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THE INFLUENCES OF KNOWLEDGE, BEHAVIOUR AND ATTITUDE IN SELECTING POWDER TYPE: THE INCIDENCE OF ACNE VULGARIS

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ABSTRACT
Acne vulgaris is a chronic obstructive and inflammatory skin disease. It occurs in almost all adolescents with a prevalence of 90%. Powder is the most widely used cosmetic in the long term and one of the causes of Acne vulgaris which causes occlusion of pores on the skin surface. The purpose of this study was to analyze the effect of the level of knowledge, attitudes and behavior of choosing the type of powder on the incidence of acne vulgaris in Banyumas Regency. This study was an observational study with data collection techniques using cluster sampling and sampling technique by accidental sampling. The level of knowledge of women in the Banyumas Regency was dominated by the high category as many as 64 respondents (64.0%). The incidence of acne vulgaris out of 100 respondents, 67 (67.0%) of respondents had mild acne vulgaris, 22 respondents (22.0%) had moderate acne vulgaris and 1 respondent (1.0%) had severe acne vulgaris and the rest had no acne vulgaris. Chi-square analysis showed that there was a relationship between knowledge with behavior and attitude in choosing the type of powder to the incidence of acne vulgaris as evidenced by the p value of each variable, namely 0.044 and 0.028 ($p < 0.05$). The level of knowledge with behavior and attitude in choosing the powder type had a significant relationship to the incidence of acne vulgaris in women in Banyumas Regency.

Keywords: Knowledge; Behavior and attitude; Acne vulgaris; Powder

1. INTRODUCTION

Acne vulgaris is a chronic obstructive and inflammatory skin disease, and occurs in almost all adolescents with a prevalence reaching 90% (Sibero et al., 2019). Acne vulgaris (AV) is a multifactorial disease affecting *pilosebaceous follicles* with characteristics of blackheads, papules, pustules, nodules, and cysts (Ravisankar et al., 2015). The first visible sign of acne is that the face and upper body become very oily due to excessive sebum secretion. The pathogenesis of Acne vulgaris is estimated to be related to several triggering factors such as food by 23.2%, stress by 26.4%, hormonal by 32.7% and cosmetic use by 47.3% (George & Sridharan, 2018). The increasing use of cosmetics in the present era is a necessity in everyday life (Novitri & Afriadi, 2016). The use of cosmetics that aims to beautify one's self by making up every part of the body to make it look more attractive, and at the same time, cover up flaws. Powder is one of the causes of acne vulgaris which causes pore occlusion on the skin surface (Andriana et al., 2014). Powder becomes the most widely used cosmetic, reaching 83,6 % and is applied in the long term, and it has a function to complement the color of the skin (Munira et al., 2020).One type of powder such as compact powder has a very good binding ability on facial skin and loose powder with small particle size is able to cover the entire surface of the face. Some powder contents cause acne vulgaris because there are *comedogenic* ingredients such as lanolin and coloring ingredients (D&C) (Wasiso, 2010). Knowledge, by definition, is the expertise and skills

acquired by a person or group of people through an understanding both in theory and practice of a subject (Ahmad et al., 2015). Lack of availability of information or knowledge that is owned properly and accurately results in not being able to control the factors that can affect the emergence of acne vulgaris. Some of the behaviors that can cause acne vulgaris are as follows: rarely cleaning the face, choosing a powder that is not suitable for facial skin conditions (such as oily facial skin type is not recommended to use solid powder which can cause acne vulgaris because sebum in the sebaceous glands is trapped in the follicles), consuming foods with high levels high glycemic load (Kabau, 2012). Based on this description, the authors are interested in conducting research on the Influence of Knowledge Levels, Attitudes and Behavior of Choosing Powder Types on the Incidence of Acne Vulgaris in Banyumas Regency, because this research has never been carried out on all types of powder. In addition, the productive age of women is quite a target in the marketing of cosmetics. Lifestyle and cosmetics cannot be separated from the primary needs of women. In most of the women generally depend on the powder as a cosmetic. In this situation, women try to make cosmetic choices that suit their individual choices.

