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Health Behaviors: A Cross-Sectional Study of South Korean Residents in a Metropolitan Area

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Abstract

Background: It is well known fact that health behaviors affect one's health status. As the prevalence of the chronic disease is increasing in Korea, the need of management for chronic disease is required more. The health behavior is associated with chronic disease. As the health behaviors of Metropolitan residents are still not known much yet in Korea, so this study is accomplished to identify health behaviors of metropolitan residents and be provided for research purpose and data for health administration.

Methods: This study was carried out in urban areas of Gwangju city by the questionnaire used for the health examination was examined by the National Health Insurance Management Corporation from August to September, 2012. Inquired health behaviors by questionnaires were smoking, drinking status, weight, height, diet habit.

Results: The smoking rate of men over 20 years old was 19.4% and the rate of women was 0.5%. The drinking rate of men over 20 years old was 51.7% and the drinking rate of women over 20 years old was 18.3%. 40.0% of men and 17.3% of women over 20 years of age were obese people with a body mass index (BMI) of 25 or more. Most men and women have a habit of eating meat and veggies balanced. 73.9% of men and 64.9% of women who exercise regularly more than once a week were generally high, but 39.1% of women 20 ~ 29 years old and 48.5% of women 30 ~ 39 years old were somewhat lower.

Conclusion: Health state had significant correlations with health behaviors in Metropolitan residents, so it is helpful to public health promotion to let them know this fact. To improve the health status of the residents of urban area, the health behavior of age group is identified. And then, appropriate efforts like health education should be done.

Keywords: Health behaviors; Metropolitan residents; Health promotion; Health education

Introduction

In the modern society, the increase in life expectancy, industrialized urbanization, westernization of dietary habits led to a significant increase in chronic degenerative diseases such as cancer, cardiovascular disease and diabetes, and stress related diseases. These chronic degenerative diseases have a long period of morbidity, and once they develop, they suffer from a lifetime personally, the quality of life is poor, and the cost of treatment is high. Therefore, if local governments do not know the actual situation and actively manage it, they have to pay a lot of money. The causes of these non-infectious chronic diseases are not clear, and various factors are involved. Of these factors, especially lifestyle as health behavior is emphasized. Belloc and Breslow [1] argue that over the past 20 years, personal health behaviors, such as drinking, smoking, and exercise, contribute to have potential effects and A study conducted by Wiley and Camacho[2] in the mid-1960s in Alameda County, California, found that seven types of lifestyle including smoking cessation, moderate to no alcohol drinking, 7 to 8 hours of sleep, exercise, proper weight maintenance, snack restriction, regular breakfast, were closely related with health condition and life expectancy.

In addition, Wingard et al. [3] showed that five health habits, excluding breakfast and snack were associated with low mortality in a 9-year follow-up between these seven health habits and mortality. Calle et al. [4] reported that obese people increase mortality rates due to various types of cancer. Alan Dever [5] analyzed the effects of death on health behaviors, biological factors and environmental healthcare organizations using data from Alameda County and found that health behavior was the most important.

Therefore, by knowing the degree of lifestyle in the residents of one area, it will be possible to know to what extent the health habits of the local residents should be

specifically improved and to improve the health habits of the locals more efficiently [6].

Here, this study was conducted to find out the way to improve the health of the industrialized metropolitan residents whose lifestyle is rapidly changing and population density is more than 1 million.

Methods

Subjects

The self-administered questionnaires made by the National Health Insurance Corporation for 75 local areas in Gwangju Metropolitan City were used for this study.

The study was conducted from August 1 to September 31, 2012.

Among 413 participants, answers of 388 participants were used as the analytical data except for 25 which had unfaithful answers. All participants were informed about the purpose of the study, and provided written informed consent. All the health behaviors were measured through self-reported questions.

The study protocol was conducted in accordance with the Ethical Principles for Medical Research Involving Human Subjects, as defined by the Helsinki Declaration.

Investigation method

Age, sex, weight and height were investigated with general characteristics and smoking, drinking, eating habits and exercise were examined by lifestyle.

General characteristics and lifestyles were categorized over 20 years old, and the missing persons by characteristics were excluded from each analysis.

All statistical analyses were performed using the X2-test for categorical variables and Student's t test for continuous variables.

