

RESEARCH ARTICLE

Awareness of Cancer and Cancer Screening by Korean Community Residents

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Abstract

The purpose of this study was through a survey of awareness of cancer and cancer screening of Korean community residents to identify the stereotypes of cancer and bases for development of improved screening programs for early detection. Subjects were residing in South Korea Gangwon-Province and were over 30 years and under 69 years old. The total was 2,700 persons which underwent structured telephone survey questionnaires considered with specific rates of gender, region, and age. For statistical analysis, PASW Statistics 17.0 WIN was utilized. Frequency analysis, the Chi-square (χ^2) test for univariate analysis, and logistic regression analysis were performed. The awareness of cancer and cancer screening in subjects differed by gender, region and age. For the idea of cancer, women thought about death less than men (OR: 0.73, $p < 0.001$). On the other hand, women had negative thoughts - fear/terror/suffering/pain/pain - more than their male counterparts (OR: 2.04, $p < 0.001$). Next, for the idea of cancer screening, women recognized fear/terror more than men (OR: 1.38, $p < 0.01$). The higher age, the more tension/anxiety/worry/burden/irritated/pressure (OR: 1.43, $p < 0.01$, OR: 2.15, $p < 0.001$, OR: 2.49, $p < 0.001$). People may be reminded of fear and death for cancer and of fear, terror, tension and anxiety for cancer screening. To change vague fear and negative attitudes of cancer could increase the rate of cancer screening as well as help to improve the quality of life for community cancer survivors and facilitate return to normal social life. Therefore, it is necessary to provide promotion and education to improve the awareness of cancer and cancer screening.

Keywords: Awareness - cancer - cancer prevention - community - Korea

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Introduction

In Korea, the first cause of death is cancer. The mortality of cancer was 146.5 people per 100,000 in 2012 and it was composed of 27.6% among all deaths (Statistics Korea, 2013). In addition, there were 160,000 new cancer patients yearly (Ministry of Health and Welfare, 2011) and the rates of cancer were reported 37.6% for men and 33.3% for women when people survived until average life span (National Cancer Information Center, 2012). Thus, the incidence rate of cancer has been getting increased every year. On the other hand, the survival rate is increased and the number of cancer survivors rises. As a result, the strategies developments to support the rehabilitation and to improve the quality of life of cancer survivors have been interested.

The World Health Organization (WHO) reported that 1/3 of cancer could be prevented, 1/3 of cancer could be cured for early diagnosis and 1/3 of cancer could be alleviated for an appropriate treatment (WHO, 2003). For gastric cancer, 90% above could be cured on the early detection. For colon cancer or cervical cancer

could be prevented by the finding of precancerous lesions with cancer screening. And for breast cancer, it could be cured with maintaining breast shape on the early detection (National Cancer Information Center, 2012). Additionally, the cancer screening, which would reduce dramatically the suffering of individuals and families and the national burden due to cancer, is an important way to reduce mortality of cancer (Kim et al., 2010). Therefore, it is important to recognize that the disease can be cured if detected early rather than having negative and fearful recognition of cancer. Recently, the number of cancer survivors has been increased by the treatment with the early detection and medical advances. However, the fear and terror of cancer on publics influenced cancer patients and survivors negatively. The recognition, which was that cancer is to be treated hard and related to death, made difficult for survivors to return to the social life and to weaken social supports.

The public's anxiety about cancer is linked to the fear of results for cancer screening, and it plays a role as barriers of cancer screening. Therefore, there are required some studies, which are that the perceptions of

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cancer and cancer screening for community residents are investigated, the level of awareness is identified and based on these data, how to change the perception positively.

For researches related to cancer and cancer patients, there have been studied continuously- to compare the differences of attitudes for people without cancer history between gender, region and age (Cho et al., 2013), to compare the quality of life in the Middle Ages for the gender differences in cancer (Han et al., 2012), and to include family questionnaires on the survey of perception of cancer-related items (Petee et al., 1991; Yun et al., 1992; Noh, 1993; Jeon et al., 1996; Han, 2006; Cho et al., 2013). Several studies assessed the awareness of breast cancer among females of Saudi Arabia (Radi, 2013), oral cancer among selected group of Malaysians (Ghani, 2013), and cervical cancer of female first year university students of South Africa (Hoque, 2010). However, these studies had some limitations that the investigators carried out the survey of multiple-choices with several categories for the level of attitudes and perceptions. So, the participants did not find the first emerging ideas of cancer and cancer screening but select the most similar type among multiple-choice questions. On this method, it was difficult for subjects to identify variable ideas of cancer and cancer screening. Therefore, this study investigated the differences of recognition for cancer and cancer screening between region, gender and age groups based on the previous researches (Choe et al., 2003; Cho et al., 2013; Chun and Park, 2013; Ghani et al., 2013).

