



THE INFLUENCE OF CHEESE CONSUMPTION ON THE DEGREE OF ACNE VULGARIS IN STUDENTS OF MEDICINE FACULTY OF DIPONEGORO UNIVERSITY

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ABSTRACT

Introduction : Acne vulgaris is a chronic inflammatory disease of pilosebaceous follicles with a polymorphic clinical picture consisting of various skin disorders in the form of blackheads, papules, pustules, nodules, and scar tissue. Four pathogenesis underlying the emergence of AV include polysebaceous follicle hyperproliferation, excess sebum production, inflammation, and the presence of *Propionibacterium acnes*. The cause of this multifactorial AV, one of which is a factor of consuming fatty foods, especially saturated fat, one of the foods is cheese. Cheese is one of the foods that we usually consume as processed foods that contain lots of saturated fat. Consuming fatty foods on an irregular basis can cause acne vulgaris. **Objectives :** To determine the relationship of fatty food consumption with the severity of acne vulgaris in Diponegoro University Kedokteran Faculty students

Methods : This study uses a descriptive observational design with cross sectional design in which the researcher will describe how the incidence of acne vulgaris, the severity of acne vulgaris and the factors that influence acne vulgaris, especially regarding saturated fat consumption in excess cheese in Diponegoro University Medical School students. Samples were taken by purposive sampling to produce 40 students who met the inclusion and exclusion criteria. Assessment is assessed by filling out questionnaires suffering from acne vulgaris and assessing acne vulgaris in respondents. Analysis of the data used in the study is an analysis with the Chi Square test. **Result :** In conclusion, clustered pimples are a dominant factor in the assessment of acne ($p < 0,05$). **Conclusion:** In this study it was found that there was no significant relationship between cheese consumption with the severity of acne vulgaris and pimples arising from acne is acne that occurred before the existence of this study

Keywords : *acne vulgaris, fat, cheese*

BACKGROUND

Acne vulgaris is a chronic inflammatory disease of pilosebaceous follicles with a polymorphic clinical picture consisting of various skin disorders in the form of blackheads, papules, pustules, nodules, and scar tissue. The etiology and pathogenesis of acne vulgaris are not yet known, but there are various factors related to acne pathogenesis such as: changes in keratinization patterns, increased sebum production, increased androgen hormones,

psychological stress, other factors such as age, race, familial, fatty food, weather.¹

There are certain foods that aggravate acne vulgaris. These foods include high-fat foods (fried foods, nuts, milk, cheese, and the like), high-carbohydrate foods (sweet foods, chocolate, etc.), alcohol, spicy foods, and foods high in iodine (salt). Fat in food can enhance levels of sebum composition.²

In individuals acne vulgaris in general sebum production is associated with different responses from the pilosebaceous follicular



units of each target organ, or an increase in circulating androgens, or both. For example, excessive sebum production is obtained at the location of the face, chest and back, although it gets fixed circulating androgen levels. In conclusion, androgens are a causative factor in acne vulgaris, although in general individuals with acne vulgaris do not experience significant impairment of endocrine function. Habit of consuming excessive cheese can cause acne vulgaris. cheese is one of the processed foods from milk that contains saturated fat, this fat is what can increase levels of sebum composition which will cause acne vulgaris.³

This study aims to see whether there is an influence of cheese consumption on the incidence of acne vulgaris in the faculty of medicine at Diponegoro University

MATERIAL AND METHODS

Study design

This type of research is an observational study looking at probandus consuming cheese 3 months before the study with cross sectional design. This research is in the Faculty of Medicine of Diponegoro University

Material

The tools and materials in this study were informed consent, questionnaires, and cameras for documentation

Method

This research was conducted at Diponegoro University Faculty of Medicine students who suffer from acne vulgaris and consume cheese. Then requested research consent (informed consent). Then the questionnaire was given where the filling was guided by the researcher.

Questionnaire form that is used as a data tool for data gathering is a closed ended

form of questions with a variety of questions in the form of multiple choice, which of the several answers provided by responders only choose one of them in accordance with his opinion.

Research Ethics

Ethical Clearance has been obtained with the approval and consideration of the Health Research Ethics Commission (KEPK), Faculty of Medicine, Diponegoro University and Dr. RSUP Kariadi Semarang. Prospective research subjects are asked for approval to participate in the study through the signing of informed consent. All data obtained by researchers are kept confidential and used for research purposes. Research subjects who chose not to continue research did not receive any consequences.

