

The Relationship Between the Severity of Acne Vulgaris and the Quality of Life of Prima Indonesia University Medical Faculty Students

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Abstract

Acne vulgaris or acne is a chronic inflammatory disease of the pilosebaceous follicles which is characterized by the appearance of open and closed comedones, papules, pustules, nodules, seborrhea and cysts. Acne vulgaris can occur in teenagers and young adults, such as medical school students, which can affect their quality of life. The aim of this research was to determine the relationship between the severity of acne vulgaris and the quality of life of students. This type of research is analytical observational research with a cross sectional design. The population in this study were students from the Faculty of Medicine, Prima Indonesia University class 2020 – 2021 who suffered from acne vulgaris. The research sample obtained was 38 people. Sampling was purposive sampling. Data was obtained from a questionnaire filled out via the Google Form link. Data were analyzed univariately and bivariately using the Spearman Rho Rank test at a confidence level of 95% ($\alpha=0.05$). The results showed that the severity of acne vulgaris of students at the Faculty of Medicine, Prima Indonesia University students (71.1%) was in the mild category, the quality of life of students was in the mild disorder category (52.6%). The severity of acne vulgaris in students is significantly related to the quality of life of students at the Faculty of Medicine, Prima Indonesia University ($p = 0.001 < 0.05$), with the close relationship (correlation coefficient) of the two variables in the medium category ($r = 0.522$).

Keywords: *Acne Vulgaris, Quality of Life, Students.*

A. INTRODUCTION

Acne vulgaris or acne is a common skin disorder that attacks teenagers and young adults and is characterized by the development of blackheads, papules, pustules, nodules and pseudocysts due to inflammation of the pilosebaceous follicles (Yudianti et al., 2020). Acne vulgaris is a major disease that affects almost the entire world's population and as many as 85% are felt by teenagers aged 15 to 18 years with a certain level of severity in both men and women, on the other hand, this may still last until the third decade, or even further (Sitohang & Wasitaatmadja, 2020).

The etiology of this disease is still not clearly identified, but four ideas have been identified as the etiopathogenesis of acne. The four pathogenesis are sebum hypersecretion, epidermal cell proliferation, the presence of *Propionibacterium acnes* and inflammation (Rozana & Rosmaini, 2021). While etiological factors are considered to influence the prevalence and severity of acne, acne vulgaris can be influenced by internal causes (eg. pregnancy, menstruation, stress) and the environment (including humidity, weather, cosmetics, cleanliness, smoking, eating) (Oge' et al., 2019).

Acne vulgaris is a skin problem that can greatly affect the life of the individual who experiences it. This is mainly due to its general location on the face, which is

difficult to hide and often causes social discomfort. In addition, long-term impacts such as post-inflammatory hyperpigmentation and scars that may remain for years, even throughout life, can also significantly affect the quality of life of people who experience them (Safitri et al., 2020).

WHO explains that quality of life is a person's view of their social status in the context of culture and norms, where this perception is related to the relationship between psychological and physiological well-being. According to the World Health Organization, health is the foundation for improving people's living standards. There are various factors that contribute to an individual's sense of satisfaction with their life, including physical and mental health, level of independence, network of friends and family, and local environment (Khomsatin & Siti, 2022).

Acne vulgaris may be curable on its own and is not life-threatening, but it still has negative psychological and social impacts which can reduce the quality of life (Khomsatin & Siti, 2022). Acne vulgaris affects people's minds in a variety of ways, each of which is unique. Conditions faced by acne vulgaris sufferers, such as embarrassment and lack of confidence in their appearance, which can result in difficulty building personal relationships, interacting with new people and even depression, are the psychological effects that acne vulgaris can cause (Nazaya et al., 2020).

Considering the high prevalence of acne vulgaris and the psychological impact it has on sufferers, researchers are interested in examining the relationship between acne vulgaris and its impact on the level of quality of life among medical faculty students. Apart from that, typical sufferers of acne vulgaris are young adults, for example high school students or college students. Students may feel worried and nervous when suffering from acne vulgaris due to increased pressure to have a smooth and attractive face, as well as increased interest in the opposite sex and the need to always look ideal (Eram et al., 2019).

In previous research, Sitohang & Jihan (2022) examination results showed that 75.7% (43 people) of UISU medical faculty students suffered from mild acne vulgaris, and there was a significant relationship between the severity of acne vulgaris and the sufferer's quality of life, measured by Cardiff Acne Disability questionnaire Index, 58.6% (31 people) had mild quality of life disorders (Sitohang & Wasitaatmadja, 2020).

