Investigation of quality of life scale and clinical severity of acne vulgaris patients who applied to dermatology outpatient clinic

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Abstract

Aim: Acne Vulgaris is a skin disease characterized by acne and blackheads that appear on the face, chest, and back. This study, it was aimed to evaluate the life quality and determine the clinical severity of patients with acne vulgaris who applied to the dermatology outpatient clinic of our university.

Materials and Methods: The study was conducted prospectively between January 01, 2022, and March 31, 2022. Seventy-one patients and 90 healthy volunteers who applied to the dermatology outpatient clinic were included. When the responses to the quality of life score were compared, the difference between the patient group and the control group was statistically significant.

Results: Our study showed that acne vulgaris has negative effects on quality of life. In our study, we found that 40.8% of patients had a medium to high acne vulgaris score. When comparing the total responses to nine questions, the patient group had a score of 17.14 ± 6.53, while the control group had a score of 13.96 ± 5.22 ($p<0.001$).

Conclusion: Acne vulgaris, which affects a person's appearance, not only physically but also has negative effects on their quality of life, can also cause psychological problems. In addition to measuring the clinical severity of acne, it may be useful to use quality-of-life scales when evaluating patients with acne.

Introduction

Acne vulgaris is the most common skin condition, especially among adolescents. However, it can occur in people of any age and affects both males and females equally [1]. Acne vulgaris can have a significant impact on a person's quality of life, especially when it is severe or persistent. Acne vulgaris can cause physical discomfort, pain, and scarring, as well as emotional and psychological distress, such as low self-esteem, social withdrawal, anxiety, and depression. The visible appearance of acne vulgaris lesions can lead to negative perceptions by others, including discrimination, ridicule, and bullying, which can further impact an individual's mental health and well-being. People with acne vulgaris may also feel stigmatized and ashamed of their skin condition, which can affect their relationships and professional life [2]. Effective treatment of acne vulgaris can improve the physical appearance of the skin and reduce the psychological burden of the condition, leading to better self-esteem and overall quality of life [3,4]. This study, it was aimed to evaluate the life quality and determine the clinical severity of patients with acne vulgaris who applied to the dermatology outpatient clinic of our university.

Materials and Methods

The study was prospectively conducted between January 01, 2022 and March 31, 2022, including patients over the age of 18 who applied to our university dermatology outpatient clinic and were clinically diagnosed with acne vulgaris. Ethical approval was obtained for study from Bezmialem Vakif University (date: 26.04.2022, number: 09). Those who did not give consent to participate in the study, those under the age of 18, those with psychiatric illness, those who had incomplete forms, and those with missing data were excluded from the study. The acne vulgaris quality of life scale developed by Gupta et al. was used. This scale contained a total of 9 questions [5]. These questions were related to feeling uncomfortable in front of others, decrease in socialization, difficulties in relationships with spouse or boyfriend/girlfriend, difficulties in relationships with close friends, difficulties in family relationships, feeling excluded, being ridiculed, being rejected in romantic relationships, and being rejected by friends.

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A four-point rating scale was used for the answers to the questions. For each situation, only one appropriate number is marked. Never (1), a little (2), moderately (3), and very much (4). The total score is a maximum of 36 and a minimum of 9. A high total score indicates low quality of life. Disease severity was calculated using the Global Acne vulgaris Scoring System. In this scoring system, the face and upper part of the chest/back are divided into six parts (forehead / cheeks - 2 point, nose / chin - 1 point, chest / upper back – 3 point). Acne vulgaris lesions were also graded from 0 to 4 according to their types (no lesions - 0 point , ≥ 1 comedone -1 point, ≥ 1 papule - 2 point, ≥ 1 pustule - 3 point, ≥ 1 nodule - 4 point). After each region is evaluated separately and a score is determined for each region by multiplying the coefficient of that region by the score obtained according to the most severe lesion type in that region, the global acne vulgaris score is calculated by adding the scores of the six regions. The total score ranges from 0 to 44, and acne vulgaris severity is determined according to the global acne vulgaris score (0 point- no, 1-18 point - mild, 19-30 point - moderate, 31-38 point - severe, >39 point - very severe). The gender, duration, localization, type of acne vulgaris, and "global acne vulgaris scores" of the patients and control group were recorded. The data collected from the patients were recorded in the prepared patient follow-up form. Pearson's correlation analysis was used for the internal consistency of the scale. The quality of life of the patients will be determined using the acne vulgaris quality of life scale and compared with the control group.

