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An Analysis of Consumers' Preferred Attributes of COK-KIS Products

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Abstract

The increase in competition is felt by pastry producers. COK-KIS, established in 2016, needs to increase their sales by improving their products using the attributes that are preferred by potential consumers, in terms of flavor, nutritional value, and packaging. However, previous studies examining these attributes have been inconsistent. Hence, the aim of the study was to examine the combination of attributes to be used in COK-KIS products that are in line with the consumer's preferences. The data was collected from 97 respondents through purposive sampling. The results were analyzed using conjoint analysis by SPSS. The study showed that the consumers' preferred attribute was taste, the second was the nutritional value, and the third was the packaging. The most preferred combination of attributes was the low-calorie savory product, packed in a paper bag.

Keywords: Consumer preferences, snacks, products, taste, packaging, nutritional value, conjoint analysis

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1. Introduction

In Indonesia, the food and beverage industry is one of the industries that is developing every year. The Public's interest in the food and beverage industry is getting bigger, thus creating an increase in promising business opportunities and fierce competition within the industry. New bakery businesses keep rising. A trend of a practical lifestyle has also shifted Indonesian consumers in their preferred food consumption. Various traditional and modern retailers provide various bakery products with a variety of flavor and shape; therefore, they need to have the ability to create innovative competitive advantages to win the competition within the bakery product industry.

COK-KIS is a pastry product that has been established since 2016 and is using clover leaves as the base of the products, as well as Surabaya's symbols as their hallmark. COK-KIS sells its products online and offline (collaborating with several retailers in Surabaya and conducting bazaar every month). COK-KIS strives to continue to increase their sales

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turnover by improving and developing their products and to give innovative change and adjustment according to the target consumer's preferences.

According to Halagarda (2017), there are various factors of consumer preference on bakery products, including flavor, attractive look, and nutritional value of the bakery products (Halagarda, 2017). The first attribute is flavor. According to Wisanggeni and Bramatiyo (2017), Ortega, et al. (2016), Souki, et al. (2016), Shamal and Mohan (2017), and Hartono and Netti (2018), the flavor attribute is the main consumers' preference in choosing culinary products. However, the studies also show that there are different flavor preferences affected by the consumers' culture, where the result of the study will be different from COK-KIS target consumers in Surabaya.

The second attribute is the product's packaging. According to Indraswati (2017:2), one of the main obstacles for MSME products in competing in the market is having a good product packaging, and having a good quality in terms of materials, design, and label. COK-KIS uses plastic jars, which according to Rahman (2017:278), is considered to not be environmentally friendly because it is difficult to recycle and not giving extra value to the consumers. COK-KIS should improve the use of packaging materials, as well as the aesthetic design and appearance of COK-KIS product packaging. Choosing the packaging materials for the pastries should also take into consideration consumer's preferences, including using single-serve packaging that serves practicality to the consumers, and choosing materials that are recyclable so it can be more environmentally friendly (Ortega et al., 2016).

The third attribute is the nutritional value. Nowadays, consumers are more conscious of their health, and as a result, consumer's demand for high-quality food with high nutritional value also grows. According to Halagarda (2017), consumers from the middle to upper social class are willing to pay more to get food products that have the nutritional value that fulfills their needs. This is in contrast with a study by Ortega et al. (2016) where middle-class consumers in Mexico do not pay attention to the nutritional value of foods that they consumed and are more concerned with the flavor of the food. It can be concluded that consumers have different nutritional needs. As a result, this study examines consumer's preferences on COK-KIS products, especially flavor, packaging, and nutritional value attributes.

