In 2019 it was estimated that acne resulted in a rate of disability-adjusted life years (DALYs) of 65.89 per 100,000 globally, 82.59 in Europe and 113.8 in Greece.⁵ The definition of quality of life (QoL) of the World Health Organization (WHO) is “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”.⁶ In the practice of dermatology several generic and disease-specific tools are used to measure the QoL of patients with skin diseases. Two of the most widely established QoL tools are the Dermatology Life Quality Index (DLQI) and the disease-specific questionnaire, the Cardiff Acne Disability Index (CADI).

This study aimed to shed light on an unexplored area of research, namely, the impact of acne vulgaris on the QoL

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Αξιολόγηση της ποιότητας ζωής των ασθενών με κοινή ακμή στην Ελλάδα

Περίληψη στο τέλος του άρθρου

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of the Greek population. To date, no relevant published evidence is available on populations in Greece.^{7,8} The present study aimed to fill this evidence gap by assessing of the QoL of patients with acne vulgaris and the identification.

MATERIAL AND METHOD

A cross-sectional study was conducted, using two questionnaires, with 150 patients, aged 16–30 years, with diagnosed acne vulgaris, who were attending the Outpatient Department of Dermatology of the “Evangelismos-Ophthalmiatrio-Polyclinic” General Hospital of Athens over a period of six months.

Inclusion criteria were a dermatological diagnosis of acne vulgaris, and the patient’s informed consent.

Exclusion criteria were concomitant psychiatric illness, endocrine disease, medication predisposing to the development of acneform rashes, patients outside the predetermined age range and patients who did not sign the informed consent form. The protocol of the study was submitted and approved by the Scientific Council of the “Evangelismos-Ophthalmiatrio-Polyclinic” General Hospital of Athens.

The Greek language versions of the DLQI and CADI questionnaires were used, after obtaining license from Cardiff University. The severity of the acne vulgaris was determined using the Leeds scale, as mild, moderate, severe, and very severe. The QoL scores on the two questionnaires were correlated with disease severity and demographic parameters. Cronbach’s alpha internal consistency coefficients for the questionnaires were estimated. The Statistical Package for Social Sciences (IBM SPSS), version 21.0 was used for statistical analysis.

RESULTS

Good reliability was demonstrated for both the questionnaires, according to Cronbach’s alpha internal consistency coefficient, which was 0.80 and 0.86 for DLQI and CADI, respectively. Statistically significant correlation was found between the scores on the DLQI and CADI questionnaires (tab. 1).

Table 2 presents the demographic characteristics of the study participants. The mean duration of acne vulgaris was 5 years. Most patients (62%) reported that they visit a dermatologist when they have a skin problem. In terms of disease severity, 38.0% of patients had moderate acne vulgaris, 26.0% severe acne vulgaris, 20.7% mild acne vulgaris, and 15.3% very severe acne vulgaris, as measured by the Leeds scale.

The significant correlations, according to multivariate linear regression analysis, are presented in tables 3 and 4. Females reported worse QoL than men. A higher level of

Table 1. Correlations between the scores of patients with acne vulgaris in the DLQI and CADI questionnaires (n=150).

	CADI	
	Spearman’s correlation coefficient	p value
DLQI	0.70	<0.001
Symptoms and feelings	0.54	<0.001
Daily activities	0.57	<0.001
Leisure	0.56	<0.001
Work and school	0.24	0.003
Personal relationships	0.54	<0.001
Treatment	0.35	<0.001

DLQI: Dermatology Life Quality Index, CADI: Cardiff Acne Disability Index

Table 2. Demographic characteristics of patients with acne vulgaris (n=150).

Characteristics	n	%
<i>Sex</i>		
Female	116	77.3
Male	34	22.7
<i>Age</i>	23.1	5.0
<i>Ethnicity</i>		
Greek	143	95.3
Albanian	4	2.7
Egyptian	1	0.7
Italian	1	0.7
Moroccan	1	0.7
<i>Marital status</i>		
Single/divorced	136	90.7
Married	14	9.3
<i>Occupation</i>		
Students	30	20.0
University students	44	29.3
Self-employed	14	9.3
Public servants	15	10.0
Private employees	43	28.7
Unemployed	4	2.7
<i>Educational level</i>		
Secondary school	7	4.7
Senior high school	30	20.0
IEK	10	6.7
University	89	59.3
MSc/PhD	12/2	8.0/1.3

IEK: Institute for Vocational Training

MSc/PhD: Masters of Sciences/Doctor of Philosophy

education was associated with poorer scores of QoL. Greater severity of acne vulgaris was also associated with poorer QoL. Longer duration and greater severity of acne vulgaris were associated with worse scores for symptoms and feelings. The level of education was negatively associated with worse personal relationships, and the severity of acne vulgaris was associated with poorer personal relationships.

