

# Research in Brief



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## Changes in Health Behaviors among Adults: A Look through the Korean Health Panel Survey 2010~2018

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### Introduction

Health behavior is a key determinant of health. Unlike other health determinants, including genetic and environmental factors, health behaviors are modifiable at the individual level in a way to prevent chronic ailments and promote health. The Korean Health Panel Survey, ongoing since 2008 to explore health care use and a diverse array of factors that affect health care use, has produced its First Phase (2008~2018) data from a sample of 8,000 households drawn from the 2005 Census. An additional 2,500 households were added to the sample in 2012 to secure its representativeness and to make up for attrition. This study describes the 9-year longitudinal tracking (2010~2018) of trends in the health behaviors of adults aged 18 and older (4,353 women and 3,364 men) and discusses what implications it has for policy.

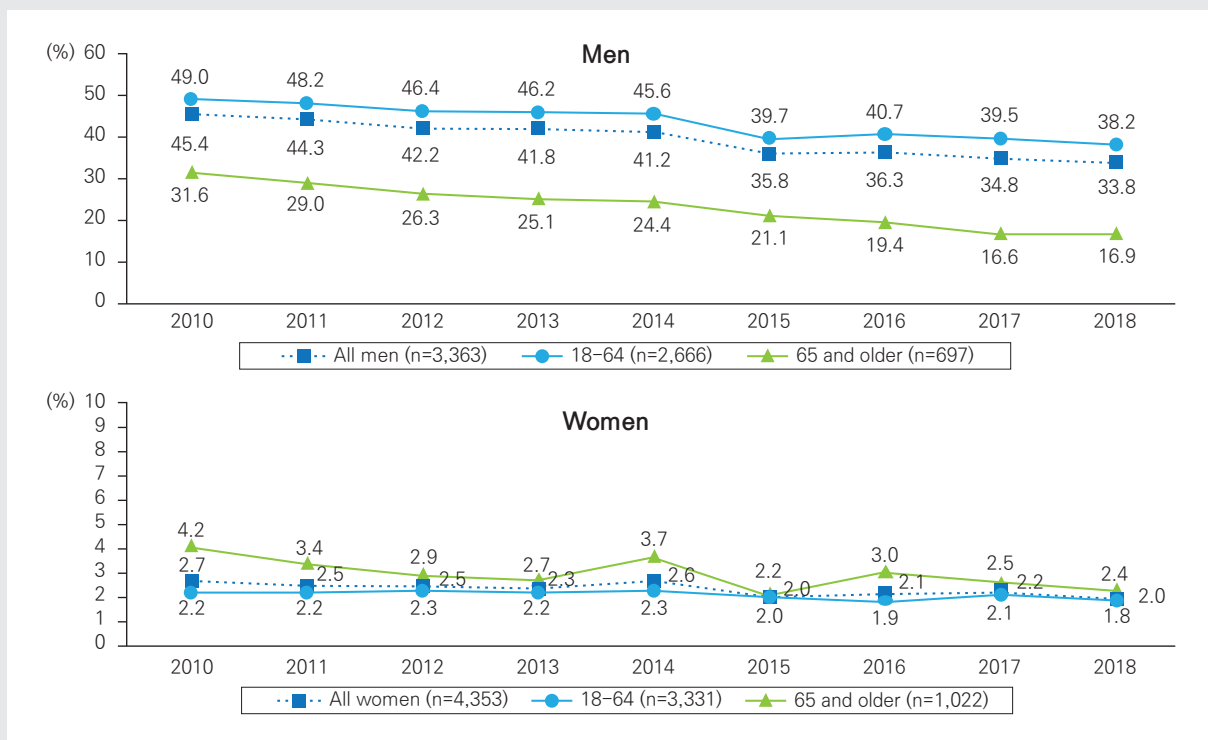
### Changes in health behaviors, by sex and age

[Prevalence of smoking] Men who participated in the Korean Health Panel Survey every year over the period 2010~2018 saw their smoking rate decline continuously, from 45.4 percent in 2010 to 33.8 percent

in 2018, while women during the same period showed no changes of note in their smoking rate (see Figure 1). In men, smoking rates declined for both those aged 65 and older and those aged 18~64. For the younger group, the smoking rate dropped by 10.8 percentage points over the nine years, from 49.0 percent in 2010 to 38.2 percent in 2018. Men who in 2010 were 65 years of age or older saw their smoking rate decline from 31.6 percent to 16.9 percent, a larger percentage-point drop than in the case of the younger group.

