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Consumer Preferences And Packaging Design Influence Coca-Cola Sugar Free Purchase Decisions

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ABSTRACT

This study examines whether consumer preferences and packaging design characteristics are associated with purchase decisions for Coca-Cola Sugar Free among consumers in Sukarame District, Bandar Lampung. A quantitative survey was conducted with 107 respondents selected purposively from adults who had purchased and consumed the product. Data were collected using a five-point Likert questionnaire and analyzed through validity and reliability testing, classical assumption testing, descriptive statistics, and multiple linear regression. The instrument included 16 items for consumer preferences, 24 for packaging design characteristics, and 19 for purchase decisions. Cronbach's alpha values were 0.966, 0.978, and 0.969, respectively. Regression analysis showed that consumer preferences had a positive and significant association with purchase decisions ($B = 0.554$; $t = 7.621$; $p < 0.001$). Packaging design characteristics also had a positive and significant association ($B = 0.260$; $t = 3.576$; $p = 0.001$). The model explained 49.7% of the variation in purchase decisions ($R^2 = 0.497$). Consumer preferences had the larger regression coefficient. The findings highlight the relevance of product fit with consumer tastes and needs, alongside packaging that is recognizable and informative..

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1. INTRODUCTION

Consumer choices in the beverage market reflect evaluations of product attributes, individual preferences, and information available at the point of purchase. Consumers compare alternatives and assess whether a product is consistent with their tastes, needs, and expected benefits. Consumer preference is therefore relevant to understanding product choice and purchase behavior [1], [2]. Sugar-free beverages may be considered by consumers who pay attention to sugar content, although product positioning alone does not determine purchasing behavior [3].

Packaging provides protection and communicates product identity through color, typography, images, and written information. It can help consumers recognize and differentiate products and obtain information at the point of purchase [4], [5], [6]. Previous studies have identified associations between packaging design and purchase decisions in different product categories [7], [8], [9], [10]. However, the contribution of individual packaging elements may vary by context; Aprilliyan [11], for example, reported differing effects for visual and verbal packaging design.

Research on consumer preferences has examined choices in food, beverages, and services [12], [13], [14], [15]. Nevertheless, the combined contribution of consumer preferences and packaging design characteristics to Coca-Cola Sugar Free purchase decisions in Sukarame District, Bandar Lampung, has received limited direct attention in the studies identified in the research proposal. This study addresses that contextual gap by examining the partial effects of consumer preferences and packaging design characteristics on purchase decisions.

2. METHOD

This research applied a quantitative survey design. The population comprised consumers in Sukarame District, Bandar Lampung, and the sample consisted of consumers who had purchased and consumed Coca-Cola Sugar Free. Since the population size was unknown, the Lemeshow formula was used with a 95% confidence level, P = 0.5, and precision of 0.10. The minimum sample was 96.04 respondents; after adding a 10% allowance, the sample target was 107 respondents. Respondents were selected using purposive sampling.

The inclusion criteria were residence in Sukarame District, age of at least 18 years, prior purchase and consumption of Coca-Cola Sugar Free, and willingness to complete the questionnaire. Data were collected using a structured questionnaire with a five-point Likert scale [16], from 1 (strongly disagree) to 5 (strongly agree). Consumer preferences (X1) were measured using 16 items covering completeness, transitivity, continuity, and the principle that more is better. Packaging design characteristics (X2) were measured using 24 items covering brand name, color, typography, images, product information, manufacturer, place of production, and brand identity. Purchase decision (Y) was measured using 19 items covering product choice, brand choice, seller/place choice, purchase timing, quantity, and payment method.

The analysis included descriptive statistics, validity and reliability testing, classical assumption testing, and multiple linear regression. Validity was assessed using the Kaiser–Meyer–Olkin (KMO), Measure of Sampling Adequacy (MSA), and factor loading, while reliability was assessed using Cronbach's alpha [17]. The classical assumptions assessed were residual normality, multicollinearity, heteroscedasticity, and linearity. Partial hypotheses were tested using t statistics at a 5% significance level. The regression model was $Y = \alpha + \beta 1X1 + \beta 2X2 + \varepsilon$..

3. RESULT AND DISCUSSION

3.1 Respondent Characteristics

A total of 107 respondents were included in the analysis. Men accounted for 51.4% and women for 48.6%. The largest age group was 25–34 years (35.5%), followed by 18–24 years (29.0%). Most respondents had completed senior high school or equivalent (40.2%), and the largest occupational group was employees (32.7%). The respondent profile is summarized in Table 1.

Table 1. Respondent Characteristics (n = 107)

Characteristic	Category	n	%
Gender	Male	55	51.4
	Female	52	48.6
Age	18–24 years	31	29.0
	25–34 years	38	35.5
	35–44 years	25	23.4
	≥45 years	13	12.1
Education	Senior high school	43	40.2
	Diploma	12	11.2
	Bachelor's degree	39	36.4
	Master's degree	8	7.5
	Other	5	4.7
Occupation	Student	28	26.2
	Employee	35	32.7
	Entrepreneur	17	15.9
	Civil servant	11	10.3
	Homemaker	10	9.3
	Other	6	5.6

3.2 Validity and Reliability

The KMO values were 0.968 for consumer preferences, 0.967 for packaging design characteristics, and 0.967 for purchase decisions. All item-level MSA values were reported above 0.50 and factor loadings met the criteria applied in the source analysis. Cronbach's alpha values were 0.966, 0.978, and 0.969, respectively, exceeding the 0.70 criterion. The instrument summary is presented in Table 2.

