



ANALYSIS OF UINSU FEMALE STUDENTS' PREFERENCES FOR LIPSTICK SELECTION USING THE CHI SQUARE TEST

Ade Putri Oktavia¹, Dimas Prasetyo², Fairus Syifa Gultom³, Fatimah Ritonga⁴, Nike Ardena Br Ginting⁵, Sabrina Taulia Br Tarigan⁶

^{1,2,3,4,5,6}Department of Mathematics, Universitas Negeri Jakarta, Jakarta, Indonesia

Article Info

Article history:

Received 03 02, 2023

Revised 05 30, 2023

Accepted 06 10, 2023

Keywords:

Lipstick Selection, Chi-Square Test

ABSTRACT

This study aims to identify and analyze the factors that influence the preferences of female students of the State Islamic University of North Sumatra (UINSU) in choosing lipstick products that took place from 28 to 30 October 2024. The factors studied include the attributes of color, aroma, type of lipstick, price, and brand. This research uses quantitative methods with a comparative causal approach and chi-square analysis. Primary data is obtained from data collected directly from respondents through surveys using questionnaires. And secondary data is obtained from information on previous research reports, books, academic journals, and official documents. Research results show the decision to buy lipstick, from highest to lowest is color with 14.84, type 12.6655, brand 10.4346, aroma 8.7185, and price 12.2059. when viewed from the order, the higher the Ao value, the quality of the lipstick is at the top of the list that is most concerned by the respondent, and so on. Therefore, table 4.9 shows that rank 1 is color, rank 2 is type, rank 3 is aroma, rank 4 is brand and the last rank is the aroma of lipstick.

This is an open access article under the [CC BY-SA](#) license.



Corresponding Author:

Dimas Prasetyo
Department Of Mathematic,
Universitas Negeri Jakarta
Email: dimas@gmail.com

1. INTRODUCTION

Cosmetics, particularly lipstick, have become an essential element in the lives of modern women. Beyond enhancing appearance, lipstick serves as a medium for women to express their character and boost their confidence. Among female university students, the use of lipstick is often influenced by beauty trends, product promotions, and personal preferences. With the rapid development of the cosmetics industry, lipstick products now come in a variety of shades, scents, types (such as matte, glossy, and satin), prices, and brands. This situation drives intense competition between local and international brands to meet the diverse tastes and needs of consumers.

Although lipstick is a highly sought-after cosmetic product available in numerous variations, questions remain regarding the main factors influencing consumer preferences, particularly among female university students. Is product selection primarily driven by its shade and type, or are aspects such as price and brand more decisive? Furthermore, how do these attributes relate to one another in influencing consumers' purchasing decisions? The lack of research data specifically examining preferences among female university students underscores the importance and relevance of this study.

This research aims to identify and analyze the factors influencing the preferences of female students at the State Islamic University of North Sumatra (UINSU) in selecting lipstick products. The factors examined include attributes such as shade, scent, type of lipstick, price, and brand. Using statistical analysis methods, particularly the chi-square test, this study seeks to uncover the extent to which these attributes are related to consumer preferences. The findings are expected to serve as a reference for cosmetic manufacturers, especially local brands, in creating products better suited to the needs and preferences of the student market.

Consumer preference refers to the process by which individuals prioritize product choices based on their evaluations and tendencies. Factors influencing preferences include perceptions of quality, safety, price, and other attributes. In cosmetics, female students often consider safety aspects such as BPOM certification, ingredients, and expiration dates. Lipstick serves both aesthetic and protective functions for the lips against environmental factors. It plays a crucial role in makeup, supporting confidence and self-expression. Lipstick trends are shaped by aspects such as shade, type, scent, and price. The chi-square test is a method used to examine relationships between categorical variables. Several studies suggest that factors such as safety, promotions, and brand image significantly influence female students' preferences for lipstick.

2. RESEARCH METHOD

2.1 Type of Research

This research uses quantitative methods with a comparative causal approach and chi-square analysis. This study was designed to identify factors that influence female college students' preferences in choosing lipstick. The research design includes the population used, namely students of the State Islamic University of North Sumatra (UINSU). The sample used is students of the Mathematics Study Program, taken randomly.

