



Original Article

Assessment of Quality of Life in Patients with Acne and its Relationship with theirs Some Demographic Factors

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Introduction: Acne is the most common skin disease which affects nearly 80% of people in the periods of life. Acne, as an inflammatory skin disease that has the ability to create problems and various psychological effects, will have a negative impact on the patients' quality of life. **Methodology:** This cross-sectional study was conducted on patients with acne referred to Imam Khomeini Hospital in Ahvaz. 160 patients with acne completed Dermatology Life Quality Index (DLQI) standard questionnaire. To analyze the data, independent t-test and ANOVA as well as Mann-Whitney test and Spearman correlation coefficient were used. All analyzes were performed by using SPSS version 20. **Results:** Acne has high and very high impact on the quality of life in 45.6 percent of patients. With increasing age, effect of acne on quality of life is reduced. The average and standard deviation of quality of life score in patients with guidance level and lower and also high school diploma and bachelor's and master's degree and higher were not statistically significant. With increased severity of acne, its impact on quality of life becomes more and this relationship was statistically significant. Acne has a greater impact on the quality of married life, and this difference was statistically significant as well. **Conclusion:** Acne had the greatest impact on life quality of people aged 16 to 25 years old, married, and employed with severe acne severity that acne also affects the body, in addition to face. So, they can be considered as high risk groups who need to faster treatment and psychiatric consultation along with treatment of disease. Timely diagnosis and treatment of acne by physicians and dermatologists can be an important factor in reducing mental disorders and subsequently improving the quality of life in people with acne. **Keywords:** Acne. Quality of life. Demographic characteristics

1. INTRODUCTION

Acne or pimples of acne is a chronic inflammatory skin disease that mainly occurs in the second and third decades of

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life and the most common places of its development are on the face and back waist, and sometimes in the chest, arms or other parts of the body¹.

Increased secretion of sebum, along with the proliferation of bacteria are effective in acne develop²⁻⁴. Acne involves to 85 percent of adolescents 11-30 years on average⁵. The average age of onset of acne in teen girls is 12-15 and in boys is 16-18 and will continue in 10 percent of people to age 40¹. Most patients believe in the effectiveness of psychological stresses on the cause or aggravate acne^{6, 7}. Few empirical studies have examined the effect of stress on acne. Several cases of recurrence of acne have also been reported in young women following stress due to the marriage and marital⁸.

Although acne is a self-limiting disease, it is very important in human life given that involves the face and the effects of these skin lesions can remain on the skin for years and even for a lifetime and can have a considerable effect on the individual, especially at an age when existence of self-confidence and social abilities is very important. So, many patients will have low self-confidence and difficulty in communicating⁹.

Skin diseases affect various aspects of life of patients. Experience of severe symptoms, especially itching, feeling of discomfort and subsequent mental problems are among the cases which skin patients are grappling and thus, the usual aspects of life and social activities may be affected. Assessing the quality of life in skin patients is very important, because skin diseases change and affect the patient's appearance¹⁰.

Acne afflicts 85% of adolescents and young people¹¹. Physical, emotional and social activity significantly develops in these ages and therefore, mental health problems followed the incidence of skin disease, such as acne reflect. Unlike other skin diseases which are often located in areas that are covered by clothing, acne is quite obvious, and personal and social understanding of acne affects the mentioned stage¹². It was found that patients with more severe degrees of acne are angry before others which can have a great impact on the quality of life in one hand and treatment satisfaction on the other hand. In people who failed to have high confidence and good mental image of their own in childhood, acne in puberty vulnerability period can create a severe blow to the individual¹³.

Quality of life as pleasure and life satisfaction index is of interest to many researchers. In 2005, in a cross-sectional study examined the effects of acne on life quality of the African youths by Mosam et al, they came to the conclusion that patients with Acne Vulgaris significantly suffer from psychological pressures¹⁴. In a study conducted by Gurel MS on 200 skin patients with QOL questionnaire in 2005, the impacts of skin diseases on quality of life were evaluated and a significant relationship between anxiety and depression and acne on the subjects was obtained. In this

study, hives and acne were diseases that had the highest percentage of mental effects in the community¹⁵.

