



## Consumer Preferences of Ginger, Curcumin, and Cinnamon-Based Instant Herbal Beverages during Covid-19 Pandemic

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**ABSTRACT:** The demand for functional beverage products has increased during the COVID-19 pandemic. Due to competition in the market, manufacturers need to innovate on product attributes. One of herbal beverages innovation is instant beverages made from ginger, curcumin, and cinnamon. This product also enriched with sugar, lemongrass and others natural ingredients. The new formulation of this beverages encourage the need for study on the level of consumer preferences for products. Thus, this study aimed to analyze the order of attributes of instant herbal beverages based on the level of consumer interest and the combination of attribute levels of the product according to consumer preferences. The results of consumer preferences were known through conjoint analysis of respondents in Yogyakarta Province, Indonesia. In this study, four attributes were used, namely packaging, taste, color, and price. The results showed that the order of attributes based on the importance values according to consumer preferences for the products were price (35.54%), taste (30.03%), color (18.39%), and packaging (16.04%). While the results of the combination of attribute levels that were most preferred by consumers are canned packaging, very strong taste, bright color, and price IDR 75,000. The demand for functional beverage products has risen dramatically during the COVID-19 pandemic. As a result of market competitiveness, producers must innovate on product attributes. Instant beverages prepared from ginger, curcumin, and cinnamon are one herbal beverage innovation produced by one of herbal company in Yogyakarta.

**KEYWORDS:** Attributes, Conjoint Analysis, Consumer Preferences, Herbal Beverage

### INTRODUCTION

The spread of Coronavirus Disease 2019 or Covid-19 has increased significantly with the impact of fatalities and freezing on economies and activities around the world [1]. In Indonesia, policies such as Large-Scale Social Restrictions and the Enforcement of Restrictions on Community Activities are enforced, causing community activities to be limited. In addition to tightening health protocols, vigilance against the pandemic has an impact on lifestyle changes. The majority of people suggest switching to healthier food consumption [8].

Since the pandemic, preventive measures and immune enhancement are options to stay away from the Covid-19 virus. The use of spices and herbs plays an important role against viral infections [19]. Generally the plants used contain properties as immunomodulators such as ginger, ginger, turmeric, aromatic ginger, gotu kola, lime, and bitter [25].

Demand for products is influenced by changes in consumer perceptions and preferences and tastes for these products [3]. One of herbal beverages found in Indonesia during covid-19 pandemic was made from ginger, curcumin, cinnamon and enriched with others ingredients such as lemongrass, cloves, and sugar. The beverages are formulated in powder or instant form. These beverages have been claimed as functional drinks, because it made from natural spices and herbs. In addition, the product packaging has been considered for the value of practicality and attractiveness.

Consumer preference is the possibility of liking or disliking by consumers for goods or services from a variety of available choices [4]. Information obtained through previous consumption experience produces knowledge about product characteristics, different experiences form different preferences [21]. If the attributes offered are in accordance with the wishes of consumers, the product will be popular.

Consumer preferences play an important role in company development [5], in this case the need for innovation on the attributes of the instant herbal beverages. The purpose of this study was to analyze the order of attributes of instant herbal beverages based on the level of consumer interest and the combination of attribute levels of the products according to consumer preferences.



**RESEARCH METHOD**

This research used qualitative and quantitative methods. The product used in this research was instant herbal beverages produced by one traditional medicine company in Yogyakarta Province. The product is instant beverages made from natural ingredients such as ginger, curcumin, cinnamon, and other compositions. Determination of the population of this study was the number of prospective consumers domiciled in the city of Yogyakarta which is not known with certainty. The sample in this study amounted to 40 respondents obtained through the Orme formula [13]. Data were obtained through observation, closed questionnaires, and interviews.

Consumer preferences for the attributes of instant herbal beverages are known through conjoint analysis. Five steps to design a conjoint analysis [18]: The first is to design product attributes and attribute levels. Attributes and attribute levels were selected based on research objectives, literature review, and focus group discussions [20]. The attributes in this study were packaging, taste, color and price. The second was to design stimuli, the attributes that were evaluated by conjoint analysis were a maximum of seven with each having two to four attribute levels [23]. In this study, there were four attributes and eleven attribute levels which were reduced using the orthogonal SPSS procedure.

Consumer subjectivity can be measured by ranking (Likert scale) [15]. The conjoint analysis processed and then produced output in the form of utility value (usability) and value importance (interest). The usability value was used to determine the most preferred combination of attribute levels according to consumer preferences. The value of importance was used to determine the attributes that are most considered by consumers.

**RESULTS AND DISCUSSION**

**Characteristics of Respondents**

The characteristics of respondents is shown in Table 1.

**Table 1.** Characteristics of Respondents for Instant Spice hot beverage Products

Characteristics		Percentage (%)
Gender	Man	55%
	Woman	45%
Age (years)	< 17	2%
	17 – 25	52%
	26 – 35	15%
	36 – 45	8%
	46 – 55	15%
	56 – 65	5%
	> 65	3%
Work	Housewives	10%
	Self-employed	22%
	PNS/BUMN	5%
	Student/ College Student	50%
	Private employees	10%
	Other: ...	3%
Monthly Paid	< IDR 1,000,000	37%
	IDR 1,000,000 – IDR 2,500,000	33%
	IDR 2,500,000 – IDR 5,000,000	15%
	> IDR5.000.000	15%



Based on the table, the respondents were dominated by men, this shows that the product of herbal beverages can be accepted by male respondents. Based on the age group, it was known that late adolescence dominates, this showed that modern herbal products support a healthy lifestyle among young people so that herbal medicine can be used as lifestyle drinks [17].

