Consumers' Expectation towards Functional Foods: An Exploratory Study

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Abstract: There are various functional foods offered in the market in the forms of food and beverage. Unfortunately, not all of them survived. Many functional food products had been rejected by consumers because they did not focus on consumers' expectation. This research has one main purpose: to investigate consumers' expectations towards functional foods' health benefits. Three research methods were employed; literature review, multiple interviews, and a survey. The interview data were analyzed using thematic analysis method while the survey data was assessed using Exploratory Factor Analysis. Cronbach's Alpha and the calculation of indicator transformation index were also employed. The research identified 22 important expectations related to functional foods' health benefits. This result is beneficial for companies in creating consumers' oriented functional foods. It can also serve as an input for the government in establishing functional food development policy.

1 INTRODUCTION

One of the industry sectors that is currently enjoying significant growth in the global market is the food industry. It is because this industry provides a basic need, but also products that have potential physiological benefits for their consumers (Bachl, 2007; Chrysochou, 2010; Pech-Lopatta, 2007; Goetzke & Spiller, 2014). The term is "functional food." Generally, functional food products are "foods that may provide health benefits beyond basic nutrition" (Roberfroid, 2000).

On the other hand, consumers awareness of a healthy lifestyle and the prevalence of non-communicable diseases (NCDs) also rises (Zoltan et al., 2012; La Barbera, 2016). This is due to the rising health costs of treating NCDs (Peake, 2001). Consequently, the demand for functional foods upsurges ever year. It can be seen from 7-10% annual growth of the functional food industry (Fitzpatrick, 2003). This growth is expected to persist in the future (Westrate et al., 2002; Black & Campbell, 2006; Verbeke, 2006; Kljusuric et al., 2015). Furthermore, the functional food market share was projected between $11 to $155 billion per year (Doyon, 2008).

Even though the functional food industry shows a positive trend, there were many companies that failed marketing their products. One of the reasons was consumers did not accept the products even though they gave health benefits. It happened because there were expectancy discrepancies between companies and consumers (Parasuraman et al., 1985). In other words, the health benefits offered by the products were not the ones expected by the consumers or consumers had different expectations regarding the health benefit of functional food.

In the consumer behavior literature, one of the concepts that have been studied and discussed multiple times by researchers theoretically and practically was consumers' expectation (Licata et al., 2008). This was because 'expectation' was one of the determinants of consumers acceptance. Previous researchers stated that consumers' expectation was closely related to product quality (Ignacio et al., 2006; Brunso et al., 2002; Issanchou, 1996; Douglas & Connor, 2003). Other researchers added that 'expectation' also related to consumers satisfaction (Cadotte et al., 1987; Bhattacherjee, 2001; Yi, 1993).

Even though consumers expectation has an important role in product success, this study argues that previous research on consumers expectation toward the health benefit of functional food has not been widely discussed. Research in the context Indonesian consumers, who are very likely different from other consumers, are even rarer. Different

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dietary habits, climate, vegetation, economic condition, and population distribution influence consumers expectation (Kljusuric et al., 2015).

Related to that condition, a study to investigate consumers expectation toward functional foods health benefits in the context of Indonesia becomes important. This study expects to give inputs for businesses in developing consumers expectation-oriented products.

1.1 Functional Food

Even though studies on functional foods have significantly grown, agreed-upon definition of functional food does not exist, yet (Sarkar, 2019). Several organizations and researchers might have different definitions. The International Life Sciences Institute defines functional food as foods that, by virtue of the presence of physiologically-active components, provide a health benefit beyond basic nutrition (ILSI, 1999). According to International Food Information Council, functional foods are foods (or beverages) that provide health benefits beyond basic nutrition, like improving the diets or reducing the risk of specific diseases (IFIC, 2009). In Indonesia, Badan Pengawas Obat dan Makanan (National Agency of Drug and Food Control or BPOM) defined functional foods as "processed foods with one or more food components, which based on scientific research have a certain physiological function beyond their basic function, do not pose harmful effects and contain health benefits" (BPOM, 2011). However, BPOM retracted that definition. A researcher defined functional foods as "food that encompasses potentially helpful products, including any modified food or food ingredient that may provide a health benefit beyond that of the traditional nutrient it contains" (Roberfroid, 2000). Another researcher defined it as "a food and not a drug, that is part of a normal diet, and that can produce benefits beyond basic nutrition" (Lajolo, 2002). On the other hand, functional food is defined as "any substance that is a food or part of a food that provides medical and/or health benefits, including the prevention and treatment of disease" (DeFelice, 2007). From those definitions, it was clear that functional foods are not regular foods because they provide not only basic nutrition but also an extra health benefit. Based on that definition, there are several types of functional foods, which are fortified food, enriched food, altered food, and enhanced commodities (Kotilainen et al., 2006; Spence, 2006; Siro et al., 2008). The definitions can be seen in table 1.

