

Visual Relationship Design Packaging Cough Drug Liquid Preparations against Consumer Purchase Decisions

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ABSTRACT: Product packaging is something that has a protective function, keeps a product safe, and leaves an image for the consumer who has worn it. The packaging can also give an image of a product, both in terms of quality and the value offered by the manufacturer. The aim of this research is to find out the relationship between the visual appearance of the packaging of liquid cough medication and the attitude of consumers towards the decision to buy the product. The study was tested on 198 samples from Magelang district communities that meet the inclusion criteria. This research uses a quantitative method with data collection using a closed-type questionnaire. Data analysis using IBM SPSS 21 software involves performing partial tests, simultaneous tests, and R square tests to determine determination coefficients. The results of this study revealed that 51.8% of consumer purchase decisions were influenced by visual design, verbal design, and packaging benefits. Significantly, visual design and package benefits showed a $p < 0.05$ value in the purchase decision of liquid cough medication products, whereas verb design showed no significant value with $p > 0.05$ in the purchase decision of the product cough medicine liquid preparation. The conclusion of this study is that visual packaging influences simultaneous purchasing decisions. While partially true, verbal designs have no significant influence on consumer purchase decisions.

KEYWORDS: Packaging design, cough medicine, purchase decision.

I. INTRODUCTION

In an era of globalization and increasing business competition, it is important for drug manufacturers to understand the factors that influence consumer purchasing decisions. One factor that may have a major role in this process is the design of the product packaging (Prabowo &

Aji, 2021). Packaging design is not only about functional aspects but also about aesthetic aspects that can affect consumer perceptions of the product. A number of previous studies have highlighted the important role of packaging design in influencing consumer purchasing decisions (Srivastava et al., 2022; Wallenburg et al., 2021). With rapid developments in pharmaceuticals and healthcare, manufacturers of liquid cough remedies are becoming increasingly aware of the importance of packaging design as a tool that can influence consumer purchasing decisions. An attractive packaging design not only serves as a physical container for a product but also as a visual communication tool that can influence consumer perceptions and preferences (Ahmad, 2021; Swasty et al., 2021).

Previous research has shown that visual elements in packaging design, such as colours, shapes, and graphics, can affect consumer perceptions of product and brand quality (Sundar et al., 2020; Mohammed et al., 2018). For example, the colour and graphical illustrations on the packaging of liquid cough medication preparations can trigger associations with the health, effectiveness, or safety of the product (Steenis et al., 2017). Therefore, a deeper understanding of the relationship between visual aspects in packaging design and consumer purchasing decisions in the context of cough medication product liquid preparation is essential (Rahman et al., 2020; Yao et al., 2021).

In addition, trends in packaging design continue to evolve along with changing consumer tastes and technological developments. Recent research has noted a significant shift in packaging design preferences, with more emphasis on minimalistic design, simplicity, and sustainability (Escursell et al., 2021; Stark & Matuaan, 2021; Sastre et al., 2022). As a frequently used health product, the liquid-prepared cough medication

must be able to catch this trend to meet growing consumer expectations.

This research aims to explore the relationship between the visual elements in the cough drug packaging design of liquid preparations and consumer purchasing decisions. We involve respondents from a variety of backgrounds to identify the visual factors that most influence consumer preferences. The results of this research are expected to provide valuable guidance for cough drug manufacturers in designing effective and attractive packaging for consumers. This research fills the knowledge gap in the literature about the relationship between drug packaging design and consumer behavior. By better understanding how visual elements in packaging design influence consumer purchasing decisions, we can improve the effectiveness of marketing strategies and product design in the pharmaceutical industry.

II. METHOD

Design

The study is an analytical observational study with a cross-sectional approach in Magelang district for one month. The research is aimed at finding out the public's decision to buy liquid cough medication. The research instrument uses a questionnaire consisting of questions used as a source of information about the things that researchers need as research material.

Materials

The study uses a questionnaire or digital form sheet in the form of a Google Form that consists of four components: visual design (8 questions), verbal design (8 issues), packaging benefits (8 questions), and purchasing decisions (11 questions), which can be seen in Table 1. The survey questionnaires adapted the questionnaire of Vincentia Tiffani Zivana Princess (2020), with some modifications to suit the needs of the research but still relevant to use. Data processing using MS Excel 2020 and SPSS (Statistical Package for the Social Sciences).