In 2006, Purves D et al in a cross-sectional study in New Zealand concluded that occurrence of acne will strengthen the anxiety of depression and suicidal thoughts in people. Also, it has been shown that patients' perception of themselves is more important than the clinical assessment of acne in the expression of their psychosocial problems¹⁶.

In a study conducted on students in Scotland in 2006, social and communicative relations of 20% of the subjects were affected and smaller number also refused from swimming and sport due to acne and even their school activities were impressed. The lowest scores in the questionnaire of this study was related to participate in sports activities¹⁷.

Using a cross-sectional study on middle and high school students in Qazvin in 2009, Dr. AkramBeheshti and Dr. AmenehBarikan through two DLQI and CADI questionnaires achieved to the findings that 31.2 percent had high and very high level of aggression due to acne. 13.7 percent experienced problems in social activities due to acne. 30.8 percent stated that they felt depressed because of their skin appearance. There was a significant relationship between the level of parental education and quality of life in students with acne ($P= 0.001$). The findings of this study showed that there is a significant relationship between the severity of acne and quality of life. Existence of acne can affect various aspects of life of patients in varying degrees, so that the individuals are affected by the disease in social-educational-recreational activities as well as mental aspects¹⁸.

In 2008, a descriptive cross sectional study entitled effects of acne on life quality of students in Bandar Abbas University of Medical Sciences was conducted by Dr. ShahramBaghestani et al. In this study, 118 students with acne completed questionnaire special to assess the quality of life of patients with acne (Acne-QOL). The results were in this way that the disease had mild effect on quality of their lives in 54.04% of the studied students. Average scores of Acne-QOL in three areas of self-perception, the role of society and the role of emotions were more among men than the women. The severity of the acne symptom expression among studied women was more than the men. 14 cases (7.45%) of students had severe acne. The severity of acne had a significant effect on quality of life ($P < 0.05$). They concluded that women seem more vulnerable than the men to psychological effects of acne¹⁹.

Acne, as a skin disease that has the ability to create problems and various psychological effects, will have a negative impact on the life quality of patients. Severity, duration and scarring associated with social and individual understanding, and personality characteristics will affect the life quality of patients.

In general, complications and problems that have been reported following the acne include depression, social phobia, anxiety disorders, low self-confidence, reduced

social functioning and quality of life^{20, 21}. Measurement of quality of life and patients' perception of themselves by proper tools will notify the physicians to patients' psychological stress associated with acne which can have a significant impact on relationships between physicians and patients to access the required information. As well as, available information indicates that the psychological effects and complications of acne are reversible. Quick and serious treatments will lead to a reduction of the mentioned complications^{22, 23}.

Studies on the quality of life in patients with acne have been done in Iran, but its exact assessing with some demographic factors has not been dealt. Awareness of these factors can be the basis for further studies in the treatment of patients with acne. In addition, none of previous studies in Iran have been conducted clinically and a limited age range with the nearly same education level were considered as the study group which do not provide the possibility of right comparison and assessing. But this study is a clinical study and the patients referred to the clinic with a wider age range with very different levels of education are used as case study.

According to the above mentioned and necessary for more quickly treatments, we decided to examine the quality of life in patients with acne and its relationship with some demographic characteristics of them.

