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Research paper

The Effect of Consumer Attitude toward Functional Food on Package Attributes and Ingestion Intention; Focused on Garlic

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Abstract

The purpose of this study was to investigate the effect of prior knowledge and preference of garlic on the ingestion intention and selecting package attributes of garlic functional food. Surveys were conducted to verify the purpose of the study. One-way ANOVA was performed for data analysis; the following conclusions were reached.
First, the prior knowledge and preference of garlic have a significant impact on the intention to ingest garlic functional food. Second, the prior knowledge and preference of garlic have a significant impact on the attitude toward package properties of garlic functional food. However, it was confirmed that the preference for garlic was a more significant influence on the selection of garlic functional food and garlic food packaging than the prior knowledge on the benefit of garlic. So this study casts significant implications for the marketing of functional food with strong flavors such as garlic.

Keywords: *Prior knowledge, Preference, Functional Food, Package Attributes, Garlic food, The Cardiovascular disease*

1. Introduction

Consumer's attitudinal opinions are based on their beliefs and feelings about some products [1]. Even though the appearance of the product, it is associated with the consumer's favorable beliefs and feelings, attitudes. That is, the consumer's attitude toward a product is based on the summed set of beliefs about the product's attributes weighted by the evaluation of the attributes of the product. There has recently been a rapid increase in consumer interest in the health-enhancing roles of specific foods or physiologically active food components, so-called 'Functional foods' [2].

External factors that affect consumers' attitudes or behaviors include product packaging design, color, information display (text) outside the product, image of the product package, brand or logo design, and so on. A package can trigger customers to make a purchase and/or reinforce the brand name for a repurchase of the product [3]. Basically, consumers' awareness and trust, first impression, usual emotion, etc. can affect package selection and ultimately may influence product selection. But, functional food, which is a product that strengthens health, unlike general products, is expected to show different decisions and attitudes in the selection of products and product selection. In other words, it may be considered that the package attribute (image or informational/package style/how put the foods, etc.) of the product which emphasizes the efficacy of the functional food may be more influential on the purchase intention of consumer who knows the food efficacy or likes the functional food ingredients.

Specifically, garlic is known as a very good food for the health in Korea, but its smell and taste are very strong so that consumers' preferences of it are very different. Then according to consumers' knowledge and preference of garlic, it is assumed that their intention to consume garlic functional food will be different. So, the purpose of this study is to examine the effect of garlic functional food packaging choice or intake intention on consumers according to their knowledge and attitude. This study could provide strategic implications for the marketing of garlic health food.

2. Literature Research

2.1. Consumer's Prior Knowledge of Functional Food

All foods have nutritional value and are fundamental for survival. However, the term "functional food" has a different connotation of providing an additional physiological benefit beyond basic nutritional requirements [4]. Also, functional foods may are defined "as foods that have benefits beyond basic nutrition—such as blueberries, yogurt, and fortified milk, bread or cereal" [5].
According to the survey on the consumer awareness about these functional foods in Korea, it appears that women are more positive about health foods than men, and middle-aged people are more positive about health foods than younger ones. The results of the 2013 and 2014 survey show that 55% of women but only 40% of men answered positively to the following statements: "I am eager to take good functional foods for my health", "I am interested in health related knowledge", "I am interested in information on health functional food, food, medicine" [6].

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In addition, 13.5% of people responded negatively to survey items such as 'I don't expect much, I don't believe in the effects', 'I like it when I eat it but it seems that there is no prevention or treatment effect of disease' [7].
These cognitive surveys explain the overall attitudes of Korean consumers to functional foods. Most Koreans are interested in functional food, so their knowledge and information of any functional food could be high. So, Korean consumer's prior knowledge with a functional food and its ingredient may determine whether (s)he will buy and eat it, because consumer knowledge of a product can be relevant dependent upon purchase and consumption [8].
In particular, consumer attitudes represent what (s)he may like or dislike. If a consumer dislikes some food ingredients, then it's unlikely that (s)he intends to eat the functional food made from the ingredients. So, holding a favorable attitude toward or prior knowledge of a product is an essential prerequisite in order for the consumers to hold a positive consumption intention. It is presumed that the same is true for the food ingredient.

