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Knowledge and Beliefs About the Association Between Diet and Cancer Among Korean Immigrants in the U.S.A.

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〈CONTENT〉

Ⅰ. Introduction

Cancer is a group of conditions of uncontrolled growth of cells originating from almost any tissue of the tissue (Wisburger, 1991). Cancer is the first leading cause of death and represents 21.4% of all death in Korea(Bureau of statistics, 1994). According to the recent cancer registry, major cancers in Korea were stomach cancer, lung cancer, and liver cancer among males and cervical cancer, stomach cancer and breast cancer among females in Korea (Ministry of health and social welfare, 1993).

In the U. S. A., cancer is the second leading cause of death. Major cancers in the U. S. A. are lung cancer, colorectal cancer, breast cancer, cervical cancer and prostate cancer (National Cancer Institute, 1991).

Although the causes of cancer are only

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partially known, it has become increasingly apparent that lifestyle and environmental factors play an important role. An estimated 90% of all cancer in humans is attributed to environmental factors, including tobacco smoking, radiation, industrial pollutants, viruses, diet, and other lifestyle conditions (National Dairy Council, 1992).

Over the past two decades, considerable attention has been given to the potential role of dietary factors in the etiology and the prevention of cancer. Evidence linking diet and cancer comes from studies of experimental animals and from epidemiological investigations (National Dairy Council, 1992). Scientists estimate from a variety of epidemiological studies that 40% of cancers in men and 60% of cancers in women are attributable, in part, to diet and also estimate that 35% of all USA cancer deaths may be related to diet (Patterson et al., 1988; U. S. Department of Health and Human Services, 1988; Cotugna et al., 1992).

A variety of studies suggest that a high intake of dietary fat, certain fatty acids, and calories increases risk of cancer at different sites. In contrast, other dietary components such as fiber, vitamin A, C, D, and E, and the mineral calcium may be protective factors (Patterson at al., 1988; U. S. Department of Health and Human Services, 1988; Weisburger, 1991; National Dairy Council, 1992).

Incidence rates of specific cancers differ as much as a hundredfold among populations. Different group within the same country may also have distinctly different cancer incidence rates. Environmental and social factors, including diets, have been implicated as partial causes of this variation (U. S. Department of Health and Human Services, 1988). Worldwide, locally prevailing nutritional traditions account for the occurrence of specific types of cancer. In the Orient, the custom of eating salted, pickled or smoked food parallels the risk of stomach cancer. In the Western world, the usual high-fat, low-fiber food is related to risk of cancer of colon, pancreas, breast, prostate, ovary, and endometrium (Weisburger, 1991).

The American Cancer Society published dietary recommendations in 1984. The recommendations are as follows: (1)avoid obesity, (2) cut down on total fat intake, (3) eat more high fiber foods such as whole grain cereals, fruits, and vegetables, (4) include foods rich in vitamin A and C in the daily diet. (5) include cruciferous vegetables such as cabbage, broccoli, brussels, kohlrabi, and cauliflower in the diet, (6) be moderate in consumption of alcoholic beverages, (7) be moderate in consumption of salt-cured, smoked, and nitrate-cured foods (Patterson et al., 1988).

According to a study using the U. S. A. National Health Interview Survey (Cremer et al., 1992), Americans appeared to lack an understanding of fiber content in foods. Knowledge of fat appeared to be greater than a knowledge of fiber in the U.S.. In their

study, 11.4% of all respondents were in the high knowledge group for fiber, whereas 43.4% of the respondents were in the high knowledge group for fat. By race/ethnicity-language, the largest difference in fat knowledge was between Whites (47.5% in the high knowledge group) and Spanish-speaking Hispanics (25% in the high knowledge group).

Harnack et al. (1997) examined the relationship of cancer prevention related nutrition knowledge, beliefs, and attitudes to cancer prevention dietary behavior using 1992 National Health Interview Survey. A main result of the study was that knowledge and belief constructs were predictor of dietary behavior after adjustment for relevant covariates (age, sex, education etc.). In Patterson et al.'s study (1996), adults who strongly believed in a diet-cancer connection decreased the percentage of energy consumed from fat and increased fiber intake.

Although many literatures exist regarding cancer prevention and diet, few studies have been done on learning Korean immigrants' knowledge and beliefs about cancer prevention including association between cancer and diet.