2. Methods and Equipment

Descriptive quantitative research is conducted on COK-KIS target population, which includes COK-KIS consumers and potential consumers. In Surabaya, we are not able to

count the number of consumers from the middle social class who likes pastry products who consume and buy pastry products other than COK-KIS at least every 3 months, with a healthy lifestyle and is environmentally friendly; where the total number of population is not certain, it is often called as infinite population. Then, the sample group is determined using the following Cochran formula (1977, Suliyanto, 2018:200):

$$n = \frac{Z^2}{4d^2}$$

Description:

n = total ofsample

Z = confidence level

d = Margin of Error

The sample group is calculated from a 95% confidence level (Z = 1,96) at the highest level of sample error that can be tolerated (Margin of Error) of 10%, and as result, the sample group should consist of at least 96.04 respondents. Sampling is conducted with non-probability sampling using a purposive sampling technique with the criteria of potential COK-KIS consumers with a minimum monthly expenditure of RP.1,500,000 and has purchased pastries from various brands at least once every 3 months. The source of data used in this study includes primary data collected through offline questionnaires that are distributed to respondents that meet the criteria. Then, the result of the questionnaires is inputted into the Excel program, and are analyzed using the SPSS program. Also, secondary data is used, which are collected from articles, journals, and literature related to the research.

This study uses the Conjoint Analysis method and is supported by the SPSS application. According to Santoso (2018:299), the conjoint method aims to recognize an individual's perspective towards a certain object that consists of several elements, until it gets the main result of the product, service, service system, or other elements desired by the respondents. The respondents rank a set of attributes to be considered when they buy pastries, which has been classified in Table 1 based on consumer preferences. The flavor attributes choices include 3 levels, namely: sweet, salty, and savory. The packaging attributes have 3 levels, which are paper bag, glass jar, and biscuit tin. The nutritional value attribute has three levels, which are low calorie, gluten-free, and sugar-free. Thus, the attributes come up with twenty-seven stimuli of product combinations. The data obtained are coded into dummy variables, thus the researchers can conduct a regression test.

TABLE 1: Attribute and Level of Attribute of Pastry Products

Attribute	Level of Attribute
Flavor (X_1)	Sweet
	Salty
	Savory
Packaging (X_2)	Paper bag
	Glass jar
	Biscuit tin
Nutrition Value (X_3)	Low Calorie
	Gluten free
	Sugar Free

3. Results

The result of the descriptive analysis showed that respondents who meet the criteria of this study includes 46 men and 51 women from various professions, which means there are more women who purchase pastries products, at least once in 3 months. Respondents aged 36 years and older are more likely to purchase pastry products compared to respondents from other age groups. In addition, there are more respondents coming from upper-middle-class social groups (expenditure of Rp. 3,000,00 to Rp. 5,000,000 per month), who purchase pastries compared to respondents from other social groups. On average, the frequency to purchase pastry products by the consumers is twice in the last three months.

From the conjoint analysis generated by the SPSS program, there are results of preferences from each respondent and results of overall preferences (overall statistics). Table 2 shows the overall level of attributes that are preferred and not preferred by the respondents. If the value is positive and high in the value of utility estimate, it shows that overall, respondents preferred a certain level of the attribute. On the other hand, if the utility estimate value is negative, it shows that the overall respondents do not prefer the attribute level. The constant value is obtained from the sum of the value of each combination over the number of combinations, thus the calculation comes up to 14.00 which then becomes the basis for calculating the utility at each level of the attribute.

TABLE 2: The Utility Value of the Respondents

		Utilities	
Packaging	*Paper bag*	1,267	,108
	Glass Jar	-,131	,108
	Biscuit Tin	-1,136	,108
Nutrition	Low Calorie	,782	,108
	Gluten free	-,761	,108
	Sugar free	-,022	,108
(Constant)		**14,000**	**,076**

Table 3 shows the result of the overall respondent's perception towards the three attributes on which of the three attributes are more important to the respondents, measured by the highest to the lowest value. The result shows that consumers considered flavor, then nutritional value, and lastly packaging

TABLE 3: Important Values of All Respondents

Importance Values	
Flavor	59,936
Packaging	18,515
Nutrition	21,549
Averaged Importance Score	

Table 4, which explains the Correlations of the overall respondents, shows that the reliability and validity tests on the conjoint analysis (Predictive Accuracy result) where it compares the estimation of the respondent's opinion pattern (Estimates Part-Worth) with the respondent's actual opinion (actual). Table 4 shows that the Pearson R-value is 0.982 and the value of Kendall's tau is 0.913, and it shows a strong correlation or relationship because the value is higher than 5 percent (0.05). At a significance level of 0, which is less than 5 percent (0.05), it indicates that the result of the predicted accuracy of all respondents is good and accurate.