Population dan Sample

The inclusion criteria used are: (a) a community of Magelang district that is not a health worker or a health student; (b) has experienced cough; and (c) has ever performed cough medication by purchasing medication in a pharmacy or pharmacy. The exclusion criterion is that the respondents did not fill in the questionnaire

data in full. The number of samples involved in this study is based on the Lameshow formula:

$$n = \frac{z^2 p(1-p)}{d^2}$$

$$z = 1.96$$

$$p = 0.5$$

$$d = 0.05$$

Based on the calculations using the formula above, a minimum sample size of 196 people was obtained.

Data Analysis

Before distributing the survey questionnaire, a validity and reliability test was first conducted using 30 respondents outside of the study. The test was conducted to prove that the question to be given to the respondent was valid and reliable. The data obtained will be processed using SPSS with validity test analysis and reliability test to test that the questionnaire has been eligible for the measurement of a study. Subsequently, the hypothesis is tested with the F test and the t test, as well as the determinant coefficient test (R² test).

Research Instruments

Data collection is done using a closed questionnaire in the form of a measurement of influence between variables using a Likert scale. The answers from the respondents will be worth a score of 1–5, as shown in Table 1.

Table 1. Score Answer Questions

Alternative Answers	Score
Totally agree	5
Agree	4
Neutral	3
Don't agree	2
Very disagreeable	1

III. RESULT

Validity and reliability test

The validity test (Supplementary File Table 1) on the research instrument against the entire question of the four components (visual design, verbal design, packaging benefits, and purchasing decisions) showed that the value R Calculate > R Table means that all questions in the investigation instrument are valid. Whereas the reliability test (supplementarily File Table 2) on all questions loaded in the research questionnaire

showed Cronbach's alpha value greater than the set value (>0.6).

Demographic characteristics

The study used 198 random respondents from the Magelang district community who had met the selection criteria. Respondents were predominantly women (69.7%) compared to men (30.3%), with varying age rates; the majority were

≥ 40 years of age (43.4%), and the lowest were ≤ 15 years old (11.1%). Based on the experience of respondents with the purchase of cough medication, there were 2.5% of the total respondents who had never bought cough medicine in the form of a liquid preparation. The price of the drug purchased by the respondents as a whole is above RS5,000 with a percentage of 100%. The demographic characteristics of respondents can be seen in Table 2.

Table 2. Demographic Characteristics

	n=198	Percentage (%)
Gender		
a Male	60	30.3
b Female	138	69.7
Age		
a ≤15 yeras	22	11.1
b 16-25 years	53	26.8
c 26-40 years	37	18.7
d ≥40 years	86	43.4
Job Type		
a High School Student	38	19.2
b College Student	30	15.1
c Employee	111	56.1
d Housewives	19	9.6
Purchasing Cough Remedies Liquid Preparations		
a Ever	193	97.5
b Never	5	2.5
The price of the Cough Medicine purchased		
a ≤ IDR5,000	0	0
b > IDR5,000	198	100

Distribution of question-based respondent answers in questionnaires

In the results of the study documented in Table 3, which examined the components of the influence of visual design on the decision to

purchase liquid cough medication, a number of findings were found that provide important insights into the role of packaging design elements in influencing consumer behaviour.

Table 3. Visual Design

Component	Statement	TA (%)	A (%)	N (%)	DA (%)	VD (%)
Visual Design	The colour on the cough medication packaging drew my attention	18 (9.1)	89 (44.9)	63 (31.6)	27 (13.6)	1 (0.5)
	The colour on the cough medication package is memorable	35 (17.7)	126 (63.6)	22 (11.1)	15 (7.6)	- (0)
	The shape of the drug packaging drew my attention	20 (10.1)	81 (40.9)	69 (34.8)	26 (13.1)	2 (1)