Results

General characteristics

A total of 388 subjects were surveyed, including 180 men (46%) and 208 women (54%).

The percentage of men aged 20-29 is 6.1%, those aged 30-39 are 17.8%, those aged 40-49 are 21.7%, those aged 50-64 are 43.3%, and those aged 65 or older are 11.1%.

The percentage of women aged 20-29 was 11%, the ages of 30-39 were 15.9%, the ages 40-49 were 22.1%, the ages 50-64 were 43.3%, and those aged 65 or older are7.7% **(Table 1)**.

Health related habits of subjects who are over 20 years old

Smoking: The rate of smoking among men over 20 years old was 19.4% and that of women was 0.5%.

The smoking rate among the age groups ranged from 20 ~ 29, 30 ~ 39, 40 ~ 49, 50 ~ 64, and over 65 was 36.4%, 15.6%, 23.1%, 20.5%, and 5.0% in men **(Table 2)**. Men had the highest smoking rates among the age group of 20-29.

Drinking: The drinking rate of men over 20 years old was 51.7%, and the drinking rate of women over 20 years old was 18.3%. In the case of men, the drinking rate by age was 72.7% in 20 ~ 29 years, 81.3% in 30 ~ 39 years, 66.7% in 40 ~ 49 years, 37.2% in 50 ~ 64 years and 20.0% in over 65 years.

Drinking rates were high from 20 to 49 years old, and the drinking rate was relatively low over age 50. Women had the highest drinking rates among the age group of 20-29 **(Table 3)**.

Table 1: Age and sex distribution of the study subjects.

Age (yrs)	Male no (%)	Female no (%)
20 ~ 29	11 (6.1)	23 (11.0)
30 ~ 39	32 (17.8)	33 (15.9)
40 ~ 49	39 (21.7)	46 (22.1)
50 ~ 64	78 (43.3)	90 (43.3)
65 ~	20 (11.1)	16 (7.7)
Total	180 (100)	208 (100)

Note: P<0.05 by X^2-test.

Table 2: Smoking status by sex and age.

Age (yrs)	Male (N=180)		Female (N=208)	
	Smoker	Nonsmoker	Smoker	Nonsmoker
	No (%)	No (%)	No (%)	No (%)
20 ~ 29	4 (36.4)	7 (63.6)	0 (0)	23 (100)
30 ~ 39	5 (15.6)	27(84.4)	0 (0)	33 (100)
40 ~ 49	9 (23.1)	30 (76.9)	0 (0)	46 (100)
50 ~ 64	16 (20.5)	62 (79.5)	1 (1.1)	89 (98.9)
65 ~	1 (5.0)	19 (95.0)	0 (0)	16 (100)

Note: P<0.05 by X^2-test.

Obesity: Men aged over 20 with Body Mass Index (BMI)>25 were 40.0% and 17.3% of women respectively.

In women with BMI>25, the rates of aged 20 to 49 were not high compared to the rates of over 50 years of age or older **(Table 4)**.

Eating habits: 80.0% of men had a dietary habit of eating vegetables and meats balanced, and 66.8% of women ate evenly vegetables and meats.

In detail about balanced diet, it was similar by the age group respectively but the age of over 65 was lower than the other age group in women **(Tables 5 and 6)**.

Table 3: Drinking status of gender and age.

Age (yrs)	Male (N=180)			Female (N=208)		
	Drinker	Ex-drinker	Non-drinker	Drinker	Ex-drinker	Non-drinker
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)
20 ~ 29	8 (72.7)	0 (0)	3 (27.3)	14 (60.9)	0 (0)	9 (39.1)
30 ~ 39	26 (81.3)	0 (0)	6 (18.7)	8 (24.2)	4(12.1)	21 (63.7)
40 ~ 49	26 (66.7)	5 (12.8)	8 (20.5)	4 (8.7)	2(4.3)	40 (87.0)
50 ~ 64	29 (37.2)	12 (11.1)	37 (47.4)	10 (11.1)	3(3.3)	77 (85.6)
65 ~	4 (20.0)	1 (5.0)	15 (75.0)	2 (12.5)	0(0)	14 (87.5)

Note: P<0.05 by X^2-test.

Table 4: Distribution of body mass index (BMI).

