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THE EFFECT OF PRODUCT INFORMATION ON THE CONSUMERS PREFERENCE OF LOCAL VARIOUS CHOCOLATE BAR

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Abstract*. Chocolate producers need to know and understand the tastes of the Indonesian people specifically when making decisions to purchase chocolate bars. Research on the characteristics of the types of chocolate bars that consumers like is still needed to be able to reach a wider target market. The hedonic rating test requires panelists to measure the level of liking of the sample from most liked to least liked. The majority of teenagers and adult consumers in Indonesia are involved as panelists according to demographic research on chocolate consumers. The samples tested were six brands of chocolate bars circulating on the Manokwari city market. The panelists involved were 160 consumers (67 men; 93 women, aged 13–24 years). The sensory test method used was the hedonic rating test which was presented in two variants of serving method: (1) blind test (without additional information) (2) informed test (product variants and brand information accompanied by the product in intact packaging). To identify the influence of the variant of chocolate in the sample, the Friedman test and Duncan's advanced test were used at a significance level of 5%. To identify the effect of information, intervention using non-parametric analysis using averages with the Mann-Whitney U test was used. The results of the chocolate preference level test showed that there was a significant difference in preference of variants chocolate (at a significance level of 0.05), whereas in the information intervention test of brand and variant of chocolate, there were samples that had significant differences in preferences.*

Keywords: *blind test; sensory attributes; information intervention; panelists; consumers preference*

1. Introduction

The cocoa commodity is believed to be an agent of economic development in rural Indonesia because the majority (99%) of cocoa is based in smallholder plantations (land area < 1 Ha/KK). Indonesia is one of the tropical countries that produces the most cocoa beans in the world today. The volume of cocoa bean production increases by 3.63% every year. The regions of Sulawesi, Kalimantan and Papua are the largest producers of chocolate in Indonesia. Even West Papua's Ransiki chocolate is recognized as one of the best in the world because of its uniqueness and 'umami' taste. However, Indonesian cocoa beans are often rejected on the international market because they are considered to be of slightly lower quality than West African cocoa beans. The proportion of cocoa commodity export products in the form of chocolate bars/plates is only around 1.02% (Direktorat Jenderal Perkebunan, 2021). Processing cocoa beans into chocolate bars before export can be a strategy to avoid market rejection (because sorting is carried out before processing)

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and it can increase the added value of the product by 25.32% (Fattah *et al*., 2023; Jumrah *et al*., 2018). In fact, currently local and national chocolate producers have developed chocolate processing by adding Indonesian plants and spices, for example by adding moringa leaves (Helmarini & Meisyah, 2022), ginger (Muhammad *et al*., 2022), cinnamon (Praseptiangga *et al*., 2018; Rasuluntari *et al*., 2016), and cloves (Fattah *et al*., 2023) to better attract the interest and taste of people who consume Indonesian chocolate. Consuming chocolate bars has a good influence on the human body's metabolism because it contains high concentrations of flavonoids and has anti-inflammatory properties, even reducing the risk of diabetes. If chocolate is consumed in moderate amounts along with other plant foods, it can be part of a healthy gestational eating pattern (Giuseppe *et al*., 2008; Dong *et al*., 2019; Kelishadi, 2005). Grassi *et al*. (2005) also stated that chocolate is rich in polyphenols and dark chocolate but not white chocolate (which contains cocoa butter) can lower blood pressure and improve insulin sensitivity in healthy people.

Indonesia's chocolate bar consumption level is 0.03 kg/capita/year. Imports of food containing chocolate (bars) to Indonesia are increasing, even though Indonesia is the third largest cocoa producer in the world. This is shown by the amount of food imports containing chocolate (1,199,769 kg) in block form (chocolate confectionary, blocks, slabs bars, not filled weighing 2kg) which is much greater than the amount of exports (174,373 kg) in 2020 (Direktorat Jenderal Perkebunan, 2021). Indonesia's population, which is the third highest in the world, represents a potential consumer market share for the development of the chocolate bar industry. The variants of chocolate bars currently circulating on the market are dark chocolate, white chocolate and milk chocolate. Dark chocolate is considered in a condition without water content, containing not less than 35% cocoa solids, not less than 18% cocoa butter, and not less than 14% cocoa solids without fat; Milk chocolate, calculated in the condition without water content, contains not less than 25% cocoa solids, not less than 15% cocoa butter, not less than 2.5% nonfat cocoa solids, and not less than 12% milk solids (Badan Standardisasi Nasional, 2014). In this research, the level of panelists' preference for only two chocolate variants (dark chocolate and milk chocolate) were measured because previous research stated that 80% of consumers prefer these two chocolate bar variants (Fortunata *et al*., 2021; Sabarisman & Purwaditya, 2019).

