



THE RELATIONSHIP OF PERSONAL HYGIENE ON THE SEVERITY OF ACNE VULGARIS IN MEDICAL STUDENTS WAHID HASYIM UNIVERSITY

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ABSTRACT

Background: Acne vulgaris generally occurs in men and women, adolescents, and young adults. It is caused by propionibacterium acnes, which is an anaerobic bacteria that is gram-positive. There are other factors that cause acne such as hormones, oily, and dirty skin from dust and air pollution. The incidence of acne vulgaris can be influenced by the level of poor personal hygiene. **Objective:** This study aims to determine the relationship between personal hygiene and the severity of acne vulgaris among students of Faculty Medicine, Wahid Hasyim University, Semarang. **Methods:** The study was conducted on 45 students in the Faculty of Medicine, Wahid Hasyim University, Semarang using a cross-sectional method with a simple random sampling technique. The instruments used in this study were questionnaires. **Results:** There was a significant relationship between personal hygiene and the degree of severity of acne vulgaris. The chi-square statistical test obtained a p-value of 0.015 (p-value < 0.05). **Conclusion:** Students should always maintain and improve personal hygiene by bathing regularly 2 times a day, changing clothes 2 times a day, washing hands after activities, using personal towels and drying in the sun after use, and always maintaining the cleanliness of the bed by changing bed sheets regularly and periodically.

Keywords: *personal hygiene, inflammation, acne vulgaris.*

INTRODUCTION

Acne vulgaris is a chronic inflammation of the pilosebaceous unit that generally occurs in adolescents between 35-90%.⁽¹⁾ According to the Global Burden of Disease Study (2010), acne vulgaris is the eighth most common skin disease.⁽²⁾

The occurrence of acne vulgaris is based on four basic pathogenesis such as pilosebaceous follicle hyperproliferation, excess sebum production, inflammation, and the presence of Propionibacterium acnes.⁽³⁾ Acne vulgaris is caused by many factors (multifactorial) originating from within (endogenous) such as genetic and hormonal or from outside (exogenous) such as cosmetic, infection/trauma, and occupational factors.⁽³⁾

The clinical picture in acne vulgaris is polymorphic in the form of comedones, papules, pustules, nodules, and cysts.⁽⁴⁾ Acne vulgaris comedones are the main lesions in the form of papules, comedones usually contain black keratin so they are called blackheads or open comedones. A closed area is called a whitehead. Areas that often occur with acne vulgaris are around the face, neck, shoulders, chest, back, and upper arms, in areas that have sebaceous glands. The bacteria that causes acne vulgaris is Propionibacterium acnes (P. acnes) which is a gram-positive anaerobic bacterium. Based on

Plewig and Kligman (2005), acne vulgaris is classified into 3 groups, namely; comedonal acne, papulopustular acne, and acne conglobata.⁽⁵⁾

The degree of severity of acne vulgaris can be assessed using the Global Acne Grading System Score (GAGS) which assesses based on 6 areas of acne vulgaris, namely; forehead, right cheek, left cheek, nose, chin, chest, and upper back which will be categorized into none (0), mild (1-18), moderate (19-30), severe (31-38), and very heavy (> 39).⁽⁶⁾

Several factors are also known to be implicated in acne vulgaris including stress, food, menstrual period, and facial hygiene.⁽⁷⁾

Personal hygiene refers to conditions and practices that help to maintain health and prevent diseases.⁽⁸⁾

Personal hygiene is an effort made by individuals to maintain personal hygiene in order to avoid disease. Cleanliness is a behavior that is taught in life to prevent the occurrence of a disease in order to maintain health.⁽⁴⁾ The benefits of personal hygiene can prevent disease, increase self-confidence, and create beauty. Personal hygiene can also be used to determine individual health by maintaining good health and preventing the development of diseases such as skin diseases.⁽⁴⁾



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Personal hygiene can affect or trigger the occurrence of skin diseases such as the emergence of *P. acnes* so that treatment of acne vulgaris sufferers is carried out by reducing excess sebum without damaging the skin barrier such as lipids and reducing activity of *P. acne* bacteria as a normal flora colony.⁽⁹⁾

Personal hygiene include keeping your skin clean, washing your hands, changing your clothes frequently, and changing your bed covers.⁽¹⁰⁾ Clinically Healthy skin has no symptoms or disease and is functioning normally. Healthy skin looks smooth, firm, bright, functioning properly, moist feels firm, clean and moist when touched.⁽³⁾ The factors that affect personal hygiene are; The level of one's knowledge, culture, and habits.

