



Measuring Consumer Involvement and Product Attributes on Beef Consumer Segmentation

Mujtahidah Anggriani Ummul Muzayyanah^{1*}, Agung Triatmojo¹ and Nguyen Hoang Qui²

¹Department of Livestock Socio-Economics, Faculty of Animal Science, Universitas Gadjah Mada, Yogyakarta, Indonesia; ²Department of Animal Science and Veterinary Medicine, School of Agriculture and Aquaculture, Tra Vinh University, Tra Vinh, Vietnam

*Corresponding author: m_anggriani_um@ugm.ac.id

Abstract

Involvement is crucial in explaining emerging consumer behavior, such as purchasing and consumption decisions. Consumer involvement and purchase decisions are influenced by product attributes, resulting in differences in segmentation. Therefore, this study aims to examine consumer involvement in various beef segmentation categories and their product attributes. This would enable the profiling of consumer segmentation based on their level and type of involvement. The data were collected through an unrestricted self-selected survey run among 303 consumer and 4 consumer segments were identified. Furthermore, the One-way ANOVA F-tests with post-hoc Tukey multiple comparison test of mean scores and Pearson's chi-squared were used to achieve the second objective. The results showed concerned-consumer and cautious-consumer segment place emphasis on the economic value of the product when making purchasing decisions. In contrast, there was no distinction between functional and symbolic values of involvement in each consumer segment. This indicates that concerned-consumer, cautious-consumer, indifferent-consumer and straightforward-consumer segment perceive the advantages of purchasing beef. Furthermore, the concerned-consumer segment scored high on all product attributes. This study found that consumer with high involvement may consider a variety of factors before purchasing a product. Nevertheless, a low level of consumer involvement has less information to be apprehensive about, and improved consumer service can assist the cautious-consumer and concerned-consumer segment by simplifying the various information considered. Also, the identification of consumer segment based on balancing their attitudes towards meat consumption is of fundamental importance for the development of strategies in the red meat sector. The formulation of the market orientation has implications for product differentiation and marketing communication strategies.

Keywords: beef product; consumer behavior; consumer segment; involvement; product attributes

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INTRODUCTION

Consumer behavior regarding animal protein food is often influenced by rising income, increased knowledge and public awareness of the high protein content of such foods. One result of this trend has been an increase in beef

consumption in retail food establishments. The rapid growth of meat production has been accompanied by a 10.28% increase in consumption (Ministry of Agriculture, 2022). However, the rise in beef consumption has caused various challenges for consumer, including factors related to both consumer and producer

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(Clonan et al., 2016). The issues regarding beef consumption stem from consumers' perspective, specifically due to socioeconomic differences. Income, education, age, location and occupation are all factors that influence consumption (Phuong et al., 2014; Uzunöz and Karakaş, 2014; Canozzi et al., 2016). Furthermore, producers offer a variety of beef product to consumer, and to grab their attention, they compete by improving product attributes, such as price, product quality, product variety and service (Castillo and Carpio, 2019). The primary factors that influence consumer when purchasing beef in supermarkets are product (26.41%), place (26.16%), price (24.64%) and promotion (22.77%) (Astuti et al., 2019). Conversely, when making purchasing decisions in a traditional market, consumer consider factors, such as freshness, normal price perception, purchase frequency (2 to 3 times a week), total purchases (more than 2 to 5 kg), mixed part of beef, easy access and availability of beef every day, as well as friendly service (Sani et al., 2020).

An evaluation process can be used to assist consumer in making purchasing decisions. Involvement gathers information until consumer decides to purchase a product (Olsen et al., 2021). Consumers' purchasing process depends on their reaction to various stimuli under different involvement cases (Montandon et al., 2017).

Consumers' involvement framework comprises three types of relevant values, each expressing a different facet, namely economic, functional and symbolic (Gendel-Guterman and Levy, 2013). Economic involvement, which accounts for the financial risk associated with purchase decisions, indicates cost-price or value-for-money cognitive financial motives. The cognitive motives, encompassing the product's functional performance, are reflected in the functional involvement, which accounts for the perceived importance and risk of consequences in a missing purchase. Meanwhile, symbolic involvement represents the effective and symbolic motives, that is, the benefits derived from the use of the product, such as self-esteem or self-image, and accounts for the value attributed by consumer to brand consumption and perceived risk (Michaelidou and Dibb, 2008).