Table 1: Types of functional foods.

No	Type of functional foods	Definition
1	Fortified food	"A food fortified with additional nutrients"
2	Enriched food	"A food with added new nutrients or components not normally found in a particular food"
3	Altered food	"A food from which a deleterious component has been removed, reduced or replaced with another substance with beneficial effects"
4	Enhanced commodities	"A food in which one of the components has been naturally enhanced through special growing conditions, new feed composition, genetic manipulation, or otherwise"

Source: Siro et al., 2008.

1.2 Consumer Expectation

In the consumer behavior literature, there is not a converged definition of consumer expectation. According to the study of Santo and Boote (2003), the definitions could be categorized into nine groups, which are (1) expectation as the ideal standard (what the consumer wished for the excellence-performance of product), (2) expectation as 'should be' standard (what the consumer feels ought to happen), (3) expectation as the desired standard (what the consumer wants to happen), (4) expectation as the predicted standard (what the consumer thinks will happen), (5) expectation as the deserved standard (consumers' subjective evaluation of their own product investment), (6) expectation as the adequate standard (the lower level expectation for the threshold of acceptable product or service), (7) expectation as the minimum tolerable (the lower level or bottom level of performance acceptable to the consumer), (8) expectation as the intolerable (under the minimum tolerable level of expectation), and (9) expectation as the worst imaginable (the lowest level of expectation).

This study refers to 'consumer expectation' as an ideal expectation or an ideal need and want that is expected by the consumer toward the performance of functional foods. This study adopted that definition because 'ideal expectation' was not affected by various marketing variables and the competition, so it is suitable for this research (Santos & Boote, 2003).

In addition, 'ideal expectation' was also believed to be stable from time to time compared to 'consumer expectation' as a 'should be' standard (Churchill, 1979).

2 MATERIALS AND METHODS

This is exploratory research with a quantitative approach. To achieve the aim of this research, this study went through three stages (see figure 1). First, this study investigated consumers' expectation toward functional foods. In this stage, this research conducted a literature review of previous studies that focused on the health benefits of functional foods. This study also ran interviews on several consumers to ask about their expectations that might have (or have not been) identified by previous research.

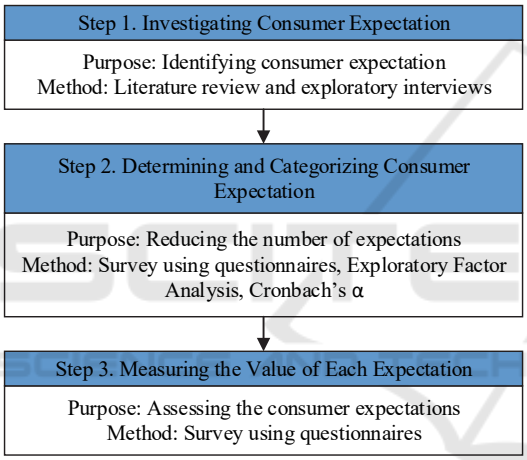

Figure 1: Research process.

The second stage aims to determine and categorize consumers expectation. This stage determined which kind of health benefits that were direly expected by functional food consumers. Specifically, this stage omitted benefits that were not expected by consumers. After the determination, health benefits were then statistically categorized to help businesses in understanding consumers expectation. For this stage, this study conducted a survey to gather data using a questionnaire. The questionnaire inquired about how high their expectations are. This questionnaire used a 5-point Likert scale to represent consumers expectation. The survey was done in three areas, which were Jakarta, Bekasi, and Tangerang. The respondents were Indonesian aged 18 and above and chosen based on convenience sampling. This study used 114 respondents, which profile can be seen in table 2. The

Table 2: Demographic profile.

Characteristic	Categories	%
Sex	Male	97.4
	Female	2.6
Age	≤ 20 years old	0.9
	21 – 30 years old	23.7
	31 – 40 years old	45.6
	41 – 50 years old	26.3
	≥ 51 years old	3.5
Education	Primary school	1.8
	Junior high school	10.5
	High school	77.2
	College diploma/bachelor's degree	5.3
	Bachelor's degree (Hons)	4.4
	Master's degree	0.9
Occupation	Unemployed	0.9
	Stay-at-home (without income)	58.8
	Freelancers	8.8
	Student	0.9
	Entrepreneur	6.1
	Permanent employee of private business	24.6
Monthly income	No income	7.0
	≤Rp2.500.000	3.5
	Rp2.500.001 - Rp5.000.000	71.9
	Rp5.000.001 – Rp10.000.000	14.9
	> Rp10.000.000	2.6

statistical analyses used in this stage were Exploratory Factor Analysis (EFA) and Cronbach's alpha (α).

