

Capture the Customer Product Attributes Preferences that Influence Purchase Decision of Hand Sanitizer during Covid-19

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Abstract - The use of hand sanitizers in every activity has become a routine habit during the COVID-19 pandemic, which opens up unlimited opportunities for small and medium enterprises (SMEs) by accommodating market demand for hand sanitizers. In Indonesia, many local SMEs have started producing their own brands. This study will explore customer product attribute preferences that influence purchase decisions of hand sanitizer by making new product developments and innovations during COVID-19. Conjoint analysis with the full-profile method was used to process 96 respondent data taken by stratified random sampling technique. There are five attributes used in this analysis, namely hand sanitizer quality, form, features, label, and packaging. The result of all attributes is significant positively towards purchase decision with high predictive accuracy. This finding is expected to be useful for SMEs who want produce hand sanitizer that suitable for market.

Keywords - Conjoint Analysis, Customer Preferences, COVID-19, Hand Sanitizer, Purchase Decision, and SMEs.

I. INTRODUCTION

Household cleaner products played an important role in the market during Covid-19. The size of household cleaner product worldwide market will stable continue to grow with a CAGR of 4.97% during 2019 – 2027, with analysis of revenue before Covid-19 of USD 163.98 billion in 2019 and projections during Covid-19 in USD 312.39 billion in 2027 [1]. People become more aware of the importance of hygienic living and household cleaning, a household cleaner product will be needed and desired by consumers. In Indonesia, the increase of demand for household cleaner products is indicated by 72.4% of the people who have allocated special funds to purchase hand sanitizer products [2].

Hand sanitizers are the favorite choice of consumers in choosing a household cleaner product. This is because governments and health officials all over the world advocate for the use of hand sanitizers as preventive

measures in the fight against the disease [3], like The WHO report on hand hygiene and protection worldwide [4]. The short-term effect of COVID-19 is estimated to cause a 45.71% increase in the overall hand sanitizer market in 2020, equivalent to USD 1.87 billion, up from USD 1.35 billion before the outbreak became contagious [5]. Meanwhile, demand for hand sanitizers in Indonesia has increased by 55% since the start of COVID-19 [6].

Hand sanitization has become a ritual as a response to the COVID-19 epidemic, leading to a massive rise in hand sanitization intensity and a genuine increase in hand sanitizer availability [7]. As a long-term impact of this habit, Hand Sanitizer's market size will continue to increase during the 2021-2026 projection with a CAGR of 6.2%, even though 2020 is still the year with the highest demand but 2021-2026 is still higher than before the COVID-19 pandemic [8]. This is also supported by the fact that the number of COVID-19 transmission in Indonesia continues to increase [9] and vaccinations do not guarantee the cessation of COVID-19 transmission in Indonesia [10].

The COVID-19 outbreak creates limitless opportunities for small to medium-sized businesses by accommodating the market demand for hand sanitizers. SMEs interested in producing hand sanitizers according to market needs opportunity. But on the other hand, this will show the competition for hand sanitizer products in the market. Therefore, companies still need to assess customer preferences to obtain information about customer choices, the decisions they make when facing an offer to choose from, and whether they decide to make a product purchase [11]. Furthermore, it was discovered that product attributes had a significant influence on consumer purchase decisions [12]. Particularly, consumers get their own preferences in considering the attributes of hand sanitizer products to determine purchase decisions.