Statistical analysis

The statistical test conducted was a bivariate chi square analysis in order to see the magnitude of the relationship. Meet the criteria for the chi square test if the expected count value or significance value $p < 5\%$ or 0.05 which means that there is a relationship between the independent variable consuming cheese food and the dependent variable acne vulgaris events.⁴

Ethical appearance

Ethical clearance has been requested with no. 363/EC/KEPK/FK-UNDIP/VII/2019

RESULT

Univariate Analysis

Univariate analysis is used to describe the characteristics of the sample based on the incidence of acne vulgaris which includes characteristics, basic data of respondents, respondents' answers about the assessment of acne vulgaris.⁵



Tabel 1. Data Characteristics

Variabel	F	%	Mean ± SD	Median (min – max)
Age			21,05 ± 1,89	21 (17 – 25)
Force				
2013	4	10		
2014	2	5		
2015	3	7,5		
2016	21	52,5		
2017	3	7,5		
2018	1	2,5		
2019	6	15		
Height			169,20 ± 5,81	169,5 (157 – 179)
Weight			68,85 ± 15,03	66 (45 – 119)

Based on the results of the above table after being tested using the chi square test it was concluded that there was no

significant relationship on each of the variable data characteristics.

Table 2. Basic data table on the assessment of acne vulgaris

Variabel	Ratings				p [¥]
	Moderate		Mild		
	n	%	n	%	
Smoke					
Yes	3	33,3	14	45,2	0,707
No	6	66,7	17	54,8	
the duration of naps <7 hours					
Yes	7	77,8	24	77,4	1,000
No	2	22,2	7	22,6	
Mother have an <i>acne vulgaris</i>					
Yes	4	44,4	11	35,5	0,705
No	5	55,6	20	64,5	

Description : * Significant (p < 0,05); ¥ Chi square

Based on the results of the above table after being tested using the chi square test it was concluded that there was no

significant relationship between one variable with the other variables in each variable.

Table 3. Table of influences on valuation

The statement	Ratings				p [¥]
	Moderate		Mild		
	n	%	n	%	
knowing cheese					
Yes	9	100	31	100	–



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The statement	Ratings				p [¥]
	Moderate		Mild		
	n	%	n	%	
No	0	0	0	0	
Consumption of cheese last 3 months					
Yes	8	88,9	23	74,2	0,593
No	1	11,1	6	19,4	
Do not know	0	0	2	6,5	
Since childhood consuming cheese					
Yes	7	77,8	22	71	1,000
No	2	22,2	9	29	
Eat cheese 1 time a week					
Yes	3	33,3	5	16,1	0,376
No	6	66,7	23	74,2	
Do not know	0	0	3	9,7	
Eating processed cheese					
Yes	7	77,8	20	64,5	0,082
No	1	11,1	11	35,5	
Do not know	1	11,1	0	0	
Suffer an <i>acne vulgaris</i>					
Yes	9	100	24	77,4	0,175
No	0	0	7	22,6	
Family have an <i>acne vulgaris</i>					
Yes	6	66,7	14	45,2	0,373
No	2	22,2	15	48,4	
Do not know	1	11,1	2	6,5	
Food / beverage cheese arising <i>acne vulgaris</i>					
Yes	6	66,7	23	74,2	0,788
No	2	22,2	4	12,9	
Do not know	1	11,1	4	12,9	
<i>acne vulgaris</i> increased if the consumption of cheese					
Yes	3	33,3	2	6,5	0,098
No	3	33,3	16	51,6	
Do not know	3	33,3	13	41,9	
<i>acne vulgaris</i> is reduced when limiting cheese					
No	5	55,6	11	35,5	0,294
Yes	2	22,2	4	12,9	
Do not know	2	22,2	16	51,6	
<i>acne vulgaris</i> is located in certain areas					
Yes	6	66,7	16	51,6	0,607



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The statement	Ratings				p [¥]
	Moderate		Mild		
	n	%	n	%	
No	3	33,3	13	41,9	
Do not know	0	0	2	6,5	
Use facial cleanser					
Yes	9	100	29	93,5	0,737
No	0	0	1	3,2	
Do not know	0	0	1	3,2	
Frequency facial cleanser					
Once a day	1	11,1	8	25,8	0,264
Twice a day	4	44,4	9	29	
3 times a day	3	33,3	4	12,9	
> 3 times a day	1	11,1	10	32,3	
<i>acne vulgaris</i> arises when stressed					
Yes	6	66,7	19	61,3	0,727
No	2	22,2	5	16,1	
Do not know	1	11,1	7	22,6	
Consumption of drugs / vitamins					
Yes	1	11,1	1	3,2	0,101
No	7	77,8	30	96,8	
Do not know	1	11,1	0	0	

Description : * Significant ($p < 0,05$); [¥] Chi square

Based on the results of the above table after being tested using the chi square test it was concluded that there was no significant relationship between one variable with the other variables on each variable.