Age (yrs)	Male (N=180)		Female (N=208)	
	BMI<25	BMI>25	BMI<25	BMI>25
	No (%)	No (%)	No (%)	No (%)
20 ~ 29	7 (63.6)	4 (36.4)	23 (100)	0 (0)
30 ~ 39	21 (65.6)	11(34.4)	29 (87.9)	4 (12.1)
40 ~ 49	20 (51.3)	19 (48.7)	41 (89.1)	5 (10.9)
50 ~ 64	46 (59.0)	32 (41.0)	68(75.6)	22 (24.4)
65 ~	14 (70.0)	6 (30.0)	11 (68.8)	5 (31.1)

Note: P<0.05 by X^2-test.

Table 5: Diet habit of Male gender and age.

Age (yrs)	Male (N=180)		
	Meats mainly diet	Meats and vegetables balanced diet	Vegetables mainly diet
	No (%)	No (%)	No (%)
20 ~ 29	1 (9.0)	10 (91.0)	0 (0)
30 ~ 39	1 (3.1)	27 (84.4)	4 (12.5)
40 ~ 49	2 (5.1)	34 (87.2)	3 (7.7)
50 ~ 64	5 (6.4)	58 (74.4)	15 (19.2)
65 ~	0 (0)	15 (75.0)	5 (25.0)

Note: P<0.05 by X^2-test.

Table 6: Diet habit of Female gender and age.

Age (yrs)	Female (N=208)		
	Meats mainly diet	Meats and vegetables balanced diet	Vegetables mainly diet
	No (%)	No (%)	No (%)
20 ~ 29	5 (21.7)	17 (73.9)	1 (4.3)
30 ~ 39	3 (9.1)	22 (66.7)	8 (24.2)
40 ~ 49	1 (2.2)	35 (76.1)	10 (21.7)
50 ~ 64	2 (2.2)	59 (65.6)	29 (32.2)
65 ~	0 (0)	6 (37.5)	10 (62.5)

Note: P<0.05 by X^2-test.

Exercise: 73.9% of men and 64.9% of women exercise regularly at least once a week.

Men and women who exercise more one time a week were higher in most ages, but conversely 45% vs. 55% in men aged over 65, 39.1% vs. 60.9% in women aged 20-29, and 48.5% vs. 51.5% in women aged 30-39 **(Table 7)**.

Table 7: Distribution of regular exercise.

Age (yrs)	Male (N=180)		Female (N=208)	
	More one time/wk	Less one time/wk	More one time/wk	Less one time/wk
	No (%)	No (%)	No (%)	No (%)
20 ~ 29	7 (63.6)	4 (36.4)	9 (39.1)	14 (60.9)
30 ~ 39	20 (62.5)	12 (37.5)	16 (48.5)	17 (51.5)
40 ~ 49	34 (87.2)	5 (12.8)	33 (71.7)	13 (28.3)
50 ~ 64	63 (80.8)	15 (19.2)	67 (74.4)	23 (25.6)
65 ~	9 (45.0)	11 (55.0)	10 (62.5)	6 (37.5)

Note: P<0.05 by X^2-test.

Discussion

It is generally known that the modern concept of health promotion was publicly launched from the so-called Laronde Report published by the Canadian government in 1976.

Among them, emphasizing the importance of healthy lifestyle as a determinant of health by the fact that lifestyle occupies more than 60% of total health.

In the practice of health promotion, it is related to the change of individual's lifestyle. Lifestyle is one of the biggest influences on health promotion.

With the demolition of traditional society and the change of lifestyle due to the enlargement of the city, the physical

activity of the individual has decreased and the form of social work has changed, causing a new disease.

In addition, research has been conducted on lifestyle of how these social and behavioral factors are involved in disease [1,7].

Much research has been done on smoking and health, and smoking has been recognized as an important factor in the development of cancer, cardiovascular disease, and chronic respiratory disease. Revicki et al. [8] reported that there was a significant relationship between smoking and overweight, breakfast, exercise, and drinking status. Schoenborn and Benson [9] also found that smokers sleep less, skip breakfast, exercise less, and drink alcohol heavily than non-smokers.

In the research of Woolf et al. [10], Smokers were significantly lower in general health (GH) and mental health (MH) than non-smokers.

This study showed that the smoking rate of aged over 20 was 19.4% in men and 0.5% in women, which was lower than that of men (58.7%) and women (11.3%) of Yun Ji Lee [6] respectively.