2.2 Data Collection

Primary data is obtained from data collected directly from respondents through surveys using questionnaires. And secondary data is obtained from information on previous research reports, books, academic journals, and official documents.

2.3 Location and Time of

Research The location of this research is North Sumatra State Islamic University (UINSU), Medan. And the research time was held on October 28th to 30th, 2024.

2.4 Data Processing

Problem Identification This study identifies factors that influence female students' preferences for lipstick, such as color, type, brand, aroma, and price. This study conducted a review of relevant previous studies, including consumer preference theory, chi-square analysis, and cosmetic product attributes. Data collected through questionnaires were validated to ensure completeness and consistency. The data was then organized in contingency tables to facilitate statistical analysis. This process was done using statistical software such as SPSS or Excel. Data were analyzed using the chi-square test to identify relationships between categorical variables. In addition, Fishbein's multiattribute analysis was used to determine the dominant attributes that influence consumer preferences.

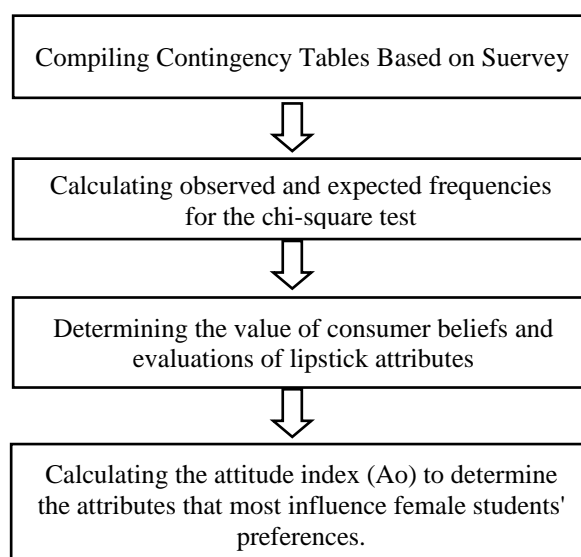


Figure 2.1 Steps in Analysis

3. RESULT AND ANALYSIS

Based on the results of collecting answers from 17 respondents regarding the analysis of uinsu students' preferences for lipstick selection, the following are the results of the answers that can be concluded using the table below:

Table 3.1. Lipstick Color Selection

Color	Sum	Percentage
Red	6	35,3%
Pink	3	17,6%
Nude	8	47,1%
Total	17	100%

From Table 3.1, it shows that out of 17 respondents, 6 respondents or 35.3% chose red lipstick, and as many as 3 respondents or 17.6% of respondents chose pink lipstick and 8 respondents or 47.1% of respondents chose nude lipstick. This shows that the respondents who most often choose lipstick that is often used nude.

Table 3.2.Types of Lipsticks Used

Type	Sum	Percentage
Matte	6	35,2%
Glossy	2	11,8%
Liptint	8	47,1%
Lipbalm	1	5,9%
Total	17	100 %

On the Table 3.2, showed that out of 17 respondents, 6 respondents or 35.2% chose matte lipstick, then 2 respondents or 11.8% chose glossy lipstick, then 8 respondents or 47.1% chose liptint and 1 respondent or 5.9% chose lipbalm. This means that the respondents most oftenchoose the type of lipstick in the form of liptint.

Table 3.3.Frequently Used Brands

Brand	Sum	Percentage
LocalBrands	17	100%
OverseasBrands	0	0%
Total	17	100%

Table 3.3, The above shows that out of 17 respondents, 17 respondents or 100% use local brands, while 0 respondents or 0% use foreign brands. This shows that all respondents use local brands.

Table 3.4.The Scent Of The Lipstick Used

Scent	Sum	Percentage
Scented	9	52,9%
Unscented	8	47,1%
Total	17	100%

On the Table 3.4, showed that out of 17 respondents as many as 9 respondents or 52.9% used scented lipstick, and as many as 8 respondents or 47.1% used unscented lipstick. This shows that respondents use scented lipsticks more than respondents who use unscented lipstick.

