

The Knowledge, Attitude, and Practices Related to Noncommunicable Diseases Among Korean Adults Residing in Urban and Rural Areas —Focusing on Hypertension, Diabetes, and Cancer—

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Contents

I. Introduction	III. Results and Discussion
II. Subjects and Method	IV. Conclusion References

I. Introduction

1-1 Background

Health is not only a basic element of happy human life, but also a driving force as well as a resource of an individual or a nation in the economic field. This concept has made continuous and considerable improvement of health status to mankind and had changed the disease and mortality patterns.

In the 17th century the discovery of microorganisms by Leeuwenhook and other scientists led to further progress in the scientific content of medicine. And the early years of this century ushered in the era of chemotherapeutic and antibiotic agents. By this time the medical profession had a good understanding of most diseases in terms of etiology, derangements of anatomy and physiology and signs and symptoms.

In recent years, medical technology has progressed so rapidly that it enabled early detection and correct diagnosis of almost all diseases.

Moreover, economic progress and the improvement

of the quality of life lengthened the life span. As a result of the forementioned changes, communicable diseases such as infectious diseases have decreased and noncommunicable diseases such as cancer, hypertension, and diabetes mellitus have increased. Noncommunicable diseases increased due to the following three causes. First, the lengthening of average life span increased the proportion of elderly people; second, the relative increase of noncommunicable disease due to the decrease of communicable disease; third, men are exposed to risk factors such as changes in life style—for example, augmented dietary consumptions of fats and alcohol, increase of obesity, smoking, and decrease of physical activity—, environmental pollution, and psychological stress.(Manton, 1988) In Korea such transition occurred early in the 1970's when the 5-year economic developmental plan was at its summit.

According to the data released by the Economic Planning Board in Korea in 1989, the three leading causes of death are cancer, accident, and cerebrovascular disease.(National Bureau of Statistics, 1989) Two-thirds

of all deaths in developed countries are caused by the major noncommunicable diseases, e. g., cardiovascular disease, cancer, and non-insulin-dependent diabetes mellitus.(Zimmet, 1988)

The prevalence rate of hypertension in Korea in 1980~1982 was 160 per 1,000 persons.(Moon, 1980) The prevalence rate of diabetes mellitus in Korea is known as 1~3 % in general population, and 2.6% in those aged 20~60.(Choi, 1989) But in case of cancer, the prevalence rate is not well known to us. In one study in low-income class in an urban area in Korea in 1978, the prevalence rate of cancer was 5.7 per 1000 persons.(Kim, 1978)

Until now in Korea, there was few reports on KAP study for noncommunicable diseases(abbreviated as NCD). Even though the importance and magnitude of affected on noncommunicable disease are increasing, reports on KAP study for noncommunicable disease are few. Then we examined the knowledge, attitude and practice on noncommunicable disease in Korea by an interview and questionnaire method.

1-2 Objectives

The objectives of the study are as follows :

First, to grasp the status of knowledge, attitude, and practice about noncommunicable disease, especially about hypertension, diabetes mellitus and cancer.

Second, to discover which factors affect the status of knowledge, attitude and practice about noncommunicable disease.

Third, to find the correlation between the knowledge status and attitude ; between knowledge and practice ; between attitude status and practice status.

Fourth, if there is a correlation between some factors of knowledge or attitude status and practice, how much can the factors of knowledge or attitude status explain the practice status.

II. Subjects and Method

2-1 Subjects and Collection of Data

2-1-1 Subjects

The research was carried out for on year from Jan. 1990 to Dec. 1990. The subjects were 716 persons in total both in urban and rural residents. The urban subjects were chosen from those who came to the Center for Noncommunicable Disease Control to check their physical status and volunteered to participate in the questionnaire. The rural subjects were chosen from one country which was located near Pusan after random allocation among tens of counties in Kyeong-nam Province. To interview the rural residents, 10 volunteer interviewers were chosen from university students whose major is health science, and they were trained about the questionnaire for 6 hours.

The age-sex distributions are shown as in Table 1, 360 urban subjects and 356 rural subjects participated in the thirties made up 35.0%, the age group in th forties made up 27.5%, and the age group in the twenties made up 26.1%. Among 356 rural subjects, 273 subjects (76.7%) were male, 83 subjects(23.3%) were female, and the age group in the thirties made up 28.7%, the age group in the twenties made up 27.8%, and the age group in the forties made up 23.6%.

To find out the status of knowledge, attitude, and practice about noncommunicable disease, we made a questionnaire containing 80 questions. 8 questions are concerned with demographic characteristics, 31 questions are concerned with knowledge, 21 questions are concerned with attitude, and 20 questions are concerned with the practice about noncommunicable disease. As a whole, 26 questions are about KAP of hypertension, 18 questions are about KAP of diabetes mellitus, and 10 questions are about KAP of cancer.

There was no standardized questionnaie about KAP status of noncommunicable disease until now. Thus, we made a questionnaire and tested it on 15 urban men who came to the Center for Noncommunicable Disease, Inje University Paik Hospital, Pusan, Korea. And we adjusted the contents of questionnaire to be able to get 60 to 70 scores in average according to the degree of difficulty.

Table 1. The distribution of the subjects by age group and sex.