The purpose of this study are to investigate the recognition of cancer and cancer screening in community residents, to identify the stereotypes of cancer, and to provide the basis for the development of screening programs for the early detection of cancer.

Materials and Methods

Subjects

The subjects were 2,700 persons extracted by considering the ratio of sex, age groups, and regions among the resident in living in Gangwon Province, all 18 cities and counties, 30 years old above 69 years below in 2011. Gangwon Cancer Center developed questionnaires in December 2011 and surveyed from January 2nd to January 17th 2012. It was conducted for the perception related cancer by the professional telephone survey firm.

Research tool

The survey tool was developed by the researchers based on the results and questionnaires of the existing health behavior literature. The survey questionnaires were composed of 7 demographic characteristics items and 2 items related to cancer and cancer screenings.

Items to verify of demographic characteristics were region, gender, age, marital status, education level, occupation, and the average annual household income. Questions related to Cancer and cancer did not have multi-choices and open questions such as 'what do you remind of cancer' and 'what do think of cancer screening' were presented to make subjects to talk their thoughts freely.

Analysis methods

On the Demographic characteristic variables, age was categorized 4 groups as '30s', '40s', '50s' and '60s and above'. Marital status was divided into 'married' and 'no spouse (single, bereavement, separation, divorce)'. Educational level was categorized into 3 groups- 'middle school or less', 'high school', and 'college or over' and occupation was divided into three categories considering the sample size and categorizing the homogeneous groups- 'employee', 'self-employed', 'primary industry', 'Housewives' and 'unemployed'. For average annual household income, 4 groups were categorized as '3 in the '30,000 thousand won less', '30,000 thousand won ~44,990 thousand won', '45,000 thousand won ~59,990 thousand won', and '60,000 thousand won and over' and it was analyzed excluding missing value 3.4% among the response results.

For the open question- 'What do you come to mind for cancer?' the free responses from subjects were taken and categorized with homogeneous contents. The subjects derived through categorization were 'death', 'Danger/horrid', 'disease/treatment difficulties', 'fear/terror/suffering/agonypain', 'economic impact', 'family's worry', and 'The importance of early detection/possible to overcome disease/positive thinking'. Also, for the open question- 'What do you come to mind for cancer screening?' the free responses from subjects were taken and categorized with homogeneous contents. The derived subjects were analyzed into 'fear/terror', 'trouble/hassle/complexity/discomfort/rejection', 'economic aspect/treatment methods', 'tension/anxiety/worry/burden/irritated/pressure', and 'necessary for early detection and prevention'.

To analyze the distribution of the differences between gender, region and age for 'What was come to mind for cancer and cancer screening', univariate analysis, Chi-square (χ^2) test was used. Then, to find the affects for 'what was come to mind for cancer and cancer screening', a logistic regression analysis was applied.

Results

Demographic characteristics of the subjects

Among 2,700 subjects, there were complex city 51.6%, city 20.4% and county area 28.0% and men and 50% of all women the same. For age, there were 30s 26.3%, 40s 30.7%, 50s 25.3%, and 60s and over 17.7%. For marital status, the proportion of spouses were women 90.6% and men 83.0%, and women was higher than men ($p < 0.001$). For educational level, 'middle school and less' for men 17.6% was lower than women 28.9%. 'college and over' for men 50.4% was higher than women 32.9% ($p < 0.001$). For occupation, 'employee' for men 44.5% was higher than women 28.2%. 'self-employed' for men 19.5% was higher than women 6.7%. 'primary-industry' form men 13.0% was higher than women 4.8% ($p < 0.001$). For annual average family income, there were '30,000 thousand Won below' 35.6%, '30,000 thousand ~44,990 thousand Won' 35.2%, '45,00 thousand ~59,990 thousand Won' 13.8% and '60,000 thousand Won and over' 12.0% and there was no gender differences.

The awareness of community residents

1) 'What was come to mind for cancer': for 'what was come to mind for cancer' with gender, death was got by men 35.1% higher than women 30.9%. Danger/horrid disease/treatment difficulties was got by men 25.1% higher than women 18.3% respectively. In addition, fear/terror/suffering/agonypain were got by men 23.3% lower than women, 38.7% (p<0.001).