During this period, the hospital nurse participated in the health checkups, and then the smoking rate of the female was lowered.

In the age group, smoking rate is the highest at 36.4% among men aged 20-29, so group smoking cessation education and public relations are urgent for male college students and young male workers at the age of 20.

Psychological and sociological evidence is already well documented for the loss or impairment of health due to drinking habits, such as addiction, accidents, illnesses caused by excessive alcohol consumption, morbidity and premature death, as well as the collapse of personality and family breakdown.

In this survey, the drinking rate of men over 20 years old was 51.7%, and the drinking rate of women over 20 years old was 18.3%. These rates were similar with the results (50.8%, 11.1%) of Yun Ji Lee [6].

However, 12.8%, 11.1%, and 5% of men aged over 40 are exdrinker thus health education to avoid heavy alcohol drinking is needed to promote the health of local residents in this age group.

Because the incidence of hepatitis, fatty liver, liver cirrhosis, and liver cancer is increasing due to excessive drinking and it can cause low quality of life [11-13].

With considering that patients are more likely to have a misunderstanding that there is a generous atmosphere for drinking and there is a tendency to appreciate the merits of drinking, it is believed that active attention should be paid to alcohol drinking [14].

The US Preventive Services Task Force [15] has advised to all drinkers about the risks of illness and accidents related to alcohol consumption and to recommend that they draw the limits of adequate intake.

It is known that people with obesity are more likely to suffer from bad lifestyle diseases such as hypertension and diabetes, and the mortality rate from various types of cancer is further increased [4].

Grossel et al. [16] reported that health-related quality of life was lower in obese subjects compared to overweight or normal weight.

In the study of Yun Ji Lee [6], obesity was 11.5% in males and 11.9% in females, but in this survey, 40.0% of males over 20 years old were higher than 17.3% of females over 20 years old. Especially, obesity is high in the 40-49 year old group with 48.7% of the total, so it is necessary to educate the group on exercise programs and diet.

There are not many studies on dietary habits, but people who have a habit of eating large amounts of food at once tend to become obese [17], and excessive intake of animal fat is known to be associated with cardiovascular disease such as hypertension, hyperlipidemia, and stroke.

In this study, 80.0% of men and 66.8% of women over 20 years old had dietary habits to consume vegetarian and meats balanced, and they had good eating habits. However 21.7% of women aged 20-29 have bad eating habits that mainly eat meat, therefore it is necessary to educate dietary habits such as reducing meat intake and increasing intake of vegetables.

The lack of exercise has been found to be strongly related to coronary heart disease and mortality [18]. According to Yun Ji Lee [6], there were 15.8% of men and 11.8% of women who exercise regularly at least once a week compared with this study which had 73.9% of men and 64.9% of women exercised regularly at least once a week.

However, 60.9% of those in their 20s and 51.5% of those in their 30s were relatively high in the number of women exercising less than once a week, so active education and public promotion are needed to increase the number of exercise for this age group.

Exercise is known to have an effect of improving health status and self-confidence in relation to problems such as coronary artery disease, hypertension, obesity, non-insulin dependent diabetes mellitus, and osteoporosis.

These findings have several limitations. First, because one of the general hospitals located in Gwangju metropolitan city is selected randomly and it is not concentrated in a wide range of spatially and localized, it is difficult to generalize the results. Second, the number of subjects to be sampled is inadequate to be applied to all inhabitants in Korea as a whole. Third, because the existing questionnaires and scales were mainly used, there are many aspects that are not accurately reflected in the current situation. Fourth, this study is a cross-sectional study, in which only the current situation is evaluated, ignoring the time-dependent change factors, and the future changes are unknown. Therefore, it will be necessary to compare for a certain period.

Conclusion

To summarize, smoking cessation education is more needed for male youths and drinking rate is high in adults under 39 years of age thus it is important for them to know adequate amount of drinking alcohol to control. In addition, obesity is more common in women over 50 years old, so it is recommended to improve lifestyle, regular exercise, and balanced diet. Dental conditions and nutrition education are needed to improve eating habits in women over 65 years of age. Adults under the age of 39 and females require exercise programs to participate easily in their community. This will require efforts by community health authorities to improve the five health behaviors and to find a better quality of life.

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