Table 2. Validity and Reliability Summary

Construct	Items	KMO	Cronbach's α	Assessment
Consumer preferences (X1)	16	0.968	0.966	Valid and reliable
Packaging design (X2)	24	0.967	0.978	Valid and reliable
Purchase decision (Y)	19	0.967	0.969	Valid and reliable

3.3 Descriptive Statistics

The mean scores were 50.62 for consumer preferences, 76.10 for packaging design characteristics, and 60.36 for purchase decisions. Their standard deviations were 15.36, 23.07, and 17.87, respectively. The source analysis also reported average item scores of 3.16, 3.17, and 3.18, indicating generally positive but not uniformly strong respondent assessments. Descriptive statistics are presented in Table 3.

Table 3. Descriptive Statistics of Study Variables

Variable	Items	Min	Max	Mean	SD
Consumer preferences (X1)	16	20	80	50.62	15.36
Packaging design (X2)	24	26	120	76.10	23.07
Purchase decision (Y)	19	21	95	60.36	17.87

3.4 Classical Assumption Tests

The Kolmogorov–Smirnov normality test produced a statistic of 0.049 with p = 0.952. Tolerance values were 0.106 and VIF values were 9.474 for both independent variables. Glejser significance values were 0.882 for X1 and 0.325 for X2. Deviation-from-linearity significance values were 0.447 for X1–Y and 0.607 for X2–Y. Based on the decision criteria applied in the source analysis, the model met the classical assumption tests; the VIF values, however, are close to the upper threshold of 10. Results are summarized in Table 4.

Table 4. Classical Assumption Test Results

Test	Variable/statistic	Result	Interpretation
Normality	K–S = 0.049; p = 0.952	p > 0.05	Normal residuals
Multicollinearity	Tolerance = 0.106; VIF = 9.474	Tol. > 0.10; VIF < 10	No indication under applied cut-off
Glejser	X1 p = 0.882; X2 p = 0.325	Both p > 0.05	No heteroscedasticity detected
Linearity	X1–Y p = 0.447; X2–Y p = 0.607	Both p > 0.05	Relationships considered linear

3.5 Multiple Regression and Partial Tests

The multiple regression equation was $Y = 0.598 + 0.554X1 + 0.260X2 + \varepsilon$. Consumer preferences had a positive coefficient of 0.554 ($t = 7.621$; $p < 0.001$), while packaging design characteristics had a positive coefficient of 0.260 ($t = 3.576$; $p = 0.001$). Both predictors were statistically significant in the partial tests. Regression results are presented in Table 5.

Table 5. Multiple Regression and Partial Tests

Variable	B	SE	t	p
Constant	0.598	0.270	2.212	0.029
Consumer preferences (X1)	0.554	0.073	7.621	<0.001
Packaging design (X2)	0.260	0.073	3.576	0.001

The coefficient of determination was $R^2 = 0.497$ and adjusted $R^2 = 0.487$. Thus, the two predictors explained 49.7% of the variation in purchase decisions, while 50.3% was associated with factors outside the model. The model summary is presented in Table 6.

Table 6. Model Summary

R	R^2	Adjusted R^2	Std. Error of Estimate
0.705	0.497	0.487	0.674

3.6 Discussion

Consumer preferences showed a positive and statistically significant association with purchase decisions. The coefficient was larger than that of packaging design characteristics, suggesting that product fit with consumers' tastes, needs, consistent choice, and perceived benefits is an important consideration when purchasing Coca-Cola Sugar Free. This finding is consistent with the view that preferences arise through consumers' evaluation of available alternatives [1] and with previous studies linking consumer preferences to choices in products and services [2], [12], [14], [15].

Packaging design characteristics also showed a positive and statistically significant association with purchase decisions. The construct covered brand name, color, typography, images, product information, manufacturer, place of production, and brand identity. These elements may support product recognition, differentiation, and communication of information. The result is consistent with studies reporting a contribution of packaging design to purchase decisions across product categories [7], [8], [9], [10]. Nevertheless, the influence of individual packaging dimensions may differ across contexts, as indicated by Aprilliyan [11].

The R^2 value indicates that preferences and packaging characteristics explain part, but not all, of purchase decision variation. Other possible factors include price, product quality, promotion, product availability, brand image, lifestyle, and personal perceptions [18]. These factors were not tested in the present model and should be examined in future research. From a practical perspective, the findings suggest that marketers should maintain product attributes that fit consumer preferences while ensuring that packaging is recognizable, coherent, and informative

4. CONCLUSION

Consumer preferences and packaging design characteristics each had a positive and statistically significant partial association with purchase decisions for Coca-Cola Sugar Free among the 107 respondents studied in Sukarame District, Bandar Lampung. Consumer preferences had the larger regression coefficient (B = 0.554) than packaging design characteristics (B = 0.260). Together, the two variables explained 49.7% of the variation in purchase decisions. The findings support the importance of understanding consumers' tastes and needs while maintaining clear, recognizable, and informative packaging. The study is limited by its location, purposive sample, and survey design. Future studies may include price, product quality, promotion, availability, and brand image to explain additional variation.

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