2.2 Images and Information in Package of Functional Food

There are five different types of consumer knowledge: (1)knowledge of the product's existence, (2)knowledge of the product's attributes and associations, (3)purchase knowledge, (4)consumption and usage knowledge, and (5)persuasion knowledge [9]. This consumer knowledge isn't different from consumer knowledge about the efficacy of the ingredients to be studied in this study.
In other words, consumer knowledge about the efficacy of the food is knowledge about the nature of the functional food product. And knowledge of the product's attributes and associativity can be regarded as attributes of functional foods. Therefore, this can be seen as knowledge of the raw materials of functional foods. In addition, knowledge of purchase will be related to the price of functional food or knowledge of brand, and knowledge of consumption and use can be said to be knowledge in use situation of a functional product. So this may be such that the color package or package-design types. In addition, persuasion knowledge can be linked to how functional packaging is explained by emphasizing functionality in functional foods. In general, the product's package consists of visual and textual information. The product's image is associated with its physical properties and attributes.
Above all, functional foods have an important attribute of emphasizing our health-related functions. It is expected that selection and purchase decisions relating to them will be different from other product groups. Therefore, whether or not it is the package that stimulates the functionality of the product (image vs. information display) will be an important determinant. Also, it can be concluded that the consumer's basic preference evaluation of basic raw materials of food constituting functions in functional foods may have some interactive effects with functional enhancement aspects of the product's package.
Functional foods generally have excellent efficacy, but because they are often processed into functional foods due to other properties (eg, strong smell of food, irritating taste, hate in appearance, difficulty in processing, etc.) have. Therefore, it is considered that package attributes can be an important decision factor in consumer knowledge. Especially, garlic, which is the subject of this study, is basically a foodstuff which is either liked or disliked by consumers. Therefore, depending on the knowledge and preference of the garlic that the consumer had in advance, the choice of the package attributes and the intention to ingest the garlic may change.

3. Research Hypothesis & Research Methods

3.1. Research Hypothesis

H1 : The difference of prior knowledge of the efficacy of garlics in the garlic functional food may influence the attitude toward package attributes.

H1-1 : The difference of preference of garlics in the garlic functional food may influence the attitude toward package attributes

H2 : The difference of prior knowledge of the efficacy of garlics in the garlic functional food may influence intention to ingest.

H2-1 : The difference of preference of garlics in the garlic functional food may influence the attitude toward package attributes.

3.2. Research Subjects and Research Methods

300 persons aged 30-50 in Seoul and the metropolitan area were recruited: 30s 100 persons, 40s 100 persons, and 50s 100 persons, in order to minimize the effect of gender and age difference. Demographic characteristics of the subjects are shown in Table 1. To test this hypothesis, two-way ANOVA was performed.

Table 1: Description of the respondents

Variables	Categories	Number	%
Gender	Female	150	50
	Male	150	50
Age	31-40	100	33.3
	41-50	100	33.3
	51-60	100	33.3

3.3. A Measurement Variable

3.3.1. Independent Variable

- **Measurement of difference of prior knowledge of garlic efficacy :** Survey group was divided into 3 group by the extent that they know the five functions of cardiovascular disease, anti-aging, fatigue improvement, nutritional supplement and diet effect on garlic efficacy ; people who know all 5 functions (high knowledge) / people who know 3 functions (intermediate knowledge) / people who know less than 1 function (low knowledge)
- **Measurement of preference in garlic foods** : The preference for the garlic itself and the preference for garlic side dish were questioned by the 5-point Likert scale and classified into three groups according to the responses

3.3.2. Dependent Variable

Table 2: Measurement dependent variables

Variables	Sub variables	Details
Package attributes	Importance of packaging	How aware of importance of packaging
	Package color type	Brightness / darkness
	Package color feeling	Warm color / cold color
	Package style	Transparent packaging(can see the food) Packing with zipper bag
	Package type	Information centered type Image centered type
Ingestion Intent	Intention to eat functional food made from garlic (It was measured by 5-point Likert scales.)	

4. Results and Discussion

One way-ANOVA was used for the analysis of this study. The results of the analysis are as follows.