Meanwhile, research at the medical faculty at Baiturrahmah University in Padang conducted by Rozana et al (2021) which also used CADI, 36 people reported minor problems, but researchers did not find a correlation between the severity of acne vulgaris and the patient's life satisfaction (Rozana & Rosmaini, 2020).

Researchers from the Faculty of Medicine, Prima Indonesia University intend to use the CADI questionnaire to evaluate the quality of life of acne sufferers after seeing different results in two previous studies. The Cardiff Acne Disability Index (CADI) is a questionnaire created in 1992 by researchers at Cardiff University to measure the impact of acne on patients of all ages. It includes five short questions designed to measure the patient's psychological, social, emotional, and relational well-being, as well as the frequency and intensity of breakouts (Eram et al., 2019). This

study aims to understand the relationship between the severity of acne vulgaris and the quality of life of students at the Faculty of Medicine, Prima Indonesia University.

B. METHOD

This research is a cross-sectional analytical observational study, meaning that all measurements were carried out at once and there were no further measurements or observations. The type of population that is desirable and appropriate is included in this analysis. Students with acne vulgaris at the Faculty of Medicine, Prima Indonesia University are the target audience. Meanwhile, students from the Faculty of Medicine, Prima Indonesia University class of 2020-2021 who were attacked by acne provide an affordable demographic target as a population. Acne vulgaris sufferers who met the inclusion and exclusion criteria were taken from the 2020-2021 class of the Faculty of Medicine, Prima Indonesia University.

The sample size calculation is carried out using the formula:

$$n = \left\{ \frac{Za + Zb}{0.5 \ln[(1+r)/(1-r)]} \right\}^2 + 3$$

Information:

n = sample size

Z α = standard deviation of alpha = 1.96 (significance level = 5%)

Z β = standard deviation of beta = 1.28 (test power (1 - β) = 90%)

r = minimum correlation that is considered significant (0.5)

$$n = \left\{ \frac{Za + Zb}{0.5 \ln \left[\frac{1+r}{1-r} \right]} \right\}^2 + 3$$

$$n = \left\{ \frac{1.96 + 1.28}{0.5 \ln \left[\frac{1+0.5}{1-0.5} \right]} \right\}^2 + 3$$

$$n = \left\{ \frac{3.24}{0.5 \ln 3} \right\}^2 + 3$$

$$n = \left\{ \frac{3.24}{0.55} \right\}^2 + 3$$

$$n = \{5.891\}^2 + 3$$

$$n = 34.70 + 3$$

$$n = 37.70$$

$$n = 38 \text{ (rounded)}$$

Based on this, a minimum sample size of 38 people is required. Respondents will be sampled after being given a link to a Google form that can be used to provide consent. To measure how satisfied respondents were with their lives, they had to submit a CADI questionnaire, three photos of their faces from different angles, and an informed consent file. When all respondents have completed the survey and sent it back, researchers will use Microsoft Excel to tabulate the data. The CADI score to measure quality of life will be evaluated using SPSS analysis, and facial image findings will be reviewed by researchers and skin and genital specialists who know

the severity of Acne Vulgaris. In this research, a questionnaire was used to evaluate the symptoms of acne vulgaris and students' well-being.

C. RESULTS AND DISCUSSION

1. Respondent Characteristics

The following table displays demographic data for the sample population, including age, gender, and semester.

Table 1. Frequency Distribution of Respondents Based on Age, Gender and Semester Variables at the Faculty of Medicine, Prima Indonesia University

No.	Age	f	%
1.	20 years	9	23.7
2.	21 years	26	68.4
3.	22 years	1	2.6
4.	24 years old	1	2.6
5.	25 years	1	2.6
Amount		38	100.0
No.	Gender	f	%
1.	Man	11	28.9
2.	Woman	27	71.1
Amount		38	100.0
No.	Semester	f	%
1.	4 (four)	5	13.2
2.	6 (six)	33	86.8
Amount		38	100.0

From Table 1 above, it is known that there were 26 respondents aged 21 years (68.4%), 9 respondents aged 20 years (23.75%), and respondents aged 22 years, 24 years and 25 years respectively as many as 1 person (2.6%). Based on gender, there were 27 female respondents (71.1%), and 11 male respondents (28.9%). Based on semester, 33 respondents were 6th semester students (86.8%), 5 4th semester students were respondents (13.2%).

2. Univariate Analysis

Based on the research results, the variable severity of acne vulgaris can be seen in the following table.