Unit : person(%)

Age group	Area sex	Urban area			Rural area			Total
		Male	Female	Subtotal	Male	Female	Subtotal	
10~19		0	0	0	2 (0.6)	2 (0.6)	4 (1.1)	4 (0.6)
20~29		34 (9.4)	60 (16.7)	94 (26.1)	75 (21.1)	24 (6.7)	99 (27.8)	193 (27.0)
30~39		71 (19.7)	55 (15.3)	126 (35.0)	77 (21.6)	25 (7.0)	102 (28.7)	228 (31.8)
40~49		71 (19.7)	28 (7.8)	99 (27.5)	64 (18.0)	20 (5.6)	84 (23.6)	183 (25.6)
50~59		32 (8.9)	7 (1.9)	39 (10.8)	43 (12.1)	8 (2.2)	51 (14.3)	90 (12.6)
60~69		1 (0.3)	0 (0)	1 (0.3)	12 (3.4)	4 (1.1)	16 (4.5)	17 (2.4)
70~79		0 (0)	1 (0.3)	1 (0.3)	0	0	0	1 (0.1)
Total		209 (58.1)	151 (41.9)	360(50.3) (100.0)	273 (76.7)	83 (23.3)	356(49.7) (100.0)	716 (100)

2-2 Choice of Variables and Measurement

2-2-1 Choice of Variables

Variable were divided into independent variables and dependent variables to know how the knowledge status or attitude status affect the practice status. Independent variables were residential area, age, sex, job, income, history of disease, economic status, knowledge about hypertension, diabetes, and cancer. Dependent variables were the attitude and the practice about the NCD.

2-2-2 The Measurement of Variables

The variables were quantified with dummification or weighting to use in multiple regression analysis. The sorting of every variables are as follows :

1) Independent variables

(1) Residential area

rural area=1, urban area=2

(2) Age

age as it is

(3) Sex

female=1, male=2

(4) Job

more professional job such as technocrats, administrative manager, clerical workers=1,

less professional job such as sales, service job, agriculture, producing job, and no job=2

(5) Income

income as it is

(6) History of diseases

no history of disease=1,

that has history of disease such as hypertension, diabetes mellitus, cancer, tuberculosis, hepatitis and liver cirrhosis, and others=2

(7) Economic status

lower class=1, lower middle class=2,

middle class=3, upper middle class=4,

upper class=5

(8) The knowledge regarding hypertension, diabetes mellitus, and cancer as the score of correct answers(if knows more, the higher the score)

2) Dependent variables

(1) The attitude regarding NCD
passive=1, neutral=2, active=3

(2) The practice regarding NCD
passive=1, neutral=2, active=3

As seen in the above, the variables were weighted more as they go in the positive direction.

2-3 Schematic Model and Analytic Method

Under the assumption that the a forementioned several demographic and social factors and the knowledge about NCD affect the attitude and practice, we drew a schematic model as seen in Fig. 1.

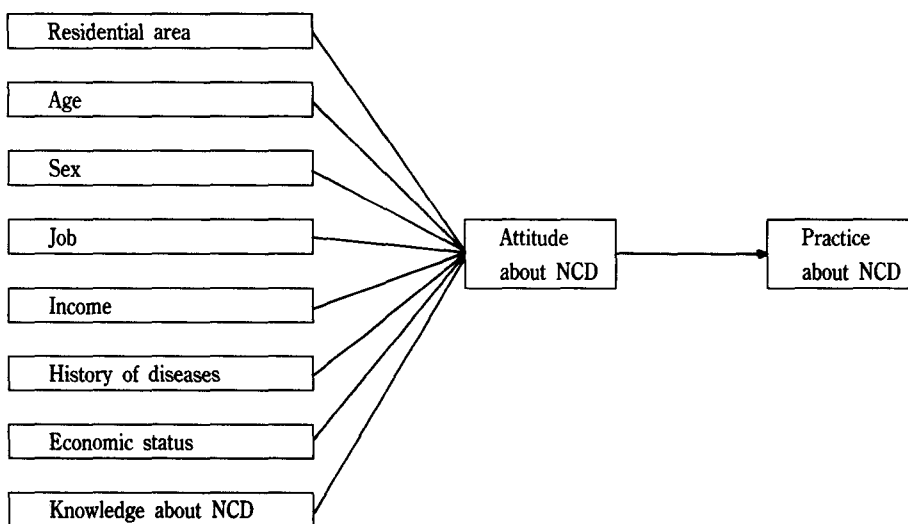


Fig. 1. A schematic model of health behavior about noncommunicable diseases

To identify the relative importance of the independent variables that affect to the attitude and practice about NCD, multiple regression analysis was done.

the economic status 90% of the subjects belonged to the middle class.

III. Results and Discussion

3-1 Noncommunicable Diseases

3-1-1 General Characteristics

Among the 716 subjects 28.4% are those who have professional job, 21.4% are agricultural workers, 15.1% are housewives or students, and 11.5% are clerical workers. In the past medical history, 81.5% of the subjects were healthy, 4.0% had hypertension, 2.7% had liver disease, 1.6% had tuberculosis, 1.0% had diabetes mellitus, 0.3% had cancer, and 7.0% had other diseases. In

Table 2. General characteristics of the subjects.