In addition, even though there existed numerous health educational materials and programs in the U. S., most new Korean immigrants have language barriers and do not understand these English materials. For Korean immigrants who don't understand English, special health educational materials and programs are needed. Especially, Korean food in addition to American food should be included to educate the relationship between cancer and diet.

The purpose of this study is to examine nutrition and cancer prevention knowledge and beliefs of Korean immigrants in the U. S. A.. The findings of this study should provide useful information to the Korean American community for planning health education programs to reduce cancer risk among this special group.

Ⅱ. Materials and Method

1. Sample

The sample of this study were 263 Korean immigrants, 40-69 years of age, living in the uptown area of Chicago, U. S. A. To generate a sampling frame, a list of Korean household names in that area was obtained from a sampling firm, telephone books, a Korean newspaper company, and a Korean community center in Chicago. A two-stage probability sampling method was used to identify respondents. First, households were randomly selected from the complete list. Second, one member from all eligible members of each household was randomly selected for interview.

2. Instrument

The original English version of the Cancer

Control Supplement Questionnaire of the National Health Interview Survey (NHIS) conducted by the National Center for Health Statistics in U. S. A. was modified and used to collect data. Since most of the respondents were not proficient in English, the national survey questionnaire was translated into Korean. The translation process included translation and back-translation, verification checks, and pre-testing. In the final phase of instrument development, a pretest was performed and feedback regarding the instrument was incorporated into the final tool.

3. Data Collection Procedure

Data were collected by bilingual graduate students from the University of Illinois at Chicago after intensive training. A week before data collection, all major Chicago newspapers published in the Korean language announced information on the study and urged participation. Before interviewers contacted respondents on the phone, letters were sent to selected households to explain about the research. All interviews were conducted in Korean at the respondent's homes. The respondents were informed regarding confidentiality, voluntary participation, and potential benefits from participation. Informed consent was obtained before the interview.

Ⅲ. Result

1. Demographic Characteristics

Our respondents consisted of 104 males (39.5%) and 159 females (60.5%). The ages of the respondents ranged from 40 to 69 years with mean of 55 years old. About 95% of the respondents were born in Korea, and most of the respondents (77%) came to the U. S. after 1980. Most respondents (70.7%) were currently married and living with their spouse.

About 80% of the respondents were Protestant or Catholic, 8.7% were Buddhist, and 11.4% had no religion. About 33% of respondents had college or higher education. Most respondents (87.8%) could read Korean very well or moderately well. However, about 48% answered that they could not read English at all or could read poorly, while 35.5% answered that they could not write English at all or could only write poorly (Table 1).

Table 1. Demographic Characteristics (N=263)

Characteristics	N	Percent
Gender		
Males	104	39.5
Females	159	60.5
Age		
40-49	86	32.7
50-59	90	34.2
60-69	87	33.1
Marital Status		
Married(living with spouse)	186	70.7
Married(not living with spouse)	17	6.5
Widowed	44	16.7
Divorced	11	4.2
Separated	1	0.4
Never married	4	1.5
Religion		
Catholic	31	11.8
Protestant	178	67.7
Buddhism	23	8.7
Other	1	0.4
No religion	30	11.4
Education		
No formal or informal education	10	3.8
Informal education only	11	4.2
Elementary school(1-6 years)	45	17.1
Middle school(7-9 years)	34	13.0
High school (10-12 years)	77	29.3
College	78	29.7
Graduate	8	3.0
English Reading Skill		
Very well	26	9.9
Moderately well	55	20.9
So-so(can make do)	57	21.7
Poorly	56	21.3
Not at all	69	26.2
Total	263	100.0

2. Changes in Dietary Practices

When respondents were asked whether they had ever made any lasting and major changes in their diet for health reasons, 37.3% said yes. Of those, 82.7% had made these dietary changes within the past five years, and 66.7% had made changes in the past year.

Everyone who had ever made any lasting and major changes in his or her diet for health reasons was asked to respond to open-ended questions about which food he or she ate more. The 36 individual foods or food categories mentioned were collapsed into 4 food groups. The food groups were vegetables, grains, fruits, and other. The 16% of respondents who had made changes said they ate vegetables more, and some of them specified names such as carrots, broccoli, celery etc. The 18% said they ate various grains, such as barley rice, brown rice, or other grains, with rice. The 12.6% said they eat fruit more often and 10.8% said they ate fish more. The remaining people (22.6%) mentioned other foods such as fresh natural water, meat, juice, sugarless food, beans, milk etc.

