Factors Affecting Health Screening Action

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Abstract

Objectives: This study is conducted to investigate the factors related to the willingness of cancer screening with the ¨National Nutrition Survey Original document, a national representative health related survey data. **Methods/Statistical Analysis:** 4,817 subjects were finally selected and analyzed among 8,108 participated in national nutrition survey in 2013 who are above 30-year-old, the recommended age of uterine cervical cancer screening program which is the minimum age in several cancer screening recommendation program, after deducted the missing value. **Findings:** According to the study differentiate factors related to correlation analysis for the checkup were place of residence, subjective state of health, stress recognition level, weight control in 1 year, the number of moderate physical activity date in a week, smoking, alcohol intake amount, and subjective body perception. **Improvements/Applications:** Therefore, the public relations should be strengthened to encourage people in having checkup, and activate check-up program to improve check-up rate for enhancing the national health.

Keywords: Cancer, Health, National Nutrition Survey, Smoking, Stress

1. Introduction

In the recent years, high caloric diet, lack of exercise, excessive workload, and many other stresses have been known to cause obesity[1]. Therefore, among the modern people, the overall health concern has increased which brought a high demand of comprehensive medical examination in accordance with the desire of healthy life. It has been reported that obesity found by the results of medical examination is correlated with various diseases. Obesity is the main cause of adult diseases, thus, the disease prevention for health has been emphasized providing medical examinations for the patients. In the hidden side, the intention of the hospital to increase the revenue and the desire of the patients to have healthy life together increased medical examination rate[2]. In fact, since the regular medical examination drives the positive prognosis of the disease, the emphasis of the medical examination is important. However, the education or advertisements of medical examination are insufficient for early diagnosis and treatment to prevent cancer[3]. Cancer has been reported as a steadily increasing disease adding more than 100,000 new patients each year[3]. In general, drinking, nutrition, exercise, etc. are the mediators of healthy life. Among these mediators, the disease causing fatal problem might be cancer. Particularly, the occurrence of colorectal cancer among the cancer in male and female was 3rd and4th respectively, and the mortality caused by colorectal cancer was distributed on 4th and 3rd respectively. In addition, in the case of breast cancer, most patients were diagnosed with cancer in the process of confirming the symptoms by self-test. The patients might already have missed the chance to receive early treatments which leads to poor prognosis. Therefore, the medical examination is important to prevent cancer and for early diagnosis. According to the recent studies, the important variable preventing cancer is cancer screening by advice of relatives or doctors[4–7]. The easily accessible cancer communications are interpersonal channels including doctors, neighbors, family, and friends, and media channels including television, newspapers, and internet. These channels increase the knowledge and intention of cancer screening for breast cancer[8]. In other words, it is important informing people about cancer prevention, examination, and treat-

ment through active communication. The basic principles of health are preventing disease, early diagnosis and treatment, and performing pathologic examination, radiation examination, and consultation.

Most people think medical treatment is the treatment done by specialized doctors after the occurrence of the disease. However, these days, the public health awareness and the demand for the satisfied medical treatment have increased due to opening of medical service market, increased adult and geriatric diseases, and improved awareness on health related issues. However, the cancer related regular examination rate is falling dramatically when compared with other countries. Korea established "10 year plan for cancer conquer" in 1996, and after 1999, "cancer screening for early diagnosis" program was conducted for low income families. Also, early cancer screening program is provided for five major cancers expecting to reduce the mortality rate by cancer, and as a part of the national health examination program for all citizens, the National Health Insurance Service provides free medical examination for the people who have health insurance[9]. In addition, among the beneficiaries of medical care and health insurance, free cancer screening opportunities are provided for people with income below 50% based on the medical insurance premium. This is a national business to prevent cancer and build a prosperous life for the citizens which in fact contributed in reducing cancer patients. For example, the National Cancer Institute supports 80% of the breast cancer screening fee if the examinee is not a recipient of the free screening service[10]. This is the policy based on the fact that the early treatment is economically beneficial and eventually reduces the pain. However, although these policies have expected to increase the number of customers using comprehensive medical examination center, the actual Koreans accessing this facilities are not as many as the government originally expected. Regular medical examination allows early detection of risk factors of the diseases and reduces mortality by early treatment and medical costs. It also raises practice rate of not smoking or drinking, and doing regular exercise which leads desired health behavior for the citizens[11]. In general, the known influential factors of cancer screening behaviors are sociodemographic factors including age, monthly income, occupation, marital status, educational level, and health behavior factors including exercise, smoking, or drinking.

