A Study on the Effects of Health Functional Food Consumption Recognition and Purchase Distribution Pattern of the Elderly

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Abstract

This study is aiming to suggest baseline date for the establishment of policy alternative to make healthy consumption life of the elderly through investigating and analyzing actual condition of consumption related with the awareness of health functional food such as purchase behavior and consumer's problems about health functional food. Under the assumption that the vitalization of health functional food market will become an important market in the present and in the future, the fundamental marketing information about elder consumers is more important than any other information that is essential for successful marketing to domestic corporations and senior policy experts. In addition, there was a fundamental significance to provide necessary basic data for health promotion of the elderly by offering information about rights and interests of elder consumers who are members of vulnerable social group or right choice of purchasing or intake. The limitations of this study are as follows. First, the subjects were selected who live in Gangwon-do with the age of 60 and over due to the limitation of sampling, and that might be shown local characteristics. Therefore, the study result could not be generalized on behalf of all elderly in Korea and it is difficult to apply the result to more segmented market. To solve this problem, studies containing sampling by regional groups might be needed.

Keywords: Health Functional Food, Purchase Distribution Pattern, Food Consumption Recognition.

1. Introduction

1.1. Background

The average life expectancy had increased from the age of 52.4(male:51.1, female:53.7) in 1960 to the age of 78.8(male:75.5, female:82.2) in 2010 due to improvement of living standard and development of medical science, and it is expected that the average life expectancy would be extended as the age of 80.7(male: 77.5, female:84.1) in 2020(Tsakiridou, Boutsouki, Zotos, & Mattas, 2008).
 The aging population as ratio of the elderly with the age of over 65 took 7.2% of total population in 2000 so that Korea entered the Aging Society already(NSO, 2006). In 2017, the ratio of the elderly is 14% which means that Korea entered Aged Society. The population of elderly in late years with the age of over 75 has increased, that means the population meets the Aged Society qualitatively and quantitatively. Many elderly people used to feel mentally that they have reached their journey's end when they felt physically "old" due to the increase in the average life expectancy. However, the will and activity against the age by recognizing the process of aging become a driving force of life and the active social participation has been increased in the modern longevity society(Alba & Hutchinson, 1987).
The elderly use to use foods for maintaining health or prevention and treatment of disease for a long time in this circumstances. In addition, they are interested in the knowledge about health and food, alternative medicine, and self-treatment, and want to hear knowledge of food and natural substances(Ajzen & Madden, 1986).

The health concept is changing from the treatment concept to prevention, and health functional food has held the limelight by booming well-being, that was the opportunity to grow the health functional food market. When baby boom generation become the elderly, this generation with higher level of education owns property for their old age and their strong will of independence might be extended their consumption for themselves unlike existing aged generation(Tsai, Knutson & Fung, 2006). Therefore, Korean health functional food is showing remarkable growth. The false and exaggerative advertisement of health functional food had hindered the promotion and development of health industry in the meantime. However, Functional Foods for Health Act has enacted in 2002 and supports has begun at the national level. Therefore, the right understanding of health functional food has been blossomed with opportunity to smooth production and distribution of health functional food. It is expected that health functional food would become a very important industrial field as a high-value-added core industry by combing with biotechnology which would radically develop in the future(Williams & Hammit, 2001). The interest in health is sharply increasing at home and aborad and the intake of health functional food is increasing due to seeking health by food instead of medical supplies. As the consumer's demand toward health functional food is increasing, the market system of health functional food has become diversification, multifunctionalised, and advancement. However, the elderly's lack of information about the product and unsatisfactory purchase know-how are still problems(Bamberg, Ajzen & Schmidt, 2003).

To intake health functional food, it is necessary to know about the effect and functionality of health functional food and understand about morphological constitution and symptomatological constitution of taker. When some symptom occurs, expertise is needed to select health functional food. However, people have only superficial knowledge. Some distributors use this for evil purposes and consumer damage is increasing due to deceptive vice business skill using filial tour, offering gifts, public institution impersonation, lecture, and prize winning targeting the vulnerable elderly physically and mentally(Korea Consumer Agency,1999). It is needed to prevent the elder consumers damage targeting the elder consumers considered as a marketing subject which is increasing daily, and secure healthy and reasonable later life through developing sensible consumer consciousness and securing consumer's sovereignty for the elder consumer group(Brennan & Lomasky, 2002).