Sampling status of the study

The haphazard sampling method was used in patient selection. It was calculated using the Raosoft sample size calculator, keeping a 5% margin of error, a 95% confidence interval, and a 50% response distribution. At least 158 patients were required for the study (http://www.raosoft.com/samplesize.html).

Endpoints

The primary output related to acne vulgaris and quality of life would typically be assessing how the condition affects an individual's well-being and overall life satisfaction. The primary endpoint of this study, which investigated the effect of acne vulgaris on quality of life, was that it had a negative impact on the quality of life in individuals with a high acne severity score. This output can be obtained through various standardized tools and questionnaires designed to measure the impact of acne on a person's quality of life. One commonly used questionnaire in acne research is the acne vulgaris quality of life scale developed by Gupta.

Statistical analysis

The behavior of quantitative variables was indicated using measures of central tendency and variance: Mean $\pm$ SS. Chi-square test was used to determine differences in proportions or relationships between categorical variables. Mann-Whitney-U Test method was used to show behavioral differences of group means in cases of normality and

homogeneity assumptions. Statistical significance was set at p = 0.05 for all cases. Statistical analyses were conducted using the IBM Statistical Package for the Social Sciences Version (SPSS V21.0, NY.) package program.

Chi-Square Test: The Chi-Square Test is a statistical test used to examine the association between two categorical variables. In acne vulgaris research, it could be used to analyze data related to the severity of acne and its association with certain categorical factors like gender, age group, ethnicity, or treatment type. Researchers might use a Chi-Square Test to investigate if there is a significant relationship between the severity of acne (categorized as mild, moderate, or severe). Mann-Whitney U Test is a non-parametric test used to compare two independent groups when the data are not normally distributed or when the assumptions of a t-test are not met. It is particularly useful when dealing with ordinal or ranked data. In acne vulgaris research, the Mann-Whitney U Test could be applied to compare the median improvement in acne severity between two independent groups.

Qualitative data: Qualitative data provides in-depth insights into individuals' experiences, perspectives, and emotions related to acne vulgaris and its impact on their quality of life (open-ended survey questions). Direct quotes from participants describe how acne affects their daily activities, self-esteem, and relationships. Thematic analysis of participants' narratives to identify common patterns or themes related to the psychosocial impact of acne. Descriptions of coping mechanisms and strategies used by individuals to manage the emotional and social challenges of living with acne.

Quantitative data: Quantitative data involves numerical measurements and statistical analysis to provide a more structured and objective understanding of the prevalence and severity of acne and its effects on quality of life. This data is often collected through standardized questionnaires and scales (Global Acne vulgaris Scoring System).

Results

A total of 161 individuals were evaluated, 71 (44.1%) in the patient group and 90 (55.9%) in the control group. 24 (33.8%) of the patients were male and 47 (66.2%) were female. In the control group, 29 (32.2%) were male and 61 (67.8%) were female (p=0.966). The average age of the patients was 21.8 $\pm$ 3.9, while that of the control group was

Table 1. Demographic data of patient and control groups.

		Patient (n=71)	Control (n=90)	P value
Gender	Male	24 (33.8%)	29 (32.2%)	0.966
	Female	47 (66.2%)	61 (67.8%)	
Education	Elementary-High school	31 (43.7%)	27 (30.0%)	0.104
	University- postgraduate	40 (56.3%)	63 (70.0%)	
Marital status	Married	54 (76.1%)	62 (68.9%)	0.407
	Single	17 (23.9%)	28 (31.1%)	
Occupation	Employed	18 (25.4%)	4 (4.4%)	<0.001
	Unemployed	11 (15.5%)	49 (54.4%)	
	Student	42 (59.2%)	37 (41.1%)	

Table 2. Acne vulgaris information.

		n(%)
Disease duration	1-3 years	26 (37.1)
	More than 3 years	28 (40.0)
	Less than 1 years	16 (22.9)
Localization	Other	2 (2.8)
	Body	1 (1.4)
	Face	54 (76.1)
	Face-body	14 (19.7)
Acne vulgaris type	Comedonal	3 (4.2)
	Mild	39 (54.9)
	Moderate	28 (39.4)
	Nodular	1 (1.4)
Global acne vulgaris score	Mild	42 (59.2)
	Moderate	26 (36.6)
	Severity	3 (4.2%)

Table 3. Acne vulgaris Quality of Life Scale.