TABLE 4: Correlations of All Respondents

Correlations		
	Value	*Sig.*
Pearson's R	,982	,000
Kendall's tau	,913	,000

a. Correlations between observed and estimated preferences

Table 5 describes the total utility of the combinations chosen by the respondents. The product's total utility becomes the best-preferred option that is liked and favorited by the respondents to options that are not preferred by the respondents. The top five most preferred attributes are:

1. Product with a savory flavor, packed in a paper bag, and low in calories.

2. Product with a sweet flavor, packed in a paper bag, and low in calories.

3. Product with a savory flavor, packed in a paper bag, and is sugar-free.

4. Product with a sweet flavor, packed in a paper bag, and is sugar-free.

5. Product with a savory flavor, packed in a glass jar, and low in calories.

4. Discussion

The result of this conjoint study is applied to COK-KIS in designing and improving the products offered to potential consumers based on 27 attribute combinations that are preferred by consumers. This is conducted so COK-KIS can increase their sales and win the existing competition. The result of this study indicates the order of attributes, from the most important to the least important according to the potential consumers. The most preferred attribute is flavor, the second is the nutritional value, and the third is the packaging. In the first attribute, the first choice is savory, followed by sweet and salty. In nutritional value attribute, the most preferred attribute is low calorie, sugar-free, and lastly gluten-free. On packaging attributes, the first choice is a paper bag, then a glass jar, and finally biscuit tin. From this, it can be said that the best combination of attributes is a product with savory flavor, low in calorie, and packed in a paper bag.

Regarding the flavor attribute, the result of this study is in line with researches conducted by Wisanggeni and Bramatiyo (2017), Ortega, et al. (2016), Souki, et al. (2016), Shamal and Mohan (2017), and Hartono and Netti (2018), where flavor becomes the main

TABLE 5: The Total of Utility Value of COK-KIS Pastries

No	Combination			Utility Value			Total	Rank
1	Sweet	Paper bag	Low Calorie	0.745	1.267	0.782	2.794	2
2	Sweet	Glass Jar	Low Calorie	0.745	-0.131	0.782	1.396	7
3	Sweet	Biscuit Tin	Low Calorie	0.745	-1.136	0.782	0.391	12
4	Sweet	Paper bag	Gluten free	0.745	1.267	-0.761	1.251	8
5	Sweet	Glass Jar	Gluten free	0.745	-0.131	-0.761	-0.147	16
6	Sweet	Biscuit Tin	Gluten free	0.745	-1.136	-0.761	-1.152	20
7	Sweet	Paper bag	Sugar Free	0.745	1.267	-0.022	1.99	4
8	Sweet	Glass Jar	Sugar Free	0.745	-0.131	-0.022	0.592	11
9	Sweet	Biscuit Tin	Sugar Free	0.745	-1.136	-0.022	-0.413	17
10	Salty	Paper bag	Low Calorie	-1.864	1.267	0.782	0.185	14
11	Salty	Glass Jar	Low Calorie	-1.864	-0.131	0.782	-1.213	21
12	Salty	Biscuit Tin	Low Calorie	-1.864	-1.136	0.782	-2.218	24
13	Salty	Paper bag	Gluten free	-1.864	1.267	-0.761	-1.358	22
14	Salty	Glass Jar	Gluten free	-1.864	-0.131	-0.761	-2.756	25
15	Salty	Biscuit Tin	Gluten free	-1.864	-1.136	-0.761	-3.761	27
16	Salty	Paper bag	Sugar Free	-1.864	1.267	-0.022	-0.619	18
17	Salty	Glass Jar	Sugar Free	-1.864	-0.131	-0.022	-2.017	23
18	Salty	Biscuit Tin	Sugar Free	-1.864	-1.136	-0.022	-3.022	26
19	Savory	Paper bag	Low Calorie	1.119	1.267	0.782	3.168	1
20	Savory	Glass Jar	Low Calorie	1.119	-0.131	0.782	1.77	5
21	Savory	Biscuit Tin	Low Calorie	1.119	-1.136	0.782	0.765	10
22	Savory	Paper bag	Gluten free	1.119	1.267	-0.761	1.625	6
23	Savory	Glass Jar	Gluten free	1.119	-0.131	-0.761	0.227	13
24	Savory	Biscuit Tin	Gluten free	1.119	-1.136	-0.761	-0.778	19
25	Savory	Paper bag	Sugar Free	1.119	1.267	-0.022	2.364	3
26	Savory	Glass Jar	Sugar Free	1.119	-0.131	-0.022	0.966	9
27	Savory	Biscuit Tin	Sugar Free	1.119	-1.136	-0.022	-0.039	15