According to occupation, the majority of respondents were college students. The job will direct a person to the needs and desires in consuming goods and services [10]. A person's income level will also affect a person's level of consumption of goods and services [16].

**Attribute Utility Analysis and Attribute Level**

The use of conjoint analysis aims to determine the utility estimate of each attribute level being tested. Utility as a measure of value in conjoint analysis is subjective judgment of each individual [7]. The utility value can be useful for designing the development of a product to suit the tastes of consumers and potential consumers

**Table 2.** Conjoint Analysis Result Utility Value

Attribute	Attribute Level	Utility Estimate
Product_Packaging	Can	.604
	Standing Pouch	-.604
Taste_product	Very strong	.386
	Moderate strong	.103
	Less strong	-.489
Product_Color	Very dark	.019
	Moderate dark	.111
	Less dark	-.131
Price_product	> IDR 75,000	-.847
	IDR 75,000	-.064
	< Rp75.000	.911

Based on Table 2, on the utility value, the preference with the largest positive value indicates the level of the attribute that was most preferred by the respondent, if it was negative, it indicated the level of the attribute that was not liked by the respondent. The packaging attribute of products that was a consumer preference was canned packaging. Cans are more effective in protecting products from microbial contamination than other packaging materials [26]. Apart from that, the shape, size, color, and information that appears on the packaging creates an attraction so that the product can compete [22].

The taste attribute of herbal beverage which was a consumer preference was the very concentrated taste. Some consumers like spice drinks with a moderate strong taste, but there are also those who like herbal drinks with a light taste [14]. The taste of herbal beverage is delicious, contains a variety of spices, and feels the benefits will increase consumer satisfaction with spice drinks [6].

The color attribute of instant herbal beverages in this study according to the consumer's preference was the dark color. The raw materials used will affect the color, if the raw materials used are old enough, the resulting color tends to be dark and vice versa - [27]. Color is one of the important things for consumers to give an impression or response to a product. People see herbal medicine from the packaging, brand, color of herbal medicine, and others [9].

The attribute of the price of the beverage that is the consumer's preference is the price <IDR75,000. If the product was cheaper, the people's purchasing power of the product would increase. Purchasing power from one person to another is definitely different, it can be seen from the status, occupation, income, and others [11].Public considerations in the decision to consume herbal medicine include high quality, product efficacy, and affordable prices.

**Consumer Interest Level**

The importance values was used to determine the most considered attributes in influencing consumer choices. The level of importance with the highest value indicates that the attribute is the most noticed by consumers compared to other attributes.



**Table 3.** The Importance Values of Instant Spice Atirbut hot beverage

Importance Values (%)	
Packaging	16.04
Flavor	30.03
Color	18.39
Price	35.54

Based on Table 3, the results of the importance values in the overall statistics of the conjoint analysis show that the order of the most important attributes according to consumers is the price attribute. Price is a factor that influences individuals in consuming herbal medicine [2]. The attribute that was the second consideration according to consumers was taste. Consumers' attitudes towards herbal medicine with bitter taste show their preference [24]. The third attribute that consumers consider was color. An attractive appearance triggers the attention of teenagers because the influence of the modern era has changed behavior, so that teenagers are more consumptive than adults [12]. The fourth attribute that is considered by consumers is packaging.

**Consumer Preferences Against Attribute Combinations and Attribute Levels**

In accordance with the results of the orthogonal design, the results obtained from the combination of the most preferred instant spice hot beverage according to the respondents according to the highest total utility value. Conversely, if the total utility value was low, it described the combination of instant spice hot beverage that the respondents dislike the most.

Based on Table 4, the highest utility value was in a combination of 3 (three), while the lowest utility value was a combination of 5 (five). So, according to the respondents in this study, the combination of canned packaging, very thick taste, bright color, and a price of <IDR 75,000 was the most preferred.

**Table 4.** Attribute Combination According to Consumer Preference

No	Packaging	Flavor	Color	Price	Total	Constant	Utilities
3	Can 0.604	Very thick 0.386	Bright -0.131	<Rp75,000 0.911	1,770	4,815	6,585
7	Can 0.604	Not thick -0.489	Dark 0.111	<Rp75,000 0.911	1,137	4,815	5,952
2	Can 0.604	Concentrated 0.103	Bright -0.131	IDR 75,000 -0.067	0,509	4,815	5,324
8	Standing Pouch -0.604	Concentrated 0.103	Very dark 0.019	<Rp75,000 0.911	0,429	4,815	5,244
6	Can 0.604	Very thick 0.386	Very dark 0.019	>Rp75.000 -0.847	0,162	4,815	4,977
1	Can 0.604	Not thick -0.489	Very dark 0.019	IDR 75,000 -0.067	0,067	4,815	4,882
9	Can 0.604	Concentrated 0.103	Dark 0.111	>Rp75.000 -0.847	-0,029	4,815	4,786
4	Standing Pouch -0.604	Very thick 0.386	Dark 0.111	IDR 75,000 -0.067	-0,174	4,815	4,641
5	Standing Pouch -0.604	Not thick -0.489	Bright -0.131	>Rp75.000 -0.847	-2,071	4,815	2,744

**CONCLUSION**

Attributes based on the level of importance according to consumer preferences in consuming instant herbal beverages were price attributes, product taste attributes, product color attributes, and packaging attributes. As well as consumer preferences for the combination of attribute levels of instant herbal beverage were canned packaging, very spicy taste, bright color, and low price.



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