The increasing demand for hand sanitizers when COVID-19 hit made many local SMEs in Indonesia produce their own brands. SMEs wants to carry out new product development and innovation as a key differentiator in competition in the market. Other SMEs may find it difficult to develop products that match the product attributes entered by customers and determine products not only because of limited capabilities and capital considerations for experimentation. However,

exploring hand sanitizer preferences will help develop suitable products and reduce the possibility of experimenting with high costs. Therefore, the researcher decided that these attributes should be explored to see the effect of their product attributes on hand sanitizer products according to consumer preferences so that they can improve purchase decisions by doing new product innovation and development. The conceptual model for this study is available on the chart below:

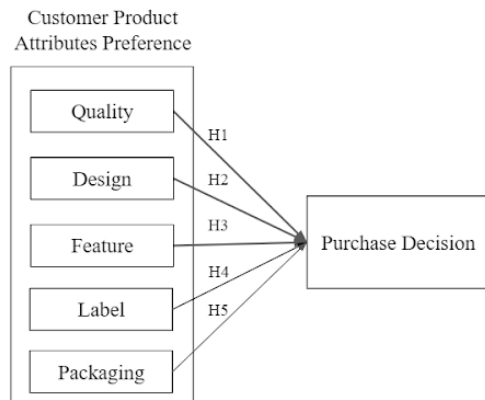


Fig. 1. Conceptual Model

A. Purchase Decision

The definition of a decision is the selection of two or more alternative options [13]. Alternative options must be available to a person when taking a decision. In purchasing, consumer purchase decisions are buying the most preferred products [14]. Product attributes are also factoring that buyers consider purchase decisions [14][15][16][17][18][19][20].

B. Customer Product Attributes Preferences

Product attributes are also factoring that buyers consider purchase decisions [15]. Product attributes include brand, quality, characteristics, design/form, label, packaging, and support services [21]. Other research has classified product attributes into brand, packaging, service, and guarantees [14]. More extended research suggests product attribute factors, along with quality, features, and style/design [22].

Attributes can be identified through discussions with management and experts, analyzing secondary data, qualitative research, or preliminary research with considerations that can be implemented [23]. Because the research objective is focused on which customers prefer product attributes and the ability of SMEs, the product attributes to be studied the intrinsic value they have and are adjusted to the hand sanitizer product. Therefore, the product attributes to be examined in this study are quality, design, feature, label, and packaging.

C. Quality Attributes

Consumers consider product quality to be necessary and use it as the basic principle for purchasing decisions in the fast-moving consumer goods (FMCG) industry, and

there is a strong positive correlation between the two [24]. The capacity of a product to accomplish its functions is referred to as product quality, which includes durability, dependability, accuracy, work and support, and other attributes that are valuable to the product as a whole [14].

In quality attributes, the items are alcohol-based and alcohol-free. These two types are already on the market [8]. However, there has been no research related to consumer preferences for hand sanitizers in Indonesia. In this context, the definition of alcohol-based is the ingredients from a hand sanitizer that uses alcohol, while alcohol-free types do not use alcohol and its derivatives. Alcohol-free hand sanitizer, on either hand, performs the antimicrobial function by utilizing antiseptic chemicals [25].

D. Form Attributes

One of the dimensions in product design is the form [26]. More specifically, it includes the size, cut, and physical form of the product. Previous studies discovered a strong positive relation between design or form and purchase decisions in the fast-moving consumer goods (FMCG) industry [27].

In the form attributes, the researcher found many opinions regarding the types of forms that differ in number. The first source read by the researcher stated that hand sanitizer consists of two types of forms, namely, spray and gel [8]. Another source mentions that there is an additional type but rarely found in supermarket Indonesia, namely foam [28]. Other studies have found that foam is only marginally better than water, owing to a much longer drying time than recommended, more than 30 seconds [29]. In addition, another type of form was distributed at the end of 2020 and only entered Indonesia in the middle of 2021 but brought cons because it has the opportunity to reduce its effectiveness and slow absorption, namely cream [25]. While there is an antibacterial tissue form for the type of hand sanitizer form which was denied by the US Food and Drug Administration [30]. Supporting this, the senior consultant for infectious diseases at the National Center for Infectious Diseases (NCID) Singapore stated that antibacterial wipes only effectively clean surfaces and not hands [31]. Due to considering the manufacture of hand sanitizers on an SMEs scale, the researcher only chose 2 types of hand sanitizer forms, spray and gel.