2. METHODOLOGY

This is a descriptive-analytical epidemiological study. In this study, 160 patients with acne at ages more than 16 years, referred to dermatology clinic of Imam Khomeini (RA) Hospital in Ahvaz were examined. People with other skin diseases associated with acne who have been diagnosed by dermatologist of the clinic, as well as people with history of other physical diseases (such as diabetes, asthma, epilepsy, back pain, arthritis, etc.) that asked from the patient's history were excluded from the study. People with acute psychosis, mental retardation, cognitive disorders, dementia and psychosis and illiterate ones who were able to understand and answer the questionnaire were excluded from study. In this study, Dermatology Life Quality Index (DLQI) standard questionnaire and a form of demographic data including age, gender, education level, employment status, marital status, place of acne, severity of acne, and duration of treatment were used. Based on criteria of Lehman, acne severity is divided into three categories: mild, moderate and severe. Mild acne with comedones and a few number of papules but without nodules and mild pustules, acne with comedones, papules and pustules but without moderate nodules and acne with comedones, papules, pustules and severe nodules were divided. The data collection tool was DLQI questionnaire. This questionnaire is designed for adults and patients aged older than 16 years and can be completed in 1 or 2 minutes without need to explain²⁴. DLQI questionnaire was prepared by the Department of Dermatology, Medical Sciences University of Cardiff and its Persian version was validated

by the Dr. ShahinAghaei that its reliability is equal to 0.77 based on Cronbach's alpha coefficient²⁵.

The questionnaire contains 10 questions in six headings: symptoms and feelings (2 questions), daily activities and type of coverage (2 questions), social and recreational and sport activities (2 questions), work and study (2 questions), personal communications (2 questions) and treatment (2 questions).

0-3 scores are awarded to each question, so that each question has 4 answers very high (3 scores), high (2 scores), low (1 score) and no or not associated (0 score) that the total scores are 30.

Finally, DLQI of each patient that reflects the quality of his life is stated based on a percentage of the 30 (higher DLQI represents lower quality of life). 0-1 scores: no impact on the life. 2-5 scores: little impact on life. 6-10 scores: moderate impact. 11-20 scores: high impact. 21-30 scores: very high impact²⁴.

Using simple random sampling method and using the NCSS software and independent t-test with confidence of 95%, error of 0.05 and power of 0.8, the sample size was 160. To describe data, the average and standard deviation for quantitative variables and frequency and percentage for qualitative variables were used. To analyze the data for parametric tests, independent t-test and ANOVA were used. Mann-Whitney test and Spearman correlation coefficient were used for non-parametric tests. All analyzes were conducted using SPSS software version 20.

3. RESULTS

The average and standard deviation of the patients' age is 24.12 and 6.49 respectively. Also the number of patients under 25 years is 122 cases (76.3%), the number of patients 26 to 35 years equals to 23 cases (14.4%) and the number of patients more than 35 years is equal to 15 cases (9.4%).

The number of women patients is 112 cases (70%) and the number of men patients is 48 (30%).

The number of patients with guidance and lower literacy is equal to 20 (12.5%), high school diploma patients equal to 67 (41.9%), the number of bachelor patients 58 (36.3%), and the number of Master's degree or higher patients equals to 15 (9.4%). In other words, the number of high school diploma or less ones is equal to 87 (54.4%) and the number of people higher than high school diploma equals to 73 (45.6%). The number of unemployed persons 27 (16.9%), Housewives' patients 33 (20.6%), employed patients 40 (25%) and patients in the study 60 (37.5%).

The number of single patients was 85 cases (53.1%) and married patients were 75 cases (46.9%).

The number of patients with acne on the face was 95 cases (59.4%) and those with acne on other parts of the body in addition to face was 65 cases (40.6%).

On the basis of Lehman, patients with mild acne severity were 46 (28.8%), with moderate acne severity 76 (47.5%), and with severe acne severity were 38 cases (23.8%).

Average and standard deviation of quality of life score for skin patients are equal to 10.40 and 6.73 respectively. On the other hand, the number of patients that acne does not affect the quality of their life 5 cases (3.1%), patients with low impact 43 cases (26.9%), patients with moderate impact 39 cases (24.4%), patients with high impact 57 cases (35.6%) and patients with very high impact 16 cases (10%).

