

Quality of Life of School and University Students with Acne

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ABSTRACT Acne may have severe negative impact on different aspects of patient health-related quality of life (HRQoL). Prevalence of acne in university and school students is high, and the HRQoL of students with acne from different countries was studied. There is a lack of studies on direct comparison of HRQoL impairment of university and school students with acne. The Cardiff Acne Disability Index (CADI) was used to assess the HRQoL in university and school students with self-assessed acne. The CADI results from 159 university and 99 school students with self-reported acne were obtained. Mean age of university and school students was 20.99±1.47 (mean ± Standard Deviation) and 14.10±0.51 years, respectively. Reported impact on QoL of university students was significantly higher (3.33±2.26 and 2.76±2.42, $P<0.05$). Total CADI scores negatively correlated with the age of university students ($r=-0.16$; $P<0.05$). Analysis of gender differences of university students showed that negative correlation of HRQoL with age was present in women ($r=-0.22$; $P<0.05$) but absent in male students ($r=0.05$; $P=0.77$). Female university students reported more severe impact of acne on their life (2.55±2.31 in male and 3.59±2.20 in female students, $P<0.01$). Our results showed that university students experience higher impact of acne on their life than school students. The highest is the impact on young female university students. We recommend paying more attention to the psychological aspects of young female students with acne during consultations.

KEY WORDS: acne, quality of life, students, adolescence, gender

INTRODUCTION

Acne is common dermatologic disease that may have severe negative impact on different aspects of patient health-related quality of life (HRQoL) (1). Acne prevalence in adolescence is above 95% for teenage

boys and 85% in teenage girls (2). The prevalence of acne in university students is also high (3). HRQoL assessments in patients with acne are recommended by several national guidelines (4). There are different

reasons for the use of HRQoL in dermatologic clinical practice (5). The European Dermatology Forum S3-Guideline for the Treatment of Acne recommended adopting a QoL measure as an integral part of acne management (6). HRQoL in school and university students from different countries was studied and presented in numerous publications (1). These groups may differ by their social and psychological status. Acne impact on QoL items between university and school students may also vary. However, there is a lack of studies on direct comparison of HRQoL impairment of university and school students with acne.

PATIENTS AND METHODS

University and school students with self-assessed acne were invited anonymously on a voluntary basis to fill in the acne-specific QoL questionnaire – the Cardiff Acne Disability Index (CADI). The CADI (7) is a short 5 item questionnaire derived from the longer Acne Disability Index (8). The CADI score is calculated by summing the score of each question resulting in a possible maximum of 15 and a minimum of 0. The higher the score, the more the QoL is impaired. This acne-specific HRQoL instrument may be used in teenagers and young adults (9). Test-retest reliability, discriminant and convergent validity, and over-time sensitivity of the Ukrainian version of the CADI were checked (10). Permissions for use of the CADI questionnaire was received from Prof. A.Y. Finlay (UK). Ethical permission for the study was granted by the local research Ethics Committee. The new word “quimp”, meaning quality of life impairment, was recently proposed by Prof. A.Y. Finlay (11) and recommended by the European Academy of Dermatology and Venereology Task Force on QoL and Patient Oriented Outcomes for routine clinical and research use (12).

Statistical analysis

Data is presented as mean ± Standard Deviation of the mean. Unpaired t-test with Welch correction (one-side) and Spearman nonparametric correlation (Spearman *r*) were used. The results were considered significant if $P < 0.05$.

RESULTS

The CADI results from 159 university and 99 school students with self-reported acne were obtained. Mean age of university students was 20.99 ± 1.47 years (95% confidence limits: 20.76-21.22). Mean age of school students was 14.10 ± 0.51 years (95% confidence limits: 13.96-14.25). Reported impact on QoL of university students was significantly higher. Data on total CADI scores and separate CADI items of university and school students are presented in Table 1. Correlations with age of total CADI scores and separate CADI items of university and school students are presented in Table 2. Gender differences of acne-specific HRQoL in university students are presented in Table 3.

The only CADI item on feelings about the appearance of the participant’s skin over the last month was significantly different between male and female school students (0.71 ± 0.53 and 1.25 ± 0.67 , respectively; $P < 0.01$). The difference in assessment of another CADI item on “how bad you think your acne is now” by male and female school students almost reached statistical significance (0.59 ± 0.71 and 0.97 ± 0.82 , respectively; $P = 0.05$). Correlations of total CADI scores and separate CADI items with the male and female university students are presented in Table 4. Total CADI scores and separate CADI items did not correlate significantly with the age of both male and female school students.