Food product development strategies to improve marketing by analyzing the demographic and psychographic characteristics of chocolate bar consumers, consumer preferences, and the attributes that consumers most consider when purchasing chocolate bars have been carried out previously (Fortunata *et al*., 2021; Massaglia *et al*., 2023; Merlino *et al*., 2021; Silva *et al*., 2017; Wahyudin *et al*., 2022). However, consumer attitudes and behavior towards chocolate product attributes vary depending on the consumer's location (Brown *et al*., 2020). Attributes other than

product quality, such as brand information and packaging labels, price, and product shape influence the order of preference and product selection. The sensory quality of the chocolates associated with environmental labeling and quality labeling are important for this sector, provided that there is understanding of environmental labels by consumers and sensory consumer satisfaction. A positive influence was observed on consumers when the quality and sustainability of the labels were informed, with increasing sensory scores and purchase intention (Silva *et al*., 2017). Even the design and images on snack food packaging are stated to be the most important in influencing consumer purchasing behavior (Gunaratne *et al*., 2019; Oliveira *et al*., 2018; Torres-Moreno *et al*., 2012; Wang *et al*., 2023).

Organoleptic test uses the human sense of touch and taste to measure the level of liking and preference for choosing a product by consumers. In food product development, sensory test on panelists is the simplest test tool but is considered the most effective and sensitive in determining the level of liking for a product. Research for testing preferences have the main requirement of involving a large number of untrained panelists (at least 30 people), so as to minimize bias and measurement error due to panelists' subjectivity towards a product (Badan Standardisasi Nasional, 2006). Sensory test can determine the level and ranking of preferences for a product that is current currenttly available on the market (Adawiyah *et al*., 2023; Aprian & Hidayat, 2018; Silva *et al*., 2017). The teenager-adult panelist category (aged 16-25 years) is the largest consumer of chocolate bar products (Sabarisman & Purwaditya, 2019).

Chocolate producers need to know and understand the tastes of the Indonesian people specifically when making decisions to purchase chocolate bars. Research on the characteristics of the types of chocolate bars that consumers like is still needed to be able to reach a wider target market. Therefore, this research aims: 1) to determine the effect of chocolate bar variants on the level of chocolate liking; 2) to determine the effect of brand information intervention and chocolate bar variants on the level of chocolate bar preference if consumers know the variant and brand of chocolate they will consume.

2. Methods

2.1. Materials

The materials used in the research were six brands of ready-to-eat chocolate bars (dark chocolate and milk chocolate) which had been chosen by cluster random sampling on chocolate bars which were sold publicly in Manokwari City. Even though the composition of chocolate and the use of other additional ingredients used in the production of each brand is different (Table 1), the six products have quality that meets the standards for chocolate and chocolate products (SNI 7934:2014). The selected samples were RD, TD, SD, RM, CM and DM. The tools used in the

research were a cool box, knife, cutting board, small ceramic plate, label paper, stationery and questionnaire paper.

2.2. Research methods

The research was carried out in two stages the selection of panelists and the product sensory test stage. The first stage was determining the panelists as research subjects. The panelists involved were teenagers and adults aged 16-24 years and they were chosen randomly. Panelists were confirmed not to be allergic to the sample and were asked to express their willingness to voluntarily take part in sensory test twice.

The second stage was a sensory test in the form of a hedonic rating test using a presentation method. The test process begins with a blind test first (without including any information other than the sample code). The second stage was carried out 10 days later on the same panelists. The second test process continued with informed test (providing information on variants and brands), wich the sample is included with the complete product in packaging. This research design was modified and refers to research of Silva *et al*. (2017) which also refers to (Lawless & Heymann, 2010).