Contents	Unit : person	
	Number of persons	Percentage
Job		
professional and technological	203	28.4
administrative and managerial	18	2.5
clerical and related job	82	11.5
sales workers	37	5.2
service workers	40	5.6
agricultural workers	153	21.4
producing job	66	9.2
housewife, student, or no job	108	15.1
no answer	9	1.3

Monthly income(unit : thousand won)		
less than 500	270	37.7
510-1,000	227	31.7
1,001-1,500	91	12.7
over 1,500	128	17.9
History of diseases		
healthy	572	79.9
hypertension	28	3.9
diabetes mellitus	7	1.0
cancer	2	0.3
pulmonary tuberculosis	11	1.5
hepatitis and liver cirrhosis	19	2.7
other diseases	63	8.8
no answer	14	2.0
Economic status		
upper class	4	0.6
upper middle class	92	12.8
middle class	409	57.1
lower middle class	126	17.6
lower class	67	9.4
no answer	18	2.5
Fee for health insurance(unit : 1,000won/month)		
less than 10	276	38.5
11-20	203	28.4
21-30	49	6.8
31-40	7	1.0
over 40	181	25.3
total	716	100.0

3-1-2 Knowledge

During the last several decades, solutions have been found to many of the urgent problems of acute disorders or communicable disease, thereby allowing scientists to direct more attention to the noncommunicable disease. We assumed that general people don't know well what NCD is and which diseases are included. But in this study, 92.7% of the subjects know NCD and they know 5 or 6 kinds out of 10 NCD on the average(Table 3).

As shown in Table 3, the degree of knowledge is highest in hypertension, and the next are DM, cancer, CVA, atherosclerosis, heart disease, joint disease, chronic liver disease, chronic renal diseases and psychiatric disorder.

Table 3. The knowledge status of the subjects by diseases.

Diseases	Respondents	Percentage
hypertension	665	92.9%
diabetes mellitus	659	92.0%
cancer	535	74.7%
cerebrovascular accident	506	70.7%
atherosclerosis	491	68.6%
heart disease	449	62.7%
joint disease	311	43.4%
chronic liver disease	251	35.1%
chronic renal disease	188	26.3%
psychiatric disease	177	24.7%
total	716	100.0%

92.9% knew hypertension, 92% knew diabetes mellitus, but only less than half knew joint disease, chronic liver disease, chronic renal disease, and psychiatric disease.

3-1-3 Attitude

9 questions about the attitude for NCD were asked to the subjects(Table 4).

Table 4. The attitude regarding NCD.

contents\attitude	active (%)	neutral (%)	passive (%)
being aware of NCD	253 (35.3)	400 (55.9)	63 (8.6)
take PHE for early detection	468 (65.4)	229 (31.9)	19 (2.7)
getting information about NCD	368 (51.4)	307 (42.8)	41 (5.7)
watching TV program about NCD	397 (55.5)	292 (40.8)	27 (3.8)
help family members if taken ill with NCD	611 (85.3)	100 (14.0)	5 (0.7)
willing to take physical check-up if family member contracts NCD	183 (25.5)	357 (49.9)	176 (24.7)
inclined to do regular exercise	453 (69.2)	183 (27.8)	80 (11.2)
inclined to stop smoking	241 (33.6)	341 (47.7)	134 (18.7)
to reduce alcohol consumption	433 (60.4)	147 (20.6)	136 (19.0)

(1) The first question was how he or she would do if he or she become aware that he or she has a noncommunicable disease, 35.3% of the subjects answered they would do very actively if they were caught in NCD, 55.9% answered they would do less actively.

(2) 65.4% of the subjects were to take periodic health examinations very actively for early detection of NCD.

(3) 51.4% were very actively getting informations about NCD from booklets or journals.

(4) 55.5% were watching television programs about NCD very eagerly.

(5) 85.3% were to help family members positively if they were taken ill with NCD.

(6) 75.4% were inclined to take physical check-up if their family member contracted NCD.

(7) 69.2% were inclined to do regular exercise.

(8) 33.6% of those were inclined to stop smoking.

(9) 60.4% of drinkers had a mind to reduce alcohol consumption.

From the above results 63.6% had positive attitude toward preventing NCD on the average.

3-1-4 Practice

Both in urban and rural areas, 37.7% of the respondents were getting periodic health examination(abbreviated as PHE) and 62.3% of those were not getting PHE as seen in Table 5. Though two thirds of the subjects were inclined to take PHE, but actually only one third of them

Table 5. Practice of Periodic Health Examination

contents	respondents	percentage
Do you get PHE ?		
yes	270	37.7%
no	446	62.3%
total	716	100.0%
Frequency		
once a year	171	63.4%
biannually	86	31.9%
every 3-5 years	13	4.7%
total	270*	100.0%

* excluding nonrespondents

were taking PHE. It showed the discrepancy between attitude and practice among the respondents. To see the frequencies of the PHE, 63.4% of those took PHE at least once a year, 31.8% of those got it biannually, 4.7% of those got it every 3 to 5 year. When they are recommended by doctors after PHE, 53% of the clients practiced according to the recommendations, 37% of thoses practiced partially and 10% of those didn't practice or hardly did(Table 6).

Table 6. Practice to doctor's recommendation

practice of the recommendation	respondents	percentage
practice	143	53.0%
practice partially	100	37.0%
do not practice	27	10.0%
total	280*	100.0%

* excluding nonrespondents

Observing the source of information about NCD 59.6% of the subjects got information from mass media such as TV or radio, 23.8% got from booklets, 12.5% got information from medical personnel(Table 7).