Using the same method as above, we also asked what food they ate less. The 28 individual foods or food categories mentioned were collapsed into 5 food groups. The food groups were meat, fatty food, salty food, spicy food, and other. The 27% of respondents who had made changes said they ate meat (pork, beef) less. The 13.2% said they ate fatty food less. The 12.5% said they ate salty food less and the 11.2% said they ate spicy food less. The remaining people (36.1%) mentioned other

foods such as coffee, eggs, white rice, alcohol etc.

3. Reasons for not making dietary changes

The 62.7% of respondents who had never made any dietary changes for health reasons were asked to respond to a series of attitudinal statements designed to help ascertain why no changes had been made. The reason offered most often for not making dietary changes was that people enjoyed the food they were presently eating and did not want to make any changes (79.4%). A large percentage of respondents (73.9%) reported that they thought their diets were already healthful and therefore there was no reason to make a change. The third most frequently reported reason (20.0%) for not making change was that with so many different recommendations, it was hard to know which ones to follow.

Gender affects attitudes regarding "too many recommendations" (X^2 = 3.9, $p < .05$) and "too expensive" (X^2 = 4.0, $p < .05$). The 27% of males and 14.7% of females said that there were so many recommendations, it's hard for them to know which ones to follow. In addition, 5.7% of males and 15.8% of females answered that making changes in the kind of food they eat would be expensive (Table 2).

Table 2. Percentage of respondents reporting reasons for not making dietary changes by gender (N=165[a])

	Male (N=70)	Female (N=95)
All bad, why change		
Yes	15.7	9.5
No	84.3	90.5
Enjoy what I eat		
Yes	72.9	84.2
No	27.1	15.8
Too many recommendations[*,b]		
Yes	27.1	14.7
No	72.9	85.3
Eat out, change hard		
Yes	4.3	1.1
No	95.7	98.9
Too expensive[*,c]		
Yes	5.7	15.8
No	94.3	84.2
Family won't change		
Yes	2.9	5.3
No	97.1	94.7
Healthy diet now		
Yes	68.6	77.9
No	31.4	22.1
Total	100.0	100.0

[a] Represents the 62.7% of the total sample who stated that they had never made any lasting and major changes in what they ate or drank for health reasons.

[*,b] Chi square test: significant ($P< 0.05$), x^2=3.9 d.f.=1

[*,c] Chi square test: significant ($P< 0.05$), x^2=4.0 d.f=1

Age had an impact on the perception that current diet was already healthful and not in need of change (X^2 = 7.2, $p < .05$); proportions steadily increased from 66.2% agreement in the 40-49 age group to 71.7% in the 50-59 age group and 88.6% in the 60-69 age group (Table 3).

Table 3. Percentage of respondents reporting reasons for not making dietary changes by age (N=165[a])

	40-49 (n=68)	50-59 (n=53)	60-69 (n=44)
All bad, why change			
Yes	10.3	9.4	18.2
No	89.7	90.6	81.8
Enjoy what I eat			
Yes	76.5	77.4	86.4
No	23.5	22.6	13.6
Too many recommendations			
Yes	25.0	15.1	18.2
No	75.0	84.9	81.8
Eat out, change hard			
Yes	1.5	3.8	2.3
No	98.5	96.2	97.7
Too expensive			
Yes	8.8	13.2	13.6
No	91.2	86.8	86.4
Family won't change			
Yes	2.9	3.8	6.8
No	97.1	96.2	93.2
Healthy diet now *			
Yes	66.2	71.7	88.6
No	33.8	28.3	11.4
Total	100.0	100.0	100.0

[a] Represents the 62.7% of the total sample who stated that they had never made any lasting and major changes in what they ate or drank for health reasons.

* Chi square test: significant ($P< 0.05$), $x^2=7.2$, d.f.=2

Educational level also appears to affect attitudes regarding enjoying what they eat ($X^2=6.8$, $p<.05$) and foods being too expensive ($X^2=8.2$, $p<.05$). As educational level increased, agreement with the statement about enjoying what they eat decreased from 88.9% to 69.2%. In addition, as educational level increased, agreement about change being too expensive decreased from 19.1% to 1.9% (Table 4).