This study is aiming to suggest baseline date for the establishment of policy alternative to make healthy consumption life of the elderly through investigating and analyzing actual condition of consumption related with the awareness of health functional food such as purchase behavior and consumer's problems about health functional food.

1.2. Study purpose

This study is aiming to understand purchase behavior and the real condition of consumer's problem in accordance with usage awareness about the elderly's health functional food. The detailed purposes are as follows.
1) Understanding of factors which show distinctions of use pattern of health functional food
2) Understanding of lifestyle factors affecting health functional food interest.

2. Theoretical Background

2.1. The change of supporting awareness and family structure

Recently, the trend that the elderly want to live separately is emerging in Korea remarkably. According to the survey conducted to middle-aged class with the age of 45 and over and the elderly with the age of 65 and over, 73% of subjects answered that they do not live with their children in the future. In addition, 61.3% of middle-aged class with the age of 45~64 said that they are preparing for the retirement such as buying a house or making housing expenses. Moreover, the birth rate has been decreasing since 1970 and the annual average was 1.26 in 2000-2005(Collier & Bienstock, 2006). It could be one of factors that the increasement of aging population who wants to live separately with their children and the weak of supporting function for elderly by family is also the reason. In addition, the elderly want to achieve financial independence from their children due to increasing to the elderly with high education level and economic power, and it is expected that the level of help expectation by the elderly would be dwindled in the aspect of health protection in the future(Chen, 2007).

2.2. Increase to the elderly requiring protection due to the aging

In case of the elderly, a perspective on health would be expanded to physical, social, and psychological function, life quality, and social support and network beyond the physiological and biological level. As the aging is proceeding, the aging population could have more chance to live with disability and diseases and it is natural that they focus on the health. It is well known that the higher the age, the higher chance they are diseased, and the higher morbidity rate due to ill-health. Therefore, many workers to protect the elderly's safety or care for them are needed more. In Korea, chronic degenerative diseases are main elder diseases and the incidence of dementia diseases is sharply increasing due to the aging(Conner & Abraham, 2001).

The prevalence of chronic diseases by the aging population with the age of 65 and over was higher than total population. The prevalence of chronic diseases of total population was 560 cases per 1,000 people in 1998 and it occurs 880 cases by the age of 65 and over. In addition, 120,000 people which is 3.5% of total elderly with the age of 65 and over in 1998 showed that they could not perform basic action for daily life by themselves. Above this, when the elderly with chronic diseases are increasing, a hospitalization period is also extending which is a social hospitalization phenomenon leading to increase hospitalization costs and medical expenses. Therefore, the relative share of elder health care cost is increasing. From 1985 to 2001, total medical expenses has increased 30.6 times whereas the medical expenses of aging population has increased 115.1 times. It showed that the medical expenses of aging population are increasing faster than the medical expenses of total population(Federico, 2005).

2.3. Economic power improvement and expenditure increase of the elderly

In 2004, the elderly population(age of 64 and over) owned 25.6% of total financial assets and their average financial assets per person was 38,940,000 won (total average was 13,220,000 won), it was considered that their purchasing power was higher than other age group. Moreover, in case of the baby boom generation(born between 1955 and 1963) who are expecting their retirement in 10 years, they might be lead the consumer market due to their active consumption. In case of Japan which had a baby boom(before and after 1948) around the same time, the elderly born during the baby boom showed active consumption for themselves comparing with previous elderly group(Conner & Armitage, 1998). In addition, the consumption items had changed and the consumption market had grown focusing on suitable consumption items for the elderly's need such as health and medical treatment. It is expected that the health and medical treatment demand such as treatment of various diseases and health maintenance carried physical and mental aging would increase greatly. According to the result to estimate consumption expenditure in accordance with future population structure change based on the consumption expenditure in 2004, demand increase of health and medical service was remarkable and the US where the elderly society has arrived ahead of us showed that the consumption expenditure about health and medical service for the elderly is three times more than average expenditure of every age group(Courneya & McAuley, 1993).

2.4. Awareness of health functional food

Awareness of functional foods is defined that the process and the result to reflect objectivity to human consciousness academically. It means the whole of human knowledge in a broad sense and the knowledge about certain range of target in a narrow sense.This study is aiming to investigate the awareness about the conceptional aspect of health functional food targeting takers and non-takers of health functional food(Dishaw & Strong, 1999).

