

The influence of acne vulgaris severity on social appearance anxiety and quality of life in undergraduate students of Universitas Padjadjaran, Bandung, Indonesia

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Abstract

Objective The purpose of this study was to determine the effect of the severity of acne vulgaris on social appearance anxiety and quality of life (QoL) in undergraduate students at Universitas Padjadjaran in Bandung, Indonesia.

Methods This research was conducted using an analytic observational method with a cross-sectional approach. We enrolled 259 students who met inclusion criteria and gave consent to be diagnosed by dermatologists through their facial photography. This study used the *Social Appearance Anxiety Scale* (SAAS) and the *Cardiff Acne Disability Index* (CADI). The Kruskal-Wallis test analyzed the mean and standard deviation in different acne severity groups.

Results Out of 259 students, 90 had mild acne, 84 had moderate acne, and 85 had severe acne. All participants' mean age of acne sufferers is 19.80 years old and more common in females (76.45%). The moderate acne group had the highest mean SAAS compared to students with mild and severe acne (mean 44.21; CI: 41.47-46.96; $p < 0.005$). The median CADI value in college students with severe acne falls into the mildly to moderately impaired QoL category (median 6 (0-14), $p < 0.005$).

Conclusion This study showed that the severity of acne vulgaris influences social appearance anxiety and QoL in students. The study results are expected to add information for clinicians about the psychological impact on acne patients as a consideration for AV treatment. Social support may affect social appearance anxiety and QoL, which affect the acne sufferers' SAAS and CADI scores.

Key words

Acne vulgaris; CADI; Quality of life; SAAS: Social appearance anxiety.

Introduction

Acne vulgaris (AV) is a skin disorder characterized by chronic inflammation of the

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pilosebaceous follicles and has pleomorphic lesions (comedones, papules, pustules, and nodules) of varying severity.¹ About 85% of AV occurs mainly in adolescents and young adults, around 12-25 years old.¹ In 2012, the Indonesian Acne Experts Meeting (IAEM), a group of leading dermatologists in Indonesia, formulated consensus guidelines to align AV management based on clinical severity by Lehman (2002).

Since then, these guidelines have been introduced and implemented nationally.²

Acne has an important effect on physical appearance that plays a role in forming first impressions so that it can cause psychological problems.³ The Social Appearance Anxiety Scale (SAAS) is a questionnaire to assess a person's social anxiety and body image dissatisfaction.⁴ The SAAS questionnaire has been used to assess obesity in Indonesia,⁵ but its application to AV is yet to exist. AV sufferers sometimes want to avoid social life, which can decrease their quality of life.³ Rozana Y *et al.* (2017) in Padang, Indonesia, used CADI to assess the quality of life of acne sufferers.⁶ CADI is more precise in determining the quality of life in AV sufferers because this questionnaire focuses on only one disease and has fewer questions than others.⁷

University students are in a transitional phase of life to the adult phase, in which a person begins to develop their self-image regarding socialization, work, and sexuality.^{8,9} Therefore, maintaining physical appearance is a priority in a university student's life because they will often meet many familiar and unfamiliar people in this phase.¹⁰ The current study aimed to explore the influence of the severity of acne vulgaris on social appearance anxiety and quality of life in undergraduate study program students of Universitas Padjadjaran, Bandung, Indonesia, using SAAS and CADI.

Methods

The ethics committee of Universitas Padjadjaran has approved this research with Number: 1067 / UN6. KEP/EC/2022. Analytical observational methods with a cross-sectional approach conducted the study.

The Social Appearance Anxiety Scale (SAAS)

contains 16 statements to assess social anxiety and body image dissatisfaction.⁴ Each statement has a scale ranging from 1 (not at all) to 5 (extremely), with a cumulative score of the maximum score is 80 and a minimum is 16. The higher accumulative scores on this scale reflect that respondents had social appearance anxiety.¹¹

Cardiff Acne Disability Index (CADI) contains five questions to assess QoL in AV sufferers.¹² The answer score of each question starts from a scale of 0 – 3. The cumulative CADI scores are categorized into four: not impaired (0), mildly impaired (1-5), moderately impaired (6-10), and severely impaired (11-15) QoL.¹³

This study enrolled 259 students of the Universitas Padjadjaran aged 18-23 years. Students with acne vulgaris meet the inclusion criteria, while students with other chronic skin diseases, such as atopic dermatitis, psoriasis, vitiligo, and systemic lupus erythematosus, were excluded.