For 'what was come to mind for cancer' with region, death was got on complex city 36.1% higher than city 28.7%. Danger/horrid disease/treatment difficulties was got on complex city 19.2% lower than city 28.4% respectively. Also, fear/terror/suffering/agonypain were got on complex city 29.8% lower than county areas 33.8% (p<0.001).

For 'what was come to mind for cancer' with age, death was got by 40s 32.1% lower than 50s 34.7%. Danger/terror/suffering/agonypain were got 40s 27.6% lower than 60s 36.5% respectively. In addition, economic aspect was got by 50s 13.7% higher than 60s 9.6% (p<0.01) (Table 1).

2) 'What was come to mind for cancer screening': for 'what was come to mind for cancer screening' with gender, fear/terror were got by men 23.8% lower than women 29.3%. Economic aspect/treatment methods were taken by men 13.2% higher than women 9.8% respectively. Needs for early detection and prevention were got by men 29.3% higher than women 24.5% (p<0.01).

For 'what was come to mind for cancer screening' with region, fear/terror were got by complex city 25.4% lower than city 29.2%. Economic aspect/treatment methods were taken by complex city 17.2% higher than county areas 4.4% respectively. Needs for early detection and prevention were got by complex city and city 23.0% lower

than county areas 36.2% (p<0.001).

For 'what was come to mind for cancer screening' with age, economic aspect/treatment methods were got by 30s 12.6% higher than 60s and over 10.2%. 'Tension/anxiety/worry/burden/irritation/pressure' were got 30s under 17.2% lower than 60s and over 33.6% respectively. Needs for early detection and prevention were got by 30s under 36.6% higher than 60s and over 20.1% (p<0.001) (Table 1).

3) The factors related to the awareness of cancer by general characteristics: to examine the factors related to the awareness of cancer, logistic regression analysis was applied. Then, there were statistically significant that women were lower than men for death (OR: 0.73, p<0.001) and danger/horrid disease/treatment difficulties (OR: 0.64, p<0.001) and women were higher than men for fear/terror/suffering/agonypain (OR: 2.04, p<0.001) and economic aspects (OR: 1.42, p<0.05).

For region, there were statistically significant that city residents were lower than complex city residents for death (OR: 0.70, p<0.01) and the importance of early detection/positive thinking (OR: 0.64, p<0.05) and city residents were higher than complex city for danger/horrid disease/treatment difficulties (OR: 1.56, p<0.01). In addition, there were statistically significant that county residents were lower than complex city residents for death (OR: 0.80, p<0.05) and the importance of early detection/positive thinking (OR: 0.68, p<0.05) and county residents were higher than complex city for fear/terror/suffering/agonypain (OR: 1.40, p<0.01).

For age, there were statistically significant that 50s were higher than 30s for fear/terror/suffering/agonypain (OR: 1.29, p<0.05) and 50s were lower than 30s for

Table 1. The Awareness of Cancer and Cancer Screening by Gender, Region and Age

Categories		A	B	C	D	E	F	G	χ^2/p value
The awareness of cancer									
Gender	Male (n=1,211)	35.1	25.1	23.3	10.5	4.3	11.8	19.3	75.768/0.000***
	Female (n=1,231)	30.9	18.3	38.7	14.5	6.3	12	23.7	
Region	Complex city (n=1,264)	36.1	19.2	29.8	14.6	7.3	14.5	23.1	36.07/0.000***
	City (n=481)	28.7	28.4	30	11.3	3.1	9.1	18	
	County (n=697)	30.4	21.4	33.8	9.5	3.4	9.1	21.2	
Age(years)	<40 (n=649)	33	22.9	28.4	13.4	3.5	11.3	19	37.341/0.005**
	40-49 (n=766)	32.1	21.4	27.6	12.5	5.6	12.6	21.5	
	50-59 (n=608)	34.7	22	34.5	13.7	6.4	12.6	21.4	
	≥60 (n=418)	32.2	19.8	36.5	9.6	6	10.4	25.7	
Total	2,442								
Categories		H	I	J	K	L	M		χ^2/p value
The awareness of cancer screening									
Gender	Male (n=880)	23.8	6.6	13.2	22.9	29.3	13		21.266/0.001**
	Female (n=960)	29.4	9.4	9.8	24.7	24.5	15.8		
Region	Complex city (n=898)	25.4	9.1	17.2	23.4	23	14.2		108.034/0.000***
	City (n=405)	29.2	6.8	7.8	28	23	16.6		
	County (n=537)	27	7.1	4.4	21.2	36.2	13		
Age(years)	<40 (n=461)	26.8	8.1	12.6	17.2	36.6	7.5		71.754/0.000***
	40-49 (n=584)	26.7	9.1	11.2	20.3	27.4	15.2		
	50-59 (n=481)	26.7	8.3	11.3	28.1	21.1	17.7		
	≥60 (n=314)	26.5	5.6	10.2	33.6	20.1	17.9		
Total	1,840								

