THE RELATIONSHIP BETWEEN THE SEVERITY OF ACNE VULGARIS AND THE QUALITY OF LIFE OF PRIMA INDONESIA UNIVERSITY MEDICAL FACULTY STUDENTS

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KEYWORDS	ABSTRACT
Acne Vulgaris, Quality of Life, Students	Acne vulgaris, or acne, is a chronic inflammatory disease of the pilosebaceous follicles, 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, affecting their quality of life. This research aimed 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% (a=0.05). The results showed that the severity of acne vulgaris of students at the Faculty of Medicine, Prima Indonesia University (71.1%) was mild. 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). The majority of respondents indicated the presence of mild acne vulgaris, reflecting the potential for awareness of good skin health practices.

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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 significant disease that affects almost the entire world's population. As many as 85% are felt by teenagers aged 15 to 18, with a certain severity level in both men and women. On the other hand, this may still last until the third decade or even further (Sitohang & Wasitaatmadja, 2020).

Acne vulgaris is a skin problem that can significantly 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 (Ren et al., 2023). 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)

The etiology of this disease still needs to be identified. However, 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 (e.g., pregnancy, menstruation, stress) and the environment (including humidity, weather, cosmetics, cleanliness, smoking, eating) (Oge' et al., 2019).

World Health Organization 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 (Ogbu & Arah, 2017). According to the WHO, health is the foundation for improving people's living standards. Various factors contribute to an individual's satisfaction with their life, including physical and mental health, level of independence, network of friends and family, and local environment (Khomsatin, 2022).

Acne vulgaris may be curable on its own and is not life-threatening. However, it still has negative psychological and social impacts, which can reduce the quality of life (Khomsatin, 2022). Acne vulgaris affects people's minds in various ways, each 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., 2018).

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 (Yap, 2012). 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 always to look ideal (Eram et al., 2019).

In previous research, Sitohang & Jihan's (2022) examination results showed that 75.7% (43 people) of UISU medical faculty students suffered from mild acne vulgaris. 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, in research by the medical faculty at Baiturrahmah University in Padang conducted by Rozana et al. (2021), which also used CADI, 36 people reported minor problems. However, researchers did not find a correlation between the severity of acne vulgaris and the patient's life satisfaction (Rozana & Rosmaini, 2021).

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.

This research aims to assess the relationship between the severity of acne vulgaris and the quality of life of students, as well as to identify the causative factors and influences of acne vulgaris severity. The study is expected to provide benefits in developing intervention strategies that can assist students in managing acne vulgaris and improving their quality of life. It aims to provide

useful information to students, healthcare professionals, and relevant parties to enhance understanding of the relationship between skin health and psychological well-being. Additionally, it seeks to contribute to scientific knowledge regarding the correlation between acne vulgaris and quality of life, serving as a foundation for further research and the development of relevant health policies.

METHOD

This research is a cross-sectional analytical observational study, meaning that all measurements were carried out simultaneously, 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 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:

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

Information :
n   = sample size
Zα   = standard deviation of alpha = 1.96 (significance level = 5%)
Zβ   = standard deviation of beta = 1.28 (test power $(1-\beta)$ = 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.

RESULT AND DISCUSSION
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%), nine respondents aged 20 years (23.75), and respondents aged 22 years, 24 years, and 25 years, respectively as many as one 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%), and five 4th semester students were respondents (13.2%).

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, eight people (21.0%) in the moderate category, and three 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 nine people (23.7%), moderate disturbances were five people (13.2%), and four people (10.5%) had severe disorders.

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, most of their quality of life was in the mild disorder category. There were 15 individuals (55.6%). Of the eight respondents with moderate severity of acne vulgaris, the majority of their quality of life was in the moderate disorder category, and there were three individuals (37.5%). Of the three respondents with severe severity of acne vulgaris, the majority of their quality of life was in the severe disorder category, and there were two individuals (66.7%).

Spearman's rho test findings indicated a correlation between the severity of acne vulgaris and the 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.

Degree of severity of acne vulgaris

Most 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 (n.d.) at the Medical Study Program at UIN Syarif Hidayatullah Jakarta, 46 respondents had mild acne. In comparison, the smallest group of 2 respondents had severe acne. Most (Hadi, 2016) research participants at the Faculty of Medicine and Health Sciences at UIN Syarif Hidayatullah Jakarta were classified as having moderate acne (57.6%). Only 5.9% were classified as having severe acne. Research conducted by (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. Precisely, 75.7%, followed by 20% with moderate acne and 4.3% with severe acne. Research conducted by Alfein (2022) at SMA Insan Kamil Bogor found 55 students as respondents. 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 acne, is a pervasive skin disorder caused by inflammation of the skin's oil glands and hair follicles (Bungau et al., 2023). 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. It can affect individuals of various age groups, especially teenagers and young adults (Yen & Lalor, 2023). This condition can be caused by 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 most students at the Faculty of Medicine, Prima Indonesia University, have the severity of acne vulgaris in the mild category. This means that some students know 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 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. In comparison, 7.9% of these students experienced acne vulgaris with a severity level included in the category heavy. Thus, these findings illustrate that the skin problem of 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. At the same time, a minority experienced more severe cases.

Students at the Faculty of Medicine, Prima Indonesia University, can experience moderate and severe acne vulgaris caused by several factors such as hormonal changes, lifestyle, air pollution, and others. Hormonal changes common during adolescence and early adulthood can affect skin sebum production, a significant 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. Besides 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.

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 %. 2 people were not disturbed, amounting to 3.6%. The 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%). The least was the group who did not have impaired quality of life (4.7%). The research from (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 severe 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 happiness, satisfaction, and well-being during their studies at college. Factors influencing a student's quality of life include balancing 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, affecting social interactions and interpersonal relationships, thereby reducing their quality of life. Feelings of embarrassment or stress caused by an 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, interfering 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 negatively influence 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 more straightforward and more effective treatment options. With proper treatment, the disorder's symptoms 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.

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. In comparison, 10.5% felt quality of life disturbances were severe. This can impact their lives and studies very significantly. Students with an 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 hurt their academic achievement. On the other hand, college students with a severely impaired quality of life may face more significant challenges, including more excellent 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.

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 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 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 (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. The research from (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 the (Rozana & Rosmaini 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 severity level 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. In contrast, 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, affecting 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. Also, severe acne vulgaris often accompanies physical symptoms such as pain and discomfort. This can disrupt sleep and physical activity, affecting overall quality of life.

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 mainly 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 mainly in the mild impairment category (52.6%), and a small number are 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-value = 0.001, with the close relationship (correlation coefficient) of the two variables in the medium category (r = 0.522).

The majority of respondents exhibited mild acne, indicative of potential awareness regarding healthy skin practices. The study revealed a significant correlation between the severity of acne vulgaris and the quality of life, with more severe acne corresponding to greater disturbances in various aspects of students' lives. Early intervention and proper management of acne emerged as crucial factors that positively impact students' well-being. These findings underscore the importance of recognizing the psychological effects of acne and promoting healthy lifestyle habits for enhanced overall quality of life among university students. Future research and awareness programs may further address the specific challenges faced by students dealing with acne vulgaris in an academic context.

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