The differences in consumer segmentation emerge from the perception of product attributes that are suitable for each individual, as these attributes influence consumer involvement and purchase decisions. When purchasing meat product, consumer frequently use attributes cues,

such as leanness, packaging and price to determine their choice at the point of purchase. The value placed on such cues may differ by location or even be influenced by consumers' characteristics (Garmyn, 2020).

Consumption habits are expected to lead to more sustainable food consumption (Thøgersen, 2017; Bjelle et al., 2021; Karlsson Potter and Rööös, 2021). Consumer socioeconomic and product attributes can influence their preferences and behavior. Behavior of consumer and its underlying causes could be considered as an indication of progress towards achieving sustainable development (Sala et al., 2017; Thøgersen, 2017; Su et al., 2019). The transitioning towards more sustainable food consumption requires multiple behavioral changes (von Braun et al., 2023).

Beside production, meat consumption can be associated with several nutrients and human health issues (Domingo et al., 2021; Gilbert et al., 2021). The significance of the health and environmental aspects of food is reflected in the growing trends. This study aims to increase consumer awareness of beef product quality, healthy, safety and convenience, as there are different prominent types of beef consumer (Nuraini et al., 2018). Therefore, producers can identify consumer behavior based on the type of involvement. It is important to understand how the characteristics of individual consumer and perceptions of beef attributes affect their involvement. In this case, both product attributes and consumer segment play a crucial role in purchasing food product (Olsen et al., 2017; Nurliza et al., 2021).

Consumer segmentation has been analyzed based on consumers' characteristics, such as age, occupation, gender and lifestyle (Risius et al., 2019; Van Huy et al., 2019; Palmieri and Forleo, 2020; Hrubá and Sadílek, 2021). However, in this study, segmentation will be based on attributes and consumer involvement with the product. The aim is to measure the level of involvement and product attributes in order to determine consumer segmentation. This approach will facilitate better understanding of the development of the meat sector, encourage sustainable consumer, and increase awareness of the economic and social environment.

Consumer develop varying attitudes, behavior or involvement towards the product they acquire, as people attach different meanings to this product. The nature and intensity of consumer involvement may differ significantly. This study

aims to investigate whether consumer utilize their involvement cue and product attributes when making beef purchase decisions, as well as to analyze the influence of individual consumer characteristics-based involvement in purchasing beef product.

MATERIALS AND METHOD

Study design and participants

This study is based on primary data obtained from an unrestricted self-selected survey. Responses were collected from 303 consumer residing in Java and Sumatra through an online questionnaire distributed using convenience sampling. Furthermore, the number of respondents was determined based on the saturation of consistent outcomes in response, indicating the data were saturated. The selected participants were consumer aged 18 years and above, who had purchased beef at least three times within the past three months. Considering that consumers' experience with the product category is likely correlated with involvement (Roy et al., 2022), a questionnaire survey was used as the quantitative inquiry method. The study questions were primarily based on the study framework and previous literature review. Table 1 presents the variables and data scales used to measure all the parameters associated with the study.

Data analysis procedure

The data were analyzed using STATA 16.0 and the internal reliability consistency of the multi-item scales (each dimension of involvement and purchase decision) was tested using Cronbach's alpha. A satisfactory scale is indicated by a threshold value of 0.7. Cronbach's alpha internal reliability coefficient was found to be satisfactory for three dimensions of involvement in purchasing a beef, namely economic ($\alpha = 0.79$), functional ($\alpha = 0.72$), symbolic ($\alpha = 0.79$). The sixteen items measuring purchase decision in terms of consumer segment showed high reliability, with a value of 0.93. Furthermore, all the values for product attributes item questions met the threshold for reliability.

Based on their beef involvement profile, group analysis classified beef consumer into relatively homogeneous groups or segment. The individual scores on the three facets of involvement, namely economic, functional and symbolic, were used as classification variables. The differences between involvement-based beef consumer segment and effects of involvement on product attributes were assessed through one-way ANOVA and post-hoc Tukey multiple comparison tests. Finally, Pearson's chi-squared was used to investigate the association of consumer profiles based on purchasing beef.