2. METHODS

2.1. Type of Research

This research was descriptive-analytic with an observational study to determine whether there is an influence of the level of knowledge, attitude and behavior of choosing the type of powder on the incidence of acne vulgaris. This observation uses a cross sectional design to see risk factors in a certain place and at a certain time. This research is quantitative in nature where to see the independent variables are measured using a quentionnaire and assessed based on the provisions that have been available, while to see the dependent variable, direct observation of acne vulgaris suffered by the respondents. In addition, the sampling was carried out using a cluster-random sampling technique.

2.2. Tool

The instrument used in this research is a questionnaire is a list of questions that have been prepared well, where respondents and interviewers only need to provide answers (Notoatmodjo, 2012). The questionnaire is used to measure knowledge and factors that influence the selection of the type of powder.

2.3. Population and Sample

The population of this research was women of productive age in Banyumas Regency who use powder type. The population in this study was the people of Banyumas Regency, according to data obtained from the Statistical Research Agency of Banyumas Regency, Banyumas Regency consists of 27 sub-districts divided into 4 clusters, namely West, East, South and North with a total population of 1.840.152 people. Inclusion criteria:

a. Willing to participate in research voluntarily
b. Women of productive age with a range of 17-64 years
c. Women who use powder
d. Residing in the Banyumas Regency during the research is conducted

Exclusion criteria:

a. Respondents with incomplete identities
b. The respondent is a man

The sampling technique in this study used a cluster-random sampling technique because all sample members from the population were taken randomly based on sub-district clusters in Banyumas Regency and had inclusion and exclusion criteria set by the researcher (**Table 1**). In this study, the sampling process used cluster sampling and accidental sampling methods. Accidental sampling technique is a sampling technique based on the availability of samples when

collecting research data, while cluster sampling is a technique for selecting a sample from groups. The formula used is:

$$n = \frac{N}{1+Nd^2} \quad (1)$$

$$n = \frac{1840,152}{1+1840,152\ (0,10)^2}$$

n = 99.99 respondents = 100 respondents

The calculation of the number of samples for each district was calculated proportionally by using the formula:

$$S = \frac{n}{N}\ x\ S \quad (2)$$

Table 1. Research Sample

District	Population Unit	Proportion	Sample Unit
North Purwokerto	532.640	532.640/1.840.152 x 100 = 28.94	29
Jatilawang	296.503	296.503/1.840.152 x 100 = 31.43	31
Cilongok	578.447	578.447/1.840.152 x 100 = 23.50	24
Banyumas	432.502	432.502/1.840.152 x 100 = 16.11	16
	1.840.152		100

3. RESULTS AND DISCUSSION

3.1. Univariate Analysis

3.1.1. Respondents Characteristics

From the results of the research that has been conducted, it was found that the characteristics of respondents include age, education and occupation (**Table 2**). Respondents on inclusion criteria resulted that respondent characteristics included data socio-demographic according to the age of the respondents were predominantly in the range of teens between 18-22 years reaching 49 (49.0 %) and the age range of 23-27 years by 24 people (24.0%) and the resulting p value is 0.040 <0.05, which means that age has an effect on the incidence of acne vulgaris in this study. The results of this study were supported by research conducted (Ayudianti & Indramaya, 2014), it was found that from 3448 samples, the most patients with acne vulgaris were in the age range 15-24 years, namely as many as 2218 patients (64.3%). During puberty there is an increase in androgen hormones in the blood which will stimulate the development of sebaceous glands and sebum production, resulting in androgenic dermatosis, seborrhea, hirsutism and acne vulgaris. In that situation it can be triggered by internal factors such as hormonal and genetic and external factors such as cosmetics containing *comedogenic* ingredients.

The characteristics of respondents based on education were dominated by respondents with elementary education that reached 61 respondents (61.0%) and for higher education respondents were 39 respondents (39.0%) and the p value obtained was 0.682> 0.05. It can be interpreted that education has no effect on the incidence of acne vulgaris. The incidence of acne vulgaris in a person affects self-confidence, and they have the freedom to access the information needed. Access to information can affect respondents' confidence in using face powder to prevent acne vulgaris. If someone has higher education, their knowledge will be broader, but it should be reminded that someone with low education does not absolutely have low knowledge either because knowledge is not only obtained through formal education.