	Comfortable and easy-to-use packaging shape	58 (29.3)	104 (52.5)	31 (15.7)	5 (2.5)	- (0)
	Package size according to my needs	44 (22.2)	122 (61.6)	28 (14.1)	4 (2)	- (0)
	The size of the drug package encouraged me to buy it	25 (12.6)	75 (37.9)	65 (32.8)	33 (16.7)	- (0)
	The picture on the cough medication package makes it easy to recognise	54 (27.3)	101 (51)	32 (16.2)	10 (5.1)	1 (0.5)
	The font on the cough medication packaging drew my attention	17 (8.6)	73 (36.9)	75 (37.9)	30 (15.2)	3 (1.5)

TA: Totally Agree, A: Agree, N: Neutral, DA: Don't Agree, VD: Very Disagreeable

By looking at these results, we can better understand the important role of visual design in influencing consumer preferences and perceptions of liquid-prepared cough medication, which in turn can help manufacturers optimise packaging strategies to meet the expectations of a rapidly growing market.

The impact of packaging design on liquid cough medication purchase decisions provides

valuable insights into how package design can influence consumer behaviour in the context of purchasing this important health product. Table 4 displays data that clearly describes the correlation between packaging design elements, such as brand names, product information, storage information, and purchase decisions.

Table 4. Packaging Design

Component	Statement	TA (%)	A (%)	N (%)	DA (%)	VD (%)
Packaging Design	The brand name on the cough drug packaging drew my attention	38 (19.2)	95 (48)	49 (24.7)	15 (7.6)	1 (0.5)
	The brand name on the cough medicine packaging is unique compared to other brands	21 (10.6)	70 (35.4)	72 (36.4)	34 (17.2)	1 (0.5)
	The brand name on the cough medicine package is easy to remember	52 (26.3)	113 (57.1)	30 (15.2)	3 (1.5)	- (0)
	The product information on the packaging is clearly indicated (medicinal content, benefits and indications, side effects, etc.)	100 (50.5)	82 (41.4)	12 (6.1)	4 (11.1)	- (0)
	Product information on the packaging affects confidence in the product	81 (40.9)	91 (46)	22 (11.1)	2 (1)	2 (1)
	Product storage information on the packaging is easy to understand and follow	66 (33.3)	115 (58.1)	15 (7.6)	2 (1)	- (0)

	I prefer and understand the product packaging that uses Indonesian	103 (52)	81 (40.9)	13 (6.6)	1 (0.5)	- (0)
	Product information on the packaging (name and address of the company, production code, and expiration date) is clearly written	107 (54)	78 (39.4)	11 (5.6)	2 (1)	- (0)

TA: Totally Agree, A: Agree, N: Neutral, DA: Don't Agree, VD: Very Disagreeable

In the context of health products such as liquid cough remedies, further understanding of the relationship between packaging design and the decision to buy liquid coughs is becoming increasingly important to help manufacturers improve their packaging strategies to meet the increasingly complex needs and expectations of customers. The component of the impact of the packaging benefit on the decision to purchase

liquid cough medication reveals very important information about the essential role of packaging in influencing consumer behavior. Table 5 clearly shows how benefits communicated through packaging, such as performance and functional benefits, ease of use, or aspects of product safety and environmental hospitality, can play a key role in shaping consumer purchasing preferences and decisions.

Table 5. Packaging Benefits

Component	Statement	TA (%)	A (%)	N (%)	DA (%)	VD (%)
Packaging Benefits	The performance benefits of the cough medication package I'm using are well made	65 (32.8)	112 (56.6)	19 (9.6)	2 (1)	- (0)
	The functional benefits of cough medication packaging have an acceptable standard of quality	59 (29.8)	116 (58.6)	22 (11.1)	1 (0.5)	- (0)
	Cough remedies are packed using good ingredients and are not easily broken, so we can guarantee the content of the product stays good	80 (40.4)	102 (51.5)	15 (7.6)	1 (0.5)	- (0)
	The packaging of the liquid cough medicine product that I bought made it easy for me to use	70 (35.4)	108 (54.5)	19 (9.6)	1 (0.5)	- (0)
	The package of the liquid cough medicine product that I bought had the right size	47 (23.7)	114 (57.6)	34 (17.2)	3 (1.5)	- (0)
	I prefer environmentally friendly packaging	89 (44.9)	82 (41.4)	25 (12.6)	2 (1)	- (0)
	I prefer high-quality packaging	63 (31.8)	93 (47)	39 (19.7)	3 (1.5)	- (0)
	I prefer a package that's easy to open	93 (47)	90 (45.5)	11 (5.6)	4 (2)	- (0)