E. Feature Attributes

Companies can create a higher level of the model by adding more features. Product features are associated with a product's attributes through ownership, use, and utilization of the product and have competitive means to differentiate the company's products from competitors' products [32]. The use of feature attributes in conjoint analysis can significantly estimate consumers' willingness to purchase product decisions [33], this is also evident in the fast-moving consumer goods (FMCG) industry [34].

In feature attributes, the items are moisturizing the skin and using natural scents. Before buying a product,

most people will look for reviews about the product to buy on Google first [35]. Therefore, the researcher decided these two items to be a survey item because the hand sanitizer reviews on every top Indonesian blog and website always reveal these indicators [36].

F. Label Attributes

Labels have the primary function of identifying products or brands, determining product class, and explaining the product, namely who made it, when, where, and what is in it [14]. Labels are also a useful and effective communication tool in influencing customer purchase decisions in the fast-moving consumer goods (FMCG) industry [37]. In terms of its type, labels are divided into three types: brand labels, descriptive labels, grade label, this label informs consumers about the assessment of product quality [38].

In label attributes, the items are food-grade labels and eco-label. In the grade label, researchers coded food grade labels because they were collected from Google Trends Indonesia. There was an average of 100 searches for food-grade hand sanitizers per day during the pandemic, indicating market needs. Outside Indonesia, people request to use environmentally friendly hand sanitizer products [8]. As a result, researchers included an eco-label in this product to test it in Indonesia. Eco-label is an effort to increase consumer awareness to consider environmental factors in purchase decisions [39].

G. Packaging Attributes

Packaging for products is as vital as clothing for humans [16]. Human attractiveness is greatly influenced by the clothes he wears. In addition, it has the function of being a protector. Packaging is a container or wrapping of an actual product and protects the product [40]. Even packaging can also influence consumers' decisions to buy goods [41], a significant relationship is also found in research on the fast-moving consumer goods (FMCG) industry [42].

In packaging attributes, the items are keychain bottle, wristband, pocket tube, and ballpoint. The appearance of a new product must match consumer preferences to succeed in an increasingly competitive market [43]. In conjoint analysis, items from the packaging attribute can be adjusted according to developing new products [44].

H. New Product Development and Innovation

The willingness to innovate is progressively identified as the most important factor in developing and sustaining competitive advantage [45], through new product development [46]. In addition to large corporations, small and medium-sized businesses make significant contributions to the development and dissemination of innovation [45]. The procedure for expressing the initial phase of new product development is capturing ideas and evaluating ideas [47], which are implemented through product attribute analysis according to consumer preferences in this study. Referring to the availability of

33 dimensions that can be combined in determining innovation products [48], some of these dimensions are also used as all product attributes of hand sanitizer, the results of which will be used as a reference for new product development and innovation in this research.

II. METHODOLOGY

The researcher used quantitative approaches to organize and manage the data. The recommendation for selecting an appropriate sampling technique for management researchers based on population studies and research objectives, a pilot study, and hypothesis development is a probability sampling technique with stratified random sampling [49]. Stratified random sampling, according to the definition of randomization, is a sampling method in which each unit of the population has an actual probability of being included in the sample [50].

The population of this research was female and male of productive age (15–64 years) and currently domiciled in Surabaya around 2,130,153 people in 2019 [51]. There are 96 respondents calculated by Isaac and Michael formula with a margin of error of 5% [52]. Furthermore, there was a formula to calculate conjoint analysis respondent, number of respondents = $3 \times$ number of stimuli used = $3 \times (12 - 5 + 1) = 24$ respondents [53]. Meanwhile, other reference stated the best sample in using the conjoint analysis method is a minimum of 60 respondents [54]. Because the population is heterogeneous and stratified proportionally, this researcher employed a stratified random sampling technique with age and gender cases that can increase the probability of selecting representative cases [49].