Table 1: Frequency and percentage score of life quality and demographic characteristics of patients with acne

| Variable | Levels | Frequency | Percentage |
|-----------------------|--------------------------|-----------|------------|
| Age | 25 | 122 | 76.3 |
| | 26-35 | 23 | 14.4 |
| | > 35 | 15 | 9.4 |
| Gender | Women | 112 | 70 |
| | Men | 48 | 30 |
| Education level | Guidance level and lower | 20 | 12.5 |
| | High school Diploma | 67 | 41.9 |
| | BA | 58 | 36.3 |
| | MA degree or higher | 15 | 9.4 |
| Employment status | Unemployed | 27 | 16.9 |
| | Housewives | 33 | 20.6 |
| | Employed | 40 | 25 |
| | Studying | 60 | 37.5 |
| Marital status | Single | 85 | 53.1 |
| | Married | 75 | 46.9 |
| Place of acne | Face | 95 | 59.4 |
| | Face and body | 65 | 40.6 |
| Acne severity | Mild | 46 | 28.8 |
| | Moderate | 76 | 47.5 |
| | Severe | 38 | 23.8 |
| Quality of life score | No impact | 5 | 3.1 |
| | Low impact | 43 | 26.9 |
| | Moderate impact | 39 | 24.4 |
| | High impact | 57 | 35.6 |
| | Very high impact | 16 | 10 |

The correlation coefficient between variables age and skin patients' quality of life score is equal to -0.231, i.e. impact of acne on quality of life is reduced with increasing age. This relationship is statistically significant (P-value = 0.003). Also, average and standard deviation of quality of life in patients under 25 years were respectively 11.59 and 6.92, in patients with 26 to 35 years old are equal to 7.26 and 4.50 and in patients older than 35 years is equal to 5.53 and 3.93. This difference is statistically significant (P-value <0.001). To detect differences between groups, post hoc tests are used. There is a significant difference between people under 25 years with people 26 to 35 years old (P-value = 0.013) and those over 35 years (P-value = 0.001). But there is no significant difference between people 26 to 35 years and those over 35 years in terms of quality of life score (P-value = 0.569).

The average and standard deviation of quality of life score in women are 10.8 and 7.06 and in men are 9.27 and 5.79. Acne impact on the lives of women is more than the men,

but this difference was not statistically significant (P-value = 0.251).

The average and standard deviation of quality of life score in patients with guidance school and less are equal to 8.20 and 5.87, in patients with high school diploma equal to 10.40 and 6.65, in BA patients equal to 11.24 and 7.37 and in MA and higher patients equal to 10 and 5.25. This difference was not statistically significant (P-value = 0.411).

The average and standard deviation of quality of life score in unemployed people were 9.07 and 6.08 respectively, in housewives equal to 11.70 and 7.31, in employed people equal to 12.28 and 7.69, and in studying people equal to 9.03 and 5.63. It seems that acne has the least impact in unemployed and studying people and has the greatest impact in employed people on quality of life. These differences were not statistically significant, but it is marginal (P-value = 0.086).

The average and standard deviation of quality of life score in singles were 9.01 and 5.80 and in married were 11.97 and 7.38. It seems that acne has a greater impact on the quality of married life and this difference is statistically significant (P-value = 0.012).

The average and standard deviation of quality of life score in people with acne on the face are equal to 9.41 and 6.95 and in people with acne on other parts of the body in addition to face are 11.85 and 6.17. This difference is statistically significant (P-value = 0.006).

The average and standard deviation of quality of life score in people with mild acne severity were 3.93 and 3.09, in patients with moderate acne severity equal to 11.17 and 5.43, in those with severe acne severity equal to 16.68 and 5.42. This difference is statistically significant (P-value <0.001). Post hoc tests are used for pairwise comparison. People with mild acne severity have a significant difference with people with moderate acne severity (P-value <0.001) and those with severe acne severity (P-value <0.001). As well as, people with moderate acne severity and those with severe acne severity have a significant difference together (P-value <0.001)). In other words, with increased acne severity, its impact on quality of life becomes more and more.