In this study, we analyzed the factors related to intention of receiving cancer screening based on the raw data of 'National Health and Nutrition Examination Survey' to serve as reference materials in establishing the policy strategy to raise the medical screening rate.

2. Study Methods

2.1 Subject of Study

Among 8,018 participants of the National Health and Nutrition Examination Survey in 2013, 4,817 participants were finally selected for the analysis. The participants with the minimum age of 30 years old, recommended from cervical cancer screening program, were selected for the analysis and the missing value during the survey was excluded.

2.2 Study Methods

We selected the dependent and independent variables.

2.2.1 Dependent Variables

Cancer screening related medical examinations within the past two years were regarded as dependent variables.

2.2.2 Sociological Variables

Sociological variables were selected by gender, age, marital status (cohabitation, separation, bereavement), education, occupation, monthly income, health care insurance, residence etc.

2.2.3 Health-related variables

Health-related variables were selected by BMI, subjective health status, subjective body condition, stress, medical examination, physical activity, smoking, alcohol consumption, etc.

2.2.4 Data Analysis

SPSS version 19.0 was used for the data analysis and the statistical significance was $p < 0.05$. For the statistical methods, percentage and frequency (ANOVA, correlation analysis) were used according to general and sociological characteristics, and Logistic Regression Analysis was conducted for the analysis.

3. Results

3.1 General Characteristics

The general characteristics shown are: male was 42% and female was 58%, the age of 30~39 was 20%, 40~49 was 22%, 50~59 was 22%, 60~69 was 18%, and over 70 was 18%. The marital status showed 78% of cohabitation and 17% of separation or bereavement. 30.7% were secondary school graduates and 28.6% were college graduates. 32% were white-collar workers, 41% were unemployed. 20% was monthly income lower than 100 and 23% was more than 500. The major source of medical insurance was company health insurance (63%). 79% were distributed in administrative district 'dong' [Table 1].

Table 1. General characteristics

	Variables	Frequency	%
sex	man	2002	42
	woman	2815	58
age	30~39	966	20
	40~49	1081	22
	50~59	1044	22
	60~69	871	18
	more than 70	855	18
Marriage State	cohabitation	3759	78
	Separation and Bereavement	802	17
	Missing value	256	5
Education	Less than graduate from elementary school	1264	26.2
	Middle school graduation	535	11.1
	high school graduation	1479	30.7
	more than university graduation	1378	28.6
	Missing value	161	3.3
Job	an office job	1523	32
	Blue-collar	1176	24
	not employed	1951	41
	Missing value	167	3

Monthly income	Less than 100 (million won)	986	20
	101~200	795	17
	201~300	835	17
	301~400	668	14
	401~500	400	8
	more than 500	1103	23
	Missing value	30	1
health insurance	Area	1563	32
	job	3016	63
	Medical Care Assistance	183	4
	Missing value	55	1
Residence	dong	3817	79
	town	1000	21

3.2 Health-related Variable Characteristics

For the major health-related variable distribution, BMI in normal range was 63%, overweight was 34%, for the subjective health status, 28% was good, 49% was average, and for the subjective body type, 39% was obese, and 63% conducted moderate physical activity. 38% smoked and 26% consumed 1~2 glasses of alcohol [Table 2].

Table 2. Health-related variable characteristics

	Variables	Frequency	%
BMI	Underweight(less than 18.5kg/m2)	158	3
	normal (more than 18.5kg/m2 , less than 25kg/m2)	3011	63
	Overweight more than 25kg/m2	1621	34
	Missing value	27	1
Subjective health	good	1362	28
	general	2344	49
	bad	1111	23
Subjective state of obesity	Thin	774	16
	normal	1974	41
	obesity	1896	39
	not know	173	4
stress	lots of	1023	21
	general	2800	58
	a few	813	17
	not know	181	4

Health screening	yes	3112	65
	no	1541	32
	Missing value	164	3
Moderate physical activity.	Yes	3045	63
	no	1600	33
	not know	172	4
Smoking	the present	905	19
	Past	928	19
	Non-smoking	2804	58
	Nonresponse	180	4
Amount drinking	1-2 (cup)	1264	26
	3-4	723	15
	5-6	489	10
	7-9	372	8
	more than 10	300	6
	not know	1669	35
Cancer diagnosis	stomach ca.	44	0.9
	Liver ca.	5	0.1
	Bowel ca.	30	0.6
	breast ca.	22	0.5
	cervical ca.	32	0.7
	lung ca.	7	0.1
	Thyroid ca.	35	0.7
	etc	32	0.7

3.3 Sociological Variables on the Medical Screening Action

When analyzed the sociological variables on the medical screening action by ANOVA, the significant factors were gender, age, marital status, education, place of residence, etc. [Table 3].