3. Research design

3.1. Study subject and period

This study is aiming to understand the intake pattern of health functional food by the health food awareness of the elderly who live in Gangwon-do Province. The study subjects were 871 elder people living in Gangwon-do who are possible to communicate, understand the study purpose, and agree to participate in the study. The data had been collected from April in 2017 to August in 2017.

3.2. Data analysis

The statistical analysis had been conducted to analyze relations among general characteristics, awareness of health functional food, and purchasing pattern of health functional food of study subjects from the collected data for the an

alysis purpose. SAS/PC 6.12 Statistics program has been used for data analysis.

   1) T-test and Analysis of Variance(ANOVA) had been conducted to understand health functional food related diff erence of the elderly in accordance with general characteristics.

   2)The frequency and x²-test had been conducted to understand factors to have differences in the behavior of healt h functional food usage.

   3)The multiple regression analysis had been conducted to understand factors of health functional awareness which affect purchase of health functional food. The statistical significance was 0.05 level.

3.3. Scales of health functional food awareness

   The subjects' awareness of health functional food is as follows. According to the answers, 'mostly yes.' was the an swer about questions of 'for diseases prevention, for health maintenance and physical constitution, and intake for hea lth in advance'. Whereas, 'does not' was the most answer about questions of 'free from side effects mostly, unnecessa ry of additional health promotion behavior if taking it'. The positive aspects of health functional food are health mai ntenance, physical constitution, and diseases prevention. However, the subjects showed the negative awareness and attitude toward trust of health functional food. This study defines the awareness of health functional food categorizin g three scales such as health maintenance/physical constitution, diseases prevention, and harmful influence(Diener, Smith & Fujita, 1995)

4. Methodologies and empirical analysis

4.1. Demographical characteristics

   The general characteristics of study subjects were as follows. The gender ratio was 54.5% of female and 45.5% of male, and the age distribution was 30.08% of the age of 65~69, 24.45% of the age of 70~71, 22.09% of the age of 75 and over, and 23.08% of the age of 60~64 who are pre-elder consumers. The education levels were 11.37% of ineducation, 31.23% of elementary school graduate, 22.96% of middle school graduate, 27.55% of high school graduate, and 6.9% of university graduate or higher. The previous job of subjects was 11.83% of inoccupation, 28.93% of housewife, 17.68% of self-employed, and 26.75% of salaried employee.

The answer related with monthly income, less than 1 million won was 62.00% which was the most answer, and 25.49% chose 1~1.99 million won. The living condition showed that 23.65% of alone, 47.30% of living with spouse, and 17.91% of living with children. The monthly allowance was 31.11% of less than 100,000 won, 15.73% of 100,000~190,000 won, 16.53% of 200,000~290,000 won, and 13.20% of more than 500,000 won.

4.2. Analysis of differences about health maintenance/physical constitution among the awareness of health functional food

The importance of health maintenance/physical constitution among the elderly's awareness of health functional food was 3.26 points generally, that means the consciousness about the importance of health maintenance/physical constitution was above the average<Table 1>. According to the analysis of differences about the importance of health maintenance/physical constitution, gender, age, education level, previous job, living condition, and monthly allowance showed significant difference except the monthly income(p<0.05). The difference by gender showed 3.28 points with male and 3.43 points with female, that showed female has been aware of health maintenance/physical constitution more than male. The difference by age was 3.05 points with the age of 60-64, 3.22 points with the age of 65-69, and 3.45 points with the age of 75 and over, that showed the higher the age, the more important the health maintenance/physical constitution was. The differences by education level showed that ineducation was 3.41 points which was the highest and university graduate or higher was 3.00 points which was the lowest, that means the higher the education level, the lower the importance of health maintenance/physical constitution was. The differences by previous job was that the housewife showed the highest media utilization taken 3.68 points and the elderly who live with other person showed the highest media utilization taken 3.68 points in living condition. The differences by monthly allowance was 3.40 points with less than 100,000 won whereas more than 500,000 won received 3.18 points. That showed the smaller the monthly allowance was, the higher the media utilization was. The results showed that the elderly with lower education level and female who is a housewife with small allowance had recognized the importance of health maintenance/physical constitution more.