The correlation coefficient between duration of treatment and quality of life score is equal to 0.445. That is, the impact of acne on quality of life increases with increased duration of treatment. This relationship is statistically significant (P-value <= 0.001).

Table 2: The relationship between quality of life score and demographic characteristics of patients with acne

| Variables | Levels | SD ± Average | P-value | Post hoc tests | |
|-----------|--------|--------------|---------|---------------------|---------|
| | | | | Multiple comparison | P-value |
| Age | 25 | 11.59±6.92 | < 0.001 | 25 with 26-35 | 0.013 |
| | 26-35 | 7.26±4.50 | | 25 with 35 > | 0.001 |
| | > 35 | 5.53±3.93 | | 26-35 with | 0.569 |

| | | | | | |
|----------------------------|--------------------------|------------|---------|--------------------|---------|
| Gender | Women | 10.88±7.06 | 0.251 | > 35 | |
| | Men | 9.27±5.79 | | | |
| Education level | Guidance level and lower | 8.20±5.87 | 0.411 | | |
| | High school Diploma | 10.40±6.65 | | | |
| | BA | 11.26±7.37 | | | |
| | MA degree and higher | 10±5.25 | | | |
| Employment status | Unemployed | 9.07±6.08 | 0.086 | | |
| | Housewives | 11.70±7.31 | | | |
| | Employed | 12.28±7.69 | | | |
| | Studying | 9.03±5.63 | | | |
| Marital status | Single | 9.01±5.80 | 0.012 | | |
| | Married | 11.97±7.38 | | | |
| Place of acne | Face | 9.41±6.95 | 0.006 | | |
| | Face and body | 11.85±6.17 | | | |
| Acne severity | Mild | 3.93±3.09 | < 0.001 | Moderate or mild | < 0.001 |
| | Moderate | 11.17±5.43 | | Severe or mild | < 0.001 |
| | Severe | 16.68±5.42 | | Severe or moderate | < 0.001 |
| Duration of acne treatment | - | 2.82±5 | < 0.001 | - | - |

4. DISCUSSION

This study examined the quality of life in 160 acne patients referred to Imam Khomeini Hospital Dermatology Clinic and its relationship with some of their demographic characteristics including age, gender, marital status, education level, employment status, place of acne, acne severity and duration of acne treatment using DLQI questionnaire.

In the present study, acne had high and very high impact on the quality of life in 45.6 percent of patients (including social and recreational activities and sports and work and education). In a study conducted by Dr. Akram Beheshti and Dr. Ameneh Barikan in Qazvin, impacts of acne on social relations, covering, artistic and recreational activities and sports and school activities were also reported very high and high in more than 10 percent of the students on average¹⁸. In a similar study, it has also been shown that acne affects the social activities, sports and school²⁶. In a study conducted on students in Scotland, social and communicative relations of 20% of the subjects were affected and smaller number also refused from swimming and sport due to acne and even their school activities were impressed¹⁷. So although acne is a self-limiting disease, it is very important in human life given that involves the face and the effects of these skin lesions can remain on the skin for years and even for a lifetime and can have a considerable effect on the individual, especially at an age when existence of self-confidence and social abilities is very important. So, many patients will have low self-confidence and difficulty in communicating⁹.

In the recent study, effect of acne on quality of life is reduced with aging and this relationship is statistically

significant, so that acne had the greatest impact on quality of life in people younger than 25 years. But in a study carried out by Dr. mary-margaret, Rebecca Jane Lasek, the acne patients are older, severity of impact on quality of life will be more regardless of the disease severity²⁷. But skindex questionnaire was used in this study and it was only performed on 60 patients with acne. In a study conducted in 2009 in Qazvin, there was no significant relationship between age and quality of life as well¹⁸. The possible reason could be that this study was conducted only on secondary and high school students with acne.

