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Study of Animal-Based Food Product Labeling use

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ABSTRACT

This study was conducted to identify the food labeling profile in animal-based food products based on consumers' age and gender, consumers' preference of the information provided in the label, consumers' behavior in reading the label, and consumers' knowledge about food labeling. A total of 100 respondents participated in the study. The sampling was done by using judgmental sampling method with the following criteria: (1) respondent has bought animal-based food products within the last month of the study; (2) respondent's age was over 18 years old. The data were analyzed descriptively and by using regression analysis. The results showed that female respondents and a group of 50 years or older respondents were used to read the food label frequently compared to other respondent groups. The type of information which considered as the most important was the expiration date, followed by product's name, ingredients, halal status, nutritional value, product's instruction for usage and its irregularities, net weight, and the producer's name and address. This study also identified that the majority of the respondents, as many as 67%, already had good knowledge about food labels, while the other 32% had adequate knowledge, and only 1% of the respondents had a little knowledge about food labels. It can be concluded that consumers' perception of the potential risks on animal-based food products affect their behaviour in reading the label ($p<0.05$) while consumers' health condition and time availability to buy the products did not affect their behaviour in reading the label in animal based food products.

Keywords: Affecting factors, Animal-based food products, Consumer's Profile, Food labels

Introduction

Product labeling is a form of communication media for a producer to provide information about their product to the consumer. It then becomes important for a producer to be able to create a good, clear, and interesting label to help their target consumers in choosing the product. Product's label also serves as an educational purpose, as the label would become a media for the producer to educate customers about their product, and in a way would give an added value to the product by itself. Label inclusion in the product has become an obligation for the producer, which is regulated in the Law of the Republic of Indonesia Number 8 Year 1999 Concerning Consumers' Protection. The law stated that producer should provide a true, clear, and honest information about their product. Moreover, the Law of the Republic of Indonesia Number 18 Year 2012, Concerning Food, Chapter 97, also stated that every food industry, whether they produce their products domestically, and/or import the product to Indonesia, is obliged to include the product's label inside and/or on the product package.

The Law of the Republic of Indonesia Number 18 Year 2012 Chapter 97 Article 3 stated that product's label inclusion inside and/or on the food products package should at least describe the product's name, ingredients, net weight, the producers or importers name and address, halal status (if required), production date and code, expiration date, distribution permit number for processed food, and certain ingredients' origin which were used in the product. For particular food products which contained vitamins, minerals, or other nutrients, the producer should provide the product's nutritional information. Producers are also allowed to add other claims of their product, as long as the claims are true, not misleading, and scientifically proven.

Animal-based food product would be more competitive in the market if it provides the product's label which contained clear information about the product. The information provided in label is required by the consumer to determine which products to buy, even though not all of the

consumer read the product's label. Research by BPOM in 2008 identified that around 88.9% of research respondents had already pay attention to the food product's label, in which 36.5% stated that they looked for the halal status, 34.9% looked for the expiration date, and 20.6% looked for the product's name. However, paying attention to the product's label is not enough to protect the consumer from any health problems caused by consuming the product. Consumers need to have a comprehensive understanding of the provided information on the label so that they would not be misguided.

The utilization of a product's label as a source of information is determined on the consumers' awareness and understanding of the provided information. Reading the product's label is one of many ways to increase consumer's awareness and understanding of the product. Furthermore, the habit to read product's label is affected by several factors, such as consumer's perception of risk, health condition, and time availability to buy the products. Consumers who read the label can also be grouped by their age and gender.

Providing a product's label is aimed to give a true and clear explanation to the consumer about the product, however, some consumers still did not have a complete understanding of the provided information. Consumer's perception which made them believe that all of the provided information in the product's label were true, and their inabilities to understand the provided information could cause misleading and wrong understanding of the product. In 2013, Department of Food Product Standardization in BPOM explained that consumers were not paying enough attention to the product's nutritional value, as the information contained a considered complex terminology and number compared to another type of information.