<Table 1> Differences of health maintenance/physical constitution in the awareness of health functional food

	Sort	Headcount	M+-	SD	T or F	sig
Gender	Male	396	3.28	.96	-3.90	.0001
	Female	475	3.43	.79		
Age	60-64	201	3.05	.78	7.63	.0001
	65-69	262	3.22	72		
	70-74	213	3.32	.81		
	over 75	195	3.45	.94		
Education Level	ineducation	99	3.41	.84	6.07	.0001
	elementary school graduate	272	3.40	.77		
	middle school graduate	200	3.23	.81		
	high school graduate	240	3.13	.84		
	university graduate or higher	60	3.00	.80		
Previous Job	inoccupation	103	3.28	.83	4.077	.0028
	housewife	252	3.28	.74		
	self-employed	154	3.42	.77		
	salaried employee	233	3.12	.87		
	other	129	3.18	.85		
Monthly Gross Income	less than 1 million won	540	3.30	.78	1.95	.1206
	1~1.99 million won	222	3.25	.87		
	2~2.99 million won	69	3.08	.81		
	more than 3 million won	40	3.13	.90		
Living Condition	Alone	206	3.33	.79	5.52	.0002
	Spouse	412	3.29	.82		
	The oldest son	59	3.20	.76		
	With children	156	3.25	.83		
	Relative/ Other people	38	3.68	.75		
Monthly Allowance	less than 100,000 won	271	3.40	.80	2.58	.0249
	100,000~190,000 won	137	3.21	.78		
	200,000~290,000 won	144	3.25	.79		
	300,000~390,000 won	127	3.13	.79		
	400,000~490,000 won	77	3.22	.91		
	more than 500,000 won	115	3.18	.85		
Total		871	3.26	.81		

4.3. Analysis of differences about diseases prevention among the awareness of health functional food

The importance of diseases prevention among the awareness of health functional food was 3.50 points generally, that means the consciousness of diseases prevention was above the average<Table 2>. According to the analysis of difference of the importance of diseases prevention in accordance with general characteristics, the difference showed in the age, education level, living condition, and monthly allowance(p<0.05). The difference by age was 3.58 points

with the age of 60~64 and 65~69 respectively, which was the highest, and 3.41 points with the age of 75 and over. That means the lower the age is, the higher the awareness of diseases prevention's importance was. The difference by education level was 3.27 points with ineducation as the lowest and 3.70 with high school graduate as the highest. The difference by living condition was that the elderly living alone(3.46 points) and living with the oldest son(3.39 points) showed lower diseases prevention relatively whereas the tendency of diseases prevention by the elderly who live with relative or other people was 4.05 point which was higher level. The monthly allowance results showed that less than 100000 won was 3.39 points and more than 500000 won was 3.59 points. The more monthly allowance the elderly spent, the higher the importance of diseases prevention was. The elderly's tendency of diseases prevention was above the average and gender did not show any difference about the diseases prevention. the lower the age was, the higher the importance awareness of diseases prevention was. That means the awareness level of the elderly's diseases prevention did not have the differences by gender. If the elderly live with other people or spend more allowance, diseases could have chance to be prevented. In addition, the elderly's consumption tendency would be predicted enough depending on the change of the elderly's lifestyle in Korea in the future.

<Table 2> Differences about diseases prevention in the awareness of health functional food

	Sort	Headcount	M+-	SD	T or F	sig
Gender	Male	396	3.49	.65	-.74	.4600
	Female	475	3.52	.66		
Age	60-64	201	3.58	.59	4.15	.0002
	65-69	262	3.58	.57		
	70-74	213	3.44	.69		
	over 75	195	3.41	.69		
Education Level	ineducation	99	3.27	.69	10.18	.0001
	elementary school graduate	272	3.42	.64		
	middle school graduate	200	3.51	.64		
	high school graduate	240	3.70	.67		
	university graduate or higher	60	3.54	.57		
Previous Job	inoccupation	103	3.48	.81	1.43	.2220
	housewife	252	3.46	68		
	self-employed	154	.49	.60.		
	salaried employee	233	.54	.62		
	other	129	.61	.62		
Monthly Gross Income	less than 1 million won	540	3.50	.68	.36	.7793
	1~1.99 million won	222	3.53	.67		
	2~2.99 million won	69	3.47	.58		
	more than 3 million won	40	3.60	.50		
Living Condition	Alone	206	3.46	.67	7.55	.0001
	Spouse	412	3.51	.62		
	The oldest son	59	3.39	.65		
	With children	156	3.49	.69		
	Relative/ Other people	38	4.05	.72		
Monthly Allowance	less than 100,000 won	271	3.39	.69	3.16	.0078
	100,000~190,000 won	137	3.48	.59		
	200,000~290,000 won	144	3.55	.66		

