The Relationship Between Diet and the Incidence of Acne Vulgaris Among Preclinical Medical Students at Medical Faculty of Unizar

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ABSTRACT

The prevalence of acne vulgaris in Indonesia is quite a lot experienced by college students. The many routines of medical students are one of the factors for irregular dietary habits and rest patterns, which can lead to acne vulgaris. This study aims to determine the association between dietary habits and the incidence of acne vulgaris in among preclinical students of Medical Faculty of Al Azhar Islamic University, Mataram (Fakultas Kedokteran Universitas Islam Al-Azhar: FK UNIZAR) in 2019, 2020, and 2021. This study used a cross-sectional study, assessed dietary habits with questionnaires tested for validity and reliability, and made facial observations to assess the gradation of acne vulgaris based on the Lehmann gradation. The data obtained were analysed using SPSS Version 23 & statistical tests using the Chi-Square method. Based on the analysis results using the Chi-Square Test, the p-value is 0.143. There was no significant association between diet and the incidence of acne vulgaris in FK UNIZAR preclinical students. It is hoped that future researchers can formulate other variables and increase the number and variety of respondents.

Keywords: Dietary Habits; Acne Vulgaris; Medical Student.

INTRODUCTION

In Indonesia, the prevalence of Acne Vulgaris is approximately 85-100%, with the highest occurrence among adolescents ranging from 47% to 90%. The number of individuals with acne vulgaris in Indonesia increased consecutively in 2006, 2007, and 2009, with rates of 60%, 80%, and 90%, respectively. According to the Global Burden of Disease Study in 2019, the provinces with the highest prevalence were Kalimantan Utara (North Kalimantan), with a prevalence of 78.3% to less than 89.7%, followed by Nusa Tenggara Barat (West Nusa Tenggara) with a prevalence of 74.4% to less than 78.3%. Acne vulgaris is more common among women (69.7%) than men (30.3%) in the age group of 16-25 years.

From the above prevalence, adolescents are highly susceptible to acne vulgaris. Medical students with

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busy schedules and numerous activities must have time management skills. The condition often leads medical students to work on their assignments until late or stay up all night while enjoying snacks due to hunger that arises during late hours caused by an increase in the hunger-regulating hormone ghrelin, and it can be one of the factors contributing to the occurrence of acne vulgaris since dietary patterns are one of the factors that can trigger acne vulgaris (Mila Mauliza et al., 2020).

According to Syahputra et al. (2021), there is a significant relationship between diet and the occurrence of acne vulgaris in individuals, particularly concerning high-fat and fast-food consumption. Dietary patterns are considered one of the many factors that can trigger acne vulgaris, especially when consuming nuts, fried foods, chocolate, cheese, and a significant amount of milk. However, Husna (2013) argues that dietary patterns are not relevant to acne vulgaris. Similarly, according to Hasan et al (2015), there is no significant association between dietary patterns and the occurrence of acne vulgaris. Please note that the provided information is based on the search results, and different studies may present conflicting findings. It is essential to consult a medical professional or dermatologist for accurate and personalized information regarding the relationship between diet and acne vulgaris.

RESEARCH METHOD

This quantitative research with a cross-sectional study design occurred at the Medical Faculty, Al-Azhar Islamic University, Mataram (FK UNIZAR). The study lasted from Tuesday, August 16th to Saturday, August 19th, 2022. The population for this study consisted of preclinical students of FK UNIZAR, from the cohorts of 2019, 2020, and 2021, totaling 282 individuals. The sample for this study was selected from the preclinical students of FK UNIZAR, from the cohorts of 2019, 2020, and 2021, based on inclusion and exclusion criteria. The sample size was determined using the Slovin formula. The collected data will be processed and analyzed using software tools.

Software Statistical Package for The Social Sciences (SPSS) is a powerful data management and analysis software package commonly used for statistical analysis. The analysis method used in this case is the Chi-Square test. In the context of Confidence Interval in research, if the P-value is less than 0.05, it means that the null hypothesis (Ho) is rejected (P-value $\leq \alpha$), indicating a significant relationship. On the other

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hand, if the P-value is greater than or equal to 0.05, it means that the null hypothesis (Ho) is accepted (P-value ≥ α), indicating no significant relationship.

RESULTS

The study took place from August 16-19, 2022, covering the academic years of 2019, 2020, and 2021. The participants completed a questionnaire, and observations were made in Classroom 5 at the FK UNIZAR

Table 1. Respondents' Characteristics

Respondents' Characteristics	Frequency	Percentage (%)
Age		
19 years	48	29%
20 years	43	26%
21 years	42	25%
22 years	18	11%
23 years	8	5%
24 years	6	4%
Sex		
Female	108	63%
Males	57	35%
Batch		
2019	70	42%
2020	44	27%
2021	51	31%

Based on the table above, the characteristics of the respondents based on age were obtained, with the highest number being 48 respondents aged 19 (29%) and the lowest being six respondents aged 24 (4%). As for gender, there were 108 female respondents (65%) and 57 male respondents (35%), with more females than males. Regarding the academic year, the highest number of respondents, 70, was from the 2019 cohort (42%), while the lowest number, 44, was from the 2020 cohort (27%).