preference for consumers in choosing culinary products, including pastry products. COK-KIS is aware of the flavor that is most preferred by their customers is savory and the second preferred flavor is sweet, thus COK-KIS should provide a variety of savory flavors pastries. The company must purchase raw materials for its production and must pay attention to manage the final product stock inventory. They should stock a larger amount of savory flavor product compared to the sweet and salty pastries, and sweeter than salty products.

The second most important attribute is the nutritional value. This finding is consistent with a study by Shamal & Mohan (2017) where consumers from the middle and upper social class are more concerned about health issues, especially in consuming low-calorie products, however, consumers tend to pay less attention and not consider the gluten-free value in the products. Moreover, the result of this study is following

a study by Ortega et al. (2016) where middle-class consumers, especially in Surabaya and is similar to Mexico, are paying less attention to the nutritional content of the food consumed and are more concerned about the taste of the food. The result of a healthy food consumption pattern in middle-class society is in line with Hartari (2017)'s study; the higher the respondent's income is, the higher the level of need for healthy consumption portrayed. This study shows that respondents with a monthly expenditure of Rp. 5.000.000 are more likely to maintain the level of calories they consumed. Respondents with the age of 36 years old and older are also maintaining their calorie consumption as a form of diet because this age group has special health needs. The findings see potential consumers from middle-class groups in Surabaya have preferences towards specific nutritional value from a product. Thereafter, COK-KIS can improve and develop their products by adjusting the number of calories (low calories) and use alternative sugar substitutes from other types of sweeteners, such as natural sweeteners made from fruits and vegetables.

The third attribute is the packaging. The most preferred packaging by consumers is in a 250g paper bag because it is cheaper, practical, and light to use and to carry. At the moment, COK-KIS uses plastic jar as its product packaging, which has shortcomings in terms of appearance, made in non-environmentally friendly materials because it is difficult to be recycled, and is less valuable to the consumers. The next COK-KIS product development is to change its packaging to a paper bag. In saying this, COK-KIS should pay attention to the production and delivery process. COK-KIS must continue to review the SOP production, especially in the quality of the dough and the oven temperature to maintain and ensure its product quality so that it is not easily damaged and to consider SOP on delivery. The paper bag packaging can benefit from having secondary packaging, such as an additional box, to protect the product.

5. Conclusion

Based on the results of the study, it can be concluded that the main attribute preferred by consumers on COK-KIS pastries is flavor, the second is the nutritional value, and the third is the packaging. The best combination of attributes on their products is those with savory flavor, use paper bag packaging, and low in calories. It is hoped that COK-KIS continues to study consumer preferences in determining their pastry products, as consumer's preferences keep changing according to the change of lifestyle and trend of products as well as trends in marketing and sales. COK-KIS is expected to improve its product quality according to consumer's tastes and preferences to maintain consumer

satisfaction so that it can be a source of promotion through word of mouth. Future research is suggested to examine other attributes, such as price, as well as other attributes that affect consumers in determining their product of choice, and attributes that are in accordance with the objective of the future studies. The limitation of this study is during the data collection process via questionnaire, respondents have difficulties to give and to rank the product attribute combinations from one to twenty-seven because there are too many choices of combinations given to the respondents.

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