*Note: multiple responses, Non response excluded; **p<0.01; ***p<0.001; A: Death; B: Danger/horrid disease/treatment difficulties; C: Fear/terror/suffering/agonypain; D: Economic impact; E: Family's worry; F: The importance of early detection/possible to overcome disease/positive thinking; G: Etc; H: Fear/terror; I: Trouble/hassle/complexity/discomfort/rejection; J: Economic aspect/treatment methods; K: Tension/anxiety/worry/burden/irritated/pressure; L: Necessary for early detection and prevention; M: Etc

economic aspects (OR: 0.58, p <0.05) (Table 2).

4) The factors related to the awareness of cancer screening by general characteristics: to examine the factors related to the awareness of cancer screening, logistic regression analysis was applied. Then, there were statistically significant that women were higher than men for fear and terror (OR: 1.38, p<0.01) and trouble/hassle/complexity/discomfort/rejection (OR: 1.47, p<0.05).

For region, there were statistically significant that city residents were higher than complex city residents for fear/terror (OR: 1.50, p<0.01) and tension/anxiety/worry/burden/irritation/pressure (OR: 1.52, p<0.01) and city residents were lower than complex city for economic aspects/treatment methods (OR: 0.48, p<0.01). In addition, there were statistically significant that county residents were higher than complex city residents for fear/terror (OR: 1.36, p<0.05) and the needs of early detection and positive thinking (OR: 2.18, p<0.001) and county residents were lower than complex city for economic aspects/treatment methods (OR: 0.24, p<0.001).

For age, there were statistically significant that 40s (OR: 1.43, p<0.01), 50s (OR: 2.15, p<0.001), 60s and over (OR: 2.49, p<0.001) were higher than 30s for tension/anxiety/ worry/ burden/irritation/pressure and 40s (OR: 0.75, p<0.05), 50s (OR: 0.51, p<0.001), 60s and over (OR: 0.41, p<0.001) were lower than 30s for the needs of early detection and prevention (Table 2).

Discussion

Through examining and identifying the differences of the awareness of cancer and cancer screening between gender, region and age, this study tried to provide the basis for the development of cancer screening with early detection.

The study is targeted at the general public-2,700 persons-and responses by open questions were categorized. Looking derived themes, ‘what was come to mind for cancer’ were classified with ‘death’, ‘danger/horrid

disease/treatment difficulties’, ‘fear/terror/suffering/ agony/pain’, ‘economic aspect’, ‘family’s worry’ and ‘importance of early Detection/overcoming/positive thinking’. ‘what was come to mind for cancer screening’ were categorized ‘fear/terror’, ‘trouble/hassle/complexity/ discomfort/rejection’, ‘economic aspect/ treatment methods’, ‘tension/anxiety/worry/burden/irritation/ pressure’ and ‘needs of early detection and prevention’. Cho et al. (2013) studied with 12 questions including 4 categories with impossibility of recovery, stereotypes and discrimination to examine the attitudes for cancer in 1,011 persons without cancer history. Compared with these studies, these results were different from study methods, but similar to them because they examined with general persons for cancer. According to the results of Cho et al. (2013), approximately 71.8% of cancer patients did not contribute to the society, and it did not show a positive attitude for cancer and cancer patients. On the study for 466 cancer survivors, 30.5% agreed strongly not to able to treat cancer and 40% believed not to able to regain health after diagnosed with cancer (Cho et al., 2013). The study also found that more than 50% of the subjects came to mind ‘death’ for cancer although there were the development of medical technology and high survival rate. This showed that there was a considerable difference from publics’ feeling although variable media and public relations advertised the importance of early detection of cancer.