Table 7. The sources of information about NCD

source of information	number of respondents	percentage
mass media	427	59.8%
booklets	170	23.8%
person(friend or relative)	90	12.5%
medical personnel	29	4.1%
total	716	100.0%

3-2. Hypertension

3-2-1 Knowledge

The knowledge status is shown in Table 8. 92.7% of the subjects replied that they knew about hypertension, but only 25.1% of the subjects knew the criteria of hypertension correctly as systolic BP over 160 mmHg or diasto-

lic BP aver 95 mmHg that defined by WHO. In one study about the knowledge and treatment of hypertension in La Plata, Argentina 43.97% knew the threshold of hypertension.(Echeverria, 1989) To see the cause of hypertension, about 90% are idiopathic origin, 53.6% of the subjects knew that the etiology of hypertension shows that most hypertension has an unknown cause, and urban subjects knew correctly more than subjects significantly.

77.0% of the subjects knew correctly that hypertensive patients have to get treatment even though they have no symptoms at all. Correct answers are found more among urban subjects than rural subjects, younger ages than older ages, professional and bussiness workers than laborers.

Though hypertension is adjusted to normal blood pressure with medical treatment, continuous medical treatment is mandatory without cessation of drugs. But only 38.9% of the subjects knew correctly about the truth. Correct knowledge is found more among rural subjects than urban subjects, older ages than that younger ages, high income groups than low income groups.

The duration of treatment in hypertensives should be life-long. 38.9% knew the facts correctly, and more among urban subjects than rural subjects, professional workers than other workers.

Table 8. The knowledge status of hypertension

contents	respondents who answered correctly	percentage
criteria of hypertension	180	25.1%
cause of hypertension	332	46.4%
treatment is necessary	551	77.0%
continuous treatment	275	38.3%
duration of treatment	279	38.9%
most common complication is CVA	572	79.9%
purpose of treatment	471	65.8%
effect of low salt diet	475	66.5%
effect of exercise	483	67.5%
adequate exercise	400	55.9%
effect of treatment	301	42.1%
total	716	100.0%

The most frequent complication in hypertensives is cerebral hemorrhage. 79.9% of the subjects replied correctly, and there is no difference between urban and rural subjects, age groups, sexes, jobs, and income groups.

The purpose of the treatment of hypertension is to prevent complications such as cerebral hemorrhage, heart failure or renal faliure. 65.8% of the subjects answered correctly and urban subjects, younger ages, and professional and administrative workers responded more correctly.

If hypertensives reduce the salt content from diet, the blood pressure is decreased, 66.5% of the subjects replied correctly and significantly more among urban subjects than in rural ones. But Botnar' reported that a very low percentage of the rural population were informed of the role played by sodium chloride in the genesis of hypertension in Russia.(Botnar', 1989)

Regular exercise could reduce blood pressure in hypertensives, 67.5% of the subjects knew the facts correctly, and more in urban residents and in 3rd, 4th and 8th decades.

Among exercises such as working, running, swimming, and weight lifting, the most unfit exercise in hypertensive patients is weight lifting. In this survey, 55.9% of the subjects knew it correctly. Urban residents, female respondents, professional and service workers knew more correctly than rural ones, male and other job workers.

When the hypertensives are treated with drugs, the effects are reducing complications and mortality. 42.1% of the subjects knew that facts s. and elderly people in their sixties or seventies knew significantly more correctly than younger people.

3-2-2 Attitude

When the subjects were asked if they contract hypertension how they would do, 79.0% of them replied they would check blood pressure regularly and receive treatment at a hospital continuously. 8.2% of them replied they would check BP regularly but take medication at drugstore, 9.5% replied they would receive treatment only when symptoms are present, and 3.3% replied they would not recieve any treatment(Table 9).

Table 9. The attitude when the subjects contract hypertension

attitude	respondents	percentage
would treat continuously	565	79.0%
would treat intermittently	128	17.7%
would not treat	23	3.3%
total	716	100.0%

The subjects were asked how they would do if blood pressure is not controlled though they have received medical treatment continuously at a hospital for several months. 69.3% of the subjects answered that they would consult a doctor about whether other causes were present or whether the choice of drug was right. 23.4% of them answered that they would check and see whether the reason was that they didn't keep diet and exercise. 5.2% of them answered that they would take treatment without consulting because no symptoms occur though blood pressure is high. 2.1% of them answered that they would not take medication because they thought there was no effect of drugs. To the last question urban residents, elderly age groups, and high income groups replied more positively than rural one, younger age groups, and low income groups (Table 10).

Table 10. The attitude when BP is not controlled

attitude	respondents	percentage
consult a specialist	496	69.3%
keep diet and exercise	168	23.4%
neutral	37	5.2%
reject treatment	15	2.1%
total	716	100.0%

3-2-3 Practice

37.3% of the subjects undergo physical check-up regularly, on the other hand, 62.3% of them don't receive physical check-up regularly.

To prevent hypertension, 26.4% of the subjects eat a flat diet, 22.3% of the subjects maintain their standard

body weight, 15.9% of them exercise regularly, 16.6% of them check blood pressure at least once a year, and 9.4% of them manage their stress well (Table 11).

To control body weight 40.5% of the subjects practice dieting, 38.4% of them practice regular exercise, 21.2% of them avoid a high calorie diet and a snack.