Table 4. Percentage of respondents reporting reasons for not making dietary changes by education (N=165[a])

	<12yr (n=63)	12yr (n=50)	>12yr (n=52)
All bad, why change			
Yes	12.7	14.0	9.6
No	87.3	86.0	90.4
Enjoy what I eat[*,b]			
Yes	88.9	78.0	69.2
No	11.1	22.0	30.8
Too many recommendations			
Yes	12.7	30.0	19.2
No	87.3	70.0	80.8
Eat out, change hard			
Yes	1.6	2.0	3.9
No	98.4	98.0	96.1
Too expensive[*,c]			
Yes	19.1	12.0	1.9
No	80.9	88.0	98.1
Family won't change			
Yes	6.4	6.0	0.0
No	93.6	94.0	100.0
Healthy diet now			
Yes	82.5	64.0	73.1
No	17.5	36.0	26.9
Total	100.0	100.0	100.0

[a] Represents the 62.7% of the total sample who stated that they had never made any lasting and major changes in what they ate or drank for health reasons.

[*,b] Chi square test: significant ($P< 0.05$), $x^2=6.8$, d.f.=2

[*,c] Chi square test: significant ($P< 0.05$), $x^2=8.2$, d.f.=2

4. Knowledge of relationship between diet and cancer

All respondents were asked which of two statements they agreed with more: (a) diet has little effect on major disease development or (b) eating the right kind of diet can reduce the chances of developing major diseases. Only 5.3% agreed that diet had little effect on disease, and 1.9% said they didn't know. Remaining 92.8% agreed that diet can reduce the chance of developing disease.

People at the lowest educational levels agreed with a wrong statement more often than did those in the highest educational levels (X^2=13.5, $p<0.01$); 9.5% of the lowest educational group chose a wrong statement (statement a) whereas only 1.2% of the highest educational group chose it.

Respondents who agreed that diet can reduce the chance of developing major diseases were then asked to name the major diseases they thought might be related to what people eat and drink. The diseases mentioned most often, without any prompting, were diabetes (27.0%), hypertension (26.2%), cancer (25.4%), obesity (7.4%), heart disease (7.0%), and other diseases (39.8%). Among those who gave responses to the "other disease" category, the most commonly mentioned diseases were stomach disorder (18.4%), and liver disease (5.7%).

Respondents who agreed that cancer may be related to what people eat and drink were asked to name kinds of cancers they thought might be related to what people eat and drink. The cancers mentioned most often were stomach cancer (63.4%), liver cancer (29.3%), and colorectal cancer (13.4%), lung cancer (9.8%). In addition, about 21% reported "don't know" (Table 5).

Table 5. Kinds of Cancer Related to Eating/Drinking (N=164[a])

Kinds of cancer	N	%
Stomach cancer	104	63.4
Liver cancer	48	29.3
Colorectal cancer	22	13.4
Lung cancer	16	9.8
All kinds of cancer	9	5.5
Breast cancer	4	2.4
Cancer of the uterus	4	2.4
Cancer of the mouth/throat/ esophagus	2	1.2
Bladder cancer	0	0.0
Prostate cancer	0	0.0
Other	6	3.7
Don't know	35	21.3

[a] Represents the 62.4% of the total sample who agreed that cancer may related to what people ate and drank.

Note: Multiple choices were allowed.

5. Beliefs about foods that promote or prevent cancer

Everyone who agreed (62.4%), either prompted or unprompted, that diet may be related to cancer was asked to respond to open-ended questions about which foods they thought increased or decreased a person's risk of

cancer.

The 21 individual foods or food categories mentioned were collapsed for food groups they thought decreased a person's risk of cancer. The respondents thought they should eat more of the following food groups: vegetables (43.9%), fruits (11.0%), grains /barley/brown rice (5.5%), natural fresh water (4.3%), fish(4.3%), and others (16.5%). Among other categories, the most frequently mentioned were ginseng, high-fiber foods, and garlic. In addition, 8.5% of the respondents said "none", and 27.4% said "don't know".

The 24 individual foods or food categories mentioned were collapsed for food groups they thought increased a person's risk of cancer. The respondents thought they should eat less of following food groups: meat (22.0%), alcohol (18.9%), fatty food (17.7%), salty food (15.9%), spicy food (14.0%), burned food (10.4%), and others (25.0%). Among other categories, the most frequently mentioned were pre-prepared instant food (microwavable food), coffee, sugar, Monosodium glutamate (MSG), braken, and pungent food. In addition, 3.0% of respondents said "none" and 17.7% said "don't know".