Table 3. Sociological variables on the medical screening action

	F	p
sex	42.1	.000
age	34.0	.000
marriage state	73.7	.000
job	3.2	.043
education	9.5	.000
monthly income	.9	.393
health insurance	2.7	.067
dong, town	6.2	.002

3.4 Health related Variables on Health Screening Action

ANOVA analysis of health related variables on health screening action showed that the significant factors were subjective stress, adjustable weight control, physical activities, smoking, drinking, and subjective awareness of body type, etc. [Table 4].

Table 4. Health-related variables on health screening action

	F	p
subjective health	3390.6	.000
stress	3698.0	.000
control your weight one year	1823.8	.000
moderate physical activity for a week	9330.4	.000
smoking	140.8	.000
amount drinking	216.8	.000
BMI	.7	.490
subjective state of obesity	2398.8	.000

3.5 Significant Factors Correlated with Medical Examination

The significant factors shown by correlation analysis on health screening action were residence, subjective health status, the degree of stress, weight control within a year, moderate physical activity day a week, smoking, alcohol intake, and subjective awareness of body type [Table 5].

3.6 Factors Influencing on Medical Examination

Highly correlated factors influencing on medical examination rate were subjective health status, awareness of stress, weight control within a year, moderate physical activity days a week, current smoking status, and subjective awareness of body type [Table 6].

4. Conclusions and Discussion

The general characteristics shown are: male was 42% and female was 58%, the age of 30~39 was 20%, 40~49 was 22%, 50~59 was 22%, 60~69 was 18%, and over 70 was 18%. When analyzed the sociological variables on the medical screening action by ANOVA, the significant fac-

Table 5. Significant factors correlated with medical examination

	town	sex	age	Marriage State	job	Education	Subjective health
Pearson	.033	-.001	.010	.017	.003	.010	.723
p-value	.022	.950	.496	.240	.832	.500	.000
N	4817	4817	4817	4817	4817	4817	4817

Table 6. Factors influencing on medical examination

	Non-Std coefficients		Std	t	p
	B	STD error	β		
	-.197	.070		-2.817	.005
town	.020	.025	.006	.797	.425
Subjective health	.251	.011	.238	23.239	.000
stress	.113	.014	.105	8.112	.000
Control your weight one year	.098	.008	.121	12.098	.000
Moderate physical activity for a week	.034	.001	.442	25.520	.000
smoking(the present)	-.022	.004	-.044	-6.082	.000
drink	-.001	.004	-.002	-.314	.754
Subjective state of obesity	.110	.011	.106	10.106	.000

tors were gender, age, marital status, education, place of residence, etc. Occupational diseases have a duty of care by heavy metals in place of residence.

Heavy metals are potentially hurting environment[12] and the humans a huge health factor[13]. Highly correlated factors influencing on medical examination rate were subjective health status, awareness of stress, weight control within a year, moderate physical activity days a week, current smoking status, and subjective awareness of body type.

This study was conducted to analyze the factors influence on improving health screening rate to be used as a reference for the basic data of health policy.

In this study, we determined the factors affecting medical examination rate are subjective health status, stress, weight control, moderate physical activity days a week, current smoking status, and subjective awareness of body type. After all, the interest of health care influenced on medical examination rate increase. These results are similar to the previous report by[3] that BMI, weight control and education are correlated with the medical examination rate[3]. Therefore, here we made suggestions to improve medical examination rate based on the results of this research. First, medical examination should be encouraged to prevent cancer with advertisement. Second, medical examination program should be activated and diversified for various age groups and social groups to participate. Third, the primary health care facilities should be activated, thus, prevention programs and various health screening programs can be reached directly to each citizens. As a result, we suggest further studies with more cases[14]. These efforts will improve public health, and various health programs will also help to improve medical examination rate to prevent cancer.

5. References

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