Among the 36 hypertensive patients, 38.9% of the subjects practice (eat) a low salt diet (eat below 5gm of salt/day), 21.0% exercise regularly, 39.5% exercise irregularly, and 39.5% do not exercise. 64.9% of them do not receive any treatment, 16.2% receive treatment at hospital, 10.8% take medicine intermittently, and 8.1% take medicine at drugstore without prescriptions.

Table 11. The practice to prevent hypertension

practice	respondents	percentage
low salt diet	189	26.4%
maintain ideal body weight	160	22.3%
check BP annually	119	16.6%
exercise regularly	114	15.9%
stress management	67	9.4%
no action	67	9.4%
total	716	100.0%

3-3. Diabetes Mellitus

3-3-1 Knowledge

Though 92% of the total subjects replied to that they know diabetes mellitus, only 30% of them know it well, 62% know it as a disease in which glucose appears in the urine (Table 12). And elderly, male, professional, administrative, and sales workers know more correctly than younger, female, and other job workers.

As a cause of DM 51.6% replied that it is idiopathic, 36.1% answered obesity is the cause, 6.7% answered it is of genetic origin, and 5.7% answered a germ (bacteria or virus etc.) is the cause. And urban subjects, professional workers, and high income group know more correctly than rural subjects, other job workers, and low income group.

Table 12. The knowledge status of DM

contents	respondents who answered correctly	percentage
cause	369	51.6%
symptoms	258	36.1%
diagnosis method	449	62.7%
able to deliver normal infant if treated well	545	76.1%
hypoglycemic symptom can occur	635	88.7%
blindness can occur	525	73.4%
liable to have infection	607	84.8%
basis of treatment is diet	649	90.7%
basic principle of diet	324	45.3%
regular exercise is necessary	624	87.2%
Is drinking permitted ?	596	83.2%
total	716	100.0%

Regarding the symptoms of diabetes mellitus, 36.1% replied correctly that thirst, polydipsia, polyphagia, polyuria and recent weight loss occur, 21.2% answered only weight loss occurs, 18.6% answered thirst and polydipsia occurs only, 13.8% answered only polyuria occurs, and 10.4% answered polyphagia occurs only. And urban residents, younger, female, professional and clerical workers and high income group know more correctly than rural residents, elderly, male, other job workers, and low income group.

62.7% answered correctly that blood glucose examination is more correct diagnostic method than urinalysis. Urban residents, 3rd decade and 8th decade groups, professional and clerical workers and high income group answered more correctly than rural one, middle age groups, other job workers, and low income group.

Even if a diabetic mother is pregnant, if she receives treatment would she deliver a normal baby. 76.1% of the subjects responded to the question correctly. And urban residents, younger age groups, professional, administrative and clerical workers, and high income groups answered more correctly.

Usually diabetics have a high blood glucose level, but

when blood glucose level decrease to below normal level, hypoglycemic symptoms could occur such as palpitation, cold sweating, and lethargy. 88.7% of the subjects replied to that correctly, and professional and sales workers answered more correctly than other job workers.

To the question whether blindness could occur when diabetes mellitus gets worse, 73.4% of the subjects answered correctly that it could. And urban residents, and high income groups answered more correctly than rural ones and low income group.

When asked if diabetics are liable to contract infections because immunity to bacteria is weaker than a normal person. 84.8% of the subjects answered it correctly, the correct response rate is not different between resident areas, age groups, sexes, jobs, and income.

To the question what is the basis in the treatment of diabetes mellitus among diet, exercise, and medical treatment, 90.7% of the subjects answered that diet is the basis. Younger age groups, female subjects, professional and clerical workers replied more correctly.

The fundamental of the diet therapy is to take 3 nutrients in balance, that is carbohydrate, protein and fat. 45.3% of the subjects know it correctly, and urban residents, younger age groups, professional and administrative workers and high income groups know more correctly than the opposite ones.

To the question whether adequate exercise is necessary to prevent diabetes mellitus, 87.2% of the subjects answered it is necessary. Urban residents, professional and clerical workers answered more correctly than rural ones and other job workers.

To the question if alcohol drinking is allowed in diabetics, 83.2% replied that they must not drink alcohol because alcohol itself contains calories and can lead to hypoglycemia. Younger age groups and female respondents answered it more correctly than middle age group and male ones.

3-3-2 Attitude

To the question how would one do if one contracts DM, 86.8% answered they would consult a physician and

receive treatment at hospital, 5.8% answered they would receive folk medicine, 4.4% answered they would receive herbal treatment, and 3.1% answered they would get treatment only when symptoms occur (Table 13). Professional and sales workers and high income groups answered more positively in the treatment of DM than other job workers and low income groups.

Table 13. The attitude when they contract diabetes mellitus

attitude	respondents	percentage
consult a doctor and receive treatment at hospital	621	86.8%
get folk medicine treatment	41	5.8%
take herb medicine	32	4.4%
treat only when symptom occurs	22	3.1%
total	716	100.0%

3-3.3 Practice

Among the 716 subjects 28.5% were practicing diet with adequate calories, 27.5% maintained their ideal body weight, 16.1% were practicing adequate exercise regularly, and 15.1% were taking periodic health examination, but 12.8% didn't practice anything to prevent DM (Table 14).

Prevention practice status was asked of the 11 DM patients amongst 716 patients. 5 subjects (45.5%) of the 11 DM patients answered that they were practicing diet with adequate calories and carbohydrates, 3 subjects (27.3%) were eating ad libitum, 2 subjects (18.2%) avoided sweet foods, 1 out of 11 was eating barley instead of rice.