Table 1. Variables and data measuring for the study

Variables	Scale	Parameters	Sources
Socio demographic			Phuong et al. (2014); Uzunöz and Karakaş (2014); Canozzi et al. (2016)
Gender	Nominal	Male; female	
Age	Ratio	Years old	
Education	Interval	Primary; secondary; university	
Location	Nominal	Rural; urban	
Income	Interval	Indonesian Rupiah (IDR)	
Occupation	Nominal	Government employee; self-employee; labor; unemployment	
Consumer involvement			Gendel-Guterman and Levy (2013)
Economic	Interval	Price; budget; discount; made shopping list	
Functional	Interval	Product quality; perceived safety risk; preferred shop; tasting; expiration dates	
Symbolic	Interval	Brand image; self-esteem; price reflects the personality; attractive packaging reflects the high quality	
Product attributes			Canozzi et al. (2016); Castillo and Carpio (2019)
Price	Interval	A five-point likert scale, scaling from 1 = strongly disagree to 5 = strongly agree	
Size of packaging	Interval		
Freshness	Interval		
Preferred meat shop	Interval		

Table 2. Consumer segmentation criteria based on indicator's score

Indicators	Level			
Perceived risk	Low	Low	High	High
Reassurance	Low	Low	High	High
Product quality	High/low	Low	High	High
Doubtfulness	Low	Low	High/low	High
Expectation	High	Low	High/low	High
Pleasure value	High	Low	High	High/low
Price	High/low	High	High/low	High/low
Preferred meat shop	High	Low	High/low	High
Variety-seeking	Low	High	High/low	Low
Brand image	High	Low	High/low	High/low
Segmentation	Straightforward-consumer	Indifferent-consumer	Cautious-consumer	Concerned-consumer

Segmentation of beef consumer in this study were categorized based on five-point likert scale related to price, reassurance, preferred meat shop, perceived risk, variety-seeking, product quality, brand image, doubtfulness, expectation and pleasure value as involvement indicators. The score of each respondent were recorded and used to classify them into a specific segment (Table 2).

The parametric statistical test used a one sample t-test on the indicator values in each segment group to validate the findings of the grouping. The findings can be considered valid when the average value of segment group is significantly ($P < 0.05$). Furthermore, the group analysis showed that respondents were classified into straightforward-consumer, indifferent-consumer, cautious-consumer and concerned-consumer, respectively by 18, 64, 88 and 133 respondents.

RESULTS AND DISCUSSION

Socio-demographic characteristics

Table 3 shows the responses of consumer towards beef purchases. The quantitative enquiry involved a total of 303 respondents, out of which 151 were from Java Island and 152 were from Sumatra Island. The demographic information revealed that most of the participants (60%) were female and > 35 years old (56%). These middle-aged adults are considered productive and mature enough to consume food, especially when it comes to high-quality food issues. Therefore, their age and gender have an impact on their purchasing decisions (Slabá, 2019).

The demographic information revealed that most of the participants (61%) had an undergraduate degree. Generally, highly

educated consumer are more likely to report high-income levels and prefer more protein-based meat compared to less-educated groups (Giskes et al., 2007). In addition, education provides people with different perspectives on product values, including functional, economic, individual and social values (Srinivasan et al., 2014). Furthermore, 78% of the selected consumer respondents whose monthly income was more than 2,100,000.00 IDR reported purchasing beef and 88% of participants had a regular income. On the other hand, 73% of the participants lived in urban areas.

Table 3 shows that the average respondent purchases less than one package of beef per month. Generally, beef consumer prefer to buy fresh meat as Indonesians believe it to be of higher quality (Aritonang, 2015). The purchase of meat (which has undergone an aging process) is still low, although beef is becoming more popular. On average, consumer spend 114,465 IDR on beef, which is relatively high compared to the affordable price perceived by consumer (100,000 IDR) in Sani et al. (2020). The amount of income received, rational spending patterns and socioeconomic factors affect consumer expenditure (Wilska, 2002).