After being identified and categorized, the list of expectations was measured to determine which the most expected health benefits were in the third stage. This stage aims to investigate consumers priorities. The technique used in this stage was the Indicator transformation index. The formula is below (Aminah et al., 2015).

$$\text{Transformation Index} = \frac{(\text{Total achieved scores} - \text{total minimum expected score})}{(\text{Total maximum expected score} - \text{total minimum expected score})} \text{x100}$$

This study used three categories: low expectation (0-59), moderate expectation (60-80), and high expectation (81-100) (Afina & Retnaningsih, 2018).

3 RESULTS

3.1 List of Consumers' Expectation

The exploration of consumers' expectation has been done through literature review and interviews. A

review was done to previous studies that focused on the health benefits of functional foods (Schnettler et al., 2015; Siegrist et al., 2009; CMPA, 2003). After that, interviews with 11 consumers were done to gain an in-depth understanding of their expectations, which might not have been identified through the review. This study found 22 health benefits expected from functional foods. Those expectations were then divided into two categories, which were 'disease prevention' and 'improvement of bodily functions.' The list is displayed in table 3.

Table 3: Consumers' expectations.

Categories	Consumers' expectation	
Disease prevention	CE1	Reducing the risk of diabetes
	CE2	Reducing the risk of cancer
	CE3	Reducing the risk of heart disease
	CE4	Reducing the risk of stroke
	CE5	Reducing the risk of kidney failure
	CE6	Maintaining an ideal level of blood pressure
	CE7	Lowering the cholesterol level
	CE8	Maintaining a healthy level of triglyceride
	CE9	Strengthening joints and bones (including reducing the risk of osteoporosis)
	CE10	Reducing the risk of digestive diseases (colon, stomach)
Improvement Bodily Functions	CE11	Reducing weight problems (overweight/obese/underweight)
	CE12	Preventing early aging
	CE13	Improving general stamina
	CE14	Improving concentration (memory)
	CE15	Reducing stress/relaxing
	CE16	Improving immunity
	CE17	Improving sexual performance
	CE18	Maintaining healthy skin, nails, and hair
	CE19	Maintaining motor performance
	CE20	Maintaining eye functions
	CE21	Increasing muscle
	CE22	Maintaining a longer feeling of satiety

3.2 Tested List of Expectation and the Categorization

Based on the EFA, this study found that the expectation model built by this study is fit. This can be indicated by the Keiser-Meyer-Olkin (KMO) of sampling adequacy value that fell above the cut of value of 0.5. and the p-value of Bartlett test of sphericity of lower than 0.05 (see table 4) (Hair et al., 2010). The analysis also showed that all health benefits in the 'disease prevention' and 'improvement of bodily function' categories were expected. No health benefit was omitted from the original list because (1) the MSA value for each health benefit was above 0.5; (2) their communalities values were higher than 0.4; and (3) their factor loadings were also higher than 0.5 (Hair et al., 2010). Aside from that, the EFA result shows that all health benefits in each category were proven to be converged into one factor. The total variance explained for 'disease prevention' was 56.974% and 59.341% for 'improvement of bodily function.' The Cronbach's α coefficient for 'disease prevention' was 0.915 and for 'improvement of bodily function' was 0.937. The values were far higher than the cut-off value of 0.6 (Hair et al., 2010). Therefore, this research shows that the model to measure functional food consumers' expectation was reliable for both 'disease prevention' aspect and 'improvement of bodily function' aspect.

3.3 Indicator Transformation Index

From the previous stage, this study has found 22 consumers' expectations toward health benefits of functional foods. Based on the measurement process, there was only one expectation that generated an index between 60-80 and the rest have index values more than 80. This indicates that consumers have high expectations of 21 health benefits. In the disease prevention group, three most prioritized benefits were reducing the risk of contracting digestive diseases (85.09), reducing the risk of cancer (84.65), strengthening joints and bones (84.43), reducing the risk of kidney failure (84.43). In the improvement of bodily functions group, three most prioritized health benefits were improving concentration (85.31), improving immunity (84.43), and maintaining a longer feeling of satiety (see figure 2).

