

The Influence of Use Bb Cream (Blemish Balm Cream) on the Incidence and the Clinical Severity of Acne Vulgaris in Student of SMK Negeri 4 Surakarta

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Keywords: Acne Vulgaris, BB Cream, Cosmetics.

Abstract: Acne vulgaris (AV) can be caused by several factors, one of them cosmetics. BB Cream is currently in demand by women because of its function that can replace some types of cosmetics in one product. However, most of women don't know that the ingredients of the BB Cream can cause acne vulgaris and aggravate acne vulgaris lesions. This research uses analytic observational method with cross sectional design. Hypothesis test using chi square bivariate analysis with expected count. Based on 61 respondents suffering from AV, there were 42 respondents using *BB Cream* (68.9%), most of respondents using BB Cream 36 respondents (59.0%) routinely use *BB Cream*. Result of statistical analysis got value ($p = 0,000$). In hypothesis test between the use of BB Cream to the severity of acne vulgaris obtained value ($p = 0,045$). Conclusions, there is a relationship between the use of BB Cream (Blemish Balm Cream) on the incidence and also the severity of clinical acne vulgaris.

1 INTRODUCTION

Acne vulgaris can be caused by several factors, one of them cosmetics. BB Cream is currently in demand by women because of its function that can replace some types of cosmetics in one product. However, most of women do not know what the ingredients in the BB Cream can cause acne vulgaris and aggravates acne vulgaris lesions. The aim of this is aims to know the relationship between the use of BB Cream on the incidence and severity of clinical acne vulgaris in students SMK Negeri 4 Surakarta.

2 METHODS

This research uses analytic observational method with cross sectional design. The number of subject calculated using a single proportion formula according to the type of research design used.

$$n = \frac{Z\alpha^2 P(1 - P)}{d^2} \quad (1)$$

$$d^2 \quad (2)$$

$$= \frac{1,96^2 0,8 (1 - 0,2)}{0,1^2} \quad (3)$$

$$= 61,47 \text{ rounded to } 61 \quad (4)$$

$$= 61,47 \text{ rounded to } 61 \quad (5)$$

Number of research respondents 61 students. Hypothesis test using chi square bivariate analysis with expected count.

3 RESULTS

Based on 61 respondents suffering from acne vulgaris, there were 42 respondents using *BB Cream* (68.9%), most of respondents using BB Cream 36 respondents (59.0%) routinely use BB Cream. Result of statistical analysis got value ($p = 0,000$). In hypothesis test between the use of BB Cream to the severity of acne vulgaris obtained value ($p = 0,045$).

Table 1: Cross Tabulation Of BB Cream Use With Routinity Of Using BB Cream.

			Routinity		Total	p
			No	Yes		
BB Cream	No	Expected Count	7.8	11.2	19.0	0,00
		% of Total	100.0%	0.0%	100.0%	
	Yes	ExpectedCount	17.2	24.8	42.0	
		% of Total	14.3%	85.7%	100.0%	
Total		Expected Count	25.0	36.0	61.0	
		% of Total	41.0%	59.0%	100.0%	

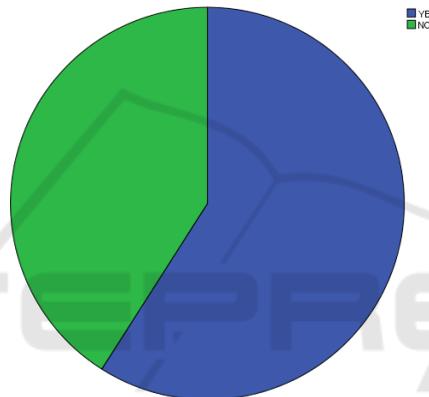


Figure 1: Distribution Of Routinity Use OfBB Cream(References: Primary data).

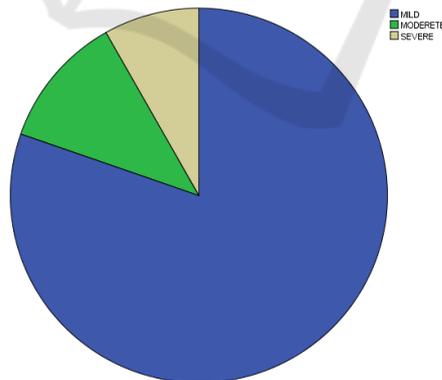


Figure 2: Distribution Of Clinical Severity Of Acne Vulgaris(References: Primary data).

Table 2: Cross Tabulation Of BB Cream Use With Clinical Severity Of AcneVulgaris (References: Primary data).