DISCUSSION

A previous Greek study that evaluated the impact of acne vulgaris on the mental health and QoL of children and adolescents, 11–19 years of age, reported findings similar to those of the present study, showing that acne vulgaris has a negative effect on their QoL, with the impact being proportional to disease severity. Severe acne vulgaris was reported to have a greater impact on QoL with detriment

reported in the dimensions of self-esteem, body image and personal relationships. Another Greek study explored the perceptions of Greek high school pupils, aged 13–18 years, about the cause of acne vulgaris and the aggravating factors and their sources of information, and assessed the impact of the condition on their daily life and school performance.⁹ To the knowledge of the authors, based on a thorough assessment of the available literature, the present study is the first in Greece to assess the QoL of both adolescent and adult patients with acne vulgaris in the clinical setting.

In the present study, 62% of the patients reported that they seek dermatological help only when they have a problem. In a study from Italy, only 8% of mothers of children with acne reported that they visit the dermatologist regularly.⁹ A UK study investigating the reasons for teenagers to seek medical help, and the obstacles they face in getting help, concluded that young people often avoid seeking help because of embarrassment, and because they find doctors inaccessible.¹⁰ Other researchers have reported that the effect of acne vulgaris on QoL is a strong prognostic factor for patients seeking dermatological evaluation, regardless of the severity of the disease. Embarrassment, self-awareness, aggression and frustration, difficulties in social and recreational activities, difficulties in personal relationships, and self-assessment of their skin condition were the most important factors influencing the decision of patients to seek treatment from a dermatologist.¹¹ Effective management of the condition requires identification of ways to overcome these obstacles. Timely seeking of care may improve the efficacy of treatment and be instrumental in preventing possible complications, such as the formation of scars.

In the present study, 20.7% of the participants were reported to have mild, 38.0% moderate, 26.0% severe and 15.3% very severe acne vulgaris, according to Leeds grading scale. In the absence of a universally accepted severity classification system for acne vulgaris, it is difficult to compare results from different studies.

Greater severity of acne vulgaris and longer disease duration were associated with worse QoL of our study patients, as assessed by both DLQI and CADi, which is consistent with the findings of other studies.^{10–15}

Another significant finding, consistent with previous reports, is that women recorded worse QoL than men. This finding indicates that the treatment of female acne vulgaris should comprise both symptomatic medical treatment and a comprehensive approach to the psychological needs of the patients.^{16–19}

Table 3. Multivariate linear regression analysis of associations of scores on the Dermatology Life Quality Index (DLQI).

Independent variable	Coefficient b	95% confidence interval for b	p value
<i>Overall score on DLQI</i>			
Women compared to men	2.2	0.3–3.9	0.022
Educational level	0.9	0.2–1.7	0.011
Acne vulgaris severity	1.9	1.1–2.7	<0.001
<i>Symptoms and feelings on DLQI</i>			
Acne vulgaris duration	0.07	0.004–0.13	0.038
Acne vulgaris severity	0.6	0.3–0.8	<0.001
<i>Personal relationships on DLQI</i>			
Educational level	0.3	0.1–0.5	0.002
Acne vulgaris severity	0.3	0.1–0.5	0.001
<i>Leisure score on DLQI</i>			
Educational level	0.3	0.1–0.5	0.002
Acne vulgaris severity	0.3	0.1–0.5	0.001

Table 4. Multivariate linear regression analysis of associations of the overall score on the Cardiff Acne Disability Index (CADi).

