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PREVALENCE AND DEGREE OF SEVERITY OF ACNE VULGARIS IN STUDENTS OF MECHANICAL ENGINEERING MAJOR IN FACULTY OF ENGINEERING DIPONEGORO UNIVERSITY

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ABSTRACT

Introduction : Acne vulgaris (AV) is a chronic inflammatory disorder of pilosebaceous follicle with polymorphic dermatological manifestation such as comedones, papules, pustules, nodules, and scar. Acne vulgaris can be categorized into three degrees of severity based on lesions count: mild, moderate, and severe. There are four factors in the pathogenesis of AV: pilosebaceous follicle hyperproliferation, excessive sebum production, inflammation, and presence of Propionibacterium acnes. The degree of severity is mainly related to the number of an individual's sebaceous gland. Individuals with AV usually have large sebaceous glands that are very active, large pores, and oily skin. **Objectives :** To describe prevalence and severity of acne vulgaris in students of mechanical engineering major in faculty of engineering Diponegoro University batch 2018. **Methods** : This is an observational study with cross sectional approach in which author describes prevalence of AV and its degree of severity in students of mechanical engineering major in faculty of engineering diponegoro university batch 2018. Subjetcs were obtained from simple random sampling. There were 71 eligible subjects meeting inclusion criterias. Dermatovenereology residents performed physical examination on subjects to determine whether or not the subject had. Subjects with AV were classified into "positive" group, otherwise "negative". Subjects were obtained with simple random sampling technique. All subjects (100%) had acne vulgaris. Severity of AV varies with 38% subjects had mild AV, 59.2% had moderate AV and 2.8% had severe AV.
Conclusions : All subjects (100%) had AV, mostly of moderate severity.
Keywords : Acne Vulgaris; prevalence; severity

INTRODUCTION

Acne Vulgaris (AV) is a chronic multifactorial inflammmatory disorder of pilosebaceous unit manifesting as papules, comedones, cysts, and another dermatological lesions in various degrees of severity. Some cases of AV can heal within 1-3 months without particular treatment and some others take longer to heal and may leave scars.[1] Acne Vulgaris can be categorized into mild, moderate, and severe AV according to the number of lesions. Acne vulgaris occurs in approximately 80% of adolescents and young adults from age 12 to 24.[2] The incidence of acne peaks at age 18, usually lasts for four to five years. In teen age AV is more common in male than female, but with advancement in age and hormonal role AV occurs just as much in female.[3]

There are four factors in the pathogenesis of AV: pilosebaceous follicle hyperproliferation, excessive sebum production, inflammation, and presence of *Propionibacterium acnes*.[4,5] Degree of severity of AV is mainly related to the number of sebacous glands in the skin. People with AV usually have sebaceous glands that are big in size and very active, large pores, and oily skin.[6,7] Obstruction of polisebaceous glands precedes fornation of AV lesion as a result of accumulated keratin cells sticking inside the canal, forming impaction. This obstructs the flow of sebum, therefore causing AV. [8,9]

Acne Vulgaris is a multifactorial disorder. The contributing factors are genes, nationality and race, diet, climate, skin type, cosmetics usage, stress and hygiene, which indirectly spur the process of pathogenesis.[10–12]

In people with AV, cleansing the face is a part of skin care to reduce production of sebum, reduce obstruction of pilosebaceous duct, prevent bacteria from enterring pilosebaceous follicle, and reduce inflammation.

METHODS

Samples

This study is an observational study with cross sectional approach. The subjects were students of mechanical engineering major in faculty of engineering Diponegoro University batch 2018 who met inclusion criterias. There were 71 eligible subjects. Subjects were asked to fill a self-administered questionnaire and dermatovenereology residents performed physical examination on subjects' faces to diagnose presence of AV and the degree of severity. Before collecting data, author explained to subjects about the aim of this study. Subjects were then asked to give consent regarding involvement in study by signing an informed consent. Subjects who consented received questionnaire to fill. Author proceeded with checking the questionnaires and analyzed the collected data.

Inclusion criterias were :

1) Student of mechanical engineering major in faculty of engineering Diponegoro University batch 2018.
2) Age 17-23 years old
3) Willing to be involved in this study and sign an informed consent.

Exclusion criterias were :

1) Student has facial dermatological disorder other than AV (e.g. varicella, contact dermatitis, et cetera)
2) Is undergoing treatment for AV or hormonal therapy

3) Unwilling to sign an informed consent.

Subjects were obtained with simple random sampling.

Data Analysis

Data was analysed with SPSS Statistics 25.

RESULTS

Descriptive Analysis

Subjects' age distribution, prevalence of AV in subjects and its degree of severity, and subjects' personal hygiene are described in Table 1.

Table 1. Description of 71 subjects

Variables	Frequency	Percentage
Age		
17	2	3
18	25	35
19	58	54
20	6	8
Acne Vulgaris		
Positive	71	100
Negative	0	0
Acne Vulgaris Severity		
Mild	27	38
Moderate	42	59,2
Severe	2	2,8

Subjects' ages ranged from 17-20 years old. All subjects (100%) had AV as shown in Table 1. Mild AV was found in 38% of subjects, moderate AV in 59.2% and severe AV in 2.8% of subjects.

DISCUSSION

All subjects in this study (100%) had AV of varying degree of severity with moderate AV being the most common (59.2%), followed by mild AV (38%) and severe AV (2.8%). In a previous study it is mentioned that majority of subjects suffered from moderate acne (40.75%), followed by moderate acne (8.1%) and severe acne (1.2%).[13] In a previous study it's mentioned that the majority of subjects did suffer from mild acne (40.75%), followed by moderate acne (8.1%) and severe acne (1.2%).[13]

The high incidence of AV in this study is caused by the utilization of *ASEAN scoring of Lehmann* for classifying degrees of AV, according to which presence of open or closed comedone alone is considered as mild AV.[14] Therefore, according to this classification method every subject in this study had AV. A different result was found in a study that used only questionnaire (without physical examination) for diagnosing AV, categorizing the subjects into two groups viz. with AV and without AV.[13]

The difference of AV severity is due to many other factors that influence the occurrence of AV, such as personal hygiene, facial care, food consumed and

different activities that cause different exposures.

CONCLUSIONS AND SUGGESTION

Conclusion

Acne vulgaris occured in 100% of 71 students of mechanical engineering major in faculty of engineering Diponegoro University Semarang batch 2018 with 38% of them had mild AV, 59.2% had moderate AV, and 2.8% had severe AV.

Suggestion

Based on the results and discussion of this study, authors suggest for future research:

1. Involvement of more variables, more variations in variables and more subjects.
2. Utilization of study designs other than cross sectional, such as correlational or experimental.

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