6. Knowledge about fiber and fat

All respondents were asked whether they had heard of fiber in food. Of the 263 respondents, only 48.3% said yes. Percentage by educational level, gender, age of respondents who had heard of fiber were significantly different (X^2 = 72.2, p < .01; X^2 = 16.5, p < .01; X^2 = 12.9, p < .05 respectively). As educational level increased, the percentage of those having heard of fiber increased from 17.1% to 73.3%. Gender appears to affect this percentage. Whereas 62.5% of males said yes, only 39.0% of females had heard of fiber. This difference may be related to lower education level in females compared to males. As age increased, the percentage of having heard of fiber decreased from 60.5% to 34.5% (Table 6).

Table 6. Percentage of Respondents who Had Heard of Fiber by Demographic Characteristics (N=263)

	Yes (n=127)	No (n=98)	DK (n=38)	Total (N=263)
Total	48.3	37.3	14.4	100.0
Education^{**,a}				
< 12 years	17.1	63.8	19.1	100.0
12 years	63.9	22.2	13.9	100.0
> years	73.3	17.4	9.3	100.0
Gender^{**,b}				
Male	62.5	23.1	14.4	100.0
Female	39.0	46.5	14.5	100.0
Age*				
40-49	60.5	31.4	8.1	100.0
50-59	50.0	34.4	15.6	100.0
60-69	34.5	46.0	19.5	100.0

^{*,a} Chi-square test: significant (P< .05), x^2=72.2, d.f.=2

^{**,b} Chi-square test: significant (P< .01), x^2=16.5, d.f.=1

^{**,c} Chi-square test: significant (P< .01), x^2=12.9, d.f.=2

Respondents who have heard of fiber were asked about food that might contain high

fiber. Interviewers showed a list of foods, then respondents chose the food. They chose the following foods in descending order: celery (67.7%), lettuce (59.8%), carrots (57.5%), leek (57.5%) and raw apple (31.5%) etc. (Table 7).

Table 7. Knowledge of High Fiber Foods

(N=127[a])

	Yes		No		Total	
	N	%	N	%	N	%
Celery	86	67.7	41	32.3	127	100.0
Lettuce	76	59.8	51	40.2	127	100.0
Carrots	73	57.5	54	42.5	127	100.0
Leek	73	57.5	54	42.5	127	100.0
Raw Apples	40	31.5	87	68.5	127	100.0
White rice	15	11.8	112	88.2	127	100.0
Hamburgers	12	9.4	115	90.6	127	100.0
Red or Mung bean soup	12	9.4	115	90.6	127	100.0
Sauted beef slices	11	8.7	116	91.3	127	100.0
Bran flakes	9	7.1	118	92.9	127	100.0
Corn flakes	8	6.3	119	93.7	127	100.0
Don't Know	9	7.1	118	92.9	127	100.0

[a] Represents the 48.3% of the total sample who stated that they had heard of fiber.

All respondents were asked about which foods might be high in fat. Interviewers showed a list of foods, then respondents chose the foods that might be high in fat. They chose the following foods in descending order: fried chicken (84.8%), cold cuts/lunch meats (66.5%), doughnuts (58.9%), peanut butter (47.1%) etc. (Table 8).

Table 8. Knowledge of High Fat Foods

(N=263)

	Yes		No		Total	
	N	%	N	%	N	%
Fried chicken	223	84.8	40	15.2	263	100.0
Cold cut/lunch meats	175	66.5	88	33.5	263	100.0
Doughnut	155	58.9	108	41.1	263	100.0
Peanut butter	124	47.1	139	52.9	263	100.0
Broiled fish	51	19.4	212	80.6	263	100.0
Bananas	4	1.5	259	98.5	263	100.0
White bread	2	0.8	261	99.2	263	100.0
None	3	1.1	260	98.9	263	100.0
Don't Know	3	1.1	260	98.9	263	100.0

7. Important concerns about what they eat and drink

All respondents were asked about important concerns about what they eat and drink. They mentioned as follows: avoiding foods with too much salt or sodium (89.7%), avoiding foods with too much sugar (88.6%), eating foods to lower cholesterol (84.4%), avoiding spicy food (82.9%) etc.