TA: Totally Agree, A: Agree, N: Neutral, DA: Don't Agree, VD: Very Disagreeable

As a health and comfort-related product, liquid cough remedies are an interesting example of exploring how packaging can provide concrete benefits to consumers. The results of this research (Table 5) provide valuable insights for manufacturers in designing packaging that is not only visually attractive but also meets the practical needs and expectations of customers, creating

added value that can influence purchasing decisions.

The results of the study presented in Table 6, which revealed the components of the influence of purchasing decisions on the decision to purchase liquid cough medication, provide an overview of our understanding of the factors that shape consumer behaviour in choosing liquid cough medication products.

Table 6. Purchase Result

Component	Statement	TA (%)	A (%)	N (%)	DA (%)	VD (%)
Purchase Result	I'll buy it when the brand name is on the cough medicine package	76 (38.4)	91 (46)	27 (13.6)	4 (2)	- (0)
	I will buy when there is product information on the packaging	84 (42.4)	100 (50.5)	13 (6.6)	1 (0.5)	- (0)
	I'll buy when the color on the packaging draws my attention	15 (7.6)	54 (27.3)	89 (44.9)	34 (17.2)	6 (3)
	I'll buy when the form of the cough medicine packaging draws my attention	12 (6.1)	64 (32.3)	82 (41.4)	34 (17.2)	6 (3)
	I'll buy when the package size is perfect or as needed	34 (17.2)	110 (55.6)	46 (23.2)	8 (4)	- (0)
	I'll buy when the product is easy to consume	55 (27.8)	113 (57.1)	26 (13.1)	4 (2)	- (0)
	I'll buy when the drug packaging can be reused or recycled	39 (19.7)	56 (28.3)	67 (33.8)	29 (14.6)	7 (3.5)
	I'll buy when the drug packaging is guaranteed to protect the contents of the product	87 (43.9)	93 (47)	15 (7.6)	3 (1.5)	- (0)
	I intend to take the same cough medication when I find the same complaint	42 (21.2)	115 (58.1)	34 (39.9)	7 (3.5)	- (0)
	I'll always buy liquid cough medicine	21 (10.6)	70 (35.4)	79 (39.9)	27 (13.6)	1 (0.5)
	I'll recommend someone else use the liquid cough medicine I'm using	25 (12.6)	98 (49.5)	68 (34.3)	7 (3.5)	- (0)

TA: Totally Agree, A: Agree, N: Neutral, DA: Don't Agree, VD: Very Disagreeable

As a health and comfort-related product, liquid-prepared cough medication is a product that requires careful evaluation from the consumer before a purchase decision is made. By further understanding the factors that influence purchasing decisions (Table 6), manufacturers can direct their

marketing and sales strategies to better meet customer needs and preferences, strengthening their product position in an increasingly competitive market

Relationship between variables

The findings of the study contained in Table 7, which deals with the partial testing of the impact of packaging design on purchasing

decisions, are a key part of an effort to understand the important role played by package design elements in influencing consumer behaviour.

Table 7. Partial testing of the impact of packaging design on purchasing decisions

Variable	t	Significance
Visual Design	5.646	0.00
Verbal Design	1.877	0.06
Packaging Benefits	4.355	0.00

This table provides a clear overview of the extent to which specific factors in visual design, verbal design, and packaging benefits individually influence consumer purchasing decisions. The results of the research documented in Table 8 that

deals with the simultaneous testing of the impact of packaging design on purchasing decisions are an important contribution to understanding how the various elements in package design work together to influence consumer behaviour.

Table 8. Simultaneous testing of the impact of packaging design on purchasing decisions

Model	F	Significance
Regression	69.379	0.00

This determination coefficient data provides valuable insights for manufacturers and marketers in evaluating the extent to which their packaging design has successfully affected

consumer purchasing decisions as well as potential improvements that can be made to further strengthen product attractiveness and improve performance in an increasingly competitive market.