Research on food product's label has been done by Edem *et al*. (2013), which explained that there is a correlation between reading the product's label and consumer's decision to buy the packaged food products in the Republic of Ghana. The research also showed that there were also different reading patterns of the food product's label, which were differs based on the consumer's age and gender. Several factors which affect consumers' decision to look for the information in the food product's label were also found, which were the perception of risk, health condition, and the time availability to buy the products. Similar research has been done by Darkwa and Affram (2013), which showed that even though consumers have read the label, it is still not guaranteed that they have understood the provided information. Both of the research was done in the Republic of Ghana, yet similar research which focused on the animal-based food products have yet to be done.

Based on the above description, it becomes important to conduct research which identified consumer's profile who read the label in animal-based food products, which include milk, egg, and meat, then investigate which information consumers prefer to read in the label, then analyze any affecting factors and consumers' understanding of the provided information in the food label.

Materials and Methods

Materials

The research was conducted in June 2016 and involved a total of 100 respondents. The sampling was done by using judgmental sampling method with following criteria: (1) respondents had bought animal-based food products which include meat, milk, or egg product for at least one month prior to the research; (2) respondents' age was over 18 years old. A questionnaire that consisted of research questions (perception to risk, health condition, time availability to buy the products, food product's label reading habit, respondents' knowledge, and their demography characteristics) was used for the research instrument.

Methods

The research was conducted through a survey by using a questionnaire that consisted of questions regarding the respondents' profile and research variables. A pilot test with 50 respondents was done for the validity and reliability test of the used measurement. Construct validity test was done by using Confirmatory Factor Analysis, while the reliability test was done by using Cronbach's Alpha test to determine the questionnaire internal consistency. The obtained data were then analyzed descriptively and by using multiple linear regression analysis. Descriptive analysis was done to understand respondents' characteristics, respondents' profile who read the label in the animal-based food products, and respondents' knowledge. A multiple regression analysis was done to determine the factors which affect reading behavior in animal-based food products, which include perception to risk, health condition, and time availability to buy the products. The used multiple linear regression formula was $Y = a + b_1x_1 + b_2x_2 + b_3x_3 + e$. The respondents' knowledge was analyzed by using the Guttman scale. Respondents' knowledge variable on a food label was measured through a series of "right" or "wrong" questions by using the Guttman scale, thus resulted in ordinal data. Every correct answer was scored one, and the wrong answers were scored zero. The obtained scores were then grouped based on each respondent's category.

Result and Discussion

Validity and reliability test

The validity and reliability test towards 50 research questions resulted in 0.723 significance index on Kaiser Meyer Olkin Measure of Sampling (KMO) with loading factor more than 0.4 and not clustered in multiple groups, thus showed that the

variables used in this research were valid to be further analyzed. The Cronbach's Alpha test resulted in more than 0.6 value for all variables, thus showed that all of the questions used in perception to risk, health condition, and time availability to buy the products variables had a good consistency.

Respondents' profile

The respondents' profile in this research (Table 1) showed that respondents' age can be divided into three groups, which were (1) 18 to 35 years old; (2) 36 to 50 years old; and (3) more than 50 years old. The majority of the respondents (93%) had a good educational background (had a diploma, graduate, and post-graduate degree), 52% of the respondents had a permanent work, 77% of the respondents were married, and 77% of the respondents had a monthly income less than Rp5,000,000.00.

Profile of the respondents who read the label in the animal-based food products

Respondents' profile who read the label in the animal-based food products (Table 2) showed that respondents who were 50 years or older tend to read the label in the animal-based food products more regularly compared to other age groups. The result is in accordance with Drichoutis *et al*. (2008) and Misra (2007). The older consumers tend to have a better awareness of the products they are consuming, in which safer and healthier food is more preferable. The product's label is then known as the source of information for the consumer.

Female respondents were also known to read the animal processed food product's label more regularly compared to the male respondents. The similar results were also shown in research by Drichoutis *et al.* (2008); Rekha (2015); Gonzalez-Roa and Calatrava (2008); and also Edem *et al.* (2013). The better awareness of female respondents to read the label regularly is regarding that female respondents were more attentive on what they consume compared to the male respondents, thus by reading the label, respondents would have a better understanding and clear information in the animal-based food products that they are going to consume.