METHODS

This study used an observational analytic method with a cross sectional design approach that was held from January to February 2022. This research was conducted at the Faculty of Medicine, Wahid Hasyim University, Semarang. The sampling technique was simple random sampling. The sample was determined using the slovin formula, which obtained a total sample of 45 respondents.

The research aims was to find out the relationship between two variables, namely personal hygiene and the degree of severity of acne vulgaris. Personal hygiene is measured using a questionnaire adapted from Christine Vita Gloria Purba (2013), to determine the level of personal hygiene which consists of cleanliness of the skin, hands and nails, clothing, and cleanliness of towels. According to (Doshi A, et al. 1997) the variable severity of acne vulgaris can be measured by the Global Acne Grading System Score (GAGS) questionnaire which assesses based on 6 areas of acne vulgaris, namely; forehead, right cheek, left cheek, nose, chin, and chest, and upper back which will be categorized into none (0), mild (1-18), moderate (19-30), severe (31-38), and very severe (>39).⁽¹¹⁾

Personal hygiene classification is divided into 2 categories, good and bad. In the good category, if the value is between 0-5 and not good if the value is between 6-10 on the personal hygiene questionnaire which includes skin cleanliness, hand and nail hygiene, clothing cleanliness and towel cleanliness.

Data obtained is then presented in the form of a frequency distribution table and univariate and bivariate analysis. The data were assessed using the chi-squared test, and $p < 0.05$ was considered to be significant.

The participants were informed about the risks and benefits of the study and gave their informed consent to participate in this study. The data obtained were guaranteed confidentiality.

RESULTS

The number of respondents was 45 people. The following is the result of the distribution of research respondents including age and gender based on the research questionnaire that has been conducted. The characteristics of the respondents in this study can be seen in table 1 and table 2.

Table 1. Distribution of age

Age	Frequency (n)	Percentage (%)
17	1	2,2
18	26	57,8
19	12	26,7
20	4	8,9
21	1	2,2
22	1	2,2
Total	45	100

Based on table 1 it can be seen that of the 45 respondents, aged 17 there was 1 respondent (2.2%), 18 years there were 26 respondents (57.8%), 19 years there were 12 respondents (26.7%), 20 years there are 4 respondents (8.9%), 21 years there is 1 respondent (2.2%), and 22 years there is 1 respondent (2.2%).

Table 2. Distribution of gender

Gender	Frequency (n)	Percentage (%)
Female	29	64,4
Male	16	35,6
Total	45	100

The prevalence of self-reported acne was significantly higher in females (64.4%) women than in males (35.6%).



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Tabel 3. Personal Hygiene

Personal Hygiene	Hygiene			
	Skin	Hands and Nails	Clothes	Towel
Good	45	43	38	28
Poor	0	2	7	17
Total	45	45	45	45

It was found personal hygiene of skin were in the good category (100%). Hand and nail hygiene as many as 43 respondents (95.6%) in the good category. Cleanliness of clothes in 38 respondents (84.4%) were in good category. The cleanliness of the towels was 28 respondents (62.2%) in the good category.

Table 4. Personal Hygiene categories

Personal Hygiene	Frequency (n)	Percentage (%)
Good	43	95,6
Poor	2	4,4
Total	45	100

Personal hygiene is divided into good and bad categories with the answer choices being yes = 1, no = 0. From the results of the research analysis the category was good (total score 0-4) so that in the study 45 (100%) samples were obtained with good personal hygiene, and the category was not good (total score 6-10) so that the study obtained 2 (4.4%) sample. Qualified (good category) If the value category is between 0-5 and does not meet the requirements (not good) with a value category between 6-10.

Tabel 5. Severity of Acne Vulgaris

Degree of Severity	Frequency (n)	Percentage (%)
Mild	35	77,8
Moderate	9	20
Severe	1	2,2
Total	45	100

The results of the analysis of the incidence of acne vulgaris, it was found that out of 45 respondents there were 35 respondents (77.8%) who experienced a mild degree of severity of acne vulgaris, whereas at a moderate degree of severity of acne vulgaris 9

respondents (20%), and at a severe degree of severity of acne vulgaris 1 respondents (2.2%).