2.3. Panelist selection criteria

The panelist selection criteria were willingness to assess, interest in participating in research, absence of reluctance, no allergies to dark chocolate and milk chocolate, and normal perception abilities. None of the panelists had specific training in chocolate sensory evaluation, or previous experience. The total number of panelists involved was 160 teenager and adult panelists. The 80 teenager panelists aged 13-18 years are junior high school and senior high school students in the city of Manokwari. Requests for permission to carry out tests using teenage panelists were made in writing through the respective school principals. The 80 adult panelists aged 19-24 years were students of the Manokwari Agricultural Development Polytechnic. The principal agreed because the testing procedure was accompanied by a lecturer accompanying the class and they were given an explanation that the sample was a commercial product circulating in the market.

2.4. Sampel serving

Information on the composition of the six samples used in the research is the information listed on the product packaging (Table 1). Before being served, the chocolate samples were stored in a cool box at a temperature of 19 ± 1 ^{0}C, and they were removed immediately before sensory test which was carried out at room temperature 30-31 ^{0}C. The samples were cut into uniform pieces measuring 1 cm x 1 cm and served on a small ceramic plate. Ingredients other than chocolate (cashews, peanuts, almonds, etc.) were excluded from the sample to reduce bias in the influence of the presence of these ingredients on panelists' preferences. Brand names on chocolate were

removed using a warm spoon (Thamke *et al*., 2009). Each panelist received 3 samples in stage 1 and 3 more samples in stage 2. The stage 1 sample presentation was used to test the hedonic rating in a blind test (only showing a three-digit code). Stage 2 was presented using an informed test, namely the sample was accompanied by information on the variant, brand and packaging design (the complete product in the packaging was shown along with the sample).

Table 1. Composition of chocolate samples

Chocolate brand	Composition*	Chocolate bar variant
RD	Cocoa, cocoa butter, vanilla, sugar, soya lechitane powder	dark chocolate bar
TD	Cocoa mass, sugar, milk powder, cocoa butter, honey 3%, milk, almonds 1.6%, soy lecithin emulsifier, egg white, flavoring. Milk chocolate: minimum 28% cocoa solids. Minimum 14% milk solids	dark chocolate bar
SD	Sugar, cashews, cocoa mass, cocoa butter, milk solids, vegetable fat, emulsifier 322 soybeans	dark chocolate bar
RM	Cocoa, cocoa butter, vanilla, sugar, soya lechitane powder	milk chocolate bar
DM	cocoa butter, cocoa mass, vegetable fat, anhydrous milk fat, soy lecithin emulsifier, vanilla synthetic flavour, sugar, milk solids	milk chocolate bar
CM	Sugar, milk solids 21%, cocoa mass 14%, cocoa butter 11%, vegetable fat, milk whey powder, PGPR soy lecithin emulsifier, synthetic flavors	milk chocolate bar

* The composition is recorded as stated on the product packaging for each sample

2.5. Sensory test

Sensory test was carried out in two stages. The first stage was a blind test of the hedonic rating using a three-digit random code for each sample presented (Figure 1). The second stage carried out a hedonic rating test using an informed test, namely: information on 2 chocolate bar variants (dark chocolate and milk chocolate) and six chocolate brands (RD, TD, SD, RM, CM, and DM). Chocolate samples were served together with the whole product in packaging (Figure 2). Each stage of the research involved 160 panelists. Sample presentation at stages 1 and 2 was arranged randomly.

The order of sample presentation was randomized to minimize bias between panelists. Each panelist carried out sensory test on only 3 sample brands to avoid bias due to too many samples being presented. Sensory test was carried out by tasting samples one by one. After each sample, the panelists neutralized their taste buds with mineral water. Every time a sample was tasted, the panelists were asked to write down their favorite level of the sample presented. Each sample might have the same level of liking. Each panelist was given the freedom to re-taste the sample until they felt confident. Panelists who have finished rating the sample in the first stage (set 1); then in the second stage the next sample would be given in set 2 (Figure 2). The second stage of testing consisted of the same three samples as in stage 1, but with different codes and accompanied by

product samples that were still intact in packaging. In stage 2, during sensory test, each panelist was ensured to know the sample information (variant, brand and complete product in packaging).