IBM SPSS 24 Application is used to evaluate a series of variables with how much value is considered by respondents for each product attribute level. Conjoint analysis is a popular statistical method in marketing research that can analyze the combined effect of many product attributes to see consumers' willingness to buy [33]. Analysis helps create a combination of attributes that customers like by asking respondents to evaluate a product based on the value of each attribute [54]. The output of the analysis will predict how customers react to product combinations in the study [53]. The conjoint analysis is also used in new product development [44]. There are six steps in running conjoint analysis [23], there are:

A. Problem formulation

The aim is to determine its attributes and level attributes. The term attribute will be used to describe the product factor, while level will be the term used for the possible factor value [55]. The items of each attribute are shown in table 1:

TABLE 1. ATTRIBUTES

	Attributes	Level Attributes
1	Quality	1 Alcohol Based
		2 Alcohol Free
2	Design (Form)	1 Gel
		2 Spray
3	Feature	1 Moisturizes the Skin
		2 Using Natural Scent
4	Label	1 Food Grade Label
		2 Eco Label
5	Packaging	1 Keychain Bottle
		2 Wristband
		3 Pocket Tube
		4 Ballpoint

B. Stimulation

Makes a combination of stimuli of attributes and items. The combination of attribute levels summarized using an orthogonal design becomes a conclusion because it can represent all combinations [23]. Number of stimuli from combination level attributes is 64 (2x2x2x2x4) and reduce to 16 stimuli by orthogonal with SPSS [54], the result is shown in the table:

TABLE 2. STIMULI COMBINATION

Card	Quality	Design	Feature	Label	Packaging
1	Alcohol Free	Gel	Moisturize the Skin	Eco Label	Wristband
2	Alcohol Free	Spray	Moisturize the Skin	Food Grade	Pocket Tube
3	Alcohol Free	Spray	Using Natural Scent	Eco Label	Pocket Tube
4	Alcohol Free	Spray	Using Natural Scent	Food Grade	Keychain Bottle
5	Alcohol Free	Gel	Using Natural Scent	Food Grade	Wristband
6	Alcohol Based	Spray	Using Natural Scent	Food Grade	Ballpoint
7	Alcohol Free	Gel	Moisturize the Skin	Food Grade	Ballpoint
8	Alcohol Based	Gel	Moisturize the Skin	Eco Label	Pocket Tube
9	Alcohol Based	Spray	Moisturize the Skin	Food Grade	Wristband
10	Alcohol Free	Gel	Using Natural Scent	Eco Label	Ballpoint
11	Alcohol Based	Gel	Using Natural Scent	Food Grade	Pocket Tube
12	Alcohol Based	Gel	Moisturize the Skin	Food Grade	Keychain Bottle
13	Alcohol Free	Spray	Moisturize the Skin	Eco Label	Keychain Bottle
14	Alcohol Based	Spray	Using Natural Scent	Eco Label	Wristband
15	Alcohol Based	Spray	Moisturize the Skin	Eco Label	Ballpoint
16	Alcohol Based	Gel	Using Natural Scent	Eco Label	Keychain Bottle

C. Data Type Determination

The data used is non-metric data. The respondent will be asked to rank the combination from the most preferred combination to the least preferred combination based on its preference. It is easier for respondents to rank combinations than state their preference level [56].

D. Conjoint Analysis Approach Confirmation

This technique has two type approach: (1) Pairwise approach or two-factor evaluation and (2) Full-profile Approach [44]. However, the paired method will take place in more time and instruments if because many pairs of attributes are compared [56]. The researcher decided to choose a full-profile approach.

E. Result Interpretation

The results of the conjoint analysis are utilities and importance value [57]. These will allow the researcher to estimate which is the preferable combination and the most preferred attributes. The results will likely provide insight

into customer preferences to capture purchase decisions [17].