Consumer segmentation characteristics

The resulting cluster analysis identified four distinct consumer segments. Most of the selected respondents were classified as concerned consumer (43.89%), approximately 29% as cautious-consumer and followed by an indifferent-consumer segment (21.12%). Only 5.94% of these respondents were categorized as "straightforward" type.

According to Table 4, concerned-consumer are more likely to purchase beef on a regular basis at a low expenditure. Although cautious-

Table 3. Socio-demographic characteristics distribution on beef purchasing

Socio-demographic characteristics	Response	Purchase decision	
		Frequency purchasing*	Expenditure**
Sample size (n)	303	4	114,465
Gender			
Male	120	3	119,191
Female	183	4	111,366
Age (years old)			
Middle-age adults (> 35)	169	4	113,536
Young adults (\geq 35)	134	3	117,725
Educational background			
Basic-secondary school	119	3	118,268
University	184	4	112,005
Occupation			
Government employee	102	4	120,382
Self-employee	23	2	84,086
Labor	165	3	111,551
Unemployment	23	2	158,769
Location			
Urban	221	4	112,728
Rural	82	4	119,146
Monthly income (IDR)			
\leq 2, 000,000.00	67	3	104,641
2,100,000.00 - 6,000,000.00	231	4	118,288
$>$ 6,000,000.00	5	4	112,866

Note: *Average frequency purchasing of beef in the last six months (times), **Average expenditure in the last six months (IDR per purchase)

consumer are concerned about various aspects of spending, they still find it worthwhile to spend more time purchasing meat. However, the cost of a single purchase is significantly higher than that of another segment. The 'cautious' segment is dominated by families with children who tend to spend more money on a single purchase (Verbeke and Vackier, 2004).

Consumer involvement on beef product

Table 5 shows that each consumer segment has significantly different involvement with beef product. The straightforward-consumer and indifferent-consumer types are categorized as having low involvement value, while the cautious-consumer and concerned-consumer types are classified as having high involvement. Furthermore, the four consumer segment types have very different perspectives on price. The concerned-consumer and cautious-consumer place greater emphasis on the economic side of the product when making a purchase.

There is no distinction between functional and symbolic factors in each consumer segment. This means that respondents categorized as concerned-consumer, cautious-consumer, indifferent-consumer or straightforward-consumer have

similar attitudes towards the benefits, perceived risk, and the self-esteem of buying beef. Therefore, this study found that consumers' perception of beef price differs, with some groups no longer evaluating price as the most important factor to consider in purchasing decisions.

A straightforward-consumer with low involvement does not perceive much functional value in purchasing beef. As a result, they believe there is no difference between one product and another. Furthermore, indifferent-consumer reported a relatively low symbolic value, typically and habitually buying product. The indifference type reflected a consumer segment with low involvement.

The cautious-consumer type had high functional value because they were concerned about the adverse consequences of a poor decision. Similarly, the concerned-consumer also had high economic and functional value. Therefore, a rather cautious-consumer and concerned-consumer can both be classified as high involvement consumer. Table 5 illustrates that the four consumer segment types have very different perspectives on price. The concerned-

Table 4. Purchase decision behavior on beef product

Consumer segment	Frequency purchasing (times)	Expenditure (IDR per purchase)
Straightforward	2 ^a	111,944.44 ^a
Indifferent	3 ^a	106,859.38 ^{a,b}
Cautious	3 ^a	135,363.64 ^{a,c}
Concerned	4 ^b	104,639.10 ^{a,b}
F-value	18.62	39.67

Note: Different superscripts indicate significant differences between reasons ($P < 0.01$)

Table 5. Involvement value based on consumer segmentation

Involvement facets	Segmentation types			
	Straightforward-consumer	Indifferent-consumer	Cautious-consumer	Concerned-consumer
Economic	4.10 ^a	3.96 ^{a,b}	4.21 ^{a,c}	4.25 ^{a,c}
Functional	4.31	4.16	4.27	4.28
Symbolic	3.80	3.55	3.83	3.75

Note: Scores in one row with a different superscript are significantly different at $P < 0.05$ (one-way ANOVA and post-hoc Tukey multiple comparison tests)

consumer and cautious-consumer will place greater emphasis on the economic value of the product to be purchased. Meanwhile, there was no distinction between functional and symbolic values in each consumer segment. This means that the concerned-consumer, cautious-consumer, indifferent-consumer or straightforward-consumer have similar attitudes towards the benefits of buying beef.