Table 2. Frequency Distribution of Respondents Based on Degree of Severity of Acne Vulgaris at the Faculty of Medicine, Prima Indonesia University

No.	Degree of Severity of Acne Vulgaris	f	%
1.	Light	27	71.1
2.	Currently	8	21.0
3.	Heavy	3	7.9
Amount		38	100.0

From Table 2 above, it is known that the severity of acne vulgaris in respondents was 27 people (71.1%) in the mild category, 8 people (21.0%) in the moderate category and 3 people (7.9%) in the heavy category.

Based on the research results, student quality of life variables can be seen in the following table.

Table 3. Frequency Distribution of Respondents Based on the Quality of Life of Students at the Faculty of Medicine, Prima Indonesia University

No.	Quality of Student Life	f	%
1.	No distractions	9	23.7
2.	Light	20	52.6
3.	Currently	5	13.2
4.	Heavy	4	10.5
Amount		38	100.0

From Table 3 above, it is known that the quality of life of respondents in the mild disturbance category was 20 people (52.6%), there were no disturbances as many as 9 people (23.7%), moderate disturbances were 5 people (13.2%), and 4 people (10.5%) had serious disorders.

3. Bivariate Analysis

Based on the research results, the relationship between the severity of acne vulgaris and the quality of life of students can be seen in the following table:

Table 4. Relationship between the severity of acne vulgaris and the quality of life of students at the Faculty of Medicine, Prima Indonesia University

No	Degree of Severity of Acne Vulgaris	Quality of Student Life										Amount	p-value & Correlation Coefficient
		No disturbance		Light		Currently		Heavy					
		f	%	f	%	f	%	f	%	F	%		
1.	Light	9	33.3	15	55.6	2	7.4	1	3.7	27	100.0	p=0.001; r=0.522	
2.	Currently	0	0.0	4	50.0	3	37.5	1	12.5	8	100.0		
3.	Heavy	0	0.0	1	33.3	0	0.0	2	66.7	3	100.0		

Table 4 shows that of the 27 respondents with mild severity of acne vulgaris, the majority of their quality of life was in the mild disorder category, there were 15 individuals (55.6%). Of the 8 respondents with moderate severity of acne vulgaris, the majority of their quality of life was in the moderate disorder category, there were 3 individuals (37.5%). Of the 3 respondents with severe severity of acne vulgaris, the majority of their quality of life was in the severe disorder category, there were 2 individuals (66.7%).

Spearman's rho test findings indicated a correlation between the severity of acne vulgaris and overall life satisfaction of students at the Faculty of Medicine, Prima Indonesia University ($p < 0.001$). Furthermore, it is known that the correlation coefficient (r) between the severity of acne vulgaris and the quality of life for students at the Faculty of Medicine, Prima Indonesia University is 0.522, this value indicates a relationship between these two variables.

4. Degree of Severity of Acne Vulgaris

The majority of students suffering from acne vulgaris at the Faculty of Medicine, Prima Indonesia University are in the moderate degree group (71.1%), while the minority are in the severe degree category (7.9%). According to research conducted by Nourmalydza (2016) at the Medical Study Program at UIN Syarif Hidayatullah Jakarta, the largest group of 46 respondents had mild acne, while the smallest group of 2 respondents had severe acne. The majority of Hadi's (2016) research participants at the Faculty of Medicine and Health Sciences at UIN Syarif Hidayatullah Jakarta were classified as having moderate acne (57.6%), and only 5.9% were classified as having severe acne. Research conducted by Qatrunnada (2021) on FKIK UIN Maulana Malik Ibrahim Malang students found that, among those who had acne vulgaris that had been present for at least a month, those with the mildest condition were most likely to use the Lehmann Assessment System. Specifically, 75.7%, followed by 20% with moderate acne, and 4.3% with severe acne. Research carried out by Alfein (2022) at SMA Insan Kamil Bogor found that there were 55 students as respondents in the research. High school students were chosen because teenagers (12-24 years) are the group that most often suffer from acne vulgaris. The group with mild acne was 50.9%. Moderate acne accounted for 27.3%. Meanwhile, the group suffering from severe acne was at least 21.8%.

Acne vulgaris, or simply acne, is a very common skin disorder caused by inflammation of the skin's oil glands and hair follicles. Comedones (including blackheads and whiteheads) are just one type of acne lesion; others include papules, pustules, and nodules (Oge' et al., 2019) . Acne commonly occurs on the face, neck, chest, back, and shoulders, and can affect individuals of various age groups, especially teenagers and young adults. This condition can be caused by factors such as excessive oil production, hormonal changes, blocked skin pores, and bacterial infections. Acne can have a significant impact on an individual's quality of life, especially in psychosocial aspects (Dreno, 2020) .