Among the 11 DM patients only 4 subjects (36.4%) were exercising regularly, 1 person (9.1%) exercised at times, and 6 subjects (54.4%) didn't exercise. To the question whether they were receiving drug therapy at that time, only 4 out of 11 (36.4%) replied they were receiving drug therapy continuously according to the guide of specialist doctor, 2 of them (18.2%) replied they had received medical treatment only when symptom occurs, and 5 of them (45.5%) replied they were not receiving treatment

Table 14. The practice of prevent DM

practice	respondents	percentage
diet	204	28.5%
maintain ideal body weight	197	27.5%
exercise regularly	115	16.1%
receive periodic health examination	108	15.1%
no action	92	12.8%
total	716	100.0%

at all. Practicing diet with adequate calories and carbohydrates, 3 subjects (27.3%) were eating ad libitum, 2 subjects (18.2%) avoided sweet foods, 1 out of 11 was eating barley instead of rice.

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3-4. Cancer

3-4-1 Knowledge

Berman told that cancer is a disease that is widely feared because of its prevalence and incidence, its widespread causes (heredity, environment, lifestyle) and the belief that everything causes cancer. (Berman, 1990)

The knowledge status is shown in Table 15. 74.7% of all the subjects answered they know about cancer. In Korea the most common cancer is stomach cancer and the next is liver cancer. Among the 716 subjects 61.0% of them answered stomach cancer is most common, urban residents, professional workers and high income groups know it more correctly than rural ones, other job workers and low income groups.

It is known that there is no distinct cause in most

Table 15. The knowledge status regarding cancer

contents	respondents who answered correctly	percentage
most common cancer	437	61.0%
cause of cancer	427	59.7%
adequate treatment	672	93.8%
cancer associated with smoking	647	90.3%
factor associated with hepatoma	333	46.5%
total	716	100.0%

cancer except a few cases. 59.7% of the subjects knew it correctly, urban residents, younger age groups, female subjects, professional, producing job workers, and high income group knew it more correctly.

To the question what is the adequate method to manage cancer, 93.8% of the subjects answered correctly that early detection is the best method. Urban residents replied more correctly than rural residents.

90.3% of the subjects know that the cancer in which the incidence rate increases the most with smoking is lung cancer. Urban residents, younger age groups, professional, administrative, sales and service workers know it more correctly than rural ones, older age groups and other job workers.

To the question that which is the most related factor in liver cancer among alcohol, liver fluke, hepatitis B surface antigen, and herb medicine, 46.5% replied correctly it is hepatitis B surface antigen. And urban residents, younger age groups, professional and clerical workers and high income groups know it correctly than rural ones, older age groups, other job workers, and low income groups.

3-4-2 Attitude

To the question what he or she would do if he or she contracts cancer, 64.4% of the subjects answered that they would receive treatment at hospital actively, 29.2% answered that they would receive close examination at greater hospital, 2.5% answered they would pray with religious method, 3.9% answered they would not

go to hospital because cancer is incurable disease (Table 16).

The more positive attitude was found among urban residents than rural residents, sales workers than other job workers, and high income groups than low income groups.

Table 16. The attitude regarding cancer if they contract

attitude	respondents	percentage
treat actively at hospital	457	63.8%
would take further evaluation	207	28.9%
would not treat	34	4.7%
pray with religious method	18	2.5%
total	716	100.0%

3-4-3 Practice

In Korea the most common cancers are stomach cancer, liver cancer, and lung cancer. Then we asked 3 question about the practice of cancer prevention.

To the question what they practice to prevent stomach cancer, 48.0% of the subjects answered that they avoid hot or salty foods, 22.5% answered they avoid overdrinking or smoking, 9.5% answered they take Upper Gastrointestinal X-ray series or Gastrofiberscopy regularly 20.0% answered they practice nothing (Table 17).

Table 17. The practice of prevent stomach cancer

practice	respondents	percentage
avoid hot foods	344	48.0%
avoid smoking and overdrinking	161	22.5%
no action	143	20.0%
receive UGIS/GFS* regularly	68	9.5%
total	716	100.0%

* UGIS : upper G-I series (fluoroscopic X-ray study of upper G-I tract)

GFS : gastrofiberscopy

The second question was had they ever smoked before and had they quit smoking. 61.2% of 405 subjects who had ever smoked before answered they still smoke, 26.7

% of them have ceased then, and 12.1% of them smoked occasionally.

The third question was what they are practicing to prevent liver cancer. 37.6% of the subjects replied they had received hepatitis B vaccination, 24.3% of them replied they do not overdrink, 17.6% replied they receive periodic health examination, 1.4% replied they receive continuous treatment when they were taken ill will acute or chronic liver disease, and 19.1% replied they practice nothing (Table 18).

Table 18. The practice of prevent liver cancer

practice	respondents	percentage
have done hepatitis B vaccination	269	37.6%
don't drink much	174	24.3%
receive periodic health examination	126	17.6%
receive treatment if contract liver disease	10	1.4%
no action	137	19.1%
total	716	100.0%

In Korea hepatitis B antigen is so prevalent that hepatitis B vaccination is considerably helpful especially in medical personnel, infants and children. More hepatitis B vaccination is done in urban residents than rural ones, younger age groups than older age groups, female subjects than male ones, professional, administrative and clerical workers than other job workers, high income groups than low income groups.