F. Predictive Accuracy

Validity test using spearman or corrected item-total correlation and reliability test with cronbach alpha cannot be done because there is zero variation in the full-profile conjoint analysis method with ranking, instead predictive accuracy, correlation value of Pearson's R and Kendall's Tau and the significant value, is used to test the accuracy of conjoint analysis [55].

III. RESULTS

A. Results of Utility Product Level Attributes

Utilities are one way to know the respondents' preferences as it indicates how the respondent's value each of the attributes and its levels to influence their purchase decision. According to table below, it can be seen that the respondents prefer alcohol-based quality (0.957), gel form (0.290), using natural scent feature (0.016), food-grade label (0.143), and keychain bottle packaging (3.354).

TABLE 3. UTILITY PRODUCT LEVEL ATTRIBUTES

Utilities		Utility Estimate	Std. Error
Quality	Alcohol Based	.957	.240
	Alcohol Free	-.957	.240
Form	Gel	.290	.240
	Spray	-.290	.240
Feature	Moisturize the Skin	-.016	.240
	Using Natural Scent	.016	.240
Label	Food Grade	.143	.240
	Eco Label	-.143	.240
Packaging	Keychain Bottle	3.354	.416
	Pocket Tube	.661	.416
	Wristband	-2.284	.416
	Ballpoint	-1.732	.416
(Constant)		8.500	.240

B. Results of Importance Product Attributes

The importance value of the product attributes indicates the most important attributes that influence the purchase decision of hand sanitizer products by respondents. According to table below, reveals the most important attributes. From the resulting table, the most important attribute is the packaging (50%), followed by quality (17%), then feature (12%), after that design (11%), and the ending is the label (10%).

TABLE 4. IMPORTANCE VALUES

Importance Values	
Quality	17.269
Design/Form	10.653
Feature	11.695
Label	10.208
Packaging	50.175

C. Results of Predictive Accuracy

According to table below, the correlation can be the measurement for validity and reliability of the full-profile conjoint analysis with ranking. Pearson's R is 0.964 and Kendall's tau is 0.783 that close to 1 and more than 0.5, indicating the high predictive accuracy. Both significance value (0.000) is less than 0.05, therefore the result shows high predictive accuracy.

TABLE 5. PEARSON CORRELATION RESULTS

Correlations ^a		
	Value	Sig.
Pearson's R	.964	.000
Kendall's tau	.783	.000

a. Correlations between observed and estimated preferences

IV. DISCUSSION

The important attribute from the highest values is the packaging (50%) with keychain bottle packaging (3.354), followed by quality (17%) with alcohol-based quality (0.957), then feature (12%) using natural scent feature (0.016), after that design (11%) with gel form (0.290), and the ending is the label (10%) with food-grade (0.143).

The high predictive accuracy indicate from Pearson's R is 0.964 and Kendall's tau is 0.783 that close to 1 and more than 0.5. Both significance value (0.000) is less than 0.05, therefore the result shows high predictive accuracy. Therefore, for the hypothesis, H1, H2, H3, H4, and H5 is significant positively towards purchase decision.

V. CONCLUSION

Researchers are helping manufacturers to explore customer product attribute preferences that influence purchase decisions of hand sanitizer by making new product developments and innovations during COVID-19. However, exploring hand sanitizer preferences will help develop suitable products and reduce the possibility of experimenting with high costs.

The conjoint analysis is also used in new product development [44]. The initial stage of new product development is capturing ideas and evaluating ideas [47], which is implemented by analyzing customer product attribute preferences in this study. Referring to the availability of 33 dimensions that can be combined in determining innovation product [48], some of these dimensions are also used as attributes of hand sanitizer products, the results of which will be used as a reference for new product development and innovation in this study. These dimensions are quality, design or shape, features, labels, and packaging. Besides that, the researcher recommends SMEs to use the results of a combination of important customer product attributes preferences, which are initially represented visually as follows:



Fig. 2 Product's visual representation

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