Table 2. Univariate Analysis of Acne Vulgaris Severity

Knowledge	Frequency	
	Number (n)	Percentage (%)
No *Acne*	49	30%
Mild	78	47%
Moderate	38	23%
Sever	0	0%
Total	**165**	**100%**

Based on the data obtained from 165 respondents, it was found that 49 respondents (30%) did not have acne, while 78 respondents (47%) had mild acne, 38 respondents (23%) had moderate acne, and there were no respondents or 0 respondents (0%) who had severe acne.

Table 3. Univariate Analysis of Dietary Factors

Knowledge	Frequency	
	Number (n)	Percentage (%)
Good	43	26%
Less Good	122	74%
Total	**165**	**100%**

Based on the data obtained from 165 respondents, it was found that there

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were 43 respondents (26%) who had a good eating pattern and 122 respondents (74%) who had a poor eating pattern.

Table 4. Bivariate Analysis of the Relationship between Diet and Acne Vulgaris

Variable	No *Acne*		Mild		Moderate		Severe		P-Value	PR
	N	%	N	%	N	%	N	%		
Good Diet	9	5,5%	23	13,9%	11	6,7%	43	26,1%	0,143	0,543
Less Good Diet	40	24,2%	54	32,7%	28	17%	122	73,9%		
Total	49	29,7%	77	46,7%	39	23,6%	165	100%		

The following results were obtained based on the bivariate analysis of 165 respondents. Nine respondents (5.5%) had an excellent dietary pattern and did not have acne, while 23 respondents (13.9%) had an excellent dietary pattern with mild acne. Additionally, 11 respondents (6.7%) had an excellent dietary pattern with moderate acne. On the other hand, 40 respondents (24.2%) had less good dietary patterns but did not have acne. Among them, 54 respondents (32.7%) had a less good dietary pattern with mild acne, and 28 respondents (17%) had a less good one with moderate acne. The research findings from the 165 respondents indicated that 28 respondents (17%) frequently consumed soda or artificial sweeteners, while the remaining 137 respondents (83%) did not consume soda or artificial sweeteners. Based on the analysis using the Chi-Square test, a p-value or Asymp. A sig of 0.143 was obtained since the value of Asymp. Sig > 0.05 indicates no significant relationship exists between dietary patterns and acne vulgaris among preclinical students FK UNIZAR in the 2019, 2020, and 2021 cohorts.

DISCUSSION

The right food choices require consuming vitamins, minerals, carbohydrates, proteins, and fats. Habits and food choices are essential in human health, especially facial health.

Based on the research conducted by Hasan et al., (2015), the majority of respondents sampled in this study have a diet classified as poor, with a total of 122 respondents (74%) falling into this category. This high number indicates that most respondents need healthier, nutritious eating habits. On the other hand, 43 respondents (26%) in this study

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have a good diet. Therefore, the dominant result is respondents with a poor diet. The high number of respondents with a poor diet is due to students' need for more attention regarding regular eating patterns due to busy schedules, coursework, campus activities, and other personal reasons (Khairiyah, 2016).

This finding is consistent with the research conducted by Suppiah et al. (2018), which states that students with poor eating habits and suffering from acne vulgaris are often consuming foods that contain carbohydrates, processed dairy products, sugar or sweet foods and drinks, oily foods, high glycemic index foods, certain medications, and experiencing stress. Poor eating habits can pose risks to acne vulgaris and even worsen its occurrence in adolescents (Sharma et al., 2017). Additionally, Suppiah et al. (2018) on Acne vulgaris and its relationship with dietary intake from a Malaysian perspective shows that the consumption of milk significantly contributes to a higher incidence of acne vulgaris, reaching 63.2%, and the consumption of chocolate also significantly contributes to a higher incidence of acne vulgaris, reaching 43.9%. In conclusion, the research conducted by Suppiah et al. (2018), demonstrates that the intake of milk and chocolate can play a role in acne vulgaris. Furthermore, according to Tsuraya et al. (2018), processed foods containing chili, typically high in temperature and spicy, such as sambal, also have a significant relationship with acne vulgaris.

Therefore, the results of this study, along with several other studies mentioned above, indicate that patients with poor dietary habits are at a higher risk of acne vulgaris than patients with good and healthy eating habits. Preventing the potential occurrence of acne vulgaris can be done by taking care of oneself and consuming only healthy food and drinks. Adopting a healthy lifestyle with sufficient sleep and regular exercise can also reduce and prevent the risk of acne breakouts. Research by Kalmbach et al. (2018) revealed that lack of sleep can contribute to a 15 percent increase in stress. High-stress levels can trigger the cortisol hormone, which can damage the structure and function of the skin and lead to the development of acne vulgaris symptoms. In addition, good habits such as skincare and maintaining skin hygiene are essential for a healthy lifestyle. Acne vulgaris symptoms arise from clogged pores due to dirt, dead skin cells, oil, and bacteria. The condition usually occurs when the skin is not regularly cleaned. It is recommended to clean the face at least twice a day, in the morning and at night,

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as Sole et al., (2019) suggested. They recommend that individuals, especially teenagers, practice washing their faces 2-3 times daily with a facial cleanser designed to reduce acne vulgaris. Healthy and well-maintained skin not only affects overall health but also enhances appearance. Meeting fluid needs by drinking at least eight glasses of water on a daily basis can keep the skin hydrated and the body healthy.

