



Quality of life of university students with acne

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Abstract

Background: *The psychological consequences of having acne have often been underestimated. Assessment of the acne related quality of life can give us an accurate insight into how patients live with their acne. According to WHO, health care providers must incorporate quality of life issues in patient assessment. This study aims to assess the quality of life impairment due to acne among university students with acne.*

Materials and Methods: *900 university students were administered the acne specific quality of life questionnaire - the Cardiff acne disability index (CADI). A targeted history and examination was completed for those who reported acne. Age, gender and severity of acne were correlated with CADI scores.*

Results and Conclusion: *Acne impacted the quality of life of university students with acne. Our study showed a significant association between severity of acne and quality of life impairment. Female students experienced a greater negative impact of acne. Physicians must consider the psychosocial burden of acne in addition to pharmacologic treatment. We recommend that quality of life issues must be evaluated in all patients with acne for patient centred comprehensive management.*

Keywords: *Health related quality of life (HRQoL), Quality of life impairment (QUIMP), acne, Cardiff acne disability index (CADI), Himachal Pradesh (India).*

Introduction

Most people experience acne during adolescence. More than 95% of teenage boys and 85% of teenage girls experience acne. 50% of these adolescents continue to suffer from acne in adulthood.¹ Acne is a chronic disease and it causes profound negative psychological and social effects

on the quality of life (QoL) of patients². Previous studies have documented problems with perception of self, and social and emotional problems in acne patients^{1,3}. To assess these problems, measurement of health related quality of life (HRQoL) is recommended as an integral part of comprehensive acne management. To

measure the HRQoL in acne, a valid and reliable acne specific instrument such as Cardiff Acne Disability Index (CADI) is used.⁴ HRQoL impairment of acne patients has been reported in studies from the United States⁵, Greece⁶, Oman⁷, Saudi Arabia⁸, Malaysia⁹, Ukraine¹⁰, Serbia¹¹ and Iran¹². The new word “QUIMP” meaning “quality of life impairment” was recently proposed by Professor Finlay¹³; and recommended by the “European Academy of Dermatology and Venereology Task Forces on Quality of Life and Patient Oriented Outcomes” for routine clinical and research use.¹⁴ In India, the effect of acne on HRQoL is undocumented in this part of the country. The aim of this study is to evaluate the HRQoL of university students suffering from acne using the Cardiff acne disability index (CADI). The study analyzes the impact of acne severity, age, and gender on quality of life impairment (QUIMP) among university students.

Materials and Methods

The study was a cross sectional observational survey done over a period of first two weeks of September 2018. 900 students of Maharishi Markandeshwar University at Solan in Himachal Pradesh, India, were requested to fill in acne specific HRQoL questionnaire – the CADI and a short sociodemographic questionnaire including age, gender, duration of acne, family history of acne, co morbid health conditions and medications. The questionnaires were administered by a dermatologist in each class room. The participation was anonymous and on a voluntary basis; and students were free to refuse to complete the questionnaire if they wished. The study was approved by the institutional ethics committee. Students who self reported acne were objectively evaluated by the dermatologist doing a targeted history and examination. The morphology and site of acne lesions was assessed and the acne was graded as follows:

- Grade 1 – comedones and occasional papules
- Grade 2 – papules, comedones and a few pustules

- Grade 3 – predominant pustules, nodules and abscesses
- Grade 4 – mainly cysts, abscesses, and widespread scarring

The Cardiff Acne Disability Index (CADI) is a well validated, short 5 item questionnaire with a Likert scale designed for use in teenagers and young adults with acne⁴. It is self explanatory and is usually completed in one minute. Permission for use of the CADI questionnaire was obtained from Professor A Y Finlay. A printed copy of the questionnaire was simply handed over to each student in the class to fill in and return. The 5 questions or domains explored in the CADI are:

1. Have you been aggressive, frustrated or embarrassed as a result of your acne?
2. Do you think that your social life or relationships were affected as a result of your acne?
3. Have you avoided public changing facilities or swimming as a result of your acne?
4. How would you describe your feelings about the appearance of your skin?
5. How bad you think your acne is now?

Items 1 through 4 relate to the patient’s feelings, emotions and areas of concern because of acne over the last month. Item 5 is an indication of the self reported perceived severity of acne at present. Each item or question has 4 response options or choices and is scored from 0 to 3. The CADI score is calculated by summing the score of each question resulting in a possible maximum of 15 and a minimum of 0. Total scores were classified as low (0-4), medium (5-9), and high (10-15). The higher the score, the more the quality of life is impaired (QUIMP).

Only those students who reported active acne were included in the data analysis. Students with a pre-existing psychiatric diagnosis and other medical and skin disorders which affect HRQoL were excluded as were those on medications likely to interfere with assessment of acne.

Data were analyzed with chi square test used to assess significant difference between groups. The

level of significance was set at $p < 0.05$. The categorical values were summarized as proportions and percentages. The continuous variables were summarized as means.