Table 3.5.The Price Of The Lipstick Purchased

Price	Sum	Percentage
IDR20,000-IDR50,000	13	76,5%
IDR50,000-IDR80,000	4	23,5%
IDR80,000-IDR100,000	0	0%
Total	17	100%

Table 3.5 shows that out of 17 respondents as many as 13 or 76.55% buy lipstick at a price of Rp.20,000-Rp.50,000, 4 respondents or 23.5% buy lipstick at a price of Rp.50,000-Rp.80,000, then 0 respondents or 0% buy lipstick at a price of Rp.80,000-Rp.100,000. This shows that the most respondents buy lipstick at a price of Rp.20,000-Rp.50,000.

Based on the categorization of the categories of respondents' answers presented in tables 3.1 to 3.5, the data can then be compiled in a contingency table displayed in the following table 3.6.

Table 3.6.Preferences Analysis

TrustLevel	Quality					TotalScore
	Color	Jenis	Brand	Aroma	Price	
Excellent	13 9,4	10 9,4	9 9,4	7 9,4	8 9,4	47
Good	3 5,6	5 5,6	6 5,6	8 5,6	6 5,6	28
PrettyGood	1 2	2 2	2 2	2 2	3 2	10
Bad	0 0	0 0	0 0	0 0	0 0	0
Total	17	17	17	17	17	85

Based on table 3.6 above, the Chi-Square value can be calculated as follows:

$$\alpha = 0,05$$

$$DF = (K-1) (b-1)$$

$$DF = (5-1) (4-1) = 12$$

$$x^2 \text{ table} = 21.03$$

$$x^2_{calculate} = x^2 = \sum \frac{|(fo - fe)^2|}{fe} = \frac{(13 - 9,4)^2}{9,4} + \frac{(10 - 9,4)^2}{9,4} + \dots + \frac{(3 - 2)^2}{2} = 4,4997$$

So from the results obtained, the calculation value is 4,4997 and x^2 table = 21.03. If x^2 calculate > x^2 table the H_0 hypothesis is rejected and the H_a hypothesis is accepted. Therefore, it can be said that there is a relationship between exposure to lipstick selection and the level of confidence in buying lipstick products.

To obtain the results of the assessment of the level of trust in the quality of lipstick, the following formula is used :

For color quality

$$bi = \frac{4a + 3b + 2c + d}{a + b + c + d} = \frac{4(13) + 3(3) + 2(1) + 1(0)}{13 + 3 + 1 + 0} = \frac{63}{17} = 3,71$$

So, the result for color quality is 3,71.

Can be seen in the table below

Table 3.7. Respondents' Confidence in the Quality of Lipstick

LipstickVariations	Value				TotalValue	Average
	4	3	2	1		
Color	13	3	1	0	17	3,71
	52	9	2	0	63	
Jenis	10	5	2	0	17	3,47
	40	15	4	0	59	
Brand	9	6	2	0	17	3,41
	36	18	4	0	58	
Aroma	7	8	2	0	17	3,29
	28	24	4	0	56	
Price	8	6	3	0	17	3,29
	32	18	6	0	56	

In Table 3.7, it was found that the very good quality believed by the respondents was the color of the lipstick, which was 3,71, while the attributes that were less believed by the respondents were the aroma and price, which was 3,29.

Table 3.8. Respondents' Evaluation of Lipstick

LipstickVariations	Value				Totalvalue	Average
	4	3	2	1		
Color	15	2	0	0	17	4
	60	6	2	0	68	
Type	12	4	1	0	17	3,65
	48	12	2	0	62	
Brand	5	8	4	0	17	3,06
	20	24	8	0	52	
Aroma	4	5	6	2	17	2,65
	16	15	12	2	45	
Price	12	5	0	0	17	3,71
	48	15	0	0	63	

In table 3.8, the results for the evaluation of the respondent's evaluation of the quality of lipstick were obtained that the quality that the most considered by the respondents in purchasing lipstick was the color of the lipstick or it can be said that the respondents felt that the assessment of the color of the

lipstick was the most important thing in forming attitudes towards the purchase of lipstick, while the quality that the respondents did not consider was the aroma of the lipstick, which was 2,65.