The characteristics of respondents based on occupation status were dominated by respondents with “working” status that reached 54 respondents (54.0%) and the remaining respondents with non-working status were 46 (46.0%) with a p value of 0.033 <0.05, so it can be interpreted that work influences the incidence of acne vulgaris. “Working” status, or work, cannot be avoided from stress factors with workloads that can put pressure on a person so that it causes

the occurrence of acne vulgaris. If a person suffers from prolonged stress, it will increase the levels of glucocorticoid and androgen hormones which can cause exacerbation of acne vulgaris. The mechanism of acne formation i.e. stimulation of the sebaceous glands that causing excess sebum usually begins in puberty, the proliferation of keratinocytes that abnormal, adhesion and differentiation of branches under the follicle follicles, and the formation of lesions inflammation plays a role in P. acne bacteria (Sifatullah & Zulkarnain, 2021).

Table 2. Respondents Characteristics

Characteristics	Jatilawang (n=31)	North Purwokerto (n=29)	Cilongok (n=24)	Banyumas (n=16)	Total (n=100)	P-value
Age						
18 – 22	9(61.29%)	14(48.27%)	10(41.66%)	6(37.5%)	49(49.0%)	
23 – 27	7(22.58%)	10(34.48%)	6(25.0%)	1(6.25%)	24(24.0%)	
28 – 32	3(9.67%)	3(10.34%)	-	2(12.5%)	8(8,0%)	
33 – 37	1(3.22%)	-	3(12.5%)	1(6.25%)	5(5.0%)	0.040*
38 – 42	1(3.22%)	1(3,44%)	2(8.33%)	-	4(4.0%)	
43 – 47	-	-	3(12.5%)	2(12.5%)	5(5.0%)	
48 – 52	-	1(3.44%)	-	1(6.25%)	2(2.0%)	
53 – 55	-	-	-	3(18.75%)	3(3.0%)	
Mean ± SD	26.25 ± 9.16					
Education						
Not graduated from elementary school	-	-	-	-	-	0.682
Elementary School	18(58.06%)	16(55.17%)	16(66.67%)	11(68.75%)	61(61.0%)	
Higher Education	13(41.93%)	13(44.82%)	8(33.33%)	5(31.25%)	39(39.0%)	
Occupation						
Working	20(64.51%)	15(51.72%)	11(45.83%)	8(50.0%)	54(54.0%)	0.033*
Non-working	11(35.48%)	14(48.27%)	13(54.16%)	8(50.0%)	46(46.0%)	

Table 3. Types of Powder Used

Types of Powder	N (%)
Loose powder	60 (60.0%)
Compact powder	29 (29.0%)
Twoway cake	10 (10.0%)
Shimmering	1 (1.0%)
Total	100 (100%)

Source: primary data (2020)

Based on **Table 3**, the data show that the type of powder mostly used by women in Banyumas Regency is loose powder with 60 respondents (60.0%), meanwhile compact is used by 29 respondents (29.0%). This result is in line with the research conducted (Bayu, 2020) at SMA Negeri 100 East Jakarta which shows the results of an analysis of the percentage of the type of powder used, it was found that the most widely used types of powder were solid powder (77.4%) and loose powder (63.4%).

Table 4 shows the most skin type owned many women in the district of Banyumas is oily skin, with the number of 32 respondents (32.0 %) and normal skin, with the number of 32 respondents (32.0%) with each of the same percentage. This number is in line with the research conducted (Andriana et al., 2014) on a student at the Faculty of Economics, Muhammadiyah University of Palembang, which shows the results of an analysis of the percentage of skin types experienced by respondents, it was found that the most respondents had oily skin types by 85

respondents (57.8%). The use of cosmetics, such as facial powder, that is not suitable for skin conditions can be a risk factor for acne vulgaris.

Table 4. Skin Types

Skin Type	N (%)
Combination	23 (23.0%)
Oily	32 (32.0%)
Normal	32 (32.0%)
Dry	13 (13.0%)
Total	100 (100%)

Table 5. The Degree of Acne Vulgaris

Acne Degree	N (100%)
None	10 (10.0%)
Mild	67 (67.0%)
Average	22 (22.0%)
Severe	1 (1.0%)
Total	100 (100%)

According to the **Table 5**, the data related to the acne vulgaris experienced by the respondents was obtained, they are as follows: 67 respondents (67.0%) in the district of Banyumas are suffering from mild acne vulgaris, and 22 respondents (22.0%) are suffering from average acne vulgaris. This result is in line with the previous research conducted (Ompi et al., 2016) on students at SMAN 7 Manado that the distribution of respondents suffering from acne vulgaris is mild, moderate, severe and most are mild.