Results

Overall, 753 (84%) out of 900 university students surveyed reported acne. Out of 753 students with acne, 510 (68%) were females and 243 (32%) were males. The female to male ratio was approximately 2:1. Age of students surveyed ranged from 17 to 26 years with a mean of 21 years. The highest prevalence of acne was at age 17-20 (Table 1). The most commonly observed lesion was a comedone (Figure 1). The most common location of acne lesions was the face (94%) followed by face and trunk (6%). Grade 1 acne was the most common followed by grade 2 acne (Table 2). We also found that a higher

proportion of males (85 out of 243 or 34.9%) than females (34 out of 510 or 6.6%) suffered from grade 3 and 4 acne (Table 2). No significant association (p value 0.15) was observed between severity of acne and age (Table 3). The overall mean CADI score was low (3.7). Majority (81%) of the patients had low (0-4) CADI scores (Table 4). CADI scores were also low in majority of the students in all three age groups (Table 5). We observed that as the grade of acne increased, there was significant quality of life impairment (QUIMP) indicated by higher CADI scores ($p < 0.05$). A significant number (p value < 0.5) of female students had medium to high CADI scores as compared to male students (Table 6). Low (0-4), medium (5-9) and high (10-15) CADI values indicate low, medium and high degree of quality of life impairment respectively.

Table1. Age and gender distribution of students

Age	Male	Female	Total (%)
17-20	101	297	398 (52.8)
21-24	107	188	295 (39.2)
>24	35	25	60 (8)
All (%)	243 (32)	510 (68)	753 (100)

Table 2 Acne grades and gender distribution

Grade	Male	Female	Total (%)
Grade 1	36	286	322 (42.8)
Grade 2	122	190	312 (41.4)
Grade 3	82	34	116 (15.4)
Grade 4	3	0	3 (0.4)
All grades (%)	243 (32)	510 (68)	753 (100)

Prevalence of grade 3 and 4 acne in males ($85 \div 243$ or 34.9%); in females ($34 \div 510$ or 6.6%); overall prevalence of grade 3 and 4 acne $119 \div 753$ (15.8%)

Figure1. Percentages of students with different grades of acne

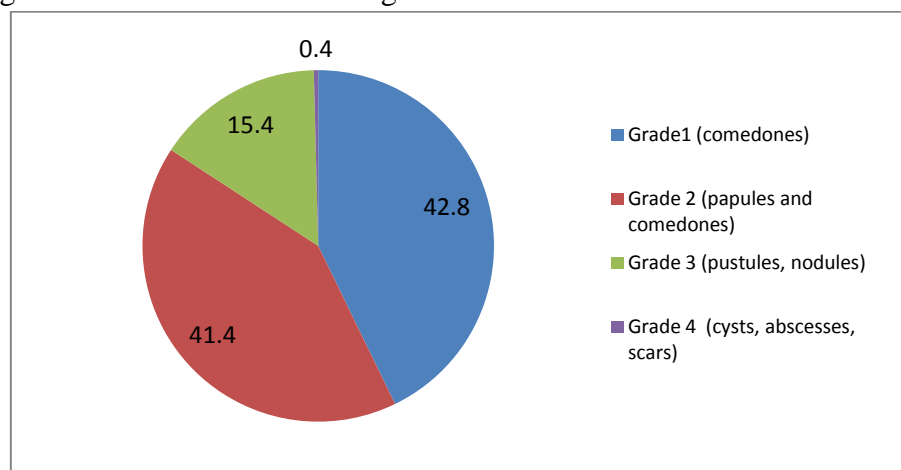


Table 3 Acne grades and age of students

Grade	Age 17-20	Age 21-24	Age >24	Total (%)
Grade 1	178	121	23	322 (42.8)
Grade 2	169	118	25	312 (41.4)
Grade 3	51	54	11	116 (15.4)
Grade 4	0	2	1	3 (0.4)
All grades (%)	398 (52.8)	295 (39.2)	60 (8)	753 (100)

Table 4 Acne grades and numbers of students with low, medium and high CADI scores*

Grade	CADI 0-4	CADI 5-9	CADI 10-15	Total (%)
Grade 1	300	12	10	322 (42.8)
Grade 2	270	35	7	312 (41.4)
Grade 3	40	65	11	116 (15.4)
Grade 4	0	0	3	3 (0.4)
All grades (%)	610 (81)	112 (15)	31 (4)	753 (100)

*Low CADI 0-4, medium CADI 5-9, high CADI 10-15

Number of students with CADI score 5-15 is 143÷753 (19%)

Table 5 Age and number of students with low, medium and high CADI scores*

Age	CADI 0-4	CADI 5-9	CADI 10-15	Total (%)
17-20	300	80	18	398 (52.8)
21-24	260	30	5	295 (39.2)
>24	50	2	8	60 (8)
All (%)	610 (81)	112 (15)	31 (4)	753 (100)