4 DISCUSSION

This research found that consumers expect 22 health benefits from various range of functional foods. There were ten health benefits that represented 'disease prevention' and twelve that represented 'improvement of bodily function.' This research supports previous studies that also found similar categories. (e.g., Verschuren, 2002; Schnettler et al., 2015). 'Disease prevention' is a health benefits group that consumers expected to get after consuming foods or beverages with disease prevention claim

Table 4: The results of exploratory factor analysis and Cronbach's α.

Consumer expectation	KMO of sampling adequacy	Bartlett's Test of Sphericity (Sig.)	Total Variance Explained (%)	CA	MSA	Communalities	Factor loading
Disease Prevention	0.898	635.449 (0.000)	56.974	0.915			
CE1					0.932	0.654	0.809
CE2					0.899	0.462	0.680
CE3					0.937	0.464	0.681
CE4					0.868	0.591	0.769
CE5					0.877	0.641	0.801
CE6					0.832	0.479	0.692
CE7					0.895	0.567	0.753
CE8					0.899	0.573	0.757
CE9					0.945	0.623	0.789
CE10					0.901	0.643	0.802
Improvement Bodily Functions	0.927	875.090 (0.000)	59.341	0.937			
CE11					0.940	0.606	0.779
CE12					0.940	0.622	0.788
CE13					0.934	0.591	0.769
CE14					0.928	0.571	0.756
CE15					0.948	0.609	0.780
CE16					0.950	0.530	0.728
CE17					0.927	0.571	0.756
CE18					0.906	0.531	0.729
CE19					0.902	0.574	0.757
CE20					0.894	0.649	0.806
CE21					0.911	0.650	0.806
CE22					0.948	0.617	0.786

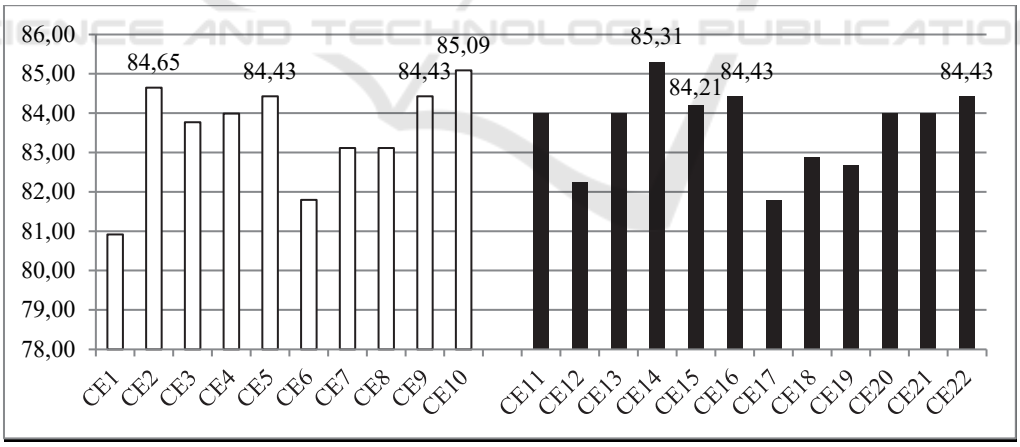

Figure 2: Consumers' expectation of health benefits offered by functional foods.

(Schnettler et al., 2015). This study found that the most expected health benefits related to disease prevention were (1) reducing the risk of digestive diseases; (2) reducing the risk of cancer; and (3) strengthening joints and bones. 'Improvement of bodily function' is a group of health benefits expected by consuming functional foods with bodily functions improvement claims (Schnettler et al., 2015). This research identified three most expected health benefits in terms of the improvement of bodily functions, which were (1) improving concentration; (2) improving immunity; and (3) maintaining the feeling of satiety. This research also revealed that consumers' values 'disease prevention' and 'improvement of bodily functions' equally.

This study has practical implications. First, the result encourages business to understand their consumers' expectation while developing a functional food product. Especially the expectation of real health benefits in terms of disease prevention or the improvement of bodily functions. Second, this study emphasizes that in developing a functional food product, businesses must decide whether they would position their products as disease prevention products or bodily functions improvement products. This study has identified ten health benefits of functional foods related to disease prevention and twelve health benefits related to the improvement of bodily functions. Those 22 expectations could be a guide for business in developing functional foods. By adhering to those expectations, the developed product is expected to be accepted by consumers and simultaneously create satisfaction.

Even though this study has generated interesting findings, it still has limitations. First, the respondents who engaged in this study were chosen based on convenience sampling. Consequently, the results could not be widely generalized. Future research should use a probability sampling technique. Second, this study only considered consumers expectation of health benefits. In reality, when a consumer bought or consumed certain product, there were many aspects that played into considerations, such as price, brand, packaging, etc. Future research should incorporate other factors.

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