Questions	Patient group	Control group	p value
Feeling uncomfortable in front of others	2.8 ± 0.98	1.77 ± 0.77	<0.001
Decreased socializing with others	2.25 ± 1.09	1.73 ± 0.95	0.002
Difficulties in relationships with spouse/partner/boyfriend/girlfriend	1.94 ± 0.97	1.49 ± 0.71	0.002
Difficulties in relationships with close friends	1.69 ± 0.93	1.36 ± 0.68	0.014
Difficulties in relationships with close family members	1.82 ± 0.98	1.46 ± 0.82	0.007
Feeling excluded due to appearance of pimples	2.01 ± 1.06	1.6 ± 0.83	0.011
Being teased about appearance	1.61 ± 0.82	1.69 ± 0.91	0.641
Feeling rejected in a romantic relationship due to appearance of pimples	1.63 ± 0.97	1.56 ± 0.9	0.684
Feeling rejected by friends due to appearance of pimples	1.38 ± 0.85	1.32 ± 0.73	0.914

23.1 ± 8.1. There were 31 (43.7%) individuals with education up to primary-secondary-high school level, and 40 (56.3%) individuals at university or graduate level among the patients. In the control group, these ratios were 27 (30%) and 63 (70%), respectively (p=0.104). 54 (76.1%) of the patients were married, while 17 (23.9%) were single or alone. In the control group, these ratios were 62 (68.9%) and 28 (31.1%), respectively (p=0.407). Of the patients, 18 (24.4%) had a profession, 11 (15.5%) were unemployed, and 42 (59.2%) were students. In the control group, these ratios were 4 (4.4%), 49 (54.4%), and 37 (41.1%), respectively (p<0.001). In terms of disease duration, there were 16 (22.9%) individuals with duration of less than one year, 26 (37.1%) individuals with a duration of 1-3 years, and 28 (40%) individuals with a duration of more than 3 years. The acne vulgaris localization was on the face in 54 (76.1%) patients, on the face-body in 14

(19.7%) patients, and on the body in one (1.4%) patient. The type of acne vulgaris was comedonal in 3 (4.2%), mild in 39 (54.9%), severe in 28 (39.4%), and nodular in one individual. Among the patients, 42 (59.2%) had a mild global acne vulgaris score, 26 (36.6%) had a moderate score, and three (4.2%) had a severe score (Table 1, 2). The responses to the nine questions in the acne vulgaris quality of life scale and comparisons between the groups are presented in Table 3. When comparing the total responses to nine questions, the patient group had a score of 17.14 ± 6.53, while the control group had a score of 13.96 ± 5.22 (p<0.001).

Discussion

Acne vulgaris, which affects a person's appearance, not only physically but also has negative effects on their quality of life, can also cause psychological problems. Our study showed that acne vulgaris has negative effects on quality of life. When the responses to the quality of life score were compared, the difference between the patient group and the control group was statistically significant. When we looked at the effects of gender, education, and marital status, we did not obtain statistically significant results, but it was significant when compared to the control group of students and those who are employed. This can be explained by stress being one of the etiological factors in acne vulgaris formation [6]. 40% of our patients had a disease duration of more than three years. As the duration of the disease increases, the increasing stress in individuals may have affected their social lives. In our study, we found that 40.8% of patients had a medium to high Global acne vulgaris score. Chiu et al. showed that high acne vulgaris severity was significantly associated with increasing levels of stress [7]. Yosipovitch et al. conducted studies showing a statistically significant relationship between stress levels and acne vulgaris severity [8]. Patients can obtain a score between 0 and 44 on the Global acne vulgaris score [9]. Previous studies have shown that acne vulgaris affects social life and causes limitations in people's lives [10]. Stress is often seen on acne vulgaris on the forehead, nose, and chin, which are oilier areas of the face [11]. In our patients, the localization of acne vulgaris was 76.1% on the face. Studies have shown that it is over 90% on the face [12]. Without a doubt, the face is the most important area for appearance. Seeing a person's skin healthy can contribute to their self-confidence and help them communicate more quickly with others [13]. Acne vulgaris, which affects approximately 9% of the population and about 85% of young people aged 12-24, can negatively affect self-image with its physical and psychological effects. Being healthy not only physically but also psychologically is important. Acne vulgaris, which is a factor that affects people's social lives, is a disease that needs to be taken seriously. Such studies are important in demonstrating the problems that acne vulgaris can cause in individuals.

Ethical approval

Ethical approval was obtained for this study from Bezmialem Vakif University (date: 26.04.2022, number: 09).

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