Gender, age and education were significant factors related to their concerns. Gender appears to affect these concerns. Females had more concerns about "not enough money to buy food" and "being overweight" than males (X^2 = 5.7, $p < .05$; X^2 = 6.6, $p < .05$ respectively) (Table 9).

As age increased, the percentage of having concerns about "avoiding foods with too much salt or sodium", "eating foods in order to lower cholesterol", and "avoiding spicy hot food" increased. (X^2 = 7.0, $p < .05$; X^2 = 6.6, $p < .05$; X^2

Table 9. Percentage of respondents reporting important concerns about what they eat and drink by gender (N=263)

	Male (n=104)	Female (n=159)
Avoiding food with too much salt		
Yes	87.5	91.2
No	12.5	8.8
Avoiding foods with too much sugar		
Yes	85.6	90.6
No	14.4	9.4
Avoiding foods to lower cholesterol		
Yes	84.6	84.3
No	15.4	15.7
Avoiding spicy hot food		
Yes	84.6	81.8
No	15.4	18.2
Not enough money to buy food*,a		
Yes	12.5	24.5
No	87.5	75.5
Being overweight*,b		
Yes	42.3	58.5
No	57.7	41.5
Being too thin		
Yes	21.7	27.3
No	78.3	72.7
Total	100.0	100.0

*,a Chi square test: significant (P<0.05), x^2=5.7, d.f.=1
*,b Chi square test: significant (P<0.01), x^2=6.6, d.f.=1

= 8.9, p < .05 respectively) (Table 10). As educational level decreased, the percentage of having concern about "not enough money to buy food" and "being too thin" increased (X^2 = 18.0, p < .01; X^2 = 6.6, p <.05 respectively) (Table 11).

8. Interest in education on cancer risk reduction

When asked the following question "If you were offered a free two-hour class on how to

Table 10. Percentage of respondents reporting important concerns about what they eat and drink by age (N=263)

	40-49 (n=86)	50-59 (n=90)	60-69 (n=87)
Avoiding food with too much salt or sodium*,a			
Yes	84.9	87.8	96.6
No	15.1	12.2	3.4
Avoiding foods with too much sugar			
Yes	84.9	88.9	92.0
No	15.1	11.1	8.0
Avoiding foods to lower cholesterol*,b			
Yes	77.9	83.3	92.0
No	22.1	16.7	8.0
Avoiding spicy hot food			
Yes	73.3	85.6	89.7
No	26.7	14.4	10.3
Not enough money to buy food			
Yes	16.3	16.7	26.4
No	83.7	83.3	73.6
Being overweight			
Yes	51.2	52.2	52.9
No	48.8	47.8	47.1
Being too thin*,c			
Yes	21.4	14.0	39.0
No	79.6	86.0	61.0
Total	100.0	100.0	100.0

*,a Chi square test: significant (P<0.05), x^2=7.0, d.f.=2
*,b Chi square test: significant (P<0.05), x^2=6.6, d.f.=2
*,c Chi square test: significant (P<0.05), x^2=8.9, d.f.=2

reduce your chances of getting cancer, would you be interested in going to it if it were convenient?", 62.7% said yes. Another 5.3% said maybe. Those who responded positively were asked what types of locations would be most convenient for such a class. A church was the response chosen most often (41.2%), followed by a community center (35.6%), local school (13.9%), hospital (12.9%), senior citizen center (11.9%) etc. (Table 12).

Table 11. Percentage of respondents reporting important concerns about what they eat and drink by education (N=263)

	〈12yr (n=105)	12yr (n=72)	〉12yr (n=86)
Avoiding food with too much salt			
Yes	92.4	84.7	90.7
No	7.6	15.3	9.3
Avoiding foods with too much sugar			
Yes	90.5	84.7	89.5
No	9.5	15.3	10.5
Avoiding foods to lower cholesterol			
Yes	87.6	79.2	84.9
No	12.4	20.8	15.1
Avoiding spicy hot food			
Yes	81.9	77.8	88.4
No	18.1	22.2	11.6
Not enough money to buy food**			
Yes	31.4	18.1	7.0
No	68.6	81.9	93.0
Being overweight			
Yes	55.2	45.8	53.5
No	44.8	54.2	46.5
Being too thin*			
Yes	36.2	23.1	12.5
No	63.8	76.9	87.5
Total	100.0	100.0	100.0

** Chi square test: significant ($P<0.05$), $x^2=18.0$, d.f.=2

* Chi square test: significant ($P<0.01$), $x^2=6.6$, d.f.=2

9. Source of useful information about disease prevention and health promotion

All respondents were asked the following question. "Where do you get your most useful information about how to prevent illness and improve your ealth?" A newspaper was the response chosen most often (21.3%), followed by friends (21.3%), books (17.5%), and television (15.6%) etc. (Table 13).