3.2. Bivariate Analysis

Based on **Table 6**, the respondent's knowledge, the most women, out of 100 respondents, in the high category, with a total of 40 respondents (40.0%). The number of women who did not experience acne vulgaris were 24 respondents (24.0%), respondents with high knowledge experienced acne vulgaris were 15 respondents (15.0%) and 0 respondents (00.0%) was in the low category.

Table 6. *Chi-Square* Analysis Result

		Acne Cases		Total (N = 100)	P Value
		None	Acne		
Knowledge	High	40 (40.0%)	24 (24.0%)	64 (64.0%)	
	Sufficient	15 (15.0%)	21 (21.0%)	36 (36.0%)	0.044*
	Low	-	-	-	
Attitude	High	39 (39.0%)	40 (40.0%)	79 (79.0%)	0.028*
	Low	16 (16.0%)	5 (5.0%)	21 (21.0%)	

In addition, 40 respondents (40.0%) who had a high level of knowledge about cosmetics did not experience the incidence of acne vulgaris, while the rest were 24 respondents (24.0%) who experienced the incidence of acne vulgaris during the use of face powder. Then the other 36 respondents (36.0%) had a sufficient level of knowledge about cosmetics including 15 respondents (15.0%) who did not experience the incidence of Acne vulgaris, the remaining 21 respondents (21.0%) had sufficient knowledge about cosmetics. experiencing acne vulgaris. The attitude and behavior of choosing cosmetics used by respondents, women in the Banyumas Regency area, were in the high category with a total of 79 respondents (79.0%) and then in the low category as many as 21 respondents (21.0%). This is in line with the research conducted (Ardiansyah, 2019) which states that attitudes are divided into two categories of good and sufficient to the degree of acne vulgaris. The results obtained by a total of 79 respondents

experiencing mild degrees, 73 respondents had good attitudes and 6 respondents had sufficient attitudes. The statistical test results showed a significant relationship between a person's attitude and the severity of acne vulgaris with a p value of 0.046.

3.3. Multivariate Analysis

Based on the results of research that has been analyzed by researchers using multivariate analysis, the following results were obtained (**Table 7**).

Table 7. The Result of Multivariate Analysis

Independent Variable	Sig.	Exp (B)	95% C.I for EXP (B)	
			Lower	Upper
Attitude and Behavior	0.021	3.833	1.225	11.991
Knowledge	0.027	0.373	0.155	0.896
Constant	0.984	0.971		

Multivariate analysis used logistic regression analysis to determine the dominant variable in the pattern of the relationship between the independent variable and the dependent variable. Based on **Table 7**, the results of the adjusted OR or exp (B) value of the attitude and behavior variable in choosing the type of powder are 3.833 with a p value of 0.021 <0.05, which means that women who use powder have 3.833 times the possibility of increasing the incidence of experiencing acne vulgaris during the use of powder on the face. This also means that attitude and behavior, which are independent variables, are the most influential variables in this study. Meanwhile, the knowledge level variable in the multivariate analysis has a p value of 0.027 <0.05, so it is also a variable that affects the incidence of acne vulgaris in women using face powder. Research limitations measurement of the severity of acne vulgaris is only done by naked eye by researchers based on the reference to the degree of acne vulgaris.

4. CONCLUSION

The attitude and behavior of respondents regarding the choice of powder type in the Banyumas Regency showed that most of the respondents had high attitudes and behaviors regarding the choice of powder type. Based on the results of the chi-square test between the level of knowledge of the attitude and behavior of choosing the type of powder on the incidence of Acne vulgaris, it could be concluded that there was a significant relationship between knowledge of attitudes and behavior in choosing the type of powder to the incidence of Acne vulgaris. Based on the findings, access to the availability of information or knowledge possessed by consumers needs to be improved properly and accurately, to control the factors that can affect the incidence of acne vulgaris.

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6. CONFLICT OF INTEREST

The author declares that there no competing conflicts of interest

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