The sample recruitment method in this study is by distributing an online form to all students of Universitas Padjadjaran. The online form includes an explanation of the study, and the SAAS and CADI questionnaires. Respondents uploaded photos from three different angles (front, left, and right side), and a dermatologist's expert made a clinical diagnosis (**Figure 1**), which divided into three groups based severity



Figure 1 Respondent no. 190, 19 years old, severe acne vulgaris.

of acne by Lehmann: mild (<20 comedones, <15 papules/ pustules, no nodules, and <30 total lesions), moderate (20-100 comedones, 15-50 papules/pustules, no nodules, and 30-125 total lesions), and severe acne (>100 comedones, >50 papules/pustules, >5 nodules, and >125 total lesions).¹⁴

The study results were then processed using *Microsoft Excel* and *Statistical Package for Social Science (SPSS) version 25.0*. This study had data that were not normally distributed, so the bivariate analysis used the *Kruskal-Wallis* test. If $p < 0.05$, H_1 in the study is accepted, which means that the degree of acne vulgaris influences social appearance anxiety or QoL.

Results

Table 1 showed that the study population's mean age was 19.80 years (ranging from 18 to 23 years). There were 198 female respondents (76.45%) and 61 male respondents (23.55%). Females had the most moderate acne, with 83

students (41.9%), while males had the most severe acne, with 37 students (60.7%). This study discovered that students with moderate acne had a higher SAAS mean (44.21) and median (43; 95% CI: 41.47-46.96) than severe acne, this is found in **Table 2** ($p < 0.05$).

Table 1 Characteristics of Acne Vulgaris Severity

Characteristics	Severity of Acne		
	Mild (n=90)	Moderate (n=84)	Severe (n=85)
Age (mean±std)	19.94±1.22	19.70±1.117	19.74±1.09
Gender, n (%)			
Male	23(37.7)	1(1.6)	37(60.7)
Female	68(34.3)	83(41.9)	47(23.8)

In Table 3, mildly impaired QoL was the most common QoL impairment experienced by students with mild acne in this study, with 51 students (45.1%). The most severe acne patients had mildly (30.1%) and moderately (29.8%) impaired QoL, with 34 out of 85 respondents in each category. Based on **Table 4** ($p < 0.05$), students with severe acne had the highest mean (6.85) and maximum value (14) of CADI.

Table 2 Mean and Median SAAS based on the severity of acne.

Severity of Acne	Social Appearance Anxiety Scale (SAAS)			P-value
	Mean±std.	Median (min.-max.)	95% CI	
Mild	39.50 (12.265)	37 (16-75)	36.93-42.07	0.045*
Moderate	44.21 (12.653)	43 (23-79)	41.47-46.96	
Severe	41.95 (11.093)	42 (20-77)	39.56-44.35	
Total	41.83 (12.133)	40 (16-79)	40.35-43.32	

Table 3 CADI Category based on the severity of acne.

CADI	Quality of Life (CADI)		
	Mild (n=90)	Moderate (n=84)	Severe (n=85)
Not Impaired, n(%)	3 (75)	N/A	1 (25)
Mildly Impaired, n(%)	51 (45.1)	28 (24.8)	34 (30.1)
Moderately Impaired, n(%)	33 (29)	47 (41.2)	34 (29.8)
Severly Impaired, n(%)	3 (10.7)	9 (32.1)	16 (57.2)

Table 4 Mean and Median CADI based on the severity of acne.

Severity of Acne	Quality of Life (CADI)			P-value
	Mean (std. deviation)	Median (min.-max.)	95% CI	
Mild	4.87 (2.728)	5 (0-11)	4.30-5.44	<0.001*
Moderate	6.83 (2.638)	7 (2-13)	6.26-7.41	
Severe	6.85 (3.724)	6 (0-14)	6.04-7.65	
Total	6.15 (3.195)	6 (0-14)	5.76-6.55	