3-5. Multiple Regression Analysis for the Attitude and Practice

The average scores of the knowledge of hypertension, diabetes, cancer, and total knowledge, the attitude, and the practice about noncommunicable disease are shown as Table 19.

Table 20 shows the correlation matrix of independent and dependent variables about noncommunicable diseases. The knowledge of hypertension is correlated with

Table 19. The mean scores of knowledge, attitude, and practice about NCD

	Mean	Standard deviation
Knowledge of hypertension	5.50	1.69
Knowledge of diabetes	7.10	1.70
Knowledge of cancer	7.04	2.17
Total knowledge regarding NCD	6.53	1.37
Attitude regarding NCD	2.39	0.32
Practice regarding NCD	2.26	0.27

residential area ($p < 0.01$) and income level ($p < 0.01$). The knowledge of diabetes is correlated with residential area, job, and income level ($p < 0.001$), and the knowledge of cancer is correlated with residential area, sex, job, income level, and economic status. The total knowledge regarding NCD is correlated with residential area and income level very significantly ($r = .5029$, $r = .4445$, $p < 0.001$), and with job, age, economic status; that is, those who reside in urban areas, have more professional jobs, earn more income, are younger, and are upper class know more about NCD. But the attitude regarding NCD is correlated with sex, economic status, and the knowledge about hypertension, that is, those who are male, are in the upper class, and know more about hypertension are more active for NCD. The practice regarding NCD is correlated with nothing in this study.

As a result of stepwise multiple regression analysis of demographic variables for the knowledge of hypertension, 4.3% was explained by residential area, and 0.6% was explained by job, then the two variables showed 4.9% of explainability (Table 21).

The knowledge of diabetes mellitus was explained by job, income level, age, and residential area 9.5%, 3.2%, 1.4%, 1.5% respectively, then 15.6% was explainable by the 4 variables in total (Table 22).

For the knowledge of cancer 11.8% was explained by residential area, 3.3% was explained by income level, 2.1% was explained by age, and 1.1% was explained by job, then total 18.3% was explainable by the 4 variables

Table 20. The correlation matrix of variables about NCD

Area	Age	Sex	Job	Income	Disease history	Economic status	Knowledge of HT	Knowledge of DM	Knowledge of cancer	Knowledge of NCD	Attitude of NCD	Practice of NCD
Area	-.2071*	-.1795*	.4071**	.5075**	-.2188*	.1719*	.2159*	.3952**	.4808**	.5029**	.0240	.0041
Age	-	.1690*	-.2110*	-.1246	.1672	-.1184	-.0631	-.1674	-.1651	-.1810*	-.0103	-.0512
Sex	-	-	-.2067*	-.0245	.0539	.0741	-.0076	-.1305	-.1887*	-.1548	.4748**	.1383
Job	-	-	-	.1713*	.1059	.0642	.0481	.2576**	.3044**	.2841**	-.0348	-.0096
Income	-	-	-	-	-.0782	.4201**	.1882*	.3663**	.4138**	.4445**	.1223**	-.0918
Disease history	-	-	-	-.1257	-	-.0337	-.1302	-.0765	-.0789	-.0789	.0587	.0784
Economic status	-	-	-	-	-	.0260	.1564	.1843*	.1709*	.1709*	.2209*	.0623
Knowledge of HT	-	-	-	-	-	-	.2886*	.2794**	.6846**	.6846**	.1844*	.0047
Knowledge of DM	-	-	-	-	-	-	-	.3811**	.7292**	.7292**	.1260	.0015
Knowledge of cancer	-	-	-	-	-	-	-	-	.7940**	.7940**	-.0107	-.0106
Knowledge of NCD	-	-	-	-	-	-	-	-	-	-	.1236	-.0030
Attitude	-	-	-	-	-	-	-	-	-	-	-	-.0418
Practice	-	-	-	-	-	-	-	-	-	-	-	-

* p<.01, ** p<.001

Table 21. Multiple regression analysis for the knowledge of hypertension

Variable	B	SE B	Beta	Sig T	F	Sig F	R ²
Residential area	.5493	.1565	.1627	.0005	25.7807	.0000	.0428
Job	.3088	.1552	.0922	.0471	14.9367	.0000	.0494
(Constant)	4.2504	.2441		.0000			

Table 22. Multiple regression analysis for the knowledge of diabetes mellitus

Variable	B	SE B	Beta	Sig T	F	Sig F	R ²
Job	.6014	.1510	.1776	.0001	60.7621	.0000	.0953
Income level	.0370	.0125	.1280	.0031	42.0335	.0000	.1274
Age	-.0206	.0063	-.1287	.0011	31.4760	.0000	.1411
Residential area	.5208	.1618	.1528	.0014	26.5819	.0000	.1563
(Constant)	5.9471	.3499		.0000			

(Table 23).

The total knowledge of noncommunicable disease was scored as the average score of the knowledge of hypertension, diabetes, and cancer. The multiple regression analysis showed us that for the knowledge of noncommunicable disease 14.3% was explained by residential area, 3.9% was explained by income level, 3.4% was explained by job, and 1.7% was explained by age, then 23.3% was

explainable by these 4 variables (Table 24).