*Low CADI 0-4, medium CADI 5-9, high CADI 10-15

Table 6 Gender and number of students with low, medium and high CADI scores*

Gender	CADI 0-4	CADI 5-9	CADI 10-15	Total (%)
Male	200	40	3	243 (32.3)
Female	410	72	28	510 (67.7)
Both (%)	610 (81)	112 (15)	31 (4)	753 (100)

*Low CADI 0-4, medium CADI 5-9, high CADI 10-15

Discussion

753 out of 900 university students reported acne. Therefore, the prevalence of self reported acne in our study is 83.66%. The results of our study revealed that majority of the students (52.8%) were 17-20 years of age. Therefore, this study confirms that acne is common in teenagers. This is in concordance with many other studies.^{6, 15, 16} However; the comparison of different studies is, in general, difficult because of differences in study designs, settings and population characteristics. Out of 753 students who reported acne, 510(67.7%) were females. Therefore, a higher proportion of females than males reported acne. This is confirmed by other studies^{16, 17}. Acne is more common in females due to hormonal factors and use of cosmetics. However, this may be simply because, in our culture, females are more conscious of their appearance than males and

report their acne more frequently. In a study from Serbia, a higher proportion (64.3%) of males reported acne.¹¹ In our study, the most common site of acne was face (94%). In a study from South India, 99.3% of the patients had facial acne¹⁸. Prevalence of facial acne was 89% in a study from Greece⁶. Since facial acne affects the appearance of the individual, it produces a disturbance of body image and may be a concern for the patient. The most common types of acne lesions in our study were comedones and papules (84%). This figure was 65.82% in a study from Greece⁶, and 95% in a study from South India¹⁸. In our study 143 (19%) out of 753 students had medium to high QUIMP (CADI scores 5-15) as seen in Table 4. Therefore, although acne is often viewed as a minor cosmetic issue, it can have a negative impact on psychosocial functioning. However, patients in a study from Sarawak in Malaysia were

least affected in the domain of psychosocial functioning, which may be attributed to the cultural attitudes and upbringing of this population encouraging stoicism⁹. In our study, the QUIMP or psychosocial impairment according to CADI scoring showed a positive correlation with acne severity. This means that the QUIMP became worse as the severity of acne increased. However, 17 (2.7%) out of 634 patients with grade 1 and 2 acne had high CADI scores ranging from 10 to 15 (and therefore, high QUIMP) as seen in Table 4. Thus, the HRQoL of an individual does not always correlate with the physician's assessment of acne severity, underlining the need for effective and timely management of acne even for patients with less severe acne. This point must be stressed in the training of physicians and medical students, as the treatment of acne should not be based on the severity of acne alone but also on the degree of QUIMP. Overall, the prevalence of grade 3 and 4 acne in our study was 15.8%. However, it was much higher in males (34.9%) as compared to females (6.6%). The higher prevalence of more severe acne among males has been observed in other studies.^{17, 19} However, in our study, female students experienced a greater QUIMP because of their acne. This means that girls experienced more psychological morbidity due to acne than boys. In a population study of 1531 school pupils from Greece, the HRQoL of girls and boys were equally affected in those with acne⁸. A study from Egypt²⁰ reported greater impairment of the quality of life among male adolescents with acne while a study from China²¹ reported greater impairment of life among female adolescents with acne. In a study from South India, both males and females were concerned about their acne¹⁸. Acne, especially when severe, may have an impact on the life of patients comparable to that caused by other chronic diseases such as asthma, epilepsy, diabetes, back pain and arthritis²². In the present study, we detected QUIMP or psychosocial impairment caused by acne among all the age groups of university students and in both genders.

We observed that female students experienced a greater overall negative impact on their quality of life. This suggests that adolescent and young adult females may be more susceptible than boys to the negative psychological effects of acne.

Our study is limited in that it is a questionnaire based cross sectional study of university students and our results probably cannot be applied to the general population. The questionnaire helped us to assess psychosocial functioning but was insufficient to diagnose psychiatric co morbidity. The strengths of this study include a large sample size and use of a specific scale (CADI) to assess the HRQoL among acne patients. The clinical evaluation by the dermatologist of self reported acne adds strength to the study.

Conclusion

Our study showed that acne affects the HRQoL of the affected students. Mild acne does not mean little impact on HRQoL. Many students with mild acne reported that they felt aggressive, frustrated or embarrassed as a result of having acne. Acne severity correlated significantly with impairment of HRQoL. All the age groups studied and both genders experienced the negative impact on their HRQoL. The HRQoL was worse among female students with acne. Therefore, health care providers should assess the psychosocial and emotional aspects while managing patients with acne. This is because effective therapies of acne are available, and administration of these agents can improve the HRQoL of these patients. We recommend adopting a HRQoL measure as an integral part of comprehensive acne assessment so as to assist the physician in making better clinical decisions.

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