According to researchers, research results show that the majority of students at the Faculty of Medicine, Prima Indonesia University have the severity of acne vulgaris in the mild category. This means that some students are aware of the importance of maintaining healthy skin, especially in preventing the emergence of acne vulgaris, so that the severity of acne vulgaris in these students is not too severe. Students with mild degrees of acne vulgaris due to the habit of living a healthy lifestyle with a balanced diet, adequate sleep and proper skin care tend to have mild degrees of acne. These healthy habits can help control the inflammation and excess oil production often associated with acne. In addition, many students immediately seek treatment when they start experiencing mild acne. This quick action can help control acne before it gets worse. Meanwhile, students experiencing severe acne vulgaris may be slower to seek treatment, which can make it worse.

The research results also show that 21.0% of the population of students at the Faculty of Medicine, Prima Indonesia University who were research subjects experienced acne vulgaris with a severity level that was categorized as moderate,

while 7.9% of these students experienced acne vulgaris with a severity level that was included in the category heavy. Thus, these findings illustrate that the presence of the skin problem acne vulgaris is quite significant among students at the Faculty of Medicine, Prima Indonesia University who were the research samples, with the majority suffering from moderate levels of acne, while a minority experienced more severe cases.

Students at the Faculty of Medicine, Prima Indonesia University can experience moderate and severe acne vulgaris caused by a number of factors such as hormonal changes, lifestyle, air pollution and others. Hormonal changes common during adolescence and early adulthood can affect skin sebum production, a major factor in the development of acne. In addition, an often irregular lifestyle, academic stress, lack of adequate sleep, and unhealthy eating patterns can worsen skin conditions. Use of unsuitable or excessive skin care products can also contribute to the development of acne. Apart from internal factors, external factors such as air pollution and exposure to irritating substances in the campus environment can also affect skin conditions. With these various factors together having the potential to trigger or worsen acne, students at the Faculty of Medicine, Prima Indonesia University who were research samples are often susceptible to experiencing moderate to severe acne.

5. Quality of Student Life

Based on research results, it shows that the majority of students' quality of life at the Faculty of Medicine, Prima Indonesia University is in the mild impairment category (52.6%), the minority is in the severe impairment category (10.5%). Research carried out by Alfein (2022) at Insan Kamil Bogor High School found that the majority of respondents were only affected by mild disorders, amounting to 27 people, amounting to 49.1%, moderate disorders amounting to 14 people, 25.5%, and those experiencing severe disorders were 12 people, totaling 21.8 %. There were 2 people who were not disturbed, amounting to 3.6%. Hadi's research (2016) at the Faculty of Medicine and Health Sciences, UIN Syarif Hidayatullah Jakarta, showed that the description of the quality of life of AV patients using the CADI questionnaire showed that the largest group of subjects were students whose quality of life was mildly disturbed (61.2%) and the least was the group who did not have impaired quality of life (4.7%). Qatrunnada's research (2021) found that for FKIK UIN Maulana Malik Ibrahim Malang students, 58.6% (41 people) felt mild quality of life disturbances, 31.4% (22 people) felt moderate disturbances, 1.4% (1 person) felt serious interference, and 8.6% (6 people) did not feel impaired quality of life.

The quality of life of students refers to an overall assessment of their life circumstances, which includes various physical, psychological, social and economic aspects. This includes an individual's level of happiness, satisfaction and well-being during their studies at college. Several factors that can influence a student's quality of life include the balance between academic work and social activities, social support, physical and mental health, and financial conditions (Diener, 2021) . The quality of life of students is often disturbed by the presence of acne vulgaris on their faces. These

skin problems can result in decreased self-confidence, which in turn affects social interactions and interpersonal relationships, thereby reducing their quality of life. Feelings of embarrassment or stress caused by undesirable physical appearance can interfere with academic focus and performance, resulting in a negative impact on academic achievement. Attempts to hide or treat acne with various skin care products or *makeup* can drain time and money, resulting in interference with other aspects of a student's life, such as extracurricular activities or leisure time. In combination, all these factors can produce emotional discomfort and a negative influence on the quality of life of students experiencing acne vulgaris (Eram et al., 2019).