Figure 1. Serving samples in set 1

Variant: dark chocolate bar RD brand | Variant: dark chocolate bar TD brand | Variant: dark chocolate bar SD brand | Variant: milk chocolate bar RM brand | Variant: milk chocolate bar CM brand | Variant: milk chocolate bar DM brand

Figure 2. Serving samples in set 2

2.6. Processing and analysis of data

Analysis of dark chocolate bar and milk chocolate bar with six brands of chocolate was tested sensorially (scoring preference test) to determine the level of acceptance based on the panelists' preference for chocolate. This liking test was carried out by 160 untrained panelists. The parameters assessed in this test include the panelists' level of preference for color, aroma, taste, texture and overall sample. The results of the sensory test were known through a scoring test instrument filled in by the panelists on a scale: 1 - strongly dislike; 2 - dislike; 3 - neutral; 4 - like and 5 - really like. Assessments were carried out by panelists on samples presented one by one without comparing between samples.

In this research, validity and reliability tests were also carried out to confirm that the assessment sheet used in this research was reliable. Validity means the extent to which a measuring instrument is consistent and accurate in carrying out its measuring function. A scale or instrument can be said to have high validity if the instrument carries out its measuring function. Reliability is an index that shows the extent to which the measurement results of the instrument can be trusted (Cronbach, 1951; Heale & Twycross, 2015). If all the variables tested are valid, the researchers can proceed to further identification. The factors studied in this research included the influence of chocolate bar variants and product information intervention on six chocolate brands on the level of panelists acceptance. The research method used in this research is ANOVA with sample determination using the cluster random sampling method (Muhammad *et al*., 2022; Silva *et al*., 2017). To determine the panelists, purposive sampling was used in which the participants were

required to fill out the assessment sheet. In this study, there were 160 panelists. The data collection technique in this research used organoleptic testing by carrying out an affective test which includes a hedonic rating test to determine the level of consumer liking. To identify the influence of the chocolate variant in the sample the ANOVA test was used: Friedman and Duncan's advanced test at a significance level of 5%. To identify the effect of information intervention non-parametric analysis using averages with the Mann-Whitney U test (IBM SPSS Statistics Version 25.0) was used.

3. Results and Discussion

3.1. Panelists profil

The panelists included 160 teenager-adult consumers aged 13–24 years who attended junior high school and high school, as well as students in the Manokwari area. The male panelists consisted of 66 people (41.25%) and the female panelists consisted of 94 people (58.75%). Panelists aged 13-15 years amounted to 36 people (22.5%); aged 16-18 years amounted to 44 people (27.5%), aged 19-21 years amounted to 37 people (23%) and aged 19-24 years amounted to 43 people (27%). The panelists were untrained panelists who stated that they knew and had consumed the six brands of chocolate. The frequency (level of frequency) of consuming chocolate bars by the panelists are: 0% never; 78% rarely (once every 3 months); 14 % sometimes (once a month); 5% often (twice a week); and 3% always (every day). All panelists stated that they had no history of allergies to the samples.

3.2. Validity and reliability test

The results of the validity test are shown in Table 2. The test is said to be valid if the calculated r value is greater than the r table. The reliability test used the Cronbach's alpha technique method. If the Cronbach's alpha value is greater than 0.6 then the instrument is said to be reliable. The reliability of the questionnaire was determined by employing the Cronbach's alpha coefficient (Cronbach, 1951 in Silva *et al*., 2017; Heale & Twycross, 2015). The results of the validity test used the Pearson correlation technique to determine the value of each attribute are shown in Table 2. It can be concluded that all the variables tested are valid to proceed to the next measurement.

Table 2. Attribute validity test results

Atributes	Pearson Correlation	Result
Color	0.62	Valid
Flavour	0.74	Valid
Taste	0.78	Valid
Texture	0.70	Valid
Overall	0.96	Valid

Note: if Rcount > Rtable 0.22 then the questionnaire sheet is valid

The results of the reliability test using Cronbach's alpha to determine whether the instrument items in research are reliable are shown in Table 3. The results of the reliability test show that all the attributes used are reliable because they have a Cronbach's alpha value of 0.81 so that all instrument items are included in the good category, meaning all items are reliable and all tests consistently have strong reliability.