Table 3.9. Respondents' Attitudes Towards Lipstick at the State Islamic University of North Sumatra

No	Lipstick	Belief	Evaluation	Attitude	Ranking
1	Color	3,71	4	14,84	I
2	Type	3,47	3,65	12,6655	II
3	Brand	3,41	3,06	10,4346	IV
4	Scent	3,29	2,65	8,7185	V
5	Price	3,29	3,71	12,2059	III

Based on table 3.9. It can be seen that the respondents' attitude index towards the quality considered in the decision to buy lipstick, from the highest to the lowest is color with 14.84, type 12.6655, brand 10.4346, fragrance 8.7185, and price 12.2059. if viewed from the order, the higher the Ao value, the higher the quality of the lipstick is at the top of the list that respondents pay the most attention to, and so on. Therefore, table 3.9 shows that rank 1 is color, rank 2 is type, rank 3 is scent, rank 4 is brand and last rank is the price of lipstick.

4 CONCLUSION

UINSU students have a preference for simple, practical, and affordable lipsticks, with nude colors and matte types that give a natural impression. The main factors that influence the choice are color, aroma, price, and brand, with the dominance of local products in the price range of Rp20,000–Rp50,000. This research shows the importance for local cosmetics manufacturers to develop products according to market preferences, such as nude lipsticks with quality lipstick texture and scent. Consumer education about product safety needs to be improved, while further researchers are advised to expand the scope of research. Universities can also support local products with educational seminars to boost the domestic economy.

5 REFERENCES

- [1] Fisina Husnul, d. (2017). Pemilihan Merk Lipstik Terfavorit Dengan Menggunakan MADM Berbasis GUI Matlab. *Jurnal Statistika Undip*, 345-354
- [2] Heidi. (2018). Pola Pemilihan Lipstik di Kalangan Mahasiswi. *Jurnal Farmasi Komunitas* , 1-9.
- [3] Pratama Anugerah Dimas, d. (2020). Analisa Positioning Lipstik Merek W, R, MA, ME dan LA Berdasarkan Persepsi Konsumen dengan Metode Multidimensional Scalling. *Jurnal Manajemen Industri dan Teknologi*, 118-129.
- [4] Severin, & Tankersley. (2019). Psychological tr Factors Influencing Lipstick Color Preferences: A Study of Consumer Behavior. *Cosmetic Science Journal*, 45(1), 67-74.
- [5] Daniel. (2014). *Biostatistics: A Foundation for Analysis in the Health Sciences*. John Wiley.
- [6] Gupta, & Srivastava. (2021). Consumer Preference Towards Cosmetics Products: A Study of Young Women . *Journal of Business and Retail Management Research* , 43-52.
- [7] Huang, & Tai. (2020). The Effects of Beauty Product Trend on Consumers' Purchase Decisions. *Journal of Consumer Marketing* 37(5), 789-799.
- [8] Kotler, P., & Keller, K. L. (2016). *In Marketing Management*. Pearshon Education.
- [9] Nurjannah, Y., & Triyani, T. (2018). Analisis Preferensi Konsumen Terhadap Produk Kosmetik dengan Pendekatan Chi-Square. *Jurnal Ekonomi & Bisnis*.
- [10] Park, J. (2018). Exploring Consumer Preferences for Cosmetic Products: A Study of Color and. *Journal of Fashion Marketing and Management*, 22(4), 123-138.
- [11] Sari, R. (2020). Analisis Preferensi Mahasiswa dalam Pemilihan Produk Kosmetik di Indonesia. *Jurnal Ekonomi dan Bisnis Indonesia*, 35(2), 115-130.
- [12] Sugiyono. (2015). *In Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.