Independent variable	Coefficient b	95% confidence interval for b	p value
Women compared to men	1.6	0.6–2.5	0.002
Acne vulgaris severity	1.2	0.8–1.6	<0.001

It was observed that a higher educational level is associated with a greater negative impact on acne-related QoL, leisure activities and personal relationships. Personal relationships also appeared to be adversely affected by disease severity. In a study exploring perceptions about people with acne vulgaris, the respondents reported being more willing to interact socially with people with clear skin than with people with acne vulgaris. A significantly high percentage of respondents were more likely to hire or vote for those without acne vulgaris. People with acne vulgaris were also thought to have a lower education level and poor leadership skills.²⁰ A study conducted in Turkey assessing the sexual QoL of women with acne vulgaris reported significantly worse sexual QoL and significantly lower scores in the items of bodily pain and general perception of health, and for the physical component, independent of disease severity and duration, suggesting that sexual QoL should be always be taken into

consideration when assessing acne vulgaris in women.²¹

This study was subject to some limitations. Firstly, the sample size was relatively small, although it was conducted in the largest hospital in Greece, and hence the study population can be considered sufficiently representative. In addition, no control group was included that would allow comparisons with the QoL of adolescents and adults unaffected by acne vulgaris. Finally, the lack of a widely accepted acne vulgaris classification system makes comparisons with results from other studies difficult.

To conclude, the findings of the present study confirm the hypothesis that acne vulgaris affects the QoL of patients in Greece negatively, especially the women. Increase in information and awareness about acne vulgaris and its causes, and the important role of dermatologists in its management is expected to improve the outcomes and QoL of patients with acne vulgaris.

ΠΕΡΙΛΗΨΗ

Αξιολόγηση της ποιότητας ζωής των ασθενών με κοινή ακμή στην Ελλάδα

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ΣΚΟΠΟΣ Η αξιολόγηση της ποιότητας ζωής ασθενών με κοινή ακμή στην Ελλάδα και των παραγόντων που την επηρεάζουν. Αναλυτικά, παρουσίαση της συσχέτισης του βαθμού αναπηρίας με τη βαρύτητα της νόσου, καθώς και εντοπισμός των παραγόντων που επηρεάζουν δυσμενώς την ποιότητα ζωής των ασθενών. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Πρόκειται για συγχρονική, βασισμένη σε ερωτηματολόγια μελέτη, σε δείγμα 150 ασθενών ηλικίας 16–30 ετών με κοινή ακμή, που απευθύνθηκαν στα εξωτερικά Δερματολογικά Ιατρεία του Γενικού Νοσοκομείου Αθηνών «Ευαγγελισμός-Οφθαλμιατρείο-Πολυκλινική», σε διάστημα 6 μηνών. Η ποιότητα ζωής αξιολογήθηκε με τον δείκτη ποιότητας ζωής στη Δερματολογία και τον δείκτη αναπηρίας ακμής του Cardiff. Διενεργήθηκε ανάλυση συσχέτισης με δημογραφικές και κλινικές μεταβλητές. Η βαρύτητα της ακμής προσδιορίστηκε χρησιμοποιώντας την κλίμακα Leeds. Όλοι οι ασθενείς υπέγραψαν το έντυπο συγκατάθεσης κατόπιν ενημέρωσης για τη συμμετοχή τους στη μελέτη. Εφαρμόστηκε το λογισμικό πρόγραμμα Statistical Package for Social Sciences (IBM SPSS), έκδοση 21.0 για τη στατιστική ανάλυση των δεδομένων της έρευνας. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Η αύξηση της βαρύτητας της κοινής ακμής σχετίστηκε με χειρότερη ποιότητα ζωής. Οι γυναίκες επηρεάζονταν περισσότερο από τους άνδρες. Το υψηλότερο μορφωτικό επίπεδο φάνηκε να σχετίζεται με χειρότερη ποιότητα ζωής. Η μεγαλύτερη διάρκεια και η βαρύτητα της νόσου σχετίστηκαν με χειρότερα συμπτώματα και συναισθήματα και επηρέασαν δυσμενώς τις διαπροσωπικές σχέσεις. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Η κοινή ακμή είναι μια συνήθης δερματολογική νόσος, η οποία εμφανίζεται κυρίως στην εφηβική και στη νεαρή ενήλικη ζωή. Οι σωματικές και οι ψυχοκοινωνικές επιπτώσεις της κοινής ακμής θα πρέπει να λαμβάνονται υπ' όψιν για την αποτελεσματική αντιμετώπισή της. Η ολοκληρωμένη θεραπευτική προσέγγιση θα πρέπει να συμμερίζεται τα συμπτώματα των ασθενών, την έκπτωση στην ποιότητα ζωής τους, καθώς και τον αντίκτυπο στις διαπροσωπικές σχέσεις, στον ελεύθερο χρόνο και στα συναισθήματά τους, ειδικά για τις γυναίκες.

Λέξεις ευρετηρίου: Κοινή ακμή, Ποιότητα ζωής

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