	Headcount		
300,000~390,000 won	127	3.59	.68
400,000~490,000 won	77	3.64	.72
more than 500,000 won	115	3.59	.58
Total	871	3.50	.66

4.4. Analysis of differences about harmful influence among the health functional food

The harmful influence in the elderly's awareness of health functional food was 2.15 points generally that was lower result relatively<Table 3>. According to the analysis of differences of harmful influence by general characteristics, every item such as age, gender, education level, previous job, monthly gross income, living condition, and monthly allowance showed difference($p<0.05$). The difference by gender was 2.22 points with male and 2.15 points with female, that the female point was lower than the male point. The difference by age was 2.25 point with the age of 60~64, the highest, 2.03 point with the age of 75 and over, the lowest. That showed the lower the age was, the lower the conspicuous tendency was. The difference by education level was 1.73 points with ineducation, 2.39 points with high school graduate, and 2.33 points with university graduate or higher, that showed the group with higher level of education showed the higher harmful influence. The difference by monthly income was 2.09 points with less than 1 million won and 2.52 points with over 3 million won. The higher the monthly income was, the higher the importance of health maintenance/physical constitution was. The difference by living condition showed that the elderly's importance of health maintenance/physical constitution living with the oldest son(1.90 points) or daughter(2.01 points) was lower relatively and the elderly's importance of health maintenance/physical constitution living with relative or other people was 2.20 points which was the highest. According to the monthly allowance, the group with less than 490,000won was 2.05~2.19 points whereas more than 500,000 won was 2.48 points. The result showed that the importance of health maintenance/physical constitution by the elderly showed a decided difference. The importance of health maintenance/physical constitution was none too high for the elderly's consumption life who live in Gangwon-do. The level of education and income is increasing as well as living alone or with other people tends to be increasing as the elderly's living condition. This study showed the higher importance of health maintenance/physical constitution of the elderly's who have a lower age, higher education level and income, and live with other people. Therefore, it is expected that the importance of health maintenance/physical constitution of the elderly in Korea would become higher.

<Table 3> Differences about harmful influences in the health functional food

Sort		Headcount	M+-	SD	T or F	sig
Gender	Male	396	2.22	.71	2.85	.0045
	Female	475	2.15	.64		
Age	60-64	201	2.25	.60	3.56	.0140
	65-69	262	2.14	.67		
	70-74	213	2.17	.70		
	over 75	195	2.03	.74		
Education Level	ineducation	99	1.73	.59	21.02	.0001
	elementary school graduate	272	2.05	.63		
	middle school graduate	200	2.15	.68		
	high school graduate	240	2.39	.67		
	university graduate or higher	60	2.33	.65		
Previous Job	inoccupation	103	2.09	.68	3.62	.0002
	housewife	252	2.05	.67		
	self-employed	154	2.21	.72		
	salaried employee	233	2.26	.68		
	other	129	2.10	.63		

Monthly Gross Income	less than 1 million won	540	2.09	.64	7.10	.0001
	1~1.99 million won	222	2.16	.71		
	2~2.99 million won	69	2.34	.82		
	more than 3 million won	40	2.52	.68		
Living Condition	Alone	206	2.07	.69	7.85	.0001
	Spouse	412	2.27	.68		
	The oldest son	59	1.90	.68		
	With children	156	2.01	.65		
	Relative/ Other people	38	2.20	.53		
Monthly Allowance	less than 100,000 won	271	2.12	.64	6.95	.0001
	100,000~190,000 won	137	2.05	.64		
	200,000~290,000 won	144	2.10	.67		
	300,000~390,000 won	127	2.07	.70		
	400,000~490,000 won	77	2.19	.67		
	more than 500,000 won	115	2.48	.74		
Total		871	2.15	.68		

4.5. Purchasing intention and the awareness of health functional food

The results of regression analysis using purchasing intention of health functional food as a dependent variable were as follows. The purchasing intention of health functional food could be explained around 4.68% by the independent variables. The F-value was 3.83 generally, that showed statistical significance(p<.0001). The factors affecting significant impact on purchasing intention of health functional food were health maintenance/physical constitution, diseases prevention, and harmful influence concretely(p<.05). That means, the regression coefficient of health maintenance/physical constitution was 0.22137. The larger the elderly's tendency to achieve health maintenance/physical constitution, the higher the purchasing intention of health functional food was. The regression coefficient of diseases prevention was 0.12488, that means the higher the elder consumers' preference of diseases prevent, the higher the purchasing intention of health functional food was. The regression coefficient of harmful factor was -0.26242 which showed the high purchasing intention of health functional food among health functional food. That means, the elder consumers who need more health maintenance/physical constitution showed the highest purchasing intention of health functional food.