Table 6. Relationship between Personal Hygiene and the Degree of Severity of Acne Vulgaris

Personal Hygiene	Severity of Acne Vulgaris			Total
	Mild	Moderate	Severe	
Good	35	7	1	43
Bad	0	2	0	2
Total	35	9	1	45

The severity of acne found in students shown in table 7. The majority of students were in good personal hygiene and experienced mild acne vulgaris (77.8%). Respondents with good personal hygiene experienced moderate degree of acne vulgaris, were 7 respondents (15.6%) and bad personal hygiene were 4.4%. Respondents with good personal hygiene who experienced severe acne vulgaris were only 1 respondent (2.2%).

Table 7. Chi-Square Test Results

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.372 ^a	2	0.015
Likelihood Ratio	6.829	2	0.033
Linear-by-Linear Association	5.099	1	0.024
N of Valid Cases	45		

Based on table 7, the chi-square test obtained a sig value of 0.015 ($P\text{-Value} \leq 0.05$). It can be concluded that there is a significant relationship between personal hygiene and the degree of severity of acne vulgaris in students of the Faculty of Medicine, Wahid Hasyim University, Semarang.

DISCUSSION

A high prevalence of acne vulgaris was found in Indonesia (85%-100%).⁽¹²⁾ This suggest that acne vulgaris is a common skin disease. Previous reviews have reported that the prevalence of acne in females higher than in males.⁽¹³⁾

Based on the results of chi square test, it was found that there was a significant relationship between personal hygiene and the degree of severity



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of acne vulgaris ($p = 0.015$). Respondents with good personal hygiene experienced mild acne vulgaris were 35 respondents (77.8%). This is supported by a previous research study by Fattah (2018), in patients at the Makassar health center that there is a relationship between personal hygiene and the incidence of skin diseases.⁽⁴⁾ Based on a study by Hertanto (2013), a study on the level of facial hygiene with the incidence of acne vulgaris in high school students stated that there is a significant relationship between the degree of facial hygiene and the incidence of acne vulgaris.⁽¹⁴⁾

Personal hygiene is an important part of maintaining or improving skin health, specifically the integrity of the skin barrier. This study is in accordance with the theory that the more often a person cleans the face, the lower the incidence of acne vulgaris because cleaning the face regularly can reduce excess oil and remove dead skin cells on the face and clean the face is part of maintaining personal hygiene.⁽¹⁵⁾ An individual is said to have good personal hygiene if he maintains personal hygiene including skin cleanliness (frequency of bathing, use of soap, rubbing the skin when bathing), hand and nail hygiene (washing hands with soap after activities, cutting nails to keep them short), cleanliness of clothes (changing clothes 2 times a day, washing clothes using special soap for clothes, using personal clothes), cleanliness of towels (using their own towels, drying towels in the sun, washing towels a maximum of 1 time a week). Good personal hygiene will minimize the portal of entry for microorganisms that are everywhere and can prevent a person from getting a disease.⁽⁴⁾

Respondents with good personal hygiene experienced moderate degree of acne vulgaris, there were 7 respondents (15.6%) and personal hygiene was not good, there were 2 respondents (4.4%). Respondents with good personal hygiene who experienced severe acne vulgaris were 1 respondent (2.2%).

Someone who maintains personal and environmental hygiene can prevent himself from getting an infection from a disease such as skin disease. Although in this study respondents who had good personal hygiene still suffered from acne vulgaris, it could be caused by multifactorial causes, such as hormonal factors before menstruation for female respondents, stress, consumption of certain

foods and exposure to air pollution while driving or using skincare or cosmetics.⁽³⁾

CONCLUSION

There was a significant relationship between personal hygiene and the degree of severity of acne vulgaris in students of the Faculty of Medicine, Wahid Hasyim University, Semarang. Students should always maintain and improve personal hygiene by bathing regularly 2 times a day, changing clothes 2 times a day, washing hands after activities, using personal towels and drying in the sun after use, and always maintaining the cleanliness of the bed by changing bed sheets regularly and periodically. It is advisable for future researchers to use a larger sample and population by using other variables that have not been done by other researchers.

RESEARCH LIMITATIONS

This research was conducted during the covid pandemic so there were some respondents who were reluctant to take off their masks. The research was carried out after respondents finished their lecture time so there were limitations in coordinating respondents because some respondents went home.

ETHICAL APPROVAL

This research was approved by the Clinical Research Ethical Committee of Diponegoro University (No. 20/EC/KEPK/FK-UNDIP/I/2022).

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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