Table 12. Places For Education On Cancer Risk reduction (N=194[a])

	N	%
Church	80	41.2
Community Center	69	35.6
Local School	27	13.9
Hospital	25	12.9
Senior Center	23	11.9
Home	20	10.3
Workplace	12	6.2
Club Meeting	7	3.6
Other Place	9	4.6
Don't Know	12	6.2

[a] Represents the 73.8% of the total sample who responded positively about going to a free class on cancer risk reduction.

Note: multiple choices were allowed.

Table 13. Most Useful Source of Disease Prevention Information (N=263)

Source of Information	N	%
Newspaper	96	36.5
Friends	56	21.3
Books	46	17.5
Television	41	15.6
Doctor	39	14.8
Magazines	23	8.7
Family	16	6.1
Radio	14	5.3
Other	38	14.5
Don't get information or Don't know	33	12.5

Note: multiple choices were allowed.

Ⅳ. Discussion

Many of our Korean respondents stated that they enjoy the foods they eat and don't

want to change food habit. People with a lower education level tended to enjoy their food more and didn't want to change in comparison with people with a higher level of education. Yet, people at the lowest educational levels tend to have poor knowledge about relationship between diet and major disease. These data showed that people with a lower educational level should be targeted for education about healthy dietary habit.

A high percentage of respondents believed that their diets were already healthful and that there was no reason to change. Older people tended to rate their diets as more healthful than the younger age group. But, as age increased, the percentage of respondents who had heard of fiber decreased. This discrepancy shows a knowledge deficit among the elderly Koreans.

As for major diseases related to what people eat and drink, only 25.4% of Korean respondents said cancer. In comparison with the NHIS sample, our respondents are less knowledgeable about the relationship between cancer and diet. The 48 % of sample of NHIS said cancer as major disease related to what people eat and drink (Cotugna et al., 1992).

As a high fiber food, only 7.1% of Korean respondents chose bran flakes and only 6.3% of them chose corn flakes even though these foods have high fiber. Most Americans chose these items right. About 82% of NHIS samples chose bran flakes and about 68% of the sample chose corn flakes (Cremer et al., 1992). Perhaps Korean respondents are not familiar with American foods.

In addition, as high fat foods, only 47.1% of respondents chose peanut butter and 58.9% chose doughnuts even though these two foods have almost the same amount of fat as fried chicken (84.8% of our respondents chose fried chicken). This answer may be related to difference of serving size. That is, people eat more fried chicken than peanut butter or doughnuts at one serving or they just know that fried foods have lots of fat. It is also possible that they really don't know that peanut butter and doughnut have lots of fat. This indicates that there is a need for educating Korean Americans about variety of food that contain high fat content.

Our respondents chose stomach cancer and liver cancer the most often as kinds of cancer related to eating and drinking in their opinion. This findings is not surprising since these two cancers are the most common cancers in Korea.

We were pleased to see that 62.7% of our respondents would like to go to a free class on how to reduce chances of getting cancer. A church is the response chosen most often for location for this class (41.2%). This answer may be related to the fact that about 80% of respondents are Protestant or Catholic. A community center was the second choice for this free class. There is a Korean community center in one of our target areas

(Albany Park) and the place offers new Korean immigrants some health educational programs even though it is not very intensive due to lack of funds. Our respondents might have been thinking of this community center for the class.

Forty eight percent of the NHIS sample chose "local school" for the class (Cotugna et al., 1992), but, only 13.9% of our Koreans chose it. This difference might be explained by the fact that English comprehension is needed to attend a class at a local school and only 31% of our respondents stated that they read English either very well (9.9%) or moderately well (20.9%).

As for their most useful source of disease prevention information, 36.5% said "Newspaper". In Chicago, there are three daily Korean newspapers, and most new Korean immigrants read one of these newspapers. Our respondents thought articles about health from these newspapers were the best source to learn about disease prevention for them. It is surprising that according to our respondents friends can be a good source of information about disease prevention (21.3% of respondents chose "Friends"). If the friends are not health professionals, they may not necessary be a good source of health information because wrong information can be delivered. On the contrary, only 15% of respondents identified medical doctors as a source of health information.