The average and standard deviation of quality of life score in patients with guidance school and lower and high school diploma and BA and MA degree and higher were not statistically significant. But a study conducted by Gloor M et al. showed that individuals' level of education is effective on the life quality of people with acne²⁸. But this study was conducted only on people 18-19 years old.

According to the recent study, impact of acne on quality of life becomes more by increasing its severity. In addition, acne has a greater impact on quality of life of people with acne on other parts of the body such as the chest, back and arms in addition to face, and it was also statistically significant. In a study measured by Finlay and Motley on a number of patients with acne, the disability caused by acne was associated with severity of acne, especially its severity on face and chest and the back²⁹. In a study conducted by Dr. Shahram Baghestani et al. in 2008 that examined the effects of acne on life quality of students in Bandar Abbas University of Medical Sciences, severity of acne had a significant impact on quality of life¹⁹. In a study conducted in Qazvin, findings showed that there is a significant relationship between the severity of acne and quality of life¹⁸. Similar results were obtained in the study of Walker et al³⁰.

According to the recent study, the impact of acne on quality of life in women is more than the men, but this difference was not statistically significant. In a study conducted on students in Qazvin, there was no significant relationship between gender and quality of life based on the CADI and DLQI indexes¹⁸ which is consistent with study of Walker et al (30), but it is not with consistent with study of Cotterill et al³¹.

According to the present study, acne has the least impact in unemployed and studying people and has the greatest impact in employed people on quality of life, but this difference is not statistically significant, but it is marginal.

Acne can have a greater impact on the quality of married life and this difference is statistically significant. Several cases of recurrence of acne have also been reported in young women after stress caused by marriage and marital⁸. People who have a longer-term treatment of acne, acne had a greater effect on their quality of life and this difference was statistically significant. But the study conducted in Qazvin showed that there was no significant relationship between

the duration of acne treatment and quality of life¹⁸. Malone et al showed that the decline in the quality of life in acne patients is comparable with chronic diseases such as asthma, epilepsy, diabetes and arthritis³².

In general according to results and statistics obtained and comparison with other studies, acne is one of the most common skin disorders and the highest incidence in terms of its clinical classification is related to mild acne (46%) and moderate acne (76%). But as acne often affects adolescents and young people, it has great importance on feelings, daily activities, work and study and personal communications of them. Among skin diseases, the most psychological effects have been seen associated with acne that the psychological aspects of issue are often overlooked in its treatment. Thus, importance of identifying various aspects of life of people who are affected by acne more becomes clear. According to the results, people in ages 16 to 25 years pay attention to their appearance more than others and since acne on the face is very common, various aspects of life are influenced obviously. In addition, according to the results obtained in this study, acne had the greatest impact on quality of life of married and employed people with severe acne severity that acne also affects the body, in addition to face. So, they can be considered as high risk groups who need to faster treatment and psychiatric consultation along with treatment of disease. With regard to the above and paying special attention to this issue, we suggest that necessary training on psychosocial effects of acne and negative effects on quality of life is provided to health staff and physicians to pay special attention to the effects on the identification of appropriate follow-up of patients with acne.

Timely diagnosis and treatment of acne by physicians and dermatologists can be an important factor in reducing mental disorders and subsequently improving the quality of life in people with acne. Therefore, special attention of physicians to psychological aspects of the disease and acquiring knowledge in this field can be a great help to the effective treatment of patients and improving their quality of life.

This study was only conducted on 160 patients and P-value was marginal in some obtained relationships. Study on a larger sample size could give us more accurate information. Quality of Life Questionnaire was only used in this study. But given that acne causes psychiatric disorders, a questionnaire which more accurately checks psychiatric disorders such as anxiety and depression can be used and its relationship with demographic characteristics of patients with acne to be investigated. In addition, acne can affect the social and communication skills of people. Therefore, a comparison between communication skills of people with acne and without acne can be done.

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