Purchasing beef product on consumer segmentation

Beef consumer segmentation based on involvement yielded four distinct groups, each with differentiated socio-demographic characteristics and attitudes towards beef purchasing. Segment can be profiled based on their socioeconomic status, as shown in Table 6. The first segment typified as straightforward-consumer includes significantly more women, young adults, well-educated, regular income, urban and middle-income beef consumer. This findings differ from Verbeke and Vackier (2004), which found the more straightforward-consumer to be male. However, this discrepancy can be explained by different involvement constructs used in this study. According to Table 2, consumer in the first segment are more perceived as functional faces and concerned with product quality, perceived risk, preferred shop, taste and expiration date. Despite the adjustment made for gender, this segment represents the smallest proportion, with approximately 6% of the population. Better quality or healthier beef, along with marketing efforts, labeling and traceability schemes can only persuade them when tangible

benefits are included. Ultimately, a better or unique taste remains of paramount importance.

Indifferent-consumer is another segment with a similar size to the previous one. They show the least involvement in the symbolic facet of all segment and are not particularly concerned with the cost of purchasing beef. This means that consumer can betray one another at any time because they do not recognize a brand image as a critical factor. Relatively more young people (≤ 35 years old) belong to this segment. Price was not the most important factor in their decision-making, as evidenced by more respondents in the middle up and regular income belonging to this segment. Motivating or persuading this consumer with additional information or quality efforts can be difficult even when the sellers offer a competitive price. This consumer is unlikely to go out of their way to find out about meat quality or perceived safety risks.

The cautious-consumer and concerned-consumer segment are interested in beef because of its economic and functional facets. Industry and government efforts aimed at reassuring consumer about the quality and safety of meat are likely to be the most effective among consumer of this large segment, constituting more than one-third of beef market. Furthermore, the adults also had the highest frequency for cautious-consumer and concerned-consumer. Older adults, who were more likely to experience health problems than younger adults, tends to increase their focus on the health consequences of food choices. Therefore, several adults have more consideration to buy beef (Kamphuis et al., 2015).

Table 6. Socio-demographic based involvement in purchasing beef product

Socio-demographic characteristics	Straight forward-consumer	Indifferent-consumer	Cautious-consumer	Concerned-consumer	Total	Pearson's chi-squared
Gender						$X^2(3) = 7.18$ Pr = 0.06
Male	5 (4.17%)	18 (15.00%)	42 (35.00%)	55 (45.83%)	120	
Female	13 (7.10%)	46 (25.14%)	46 (25.14%)	78 (42.62%)	183	
Age						$X^2(3) = 23.90$ Pr = 0.00
Young adults	11 (8.21%)	40 (29.85%)	44 (32.84%)	39 (29.10%)	134	
Middle-age adults	7 (4.14%)	24 (14.20%)	44 (26.04%)	94 (55.62%)	169	
Educational						$X^2(3) = 2.27$ Pr = 0.51
Basic-secondary school	7 (5.88%)	20 (16.81%)	36 (30.25%)	56 (47.06%)	119	
University	11 (5.98%)	44 (23.91%)	52 (28.26%)	77 (41.85%)	184	
Occupation						$X^2(3) = 13.60$ Pr = 0.00
Regular income	16 (5.99%)	48 (17.98%)	80 (29.96%)	123 (46.07%)	267	
Non-regular income	2 (5.56%)	16 (44.44%)	8 (22.22%)	10 (27.78%)	36	
Location						$X^2(3) = 1.59$ Pr = 0.66
Urban	15 (6.79%)	44 (19.91%)	65 (29.41%)	97 (43.90%)	221	
Rural	3 (3.66%)	20 (24.39%)	23 (28.05%)	36 (11.88%)	82	
Monthly income						$X^2(3) = 25.37$ Pr = 0.00
Low	6 (8.96%)	27 (40.30%)	19 (28.36%)	15 (22.39%)	67	
Middle up	12 (5.08%)	37 (15.68%)	69 (29.24%)	118 (50.00%)	236	

Consumers on a regular income are more likely fall into the cautious-consumer when purchasing beef, compared to those with irregular income. However, there is no significant difference in the frequency of consumption between urban and rural consumer segment. Nevertheless, the percentage of straightforward-consumer and indifferent-consumer was higher among low-income consumer than upper-middle-income consumer. It is worth noting that most of the respondents with low incomes were students. This indicates that consumer is uninterested in attributes of the product.