Table 3. Reliability test results

Standard	Cronbach's alpha	N of items	Result
0.7	0.81	5	Reliable

3.3. Test the level of preference for chocolate variants and brands

In blind tests, product identity was masked to provide minimum information about the sample aiming to: 1. identify all sensory attributes during sensory evaluation; 2. isolate variables of concern (ingredients, processing, and packaging changes); 3. minimize the influence of large cognitive expectations resulting from complex conceptual information (Silva *et al*., 2017). Organoleptic test in this research was done using five sensory attribute parameters including the level of liking for color, aroma, taste, texture and overall sample on a scale of 1-5 for perceptions of very liking to very disliking. The samples were six brands of chocolate with two different chocolate bar variants. RD, TD and SD are variants of dark chocolate bars. Meanwhile, RM, CM and DM are milk chocolate bar variants.

Table 4. Panelists' hedonic responses to the six chocolate brands

Chocolate brands	Color	Flavor	Taste	Texture	Overall
RD	3.53 ± 1.02^{a}	3.26 ± 1.20^{a}	2.61 ± 1.19^{a}	3.46 ± 1.03^{ab}	3.38 ± 0.88^{a}
TD	3.97 ± 0.97^{b}	4.03 ± 1.03^{b}	3.96 ± 0.97^{c}	3.81 ± 0.97^{bc}	4.11 ± 0.71^{b}
SD	4.25 ± 0.79^{c}	3.87 ± 0.98^{b}	4.31 ± 0.91^{d}	4.05 ± 0.93^{c}	4.20 ± 0.75^{b}
RM	3.45 ± 0.99^{a}	3.41 ± 1.22^{a}	3.11 ± 1.39^{b}	3.49 ± 1.26^{ab}	3.44 ± 0.97^{a}
CM	4.10 ± 0.79^{bc}	3.87 ± 0.92^{b}	4.10 ± 1.15^{cd}	3.81 ± 0.98^{bc}	4.09 ± 0.75^{b}
DM	3.90 ± 0.74^{b}	3.83 ± 0.82^{b}	4.20 ± 0.89^{cd}	3.76 ± 0.90^{ab}	4.02 ± 0.53^{b}
Asymp. Sig.	0.00^{*}	0.00^{*}	0.00*	0.24*	0.00*

Description: *Indicates the asymp value. sig. which are significantly different at the 0.05 significance level so that Duncan's further test can be carried out; Samples were tested separately with a score of 1 – strongly dislike; 2 – dislike; 3 – neutral; 4 – like and 5 – really like. The mean values with different subscripts in the same column are significantly different between chocolate variants and brands at the $\alpha = 0.05$ level

The lowest overall liking for sensory attributes was in the RD and RM brand chocolate samples, although these brands are different chocolate bar variants. Likewise, the highest preference was for the SD and CM brands, although they have different chocolate bar variants. Assessments were carried out by panelists on samples presented one by one without comparing between samples. Different brands of chocolate show different levels of liking, although they contain the same chocolate bar variant. Meanwhile, Liu *et al*. (2015) has stated that in previous

research, the differences in volatile composition and descriptive taste attributes between dark chocolate and milk chocolate are the main factors that differentiate the two chocolate variants. This is thought to be due to differences in the percentage composition of the product even though it belongs to the same chocolate category (the percentage of ingredients in the product packaging is not explained). Kim *et al*. (2013) stated that the fat content information and brand name influence overall liking and purchase intention product (chocolate milk). Cocoa content is believed to be the most significant factor in terms of the nutritional value of chocolate products, so consumers may assume that the higher the price of a chocolate product means the higher the cocoa content. However, Yusuf & Pérez-Jiménez (2021) research shows that there is no correlation between cocoa content and the price of chocolate candy bars and solid chocolate bars. Therefore, it is recommended for producers to declare the percentage (of ingredients) of chocolate content in their product packaging.