Preferred information on the label

The preferred information on the animal-based food product's label would be provided in the form of ranking that is considered important by the consumer. In Table 3, it can be seen that the three most important information for the respondents were the expiration date (29.3%), product's name (17.3%), and ingredients (17.3%).

The result is consistence with finding by Al-Khamees (2018), which showed that the most

Table 1. Characteristics of the respondents

Characteristics	Total respondent	Percentage (%)
A*ge* (year)		
18-35	36	36.0
36-50	33	33.0
>50	31	31.0
Gender		
Female	50	50.0
Male	50	50.0
Educational background		
Basic	1	1.0
Junior high school	6	6.0
Senior high school	23	23.0
Undergraduate degree	14	14.0
Bachelor	45	45.0
Master degree	10	10.0
Doctorate degree	1	1.0
Occupation		
Lecturer	4	4.0
Civil servant	16	16.0
Private employees	16	16.0
Entrepreneur	16	16.0
Labourer	5	5.0
Farmer	6	6.0
Freelance	13	13.0
Student	1	1.0
Housewife	10	10.0
Retired	13	13.0
Marital status		
Single	14	14.0
Married	77	77.0
Widow	9	9.0
Monthly income		
Rp0 – Rp2.500.000,00	43	43.0
Rp2.500.001 –	34	34.0
Rp5.000.000,00	9	9.0
Rp5.000.000 –	6	6.0
Rp7.500.000,00	8	8.0
Rp7.500.000 –		
Rp10.000.000,00		
> Rp10.000.000,00		

Table 2. Profile of the respondents who read the label in the animal-based food products

Respondents	Readership (person)			
	Never	Rarely	Often	Always
Age (year)				
18-35	2	11	9	14
36-50	4	6	15	8
>50	3	3	9	16
Gender				
Female	4	8	16	22
Male	5	12	17	16

Table 3. Information ranking on labels that are considered important by the customer

Ranking	Provided information	Percentage (%)
1	Expiration date	29.3
2	Product's name	17.3
3	Ingredients	17.3
4	Halal status	13.0
5	Nutritional value	12.0
6	Instruction for usage and irregularities	5.6
7	Net weight	3.0
8	Producer's name and address	2.3

important attribute in the food product's label by the consumers is the expiration date. Research by Talagala and Arambepola (206) also showed that 96.3% of adult respondents always read and looked for the expiration date, while 50.1% of the respondents looked for the product's brand. The product's expiration date and brand credibility showed to have a major role in the evaluation of food product's safety. The information on the product's halal status in this research is considered less important compared to the product's expiration date, name, and ingredients. The result is different compared to finding by BPOM (2008). The different result is allegedly caused by the different respondent restriction, as in this research we did not put religion as the restriction, thus halal status would not be the priorities for non-Muslim respondents. Moreover, the result showed that the information on the product's nutritional value was also considered important. This is in accordance with Osei *et al*. (2012) who stated that nutritional value is not the most important information for the consumers, yet it is still required. The least three information that was considered important by the respondents were the product's usage and storage, net weight, and the address of the producer.

Respondents' knowledge

The low understanding and knowledge of the consumers on food products would inhibit them to use those products (Signal *et al.,* 2008). Jacobs *et al*. (2010) stated that the low consumers' awareness of the importance of reading the food product's label would affect their decision to read the label. The respondents' knowledge of reading the label were divided into three categories, which were low good, adequate, and low knowledge level. The results of the analysis were shown in Table 4. It can be seen that 67% of the respondents had a good knowledge on reading the label, while 32% had adequate knowledge, and only 1% of the respondents had low knowledge about reading the product's label.

The result showed that almost all respondents had good and adequate knowledge about label in food products, and had enough capabilities to answer research questions. The result is regarding that majority of the respondents (93% respondents) had a high educational background (diploma, graduate, and post-graduate).