As a result of multiple regression analysis of demographic variables and the knowledge of NCD for the attitude regarding NCD, 21.3% was explained by sex, 3.8% was explained by the knowledge about NCD, 1.4% was explained by economic status, then 26.5% in total was explainable by those 3 variables (Table 25). But for the practice about NCD there was no significant variables that affect

Table 23. Multiple regression analysis for the knowledge of cancer

Variable	B	SE B	Beta	Sig T	F	Sig F	R ²
Residential area	.8357	.1930	.1960	.0000	82.1503	.0000	.1175
Income level	.0679	.0149	.1870	.0000	54.6230	.0000	.1506
Age	-0.248	.0075	-.1234	.0010	44.4497	.0000	.1716
Job	.5271	.1796	.1243	.0035	34.3856	.0000	.1830
(Constant)	5.4219	.4160		.0000			

Table 24. Multiple regression analysis for the total knowledge of NCD

Variable	B	SE B	Beta	Sig T	F	Sig F	R ²
Residential area	.5340	.1278	.1966	.0000	89.1352	.0000	.1433
Income level	.0468	.0097	.2060	.0000	59.4008	.0000	.1826
Job	.4854	.1182	.1801	.0000	48.8738	.0000	.2164
Age	-.0169	.0050	-.1321	.0007	40.2834	.0000	.2331
(Constant)	5.2955	.2745		.0000			

Table 25. Multiple regression analysis for the attitude regarding NCD

Variable	B	SE B	Beta	Sig T	F	Sig F	R ²
Sex	.3238	.0257	.4790	.0000	141.1760	.0000	.2129
Knowledge of NCD	.0409	.0089	.1760	.0000	87.2063	.2508	.2508
Economic status	.0485	.0154	.1202	.0017	62.4375	.0000	.2648
(Constant)	1.4431	.0830		.0000			

the practice. It seemed to be that because most of the subjects were healthy without any noncommunicable diseases they didn't have much regards to prevent NCD yet.

IV. Conclusion

In this KAP study about NCD among the Korean adults residing both in urban and rural area, Pusan city and near Pusan, we became aware that the knowledge status was rather high in hypertension, diabetes, and cancer, the attitude about the three sorts of NCD was relatively positive, and the practice to prevent those NCD was in the direction of active side. The knowledge was higher in urban residents, higher income groups, professional job workers, and younger aged persons, and was mainly explained by residential area and job about 5%. The attitude was more active in male persons, who know more about NCD, are upper class, and was mainly explained by sex, knowledge, and economic status about 26%. But the practice was not significantly related with any demographic variables, the knowledge status, and the attitude.

As the noncommunicable diseases are more prevalent than before and it will be the target disease in aging and developing countries, more focus should be put on health education to prevent NCD in the dimension of disease prevention and health promotion.

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<국문요약>

도시 및 시골에 거주하는 성인들의 성인병에 대한
지식, 태도 및 실천
-고혈압, 당뇨병 및 암을 중심으로-

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의학이 발달하고 수명이 연장되고, 그리고 식사가 보다 서양화되는 등 생활양식이 변화됨에 따라 성인병이 1970년대부터 한국에 보다 늘어나게 되었다. 본 연구는 면접 및 설문지법을 이용하여 성인병, 특히 고혈압, 당뇨병 및 암에 관하여 도시 및 시골 거주자들의 지식, 태도 및 실천을 비교 연구하였다. 연구기간은 1990년 1월 부터 12월까지 1년동안이었고 대상은 전체 716명으로 그중 360명은 부산시 거주자였고 356명은 부산 근교의 시골거주자였다.

고혈압, 당뇨병 및 암에 대해 알고 있다고 응답한 대상자는 각각 92.6%, 92.0% 및 74.7%였다. 고혈압, 당뇨병 및 암의 지식도에 있어서 도시 거주자들이 시골 거주자보다 유의하게 더 많이 알고 있었다(각각 $p < 0.001$). 그러나 성인병에 관한 태도와 지식에 있어서는 도시 거주자와 시골 거주자 사이에 유의한 차이가 없었다($p < 0.05$).

고혈압의 지식도는 거주지($r = 0.2159$, $p < 0.01$) 및 수입($r = 0.1882$, $p < 0.01$)과 유의한 상관관계가 있었고, 당뇨병에 관한 지식도는 거주지($r = 0.3952$, $p < 0.001$), 수입($r = 0.3663$, $p < 0.001$) 및 직업($r = 0.2576$, $p < 0.001$), 수입($r = 0.4138$, $p < 0.001$), 직업($r = 0.3044$, $p < 0.001$) 및 성별($r = -0.1887$, $p < 0.01$)과 유의한 상관관계가 있었다. 성인병에 관한 태도는 성별($r = 0.4748$, $p < 0.001$), 경제상태($r = 0.2209$, $p < 0.01$) 및 고혈압 지식도($r = 0.1844$, $p < 0.01$)와 유의한 상관관계를 나타내었다. 성인병에 관한 실천은 본 연구에서 어떤 변수와도 상관관계가 없는 것으로 나타났다.

성인병이 이전보다 더 많아짐에 따라 연령이 증가하는 나라와 개발국가에서 성인병이 주요한 대상질환이 될 것이고, 질병예방과 건강증진의 차원에서 성인병을 예방하기 위해 보건교육에 보다 중점을 두어야 할 것이다.

중심단어 : 성인병, 지식, 태도 및 실천