Color, aroma, taste and overall preferences differed significantly between different chocolate brand samples (Table 4). Duncan's test at the 5% level shows the lowest preference for all sensory attributes for RD and RM brand chocolate. There were no significant differences in preferences for the aroma, taste and overall attributes between the TD, SD, CM and DM brands. The interesting thing from this research data is that the texture attribute of the chocolate bar did not influence the panelists' preferences for chocolate. This is thought to be because the panelists where this research took place consumed chocolate not as their main choice as a 'snack food', but as a consumption choice only at certain moments. Based on the panelists' relatively infrequent frequency (once every three months) of consuming chocolate, it is possible that the panelists' knowledge about the variants and characteristics of chocolate bars is relatively limited so that consumer preferences did not take other aspects of the product into consideration. In fact, aspects of texture, bitterness, duration of aftertaste and intensity of aftertaste are the basic considerations for liking dark chocolate (Lagast *et al*., 2018).

3.4. Effect of information intervention on the sample

In this study, based on the results of the Mann-Whitney U test (significance level 0.05), the product information provided in the form of chocolate variants and brands did not show significant differences in the level of liking between the six chocolate brands, especially in the attributes of color, aroma and taste. Meanwhile, in terms of texture and overall attributes, information intervention on products had a significant effect on the level of liking (Table 5). Likewise, for chocolate products from the RD, TD and RM brands, information intervention did not have a significant influence on consumer preferences for all the attributes examined. Information intervention on the level of panelists' liking for chocolate mostly did not have a significant effect.

Information intervention had a negative effect on the texture attribute, but it had a positive effect on the overall attribute of RD and RM brand chocolate. On the other hand, there was a trend of positive influence on the texture attribute and negative influence on the overall attribute of the SD chocolate brand. Information interventions (premium-non-premium segmentation, price, availability, packaging aesthetics, and whether or not there is sustainability certification information) can influence the level and order of consumer preferences, and even brand image and product quality have a positive influence on consumer buying interest (Adawiyah *et al*., 2023; Aprian & Hidayat, 2018; Brown *et al*., 2020; Wijaya, 2016). A product's information interacts complexly with consumer expectations and attitudes. Consumer expectations can lead to assimilation of sensory reactions, which creates contrast effects and strengthens differences when expectations are not met (Silva *et al*., 2017).

Table 5. Effect of product information on hedonic response to chocolate bars

Treatments	Chocolate brands	Color	Flavor	Taste	Texture	Overall
Blind	RD	3.53 ± 1.02^{ab}	3.26 ± 1.20^{a}	2.61 ± 1.19^{a}	3.46 ± 1.03^{a}	3.28 ± 0.88^{a}
	TD	3.97 ± 0.97^{bcd}	4.03 ± 1.03^{c}	3.96 ± 0.97^{ab}	3.81 ± 0.97^{bc}	3.99 ± 0.71^{bc}
	SD	4.25 ± 0.79^{d}	3.87 ± 0.98^{bc}	4.31 ± 0.91^{b}	4.05 ± 0.93^{c}	4.16 ± 0.75^{c}
	RM	3.45 ± 0.99^{a}	3.41 ± 1.22^{ab}	3.11 ± 1.39^{ab}	3.49 ± 1.26^{a}	3.33 ± 0.97^{a}
	CM	4.10 ± 0.79^{bcd}	3.87 ± 0.92^{bc}	4.10 ± 1.15^{ab}	3.81 ± 0.98^{bc}	3.94 ± 0.75^{bc}
	DM	3.90 ± 0.74^{abcd}	3.83 ± 0.82^{abc}	4.20 ± 0.89^{ab}	3.76 ± 0.90^{bc}	3.94 ± 0.53^{bc}
Informed	RD	3.55 ± 0.44^{ab}	3.51 ± 0.29^{abc}	3.56 ± 0.33^{ab}	2.96 ± 0.45^{a}	3.42 ± 0.22^{a}
	TD	3.73 ± 0.31^{abc}	3.58 ± 0.19^{abc}	3.49 ± 0.25^{ab}	3.69 ± 0.56^{b}	3.63 ± 0.17^{ab}
	SD	3.81 ± 0.25^{abcd}	3.80 ± 0.27^{abc}	3.65 ± 0.32^{ab}	4.23 ± 0.25^{bc}	3.87 ± 0.19^{bc}
	RM	3.38 ± 0.43^{a}	3.53 ± 0.57^{abc}	3.55 ± 0.53^{ab}	2.99 ± 0.74^{a}	3.36 ± 0.43^{a}
	CM	3.71 ± 0.31^{abc}	3.55 ± 0.23^{abc}	$3.71 \pm 0,33^{ab}$	$3.81 \pm 0,44^{bc}$	3.70 ± 0.21^{abc}
	DM	3.90 ± 0.20^{abcd}	3.83 ± 0.33^{abc}	3.69 ± 0.34^{ab}	4.13 ± 0.31^{bc}	3.89 ± 0.12^{bc}
Mann Whitney Asymp. Sig		0.25^{*}	0.15^{*}	0.39^{*}	0.02^{*}	0.04^{*}