Effects of involvement-based consumer segment on beef product attributes

This section presents some findings regarding the effects of consumer segment and product attributes. According to Table 7, concerned-consumer have high scores on all attributes. This is consistent with the earlier statement that consumer with high involvement (cautious-consumer and concerned-consumer) need to consider various factors before making a purchase. In contrast, low involvement consumer (straightforward-consumer and indifferent-consumer) have little information to consider.

This clearly indicates that differences in consumer segment can influence how product attributes are perceived. Consumer with a high level of involvement tend to focus primarily on product attributes, with the main concern being the product's price, which is also related to the purchase size. Consumer expect a diverse variety of weight sizes in beef. Selected respondents remain committed to their preferred meat shop, as indicated by the high score in Table 7. This means that it may be difficult for concerned-consumer to switch to another meat shop. These attitudes should be captured by retailers as opportunities to retain consumer through exemplary service. However, the concerned-consumer does not consider freshness as an essential issue compared to other attributes.

A similar result is illustrated by cautious-consumer who believes that the product's price and size are important factors to consider before making a purchase. This is in line with Nurliza et al. (2021) who stated that product features were the most important dimension in consumer preference and aligned with consumer characteristics. The benefits of meat product characteristics are positively related to price, however, customers' intention on product freshness is more important than the location of the purchase. Therefore, retailers should prioritize providing fresh beef every day.

In contrast, low involvement consumer appeared to be carefree about product attributes. The indifferent-consumer and straightforward-consumer implied that price and freshness were not the most important factors to consider. Since both types of consumer do not tend to concentrate on product attributes, the strategy of improving purchasing decisions through product attributes is deemed ineffective. Based on the results, producers are expected to focus on socioeconomic factors, product attributes, and their relationship to beef consumer segmentation. In addition, improved consumer service will assist cautious-consumer and concerned-consumer in making product purchases.

The role of consumer segmentation is to categorize consumer purchase behavior and meet their needs and expectations. Moreover, understanding consumers' segmentation should be the priority of retailers (Risius and Hamm, 2017). Therefore, retailers are expected to offer attractive product attributes that meets consumers' needs and personal satisfaction in obtaining a good, as this can improve their self-esteem (Troy et al., 2016; Rosli et al., 2020). They can also create targeted marketing strategies based on the characteristics of their potential buyers by identifying the expectations of consumer in specific segment (Siró et al., 2008). Consequently, this will lead to increased revenue and profitability for business owners (Mohsenin et al., 2018).

Table 7. Effects of product attributes on consumer segment

Attribution	Straightforward-consumer	Indifferent-consumer	Cautious-consumer	Concerned-consumer
Price	2.94 ^a	3.72 ^b	4.32 ^c	4.94 ^d
Size of packaging	2.94 ^a	3.84 ^b	4.24 ^c	4.68 ^d
Freshness	3.50 ^a	3.69 ^a	4.15 ^b	4.24 ^b
Preferred meat shop	3.67 ^a	3.53 ^{a,b}	4.10 ^{a,c}	4.47 ^d

Note: Scores in one row with a different superscript are significantly different at $P < 0.05$ (one-way ANOVA and post-hoc Tukey multiple comparison tests)

CONCLUSIONS

This study concludes that each consumer segment experiences significantly different levels of involvement. This in turn affects how product attributes are perceived. Consumer with a high level of involvement tend to prioritize product attributes. It is fundamentally important to construct refined strategies based on consumer value. The development of the meat sector that deals with consumer needs to emphasize consumer targets, consumer awareness of healthy product attributes and support sustainable development of the food system. Therefore, retailers are expected to engage consumer and segment them to reshape the market. Moreover, structural changes in food consumption require support from public policy.

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