The following would be discussed to be classified with the public awareness of cancer and cancer screening:

The awareness of cancer: as a result of examining the awareness about cancer for gender, men had death, danger/ horrid disease/treatment difficulties, fear/terror/suffering/ agony/pain, and the importance of early detection/ positive thinking, economic aspects, and the family’s worry in order. On the other hand, women had fear/terror/ suffering/agony/pain more than death respectively. These results could be come from the differences of gender. According to Han et al. (2012), women thought more

Table 2. The Factors Related to the Awareness of Cancer and Cancer Screening by General Characteristics

Variables (base value)	Categories	A OR(95% CI)	B OR(95% CI)	C OR(95% CI)	D OR(95% CI)	E OR(95% CI)	F OR(95% CI)
The awareness of cancer							
Gender (Male)	Female	0.73*** (0.61, 0.87)	0.64*** (0.52, 0.78)	2.04*** (1.70, 2.45)	1.42* (1.00, 2.01)	1.35 (0.53, 3.41)	0.85 (0.64, 1.14)
Region (Complex city)	City	0.70** (0.55, 0.89)	1.56** (1.21, 2.01)	1.07 (0.84, 1.36)	0.99 (0.63, 1.55)	0.94 (0.29, 3.01)	0.64* (0.43, 0.96)
	County	0.80* (0.65, 0.99)	1.18 (0.93, 1.51)	1.40** (1.14, 1.72)	0.98 (0.65, 1.47)	0.68 (0.21, 2.20)	0.68* (0.48, 0.97)
Age (years) (<40)	40-49	1.07 (0.84, 1.34)	0.88 (0.68, 1.15)	0.99 (0.77, 1.27)	0.73 (0.47, 1.11)	2.72 (0.71, 10.38)	1.26 (0.88, 1.83)
	50-59	0.95 (0.74, 1.21)	0.82 (0.62, 1.08)	1.29* (1.01, 1.66)	0.58* (0.36, 0.94)	1.73 (0.39, 7.60)	0.95 (0.63, 1.43)
	≥60	0.89 (0.68, 1.18)	0.69* (0.50, 0.95)	1.26 (0.96, 1.66)	0.53* (0.30, 0.92)	1.04 (0.17, 6.51)	0.81 (0.50, 1.30)
Total	2,442						
Variables (base value)	Categories	H OR(95% CI)	I OR(95% CI)	J OR(95% CI)	K OR(95% CI)	L OR(95% CI)	
The awareness of cancer screening							
Gender (Male)	Female	1.38** (1.12, 1.70)	1.47* (1.03, 2.11)	0.77 (0.58, 1.04)	1.18 (0.95, 1.46)	0.86 (0.70, 1.05)	
Region (Complex city)	City	1.50** (1.16, 1.95)	0.97 (0.61, 1.55)	0.48** (0.32, 0.73)	1.52** (1.17, 1.98)	1.19 (0.91, 1.57)	
	County	1.36* (1.07, 1.73)	1.03 (0.68, 1.55)	0.24*** (0.15, 0.39)	0.96 (0.74, 1.25)	2.18*** (1.74, 2.74)	
Age (years) (<40)	40-49	1.03 (0.79, 1.36)	1.34 (0.85, 2.10)	1.00 (0.68, 1.46)	1.43** (1.04, 1.97)	0.75* (0.58, 0.96)	
	50-59	1.09 (0.82, 1.45)	1.08 (0.66, 1.77)	0.95 (0.63, 1.43)	2.15*** (1.57, 2.95)	0.51*** (0.38, 0.67)	
	≥60	0.87 (0.63, 1.21)	0.57 (0.29, 1.10)	0.88 (0.55, 1.40)	2.49*** (1.78, 3.48)	0.41*** (0.30, 0.57)	
Total	1,840						

*Note: multiple responses, Non response excluded; OR: odds ratio, *p<0.05; **p<0.01; ***p<0.001; A: Death; B: Danger/horrid disease/treatment difficulties; C: Fear/terror/suffering/agony/pain; D: Economic impact; E: Family’s worry; F: The importance of early detection/possible to overcome disease/positive thinking; H: Fear/terror; I: Trouble/hassle/complexity/discomfort/rejection; J: Economic aspect/treatment methods; K: Tension/anxiety/worry/burden/irritated/pressure

importantly about pain than men. In addition, Park and Kim (2009) found that men had more negative insights for cancer than women because it was related to dislike social environment for cancer patients. That is, the ratio of social activities in Korea is higher in men than in women, and men are more sensitive to social environment. This was similar to Cho et al. (2013), which found that men had more depression than women on the examination of depression for cancer survivors. In addition, specifically the previous studies of the awareness of cancer resulted that worries related to families composed of about 50% in 1990s (Yun et al., 1992; Noh, 1993; Jeon et al., 1996). But Cho et al. (2013) study found that the impact on families fell about 40 percent and Han (2006) study said pain, agony and fear 33.6%, the impact on family 21.4% and economic problems 14.3% in the future. Peteet et al. (1991) studies for Americans found the impact on family 14% and more than half had fear of death and pain. Although the US studies had in early 90's, these results were similar to this study. So, this shows that recently the social environment in Korea is getting changed into individualism of US.