Table 1. Difference of total CADI scores and its separate item scores between school and university students with self-reported acne

	School students (n=99) (mean ± Standard Deviation)	University students (n=159) (mean ± Standard Deviation)	<i>P</i>
Total CADI score	2.76±2.42	3.33±2.26	$P < 0.05$
Have you been aggressive, frustrated, or embarrassed?	0.63±0.75	0.70±0.61	0.21
Do you think that having acne interfered with your daily social life, social events, or relationships with members of the opposite sex?	0.30±0.58	0.42±0.62	0.06
Have you avoided public changing facilities or wearing swimming costumes because of your acne?	0.18±0.52	0.16±0.41	0.35
Your feelings about the appearance of your skin over the last month?	0.93±0.75	1.08±0.73	0.06
How bad you think your acne is now?	0.73±0.74	0.97±0.63	$P < 0.01$

Table 2. Correlations with age of total CADI scores and its separate item scores between school and university students with self-reported acne

	School students (n=99)	University students (n=159)
Total CADI score	$r=-0.14$; $P=0.35$	$r=-0.16$; $P<0.05$
Have you been aggressive, frustrated or embarrassed?	$r=-0.05$; $p=0.75$	$r=-0.12$; $p=0.15$
Do you think that having acne interfered with your daily social life, social events, or relationships with members of the opposite sex?	$r=-0.16$; $P=0.28$	$r=-0.08$; $P=0.30$
Have you avoided public changing facilities or wearing swimming costumes because of your acne?	$r=-0.10$; $P=0.51$	$r=-0.08$; $P=0.29$
Your feelings about the appearance of your skin over the last month?	$r=-0.01$; $P=0.95$	$r=-0.14$; $P=0.09$
How bad you think your acne is now?	$r=-0.16$; $P=0.27$	$r=-0.17$; $P<0.05$

DISCUSSION

Emotional separation from parents and strong peer identification are characteristic for mid-adolescence school children (13). Individual variation is substantial, both in terms of the timing of somatic changes and the quality of the adolescent's experience. Physical and social stressors and gender may profoundly affect the developmental course. Dating becomes a normative activity. Children with visible differences are at risk of problems in developing social skills and confidence and may have more difficulty establishing satisfying relationships (14). Ritvo *et al.* showed that nearly two in three teenagers acknowledged that acne have been a source of embarrassment (15). Among pupils with acne, 48.6% believed that acne were compromising interpersonal relations, while 64.4% believed that acne were compromising their self-image (16). Meanwhile, development of social autonomy, intimate relationships, and development of financial independence are characteristic for students (13). Students may often move to another place and leave their native homes, families, and friends. High number of students often experience loneliness (17). Romantic relationships among

students last longer than in adolescence, are more likely to include sexual intercourse, and may include cohabitation (18).

Mean CADI scores of students from our study are comparable with results of previous studies from different countries (Table 5). In all studies on students, despite high prevalence of acne, its impact on the majority of students was not high (19-23). However, it was shown that students with acne vulgaris have worse HRQoL than students without acne (24) and more than half of students felt embarrassed or self-conscious because of their acne (25).

The impact of acne on HRQoL of university students from our study was significantly higher than on HRQoL of school students. This may be explained by separation from family, loneliness (17), low sense of "health responsibility" (26), psychological and financial problems, and generally poor QoL reported in university students (27) rather than by increase of acne severity. Tangetti *et al.* reported that despite the onset of acne during adolescence, acne generally began to bother or concern most female patients around the age of 18 (28).

Total CADI scores negatively correlated with the

Table 3. Gender differences of acne-specific health-related quality of life (HRQoL) in university students

	Male university students (n=40) (mean ± Standard Deviation)	Female university students (n=119) (mean ± Standard Deviation)	P
Total CADI score	2.55±2.31	3.59±2.20	$P<0.01$
Have you been aggressive, frustrated, or embarrassed?	0.58±0.64	0.74±0.60	0.08
Do you think that having acne interfered with your daily social life, social events, or relationships with members of the opposite sex?	0.48±0.64	0.40±0.62	0.27
Have you avoided public changing facilities or wearing swimming costumes because of your acne?	0.08±0.27	0.18±0.45	$P<0.05$
Your feelings about the appearance of your skin over the last month?	0.70±0.76	1.20±0.68	$P<0.01$
How bad you think your acne is now?	0.70±0.65	1.06±0.60	$P<0.01$

Table 4. Correlations of total CADI scores and separate CADI items with the age of male and female university students