			Acne Vulgaris			Total	p
			Mild	Moderate	Severe		
BB Cream	Yes	Expected Count	33.7	4.8	3.4	42.0	0,045
		% within	71.4%	16.7%	11.9%	100.0%	
	No	Expected Count	15.3	2.2	1.6	19.0	
		% within	100.0%	0.0%	0.0%	100.0%	
Total		Expected Count	49.0	7.0	5.0	61.0	
		% within	80.3%	11.5%	8.2%	100.0%	

4 DISCUSSION

From 61 respondents who meet inclusion criteria there are 42 respondents who use BB Cream and 19 respondents who do not use BB Cream. There are 36 (59.0%) of respondents admitted to routinely use BB Cream while 25 (41.0%) claimed not routinely use BB Cream. After chi square test between the use of BB cream with routinity of using BB Cream obtained p value of 0.000 or $p < 0.005$, it can be concluded that there is a significant relationship between the use of BB Cream with the routinity of using BB Cream on SMK Negeri 4 Surakarta students. With the result of chi square test as above, it can be concluded that there is correlation between the use of BB Cream to acne vulgaris incidence because respondents who meet inclusion criteria and use BB Cream routine in using BB Cream. One factor that plays a role in acne vulgaris is blockage of the sebaceous glands. If the BB cream is used continuously, the oil element found in BB Cream will further obstruct the pores of the skin so it can be one of the triggers of acne vulgaris (Fatimah, 2017). Continuous use of cosmetics over a long period of time can also cause acne which mainly consists of closed comedo and some papules or pustules lesions on the cheeks and chin (Kabau, 2012). Theoretically, cosmetics can cause acne vulgaris when it contains two comedogenic ingredients such as lanolin, butyl stearate, lauryl alcohol, petrolatum found in cosmetics as basic powder, moisturizer, sunscreen cream. BB Cream is a unity of several types of cosmetics (Andriana, 2014).

Forty nine respondents who suffered from mild AV and did not use BB Cream had an expected count of 15.3 or 100.0%, while those using BB Cream had an expected count of 33.7 or 71.4%, 7 respondents who suffered from moderate AV and did not use BB Cream had an expected count of 2.2 or 0.0%, while respondents who suffered from moderate AV and using BB Cream had an expected count of 4.8 or 16.7%, in 5 respondents who suffered from severe AV did not use BB Cream had an expected count of 1.6 or 0%, while those using BB Cream had an expected count 3.4 or 11.9% higher risk of severe AV. Based on Kolmogorov-Smirnov analysis between the use of BB Cream with clinical severity of AV obtained p value of 0.045 or $p < 0.05$, it can be concluded that there is a relationship between the use of BB Cream on the severity of AV clinical severity of SMK Negeri 4 Surakarta.

Acne vulgaris will get worse when using cosmetics excessively and continuously because of the ingredients in cosmetics such as lanolin, butyl stearate, lauryl alcohol, petrolatum and oleic acid are comedogenic and tend to increase the severity of acne vulgaris (Kabau, 2012). This is supported by the theory expressed by Fulton that cosmetic ingredients containing comedogenic substances can cause irritation and aggravate acne lesions (Fulton, 1989). Comedogenic materials are one of them is Ascorbyl glucoside, Nylon-12, Isononyl isononanoate, and on BB Cream there are some of these comedogenic materials. Other studies were also demonstrated by Draelos in 6 respondents who had acne on the back treated with comedogenic material for 48 hours on Monday and Wednesday,

72 hours on Friday and repeated for up to 4 weeks (Draelos, 2006). After 4 weeks the enlargement of the biopsy diameter of the specimen was taken, previously 16cm to 51cm. In addition to ingredients that contain elements of oil and preservatives that can cause the occurrence of AV, BB Cream also contains fragrance ingredients such as Perfume, Linalool, Limonene, Caffeine, Geraniol, Citral. Such substances can cause irritation, allergic reactions that may increase the risk of acne or aggravate acne lesions (Baldecchi, 2012).

Fakultas Kedokteran Universitas Lampung. *Medical Journal of Lampung University*, 6 (3).
Fulton, J. (1989). Comedogenicity and Irritancy of Commonly Used ingredients in Skin Care Products. 40, pp.321-333.
Kabau, S. (2012). Hubungan Antara Pemakaian Jenis Kosmetik dengan Kejadian Akne Vulgaris. *Jurnal Media Medika Muda*, 43(4), pp.32-36.

5 CONCLUSION

There is a relationship between the use of BB Cream (Blemish Balm Cream) on the incidence and severity of clinical acne vulgaris.

In the next research need to do counseling about BB Cream, proper selection of BB Cream and how to use a good BB Cream to minimize the occurrence of acne vulgaris and relapse.

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REFERENCES

- Andriana, R., Effendi, A., Berawi, K.N.. 2014. Hubungan antara Penggunaan Kosmetik Wajah terhadap Kejadian Akne Vulgaris pada Mahasiswi Fakultas Kedokteran Universitas Lampung. *Medical Journal of Lampung University*, 3(1), pp 1-8.
- Baldecchi, T., et al. 2012. From BB to CC Creems Innovative Formulation of Multitasking Care. *International Journal for Applied Science*, 138 (9), pp 1-7.
- Draelos, Z. and Dinardo, J. 2006. A Re-evaluation of Comedogenicity Concept Journal of the American Academy of Dermatology. *Journal of the American Academy of Dermatology*., 54(3), pp.507-512.
- Fatimah, R. and Tjiptaningrum, M. 2017. Hubungan Pemakaian BB Cream terhadap Keparahan Klinis Akne Vulgaris pada Mahasiswi Angkatan 2013