Discussion

Students in this study ranged in age from 18 to 23 years, and it was found that 76.45% were female. This is consistent with a study conducted by Ruchiati *et al.* (2020), which stated that acne is most prevalent in female aged 20-24 (39,10%), followed by male aged 15-19 (32,25%), and male aged 15-19 (11,94%).² Some studies have found that males are more prone to acne, while others have found no significant difference between the sexes regarding acne susceptibility.³ Differences in study results can be caused by multifactor such as age, genetics, hormonal, nutrition, use of dermatological products, stress, and being a student or worker.¹⁵

A study in Turkey (2020) by Kurhan F *et al.* stated that the mean total SAAS in acne patients was 55.2 ± 9.1 ,¹⁶ which has a reasonably large gap mean with our study (**Table 2**). This is possible because Kurhan F *et al.* conducted their study in a dermatology outpatient clinic. When a person visits the clinic, they usually already believe that their acne is interfering with their appearance.⁶

According to Rozana Y's study in Padang in 2017, a group of mild acne had the most QoL of mildly impaired, which is similar to our study.⁶ Nowadays, information about facial skin care products is easily accessible and widely published on the internet. This allows mild acne sufferers in this study to manage their acne independently, allowing them to live without worrying about acne and having a mildly impaired QoL. However, people with mild acne may have a moderately or severely impaired quality of life because many factors can influence a person's quality of life.⁶

This study found that the mean difference between the total CADI scores for moderate and severe acne was not too significant, in contrast

to a study by Mohammed Abu *et al.*, which had mean of 5.55 for moderate acne and mean of 7.75 for severe acne.¹⁷ The psychological effects of acne are unique to each individual who experiences it. The CADI questionnaire asked how severe a person's acne is, regardless of how severe it appears to a doctor.¹⁸ Therefore, the total CADI score depends on each individual's background.

The study in Serbia has mean total CADI of 2.87 ± 2.74 , in Nigeria 3.4 ± 3.0 , and in Ukraine 2.76 ± 2.42 .⁹ Our study has a higher mean total CADI when compared to studies in these three countries. This is possible because the samples used in the previous studies were all high school students,⁹ In contrast, the samples used in this study are university students, who are expected to have a good physical appearance as well as an attraction to the opposite sex. AV often occurs in the skin with pilosebaceous glands, especially on the face, which is noticed by other people when socializing or interacting with others. Therefore, facial flaws and imperfections can cause university students to be anxious about their appearance and how others will perceive their attractiveness, which can have an impact on their psychology and QoL.¹⁹

The study by Jie Li *et al.* in 2017 stated that social support could help increase students' self-confidence, as well as improve students' quality of life.²⁰ Lema E, *et al.* in 2022 stated that peer support could provide positive energy, especially for adolescents with acne vulgaris who are prone to experiencing feelings of insecurity, anxiety, and decreased quality of life.²¹

This study discovered that students with moderate acne had a higher SAAS mean than severe acne (**Table 2**) and students with severe acne had a median CADI value of 6, putting the results in the category of moderately impaired

QoL. Furthermore, we discovered that students with severe acne had the most mildly and moderately impaired QoL (**Table 3**). These interesting findings may be due to each individual having a different level of self-confidence, such as individuals who can accept their current conditions or those who reject their conditions, which can cause social appearance anxiety and impaired QoL. The understanding of the importance of social support among university students may increase self-confidence. As shown in this study, the possibility for students with acne with good social support may have lower SAAS and CADI scores.

The p-value of <0.05 showed an influence of the severity of acne vulgaris on social appearance anxiety and the quality of life of students of Universitas Padjadjaran. However, in Rozana's study in Padang, 2017, stated that there was no relationship between the severity of acne vulgaris and the quality of life of sufferers.⁶ The difference in results was due to Rozana's study having an uneven number of respondents per degree of severity of the acne, whereas, in this study, the number of respondents per degree had an insufficient difference (**Table 1**).

The limitations of this study are that we did not assess individual factors, such as whether they have good self-confidence or whether they have positive or negative thoughts about their appearance, which may have an impact on acne sufferers' social appearance anxiety and quality of life.

Conclusion

This study showed an influence of the severity of acne vulgaris on social appearance and the QoL in Undergraduate Study Program Universitas Padjadjaran students. Although acne vulgaris not life-threatening, it can have

significant psychological consequences. Thus, tailored and comprehensive management adding social support and encourage positive attitudes among student who suffers from acne may improve SAAS and CADI scores. The study results are expected to add information for clinicians about the psychological impact on acne patients as a consideration for AV treatment.

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