Acne vulgaris occurs until an individual reaches adulthood (Dawson & Dellavalle, 2013). Almost 90% of teenagers have acne, and half experience symptoms in adulthood (Thiboutot et al., 2009). By the age of 40, 1% of men and 5% of women have lesions or still experience cases of acne vulgaris (Dall'Oglio et al., 2021). Recent analysis shows an increasing prevalence of acne in children due to puberty (Ingram et al., 2010). Acne vulgaris has psychosocial impairments and can cause permanent scarring (Barnes et al., 2012). Patients are motivated to seek medical treatment (Dawson & Dellavalle, 2013).

The research results indicate that out of the respondents, 49 (30%) did not suffer from acne vulgaris, while the respondents with acne vulgaris were divided into three gradations according to Lehmann's grading system: mild, moderate, and severe. However, none of the respondents who participated in the study suffered from severe acne vulgaris. Seventy-eight respondents (47%) had mild acne vulgaris, and 38 respondents (23%) had moderate acne vulgaris. The majority of the respondents in this study had mild acne vulgaris, accounting for 78 respondents (47%). The research findings revealed that 38 respondents (23%) were characterized by an increased number of inflamed papules and pustules on the face, often accompanied by mild trunk involvement.

According to Anwar (2013), one of the factors that can contribute to the development of acne vulgaris is usually related to high-fat foods such as fried foods, nuts, milk, and cheese, as well as high-carbohydrate foods like sweets and chocolates, and foods with coconut milk. Furthermore, Syahputra et al. (2021), state that dietary factors can play an essential role in acne vulgaris, particularly fast food (junk food) and high-fat foods. Additionally, high-carbohydrate foods (sweets and chocolates), alcohol, spicy foods, and foods high in iodine (salt) are also examples of foods that are highly sensitive for individuals with acne vulgaris (Asbullah et al., 2021).

A study conducted on preclinical medical students at FK UNIZAR found that out of 166 respondents, 78 (47%) had mild acne,

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and in the analysis of dietary patterns, 122 respondents (74%) had poor dietary patterns. However, based on the Chi-Square test, the obtained p-value was 0.143 > α (0.05), indicating that there is no significant relationship between dietary patterns and the occurrence of acne vulgaris in preclinical medical students at FK UNIZAR. These findings support a previous study conducted by Hasan et al. (2015) on the relationship between dietary patterns and the occurrence of acne vulgaris among fifth-semester nursing students at Sam Ratulangi University Faculty of Medicine, which stated that, on average, the respondents had poor dietary patterns and there was no association between dietary patterns and the occurrence of acne vulgaris. Additionally, a study by Koku et al. (2012), involving 2,300 participants aged 13-18 years through a cross-sectional study showed a close relationship between acne vulgaris and dietary patterns. The study found that the average prevalence of acne vulgaris among the respondents was 60.7%. It was also found that there was a high prevalence of acne vulgaris among adolescents in Eskisehir but a low consultation rate with doctors. Moreover, there was a positive correlation between fat, sugar, and fast-food consumption and the prevalence of acne vulgaris. Therefore, raising awareness among the public is crucial in encouraging adolescents to seek early medical assistance.

The latest report published by (Dall'Oglio et al., 2021) in a review of the evidence on the relationship between dietary patterns and acne vulgaris reveals that maintaining a healthy diet plays an undeniable role in acne development, duration, and severity. According to the study conducted by Dall'Oglio et al (2021) acne triggers include high glycemic index/load foods, dairy products, fatty foods, and chocolate. The findings of this report provide strong support and align with the results of this study, where a poor diet can act as a trigger for the occurrence of acne vulgaris.

On the other hand, acne protective factors include fatty acids, fruit, and vegetable intake. The role played by specific dietary components associated with different food items, such as those found in milk (full-fat/whole milk, low-fat, skimmed), dairy products (cream, ice cream, yogurt, and cheese), or chocolate (milk chocolate, dark chocolate), remains an unresolved issue and a subject for future research.

CONCLUSION

The eating patterns of preclinical medical students of FK

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UNIZAR in the cohorts of 2019, 2020, and 2021 are primarily classified as poor eating patterns. The incidence of acne vulgaris among preclinical medical students at FK UNIZAR is predominantly mild. Based on the analysis, a significant relationship between dietary patterns and the occurrence of acne vulgaris among preclinical medical students from FK UNIZAR in the cohorts of 2019, 2020, and 2021 is found. Future researchers can formulate other variables and increase the number and variation of respondents, such as narrowing down by cohort or vice versa. Students are also expected to strive to maintain a good eating pattern by paying attention to sufficient nutrition and not skipping meals.

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