According to researchers, research results show that the quality of life of students at the Faculty of Medicine, Prima Indonesia University is in the mild impairment category. The quality of life of students with mild disorders has a more limited influence on students' daily activities. This allows them to continue participating in academic and social activities better than students who experience severe disruption. Mild disorders tend to have simpler and more effective treatment options. With proper treatment, the symptoms of the disorder can be managed well, which can improve the quality of life for students at the Faculty of Medicine, Prima Indonesia University. Apart from that, students with mild disorders may have a better level of psychological resilience, which can help them deal with stress and pressure that may arise due to these disorders.

The results of this research also found that 13.2% of students at the Faculty of Medicine, Prima Indonesia University felt moderate quality of life disturbances due to acne vulgaris, while 10.5% felt quality of life disturbances were severe. This can impact their lives and studies very significantly. Students with impaired quality of life are facing obstacles such as decreased self-confidence, stress, and feelings of embarrassment that can affect social interactions and study concentration, which may have a negative impact on their academic achievement. On the other hand, college students with severely impaired quality of life may face greater challenges, including greater social isolation, anxiety, and even depression, which can substantially impair their mental well-being and academic performance. Thus, the results of this research highlight the importance of understanding and support for students at the Faculty of Medicine, Prima Indonesia University who experience impaired quality of life due to acne vulgaris so that they can face this challenge better in their lives and studies.

6. The Relationship Between the Severity of Acne Vulgaris and the Quality of Life of Students

The findings indicated a relationship between the severity of acne vulgaris and students' perceptions of their own quality of life at the Faculty of Medicine, Prima Indonesia University ($p = 0.001 < 0.05$). The correlation value of 0.522 places the strength of the relationship between the two variables right in the medium range.

These results are in line with those found by Alfein (2022) at SMA Insan Kamil Bogor, where it was found that the greater the severity of AV, the more severe the impact on the participant's quality of life ($p = 0.000$, $r = 0.524$). Research conducted by

Qatrunnada (2021) at FKIK UIN Maulana Malik Ibrahim Malang found a positive correlation between the severity of acne vulgaris and the quality of life of students. The research significance value is 0.000 and the correlation coefficient is 0.933. Hadi's research (2016) at FKIK Uin Syarif Hidayatullah Jakarta shows that those who have severe acne have a higher quality of life than those who have mild acne by 20%. In contrast to Rozana's (2021) research on new students from the medical faculty at Baiturrahmah University in Padang in 2017, we did not find a correlation between the severity of acne vulgaris and well-being among this sample.

Students who experience acne vulgaris with a high level of severity tend to experience a decrease in their quality of life. Poor skin conditions can affect the physical, emotional and social aspects of their lives. Physically, acne can be a source of discomfort, pain, and appearance disturbance, which may reduce self-confidence. Emotionally, the stress and anxiety caused by acne can take a toll on their mental well-being. Socially, acne can limit social activities and interpersonal interactions, potentially affecting social relationships and the social support they receive. In this case, proper management and treatment of acne vulgaris can also have a positive impact on the quality of life of students, which can help them better reach their academic and social potential (Jones, 2020).

Researchers from the Faculty of Medicine, Prima Indonesia University concluded that the severity of acne vulgaris correlates with the well-being of the students. The quality of life of students with moderate acne vulgaris is often classified as a mild disorder, while the quality of life of students with severe acne vulgaris is usually classified as a severe disorder. This is because students at the Faculty of Medicine, Prima Indonesia University with severe acne will experience significant psychological stress, including depression, anxiety and decreased self-esteem. Dissatisfaction with their appearance can affect their mental and emotional well-being, which in turn affects their quality of life. *Severe acne vulgaris can affect students' social interactions.* They feel embarrassed or lack self-confidence in social situations, which can reduce participation in social activities and affect interpersonal relationships. Apart from that, *severe acne vulgaris often accompanies physical symptoms such as pain and discomfort.* This can disrupt sleep and physical activity, which can affect overall quality of life.

D. CONCLUSION

Based on the results and discussion, it can be concluded that the severity of acne vulgaris among students at the Faculty of Medicine, Prima Indonesia University is mostly in the mild category (71.1%), a small portion is in the severe category (7.9%). The quality of life of students at the Faculty of Medicine, Prima Indonesia University is mostly in the mild impairment category (52.6%), a small number is in the severe impairment category (10.5%). The severity of acne vulgaris in students is significantly related to the quality of life of students at the Faculty of Medicine, Prima Indonesia University, with $p\text{-value} = 0.001$, with the close relationship (correlation coefficient) of the two variables in the medium category ($r = 0.522$).

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