4.1. Result of Hypotheis 1

The effect of prior knowledge of garlic in functional food on intention to intake and attitude toward package properties of garlic functional food is shown in table 3. The difference of prior knowledge of garlic efficacy influenced ingestion intent (F=5.511, p=0.020). Also, there was a difference in selecting warm colors of package due to differences in prior knowledge of garlic (F=9.384, p=0.002). That is, it is confirmed that the high-knowledge group prefers the warm color package in color feeling.

4.1. Result of Hypotheis 2

The effect of preference of garlic in functional food on intention to intake and attitude toward package properties of garlic functional food is shown in table 4. The preference for garlic was found to have a significant effect on package properties such as package color brightness, package color feeling, information type, image type, and zipper package and the perception of the importance of packaging. Also, the difference in preference of garlic had a significant effect on the intention of garlic functional food intake and the perception of the importance of packaging.

5. Disscussion & Implication

Garlic is known to be a very beneficial food for cardiovascular diseases despite its strong taste and aroma. The purpose of this study was to investigate the effect of prior knowledge and preference of garlic on the ingestion intention and selecting package attributes of garlic functional food. Surveys were conducted to verify the purpose of the study. 300 data were gathered using questionnaires. One-way ANOVA was performed for data analysis; the following conclusions were reached.

First, the prior knowledge of garlic may have a significant impact on the intention to ingest garlic functional food.

Second, the prior knowledge of garlic may have a favorable effect on warm color packaging in garlic health food packaging.

Third, the preference of garlic may have a significant impact on the intention to consume garlic functional food.

Forth, the preference of garlic may have a significant impact on the attitude toward package properties of garlic functional food, including the perception of importance of the package

These results have the following meaning. It can be confirmed that the prior knowledge of garlic efficacy is important for consumer's decision making but personal preference for garlic has a more significant influence on the consumption of garlic functional food. So this study casts significant implications for the marketing of functional food with strong flavors such as garlic.

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Table 3: The effect of prior knowledge

		Sum of Squares	df	Mean Square	F	*p*
importance of packaging	between within total	.421 143.829 144.250	1 289 299	.421 .483	.872	.351
Color type (brightness/dark)	between within total	1.813 168.384 170.197	1 298 299	1.813 .565	3.208	.074
Color feeling (warm/cold)	between within total	4.915 156.085 161.000	1 298 299	4.915 .524	9.384	.002**
Information type of packaging	between within total	1.992 169.888 171.880	1 298 299	1.992 .570	3.494	.063
Image type of packaging	between within total	1.100 175.646 176.747	1 298 299	1.100 .589	1.867	.173
transparent packaging	between within total	.000 216.120 216.120	1 298 299	.000 .725	.000	.990
packaging with zipper bag	between within total	.082 201.438 201.520	1 298 299	.082 .676	.122	.728
Ingestion intent	between	4.516	1	4.516	5.511	.020*

	within total	244.204 248.720	298 299	.819		

*** p<0.001, ** p<0.01 , * p<0.05

Table 4: The result of the effect of preference

		Sum of Squares	df	Mean Square	F	*p*
importance of packaging	between within total	7.913 136.337 144.250	4 295 299	1.978 .462	4.281	.002**
Color type (bright/dark)	between within total	16.988 152.209 170.197	4 295 299	4.247 .519	8.177	.000***
Color feeling (warm/cold)	between within total	9.734 151.266 161.000	4 295 299	2.433 .513	4.746	.001**
Information type of packaging	between within total	10.344 161.536 171.880	4 295 299	2.586 .548	4.722	.001***
image type of packag-ing	between within total	8.193 168.554 176.747	4 295 299	2.048 .571	3.585	.007**
transparent packaging	between within total	5.628 210.492 216.120	4 295 299	1.407 .714	1.972	.099
packaging with zipper bag	between within total	11.602 189.918 201.520	4 295 299	2.901 .644	4.505	.002**
Ingestion intent	between within total	76.408 172.312 248.720	4 295 299	19.102 .584	32.703	.000***

*** p<0.001, ** p<0.01 , * p<0.05