	Male university students (n=40)	Female university students (n=119)
Total CADI score	r=0.05; P=0.77	r=-0.22; P<0.05
Have you been aggressive, frustrated, or embarrassed?	r=0.01; P=0.96	r=-0.16; P=0.09
Do you think that having acne interfered with your daily social life, social events, or relationships with members of the opposite sex?	r=0.09; P=0.57	r=-0.14; P=0.13
Have you avoided public changing facilities or wearing swimming costumes because of your acne?	r=0.31; P<0.05	r=-0.18; P=0.06
Your feelings about the appearance of your skin over the last month?	r=0.02; P=0.89	r=-0.18; P<0.05
How bad you think your acne is now?	r=-0.07; P=0.67	r=-0.22; P<0.05

age of university students and did not correlate in school students. Analysis of gender differences of university students showed that negative correlation of HRQoL with age was present in women but absent in male students. Female university students reported more severe impact of acne on their life. Meanwhile, only one separate CADI item on feelings about the appearance of one's skin over the last month was assessed higher by female school students than by male school students and another item on "how bad you think your acne is now" almost reached the level of statistical significance. It is interesting that two these CADI items and additional item on avoidance of public changing facilities or wearing swimming costumes because of acne were assessed higher by female university students. Surprisingly, exactly this CADI item on avoidance of public changing facilities or wearing swimming costumes because of acne was the only item that had significant positive correlation with age in male students.

It was previously shown that both female adolescents and young women have higher levels of anxiety and depression than male adolescents and young adults (29,30). In several studies, females with acne were reported to experience a greater impact on QoL than men (31-33). However, in a population study of 1531 school students from Greece, the HRQoL of girls and boys were equally affected in those with acne (34).

Using the CADI score, it was found that female university and college students with acne were more sensitive about the appearance of their skin and rated how bad their acne was higher than men (21). We can speculate that the presence of gender difference related to avoidance of public changing facilities or wearing swimming costumes because of acne in university students and absence of such difference in school students may be explained by several socio-economic factors. Even in the USA, male urban school students more often participate in sport than female urban school students (35). Participation in sport of school-age adolescents in many aspects depends on their parents. The majority of parents agreed that girls get a fair shake from sports in schools and communities. This gender difference is more significant in lower-income families (35). We can hypothesize that the situation is common in countries with poor economic status. However, both female and male school students have regular lessons in physical education at school and therefore have to use changing rooms together with their classmates for many years. University students are often separated from their families and are much more independent. Relatively few university students engaged in any form of physical activity or exercised regularly (36). Male university students exercised more than women (37). However, female students had healthier habits related to alcohol

Table 5. Mean ± Standard Deviation total CADI scores of students from different studies

Country	UK (19)	Nigeria (20)	Pakistan (21)	Serbia (22)	Serbia (23)	Our results	
Mean CADI score	1.9	3.4±3.0	2.67± 5.35	3.57	2.87±2.74	3.33±2.26	2.76±2.42
Age (years)	15-18 (range)	16.1±1.5 (mean)	17-28 (range)	15-18 (range)	16.48 (mean)	20.99±1.47	14.10±0.51
Description	School students	Senior secondary school	University and college students	Technical school students	High school students	University students	School students

consumption and nutrition (38). It was reported that majority of university students need economical support (17). Male university students in Ukraine often use simple free outdoor sports facilities that are frequent and easy to access. However, these kind of facilities are not popular with the majority of female students, who prefer different indoor sportive activities that in most cases are not free of charge or include the use of changing facilities. Such indoor sport activities have often been advertised as a part of a healthy life style and a sign of individual economic success. Because of the difference in interests and financial abilities, female students often visit such sport activities without their friends and may compare themselves with other attendees of different age and social groups. Such comparison may lead to increase of psychosocial impact: they want to play the role of independent and successful adults, but the presence of acne is in their minds strongly associated with being a teenager. This explanation for the increase of public facilities avoidance by older male university students is common. Acne remains a characteristic problem in university students despite the fact that its prevalence in older students is lower (21). Older male students with acne lesions may start to notice that their friends no longer look like them during sport activities. P.C. reported that, according to his experience, shame at looking like a teenager during sport activities and related use of public facilities is often the main reason for visiting a dermatologist by male acne patients in their late twentieth [unpublished data].

The decrease in the impact on older female university students may be associated with psychosocial changes and potential reduction of disease severity. Collier *et al.* reported decrease of acne severity in more than half of acne patients after teenage years. Meanwhile, worsening of acne after teenage years was noted by only 3.6% of men and 13.3% of women (39). Average age at first marriage is higher in men in all European countries. According to statistics, the average age at first marriage in Ukraine is 27 years for men and 25 for women (40). It has been shown that first cohabitation often starts 4 years prior of first marriage (41). Thus, older female university students may be often involved in cohabitation or marriage. It was reported that married young adults – especially those who first married at age 22-26 – have higher life satisfaction than other groups of young adults (42).

CONCLUSION

Our results showed that university students experience higher impact of acne on their life than school students. Young female university students had the highest quimp. We recommend paying more atten-

tion to the psychological aspects of young female students with acne during consultations.

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