Factors affecting consumers' behavior in reading the label in animal-based food products

The results of multiple regression analysis on the effect of independent variables, which were perception of risk, health condition, and time availability to buy the products, to the dependent variables (respondents' reading behavior in reading animal-based food product's label) were provided in Table 5. The result showed that respondents' perception to risk variable had a significantly positive effect on the reading behavior, with adjusted value at β 0.253 ($p \leq 0.05$).

The result is in accordance with the theory which stated that perception is one of the psychological factors which affect consumers' behavior (Zheng *et al.,* 2011; Kotler dan Keller, 2014). The perception of risk of a product would affect consumers to read the product's label in evaluating the product (Jeddi dan Zaeim, 2010). The product's label would help consumers to be more convinced of the product's safety. In this research, respondents prefer the information on the expiration date in the product's label as the top

Table 4. Respondents' knowledge of food labels

Criteria	Knowledge level	Total (%)
40-55%	Low	1%
56-75%	Adequate	32%
76-100%	Good	67%

Table 5. The results of the regression coefficient test (t-test)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
Constant	1.224	0.673		1.819	0.072
Perception to risk	0.225	0.088	0.253	2.554	0.012
Health condition	0.133	0.134	0.098	0.989	0.325
Time availability	0.153	0.140	0.106	1.089	0.279

priority (29.33%), which also indicates consumers' perception of risk. In essence, the information of product's expiration date was used by the consumers to suppress the negative risk of the product, thus avoid direct risks of consuming the products, such as food poisoning, sickness, or even death and any other risks. A study by Zorba and Kaptan (2011) also showed that reading the expiration date in the product's label would give a sense of security for the consumers.

A rather surprising result in this study is that the respondents' health condition did not affect their behavior in reading the product's label ($p \geq 0.05$). As much as 76% of the respondents had good knowledge, thus it can be assumed that respondents already understand the health benefits of the animal-based food products. The average value of the respondents' health condition was 3.8 (at 1-5 scale), which indicates that respondents were healthy and did not require special diets. The respondents' health condition, added with their knowledge of the product's beneficial to their health, resulted in the irrelevancy of the health condition variable to determine the respondents' behavior in reading the food product's label. Magistris *et al.* (2010) stated that consumers who required a special diet would pay more attention to the food product's label.

The time available to buy the products did not affect respondents' behavior in reading the label in the animal-based food products ($p \geq 0.05$). Furthermore, for respondents who had good health and/or did not require special diets, the decision to buy the animal-based food products with regards to its effect on their health condition is not a priority. Their motivation to pick a product would be based on its "effortless" as long as it could fulfill their needs enough, instead of trying to pick the best product (Peter dan Olson, 2008). The heuristic decision was based on respondents' knowledge that animal-based food products would be the main source of protein. Moreover, 41% of the respondents showed that grocery shopping is considered as daily activities, while 38% of the respondents consider it as weekly activities. That habitual characteristic thus caused respondents to think that they already know what they were buying, without being aware that they still need to look for the product's information, even though if they have enough time (Peter dan Olson, 2007). This showed that time availability would not affect respondents' behavior in reading animal-based food product's label. The only heuristics processes were to look for the product's name on the label. Petrovici *et al*. (2012) stated that consumers' decision to choose a product would be faster if the name of the product was the requirement. In accordance, Aygen (2012) stated that pressure from time availability would not affect significantly towards consumers' behavior in reading the nutritional value of the food products. In the end, consumers who had already understood what products they are going to buy would not feel necessary to look for new information in the product's label.

Conclusions

Consumers who are 50 years old or more and female respondents tend to read the animal-based food product's label more often compared to other groups. The product's expiration date, name, and ingredients were considered as the most important information provided in the animal-based food product's label. Consumers had adequate knowledge about animal-based food product's label. The perception of risk factor showed to affect consumers behavior in reading animal-based food product's label, while their health condition and time availability to buy the product did not affect the respective behavior.

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