V. Recommendation

Our research was based on only 263 Korean immigrants who live in two community districts in Chicago. However, this sample size is not large enough to make generalizations about Korean immigrants in Chicago. Further research is needed to interview more Korean immigrants who live throughout Chicago.

In addition, our instrument didn't go into detail about stomach cancer and liver cancer since we used the original US National Health Interview Survey. Since Koreans are at high risk for stomach and liver cancer, further research on the relationship between these two cancers and diet is needed.

Findings from this study indicate that the majority of our subjects do not benefit by the usual cancer education strategies used by the U. S. government. Our data indicate that several strategies may prove to be more effective for cancer prevention programs aimed at Korean immigrants. Since Korean newspapers are the most common source of health-related information for our sample, this medium should be used more often by Korean health professionals in disseminating cancer prevention information. Korean churches and Korean community centers seem to play an important role in providing health-related information. The cancer education program should be targeted to these Korean church

and community groups. To reach the immigrants who have a poor command of English, a Korean version of cancer literature should be used. Our data also indicated that only 15% of respondents identified medical doctors as a source of health information. Physicians who serve Korean Americans should play a more important role in providing health education.

The NCI 1990 objective to reduce cancer is that 75% more of the population should be able to identify the principal dietary factors associated with cancer (U.S. Department of Health and Human Services, 1988). In addition, the NCI has set a goal of a 50% reduction in the cancer mortality rate by the year 2000. This goal includes that the adoption of a prudent low-fat, high-fiber diet by all Americans. On the basis of current knowledge alone, the NCI estimates that, at minimum, 30,000 lives could be saved in the year 2000 if Americans would modify their dietary habits. To attain this goal, the government should be concerned about Asian immigrants including Koreans to educate them effectively. To do so, the government should support the development of their own educational programs related to their own traditional diet. This includes translation of health educational materials applicable to a specific target group. Development and implementation of a culture-specific cancer education program for Korean Americans is imperative.

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〈국문 초록〉

미국거주 한국인 이민자들의 암과 식품에 대한 지식과 신념

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본 연구는 미국에 사는 한국인 이민자들의 암예방과 식품에 대한 지식과 신념에 관하여 알아보는데 그 목적이 있다. 본 연구의 도구로는 미국 국민 건강연구조사 (NHIS)의 설문지를 한국어로 번역하였고, 연구의 대상자는 미국의 시카고에 거주하는 263명의 한국인 이민자들이다.

본 연구의 주된 연구결과는 다음과 같았다. (1) 대부분의 대상자(83.3%)들은 한국음식을 먹고 있다고 답하였다. (2) 대상자들의 47.5%가 영어를 전혀 못 읽거나 거의 못 읽는다고 답하였다. (3) 식생활 변화를 하지 않는 이유에 대해 현재 먹고 있는 음식을 즐기기 때문에 식생활을 바꾸고 싶지 않다는 답이 가장 많았다. (4) 우리가 먹고 마시는 음식과 관계 있는 주요질병에 대해서 25.4%의 응답자만이 암이라고 답하였다 (미국 NHIS 에서는 48%). (5) 응답자의 48.3%만이 섬유소에 대해 들어보았다고 응답하였다. (6) 7.1%의 응답자만이 섬유소가 많은 음식으로 corn flakes와 bran flakes를 고를 수 있었다. 이 결과로 보아 한국인 이민자들이 미국음식에 대해 잘 모르는 것으로 보인다. (7) 약 62%의 응답자들이 암예방에 관한 무료 보건강좌에 참석하고 싶다고 응답하였다. 보건강좌 장소에 대해 "교회"라고 답한 응답자가 가장 많았다. (8) 질병예방에 관한 정보를 어디에서 얻느냐는 질문에 대하여 "신문"이라고 답한 응답자가 가장 많았다.

본 연구에서 얻은 결과를 볼 때 대부분의 응답자들이 미국 정부에서 하고 있는 암예방 교육의 혜택을 받고 있지 않는 것으로 나타났다. 한국인 이민자들의 문화적 배경에 맞는 암교육이 필요하며, 영어를 잘 못하는 이민자들을 위해 한국말로 번역된 보건교육자료를 사용하여야 한다.