By the differences from regions the city and county area were similar, but the complex city had death in the first order. It could be related that the number of residents in complex city was more than half. Also, the importance of early detection and economic terms were recognized higher than by the City and County areas. They thought seriously about cancer, and the early detection and economic aspects also would be highly recognized. City and County areas had fear/terror/suffering/agony/pain in the first order followed by death and difficulty of treatment. Specifically, the city area had greatly higher on the recognition of 'difficulty of treatment' rather than other regions. Choe et al. (2003) studies presented that the knowledge and attitudes for cancer had no differences between rural areas and city by information age. However, Cho et al. (2013) found that the city residents had more negative attitudes for cancer and cancer patients than rural areas. So, these studies were not consistent, and in the future, many studies could be examined.

By age, this study- the lower the age, the more negative for cancer- was similar to the results of Cho et al. (2013). Additionally, 50s and 60s and over had economic aspects lower than 40s because 60s and over had treatment cost and care burden for family relatively smaller than 30s and 40s with more economic activities. The rankings of the awareness about cancer were similar to 40s and 50s, but 60s and over were different. 60s and over recognized fear/terror/suffering/agony/pain higher, death and danger/horrid disease/treatment difficulties in order. The economic aspects and the importance of early detection/positive thinking are relatively lower than younger people. This indicated that the elderly group was getting feared for pain rather death.

There have been studied to compare the differences of socioeconomic status, as a result, cancer awareness being higher among richer and more educated (Mishra, 2011). But this study was not considered of socioeconomic status, and in the future, many studies of including socioeconomic status could be examined.

As described above, the results of this study found that the awareness of cancer was different by sex, region, and age. Therefore, the education and public relations of cancer targeted publics should be considered these characteristics.

The awareness of cancer screening: for the awareness about cancer screening, men recognized to be needed for the early detection and prevention, but women had fear/terror higher respectively. Men had economic aspects and treatment methods higher than trouble/hassle/complexity/discomfort/rejection. On the other hand, women got economic aspects and treatment methods a little lower than men, but also had trouble/hassle/complexity/discomfort/rejection with similar rates. This showed that women had more sentimental than me, and there was gender difference. Unlike the results of this study, Chun and Park (2013) argued that there was no gender difference on the recognition of cancer.

For region, the complex city and city had higher awareness of fear/terror and tension/anxiety/worry/burden/irritated/pressure, but the county areas had needs of the early detection and prevention greatly higher than other areas. The information age makes to be exposed by the information related to health and to be accessed with the education and information of cancer prevention, and this could remove the differences from regions (Choe et al., 2003). Interestingly, the complex city had economic aspect/ treatment methods higher, whereas the county area had them very lower relatively.

For age, 40s and less had needs of early detection/prevention, fear/terror and tension/anxiety/worry/burden/irritated in order. 50s and 60s recognized tension/anxiety/worry/burden/irritated/pressure, fear/terror and needs of early detection and prevention in order. 50s were getting tension/anxiety/worry/burden/irritated/pressure and especially 60s and above had them greatly increased. As a result, the higher the age felt the greater tension/anxiety/worry/burden/irritated/pressure. The age got become older and the needs of early detection and prevention were lower. 40s and less had higher recognition of needs of early detection and prevention whereas 60s and more got negative feelings for screening greater than other ages. Thus, health promotion programs and campaigns related to cancer screenings should be conducted by the utilization of differentiated strategies according to the age.

In conclusion, the awareness of cancer and cancer screening were different from gender, region and age groups. Men reminded of death for cancer in the first, while women of fear/terror/suffering/agony/pain. Men recognized needs of early detection and prevention for cancer screening, while women recognized fear/terror. There was no consistent trend for regions, but the county region had needs of early detection and prevention of cancer screening in the highest among other areas, and it could indicate the effects of information age. The exposure to health information was largely dependent on the preference of individuals. By the age, the younger people recognized death for cancer greater, while the elderly people became to have fear/terror/suffering/pain/pain more relatively. In addition, for cancer screening, the younger people had strong recognition of needs of

early detection and elderly people got feelings such as fear/terror/tension/anxiety. Therefore, it is necessary to develop strategies of variable promotion and educational activities for subjects based on the results of this study.

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