<Table 4> Awareness of health functional food influencing purchasing intention of health functional food

	B	SE B	T
Health maintenance / Improvement of constitution	.22137	.0796	.000
Disease prevention	.12448	.0725	.000
Adverse effect	-.26242	.0838	.000
Constant		1.9856	
R²		.0468	
F		3.83	
sigF		<.0001	

5. Conclusions and Limitations

5.1. Conclusions

This study is aiming to suggest base line data which need to establish policy alternatives for health consumption life of elder consumers by investigating and analyzing consumption condition about purchasing behavior of the elderly and customer problems in connection with the awareness of health functional food. The study subjects were the elderly who live in Gangwon-do and the data was collected from April in 2017 to August in 2017. The researcher and trained volunteers collected the data through the direct interview. The interviewer read the questions in person and understood the subjects. The answers had been recorded by the interviewer and 521 questionnaires(collect rate: 94.7%) out of 550 collected questionnaires had been analyzed. The collected questionnaires with non-response and error had been excluded. The collected data had been analyzed by the relations among study subjects' general characteristics, awareness of health functional food, and purchasing pattern of health functional food. The results were as follows. Under the assumption that the vitalization of health functional food market will become an important market in the present and in the future, the fundamental marketing information about elder consumers is more important than any other information that is essential for successful marketing to domestic corporations and senior policy experts. In addition, there was a fundamental significance to provide necessary basic data for health promotion of the elderly by offering information about rights and interests of elder consumers who are members of vulnerable social group or right choice of purchasing or intake. The elder consumers should be analyzed carefully to conduct effective marketing or policies. The development and analysis of suitable awareness of health functional food items for the elderly to understand better the awareness of health function of elder consumers are needed in the future studies. Based on the discussions above and the results of this study, the implication suggested for marketing or policies are as follows.

First, the elderly's awareness of health functional food showed above in order of the average health maintenance/physical constitution, diseases prevention, and harmful influence. The important factors to influence the elder consumers' awareness of health functional food were the education level and the economic level(monthly income, monthly allowance). Considering rapid change of the elderly's education level and economic power, the marketing strategy would be approached to more segmented market differently in the future.

Second, the interest in elder consumers' health functional food and diseases treatment were used by the female and subjects with low education level. When dissatisfaction occurs, it showed insufficient reactions. In addition, most elder consumers were interested in health functional food and considered the product effect as a main standard of product selection. They showed higher purchasing tendency by suggestion from people around instead of own decision, and family members were involved in the purchasing mainly. Therefore, differentiated reactions for marketing management toward elder consumers would be needed in the future. Based on the study results, right consumer education is needed by using Consumer Protection Board or experts through the aged colleges or the elderly related cultural classes to make them to have right information about health functional food and protect rights and interest of the elderly who are in vulnerable social group. Moreover, in case of corporations, differentiated marketing strategies by the awareness of health functional food based on the mental characteristics of elder consumers would be needed(Eastman & Iyer, 2005).

5.2. Limitations

The limitations of this study are as follows. First, the subjects were selected who live in Gangwon-do with the age of 60 and over due to the limitation of sampling, and that might be shown local characteristics. Therefore, the study result could not be generalized on behalf of all elderly in Korea and it is difficult to apply the result to more segmented market. To solve this problem, studies containing sampling by regional groups might be needed(Grzeskowiak, Sirgy, Lee & Claiborne, 2006).

Second, the awareness of health functional food is a broad concept including thought, value, behavior, and opinion of consumers. Therefore, the measurement of segmented concept should be needed. It occurs problems to select patterns by using limited variables for analysis of various awareness of health functional food due to lack of analysis study of elder consumers' awareness of health functional food. There was a limitation to analyze various patterns of health functional food awareness. Therefore, it is necessary that more thoughtful study might be conducted to solve the limitation(Lee & Sirgy, 2003).

Third, more detailed study of satisfaction level by intake periods or product information when selecting variable about purchasing pattern for health functional food should be needed and concrete strategies such as group analysis in accordance with the elder consumers' awareness of health functional food and the consequential price, effectiveness, and purchasing intention are necessary.

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