Description: *Indicates the asymp value. sig. which are significantly different at the 0.05 significance level so that Duncan's further test can be carried out; Samples were tested separately with a score of 1 – strongly dislike; 2 – dislike; 3 – neutral; 4 – like and 5 – really like. The mean value with different subscripts in the same column is significantly different between the blind treatment and the informed test of chocolate testing at the $\alpha = 0.05$ level

Previous research also obtained that consumer preferences for products were not significantly influenced by information intervention because it was thought that the information provided was already familiar to consumers in a particular area (Muhammad *et al*., 2022). Also in this study, the majority of responses showed that the information intervention had no effect on the level of chocolate liking. Based on the frequency (level of frequency) of consuming chocolate

bars, the panelists stated: 0% never; 78% rarely (once every 3 months); 14 % sometimes (once a month); 5% often (twice a week); and 3% always (every day). This is thought to be because the habit of consuming chocolate and chocolate products as snack food is not the main habit of consumers in the area where this research was carried out, so consumers cannot specifically differentiate between chocolate variants and brands (regarding the typical characteristics of chocolate). This is supported by research by (Kozelová *et al*., 2014) who stated that the less important factors in choosing chocolate are taste (4%), nutritional quality (3%), country of origin (2%) and chocolate packaging (1%).

Panelists measured the level of sensory (hedonic) liking from sensory properties that are easily felt (in the case of chocolate), namely the basic taste of sweet, sour and bitter. Research by Lagast *et al*. (2018) which supports this stated that the panelists' overall preference is relatively the same for dark chocolate with sugar and the artificial sweetener tagatose. Even Thamke *et al*. (2009) explained that panelists identified more and more specific traits as well as appropriate descriptors of aroma and taste perception and which were based on sensory memory and actual sensory experience. The more information and knowledge obtained about a product will become the basis and will influence product familiarity. Product knowledge is defined as the amount of information stored in consumer memory regarding various product attributes. Apart from sensory attributes, other aspects such as personal preferences, socio-demographic factors, economic attributes, price promotional methods and sustainability labelling can influence the marketing and sales opportunities of chocolate products. Consumer attitudes and behavior towards the preferred attributes of chocolate products vary and are strongly related to the consumer's location (Brown *et al*., 2020; Del Prete & Samoggia, 2020; Massaglia *et al*., 2023; Merlino *et al*., 2021; Silva *et al*., 2017). (Kozelová *et al*., 2014) and Thaichon *et al*. (2018) identified that factors that made major influences on chocolate resale are taste, quality, texture, size, price, and variation. Even though they are sensitive to price, consumers are willing to pay and buy back their favorite brands. In this study there was no exploration of the influence of price and size information on chocolate packaging because it was only the influence of information on the chocolate variants at several age levels of teenage panelists. Therefore, further research that investigates the influence of product familiarity and socio-demographics on consumer liking and acceptance in several regions collaboratively if chocolate bars will be marketed throughout Indonesia. The research results can be useful for designing product design strategies based on consumer familiarity and socio-demographic aspects.

4. Conclusion

This research concluded that chocolate variants influenced the panelists' preferences for chocolate bars, except for the chocolate texture attributes. Information intervention only provides a very limited effect because consumers rarely consume chocolate (once every three months), so they are thought to have limited information based on sensory memory and actual sensory experience (matters related to identification and preferences) which can influence and even determine decision making and rating likes of chocolate bars.

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