Table 9. Coefficient of Determination of the Impact of Packaging Design on Purchase Decisions

Model	R	R square	Adjusted R Square
1	0.719	0.518	0.510

IV. DISCUSSION

Based on the results of the research that has been analysed and then performed. interpretation of the results showed that there are various aspects that are complex in making a decision to buy a liquid cough medicine product. On table 3. as many as 63.6% of respondents agreed that the colour on the cough drug packaging was memorable. This suggests that attractive colours can be an important factor in packaging design that influences purchasing decisions (Theben et al., 2020; Al-Samarraie et al., 2019). More than half of respondents (52.5%) consider that a comfortable and easy-to-use form of drug packaging is important. It emphasises that practical packaging can influence purchasing decisions (Halabi et al., 2019; Zeng & Durif, 2019). The results from this table show that the visual design of packaging has a significant impact on consumer purchasing decisions. These results are consistent with previous research that highlighted the importance of packaging design in product marketing and its influence on purchasing behaviour (Swasty et al., 2020; Clara et al., 2019).

On table 4, a total of 57.1% of respondents felt that the brand name on the cough drug packaging was easy to remember. It highlights the importance of ease of brand consideration in making purchasing decisions (Wijaya & Annisa, 2020). A total of 50.5% of respondents assessed that product information on the packaging was clearly indicated. including drug content. benefits and indications. and side effects. It describes the importance of packaging design elements in influencing consumer purchasing decisions. (Alhamdi, 2020). A brand name that is interesting. unique. and memorable can affect consumer perceptions of a product (Vyas & Bhuvanesh, 2015). In addition. clear and informative product information on the packaging can also increase consumer confidence and influence purchasing decisions. (Rebollar et al., 2016; Schifferstein et al., 2022).

Respondent responses related to packaging benefits (Table 5) showed that almost two-thirds of respondents (58.6%) agreed that functional benefits on cough medication packaging had acceptable quality standards. It emphasised the

importance of quality in the functional benefits of packaging (Ikonen et al., 2019; Pascall et al., 2022). More than half of respondents (54.5%) felt that the packaging of liquid cough medication products made it easier to use. It emphasises the importance of practical and functional packaging (Gomez et al., 2015; Yao et al., 2021). Packaging benefits in terms of performance, quality, and functionality play an important role in influencing consumer purchasing decisions (Parassih & Susanto, 2021). Consumers value packaging that can provide good benefits, efficiency, and reliability (Keni, 2019). Respondents' replies (Table 6) related to purchase decisions for liquid cough medication showed that 50.5% felt that product information on cough medicine packaging influenced purchase decisions. It emphasises the important role of clear and informative information in packaging. As for the other question items that are still related to the purchase decision component, the percentage value is below 50%.

All variable components (Table 7) have a significant influence on the purchase decision of liquid cough medication ($p < 0.05$). A study conducted by Taufan and Saffanah (2023), on the attractiveness of packaging showed a partial result of t count of 7.391 ($p = 0.000$), so the attractiveness of the packaging has a positive and significant influence on the product purchase decision.

Simultaneous testing of all variable components (Table 8) showed a significant influence on the purchase decision ($p < 0.05$) simultaneously. According to a study conducted by Clara (2021), the F test results on packaging design variables, both visually and verbally, and the packaging function obtained a F count of 0.573 with a probability of 0.0157. So package design aspects, both visual and verbal, and packaging functions influenced consumer purchasing behaviour. Based on table 9, a square R value of 0.518 indicates that the decision to buy liquid cough medication is influenced by the variable component of the study, which is 51.8%. In a study carried out by Alyani (2019), a determination coefficient value of 0.479 shows that packaging has an influence on consumer purchasing interest of 47.9%, while the rest is affected by other variables.

Furthermore, the regression result of this study is $Y = 5.962 + 0.447X_1 + 0.212X_2 + 0.460X_3$, which means consumer purchasing decisions on cough medication liquid preparation will increase when the packaging design of the drug product also improves. Besides, companies

also have to pay attention to other things outside of dependent variables, such as marketing strategies and prices.

V. CONCLUSION

Visual design, verbal design, and packaging benefits show a real influence ($p < 0.05$) on consumer decisions to buy liquid cough medication products.

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