Table 4. logistic regression multivariate test for assessment of *acne vulgaris*

Variabel	P	OR	IK 95%
Eat processed cheese	0,447	0,506	0,088 – 2,921
The nuclear family has <i>acne vulgaris</i>	0,608	0,651	0,126 – 3,357
<i>acne vulgaris</i> increases when consuming cheese	0,198	2,214	0,659 – 7,436
<i>acne vulgaris</i> arises in groups	0,013	8,277	1,564 – 43,807
Consumption of vitamins / drugs	0,349	3,872	0,228 – 65,688

Description : * Significant ($p < 0,05$)

Based on the results of the above table after being tested using the chi square test it was concluded that there was no significant relationship between one variable



with other variables on each variable. so it can be concluded that there is no relationship between cheese consumption and the incidence of acne vulgaris⁶

DISCUSSION

From the results of the study note that 100% of respondents know cheese and cheese consumption during the last 3 months. In the results of the study mentioned that there are most of the students who became respondents mostly from the class of 2016 with a frequency of 21 (52.5%) respondents. At the age of 21 years have passed puberty, but the respondents studied, there are still acne vulgaris or acne vulgaris marks.⁷

In the bivariate analysis it can be concluded that consuming cheese is not related to acne vulgaris. From the interview results, From 40 samples obtained respondents who smoke have mild acne vulgaris as many as 14 (45.2%) students, moderate acne vulgaris as many as 3 (33.3%) students. Non-smoking students who had mild acne vulgaris were 17 (54.8%) students, moderate acne vulgaris were 6 (66.7%) students. Also found respondents who had a nap duration of less than 7 hours with mild acne vulgaris were 24 (77.4%) students and moderate acne vulgaris were 7 (77.8%) students. While those who did not have a nap duration of less than 7 hours with mild acne vulgaris were 7 (22.6%) students and moderate acne vulgaris were 2 (22.2%) students. Respondents with mothers who had mild acne vulgaris were 11 (35.5%) students and moderate acne vulgaris were 4 (44.4%) students. Bivariate analysis on the basis of the assessment of acne vulgaris was found to be $p < 0.05$ so there was no statistically significant relationship among respondents who smoke, have duration < 7 hours and respondent mothers who have acne vulgaris.⁶

Cheese consumption

From 40 samples obtained by respondents who consumed cheese during the last 3 months with mild acne vulgaris there were 23 (74.2%) and with moderate acne vulgaris there were 8 (88.9%) students. Respondents who answered not to consume cheese for the last 3 months with mild acne vulgaris were 6 (19.4%) students and with moderate acne vulgaris there were 1 (11.1%) students. Respondents who answered did not know whether they had consumed cheese for 3 months with mild acne vulgaris were 2 (6.5%) students. Respondents who answered consuming cheese since childhood with mild acne vulgaris were 22 (71%) students and with moderate acne vulgaris there were 7 (77.8%) students. Students who did not consume cheese since childhood with mild acne vulgaris were 9 (29%) students and with moderate acne vulgaris there were 2 (22.2%) students. Respondents who consumed cheese once a week with mild acne vulgaris were 5 (16.1%) students and with moderate acne vulgaris 3 (33.3%) students. Respondents who did not consume cheese for 1 time a week with mild acne vulgaris were 23 (74.2%) students and with moderate acne vulgaris there were 6 (66.7%) students.⁷

The relationship of consuming cheese with acne vulgaris

Of the 40 samples obtained by respondents who had mild acne vulgaris there were 24 (77.4%) students while those who had moderate acne vulgaris there were 9 students. Respondents who did not suffer from acne vulgaris were 7 (22.6%) students. Respondents with nuclear family had mild acne vulgaris in 17 (54.8%) and moderate acne vulgaris in 5 (55.6%) students. Respondents with families who did not have acne vulgaris were 16 students and those who answered did not know the family had acne vulgaris were 2 (22.2%) students. Respondents who increased acne vulgaris



when consuming cheese with mild acne vulgaris were 2 (6.5%) students, and with moderate acne vulgaris there were 3 (33.3%) students. Respondents who had acne vulgaris reduced when limiting cheese consumption with mild acne vulgaris were 16 (51.6%) students and moderate acne vulgaris were 2 (22.2%) and those who answered did not know acne vulgaris were reduced when limiting cheese were 18 college student. Respondents who ate or drank fat with mild acne vulgaris were 23 (74.2%) students and moderate acne vulgaris were (66.7%) students. Respondents who ate or drank fatty foods that did not have acne vulgaris were 6 students and those who answered did not know of consuming or drinking fatty foods had 5 students.⁸

Facial skin care behavior

Of the 40 samples obtained by respondents who used facial cleansers with mild acne vulgaris there were 29 (93.5%) students and with moderate acne vulgaris there were 9 students. There were 2 students who did not use facial cleansers.

Research limitations

In this study many factors cause acne vulgaris but cannot be directly observed. Some variables such as consuming fried foods, milk, chocolate, foods containing saturated fats, cosmetics and facial hygiene cannot be defined precisely and clearly by researchers due to limitations in the field of research and the unavailability of literature that clearly defines these variables

CONCLUSION AND SUGGESTION

Conclusion

From the results of research conducted on Diponegoro University Faculty of Medicine students 40 respondents. There is no significant relationship between

consuming cheese and the incidence of acne vulgaris

Suggestion

Weaknesses of this study are the analysis test used is not too strong to prove the relationship between cheese consumption with the severity of acne vulgaris, diagnosis is only based on photographs not through direct physical examination, questions that are less specific on the questionnaire, and difficulty finding respondents in accordance with the criteria inclusion, therefore it is recommended that further research using a design other than cross sectional.

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