Women who were 65 and older in 2010 had then a smoking prevalence of 4.2 percent, considerably higher than the 2.2 percent for women aged 18~64. However, the two age groups of women showed, over the years to 2018, no distinct difference in their smoking rates.

[Figure 1] Trends in smoking rates for adults who participated in the Korean Health Panel Survey over the period 2010~2018

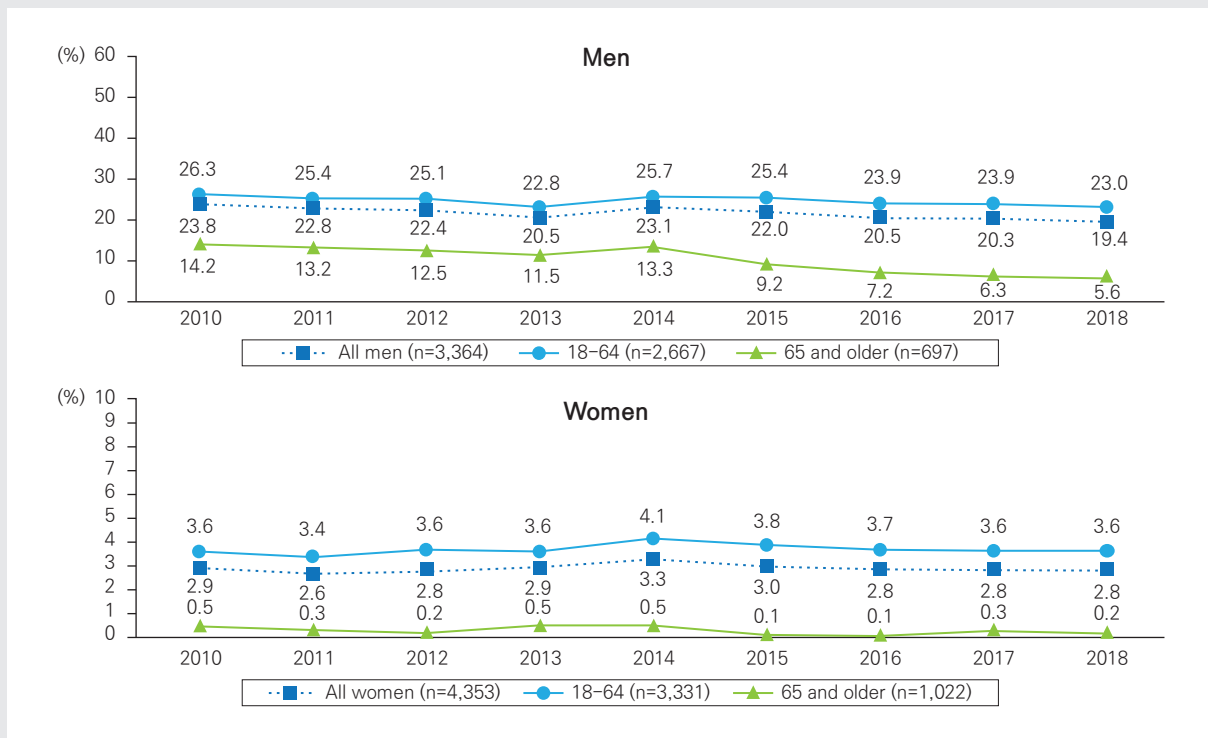


Note: The figures, as they are prevalence estimates for current smoking in those whose health behaviors were reported in the Korean Health Panel Survey for years 2010 through 2018, may differ from estimates gained from cross-sectional data that are representative of the population for a given year.

[Prevalence of drinking] The drinking rate of men who participated in the Korean Health Panel throughout the years 2010~2018 declined by 4.4 percentage points in 2018 from the 2010 level, while for women there was no marked change (see Figure 2). The high-risk drinking rate for men 65 or older, recorded at 14.2 percent in 2010, declined for nine years on end. For men aged 18~64, the high-

risk drinking rate dropped a little over the years, from 26.3 percent in 2010 to 23.0 percent in 2018. The prevalence of high-risk drinking for women who were 18~64 years of age in 2010, at 3.6 percent in 2010 and again 3.6 percent in 2018, with little changes figuring in the years in between, was higher all along than that for women who were 65 or older in 2010.

[Figure 2] Trends in high-risk drinking rates for those who participated in the Korean Health Panel Survey over the period 2010~2018



Note: As the figures shown here are prevalence estimates for high-risk drinking in those whose health behaviors were reported in the Korean Health Panel Survey for years 2010 through 2018, they may differ from estimates gained from cross-sectional data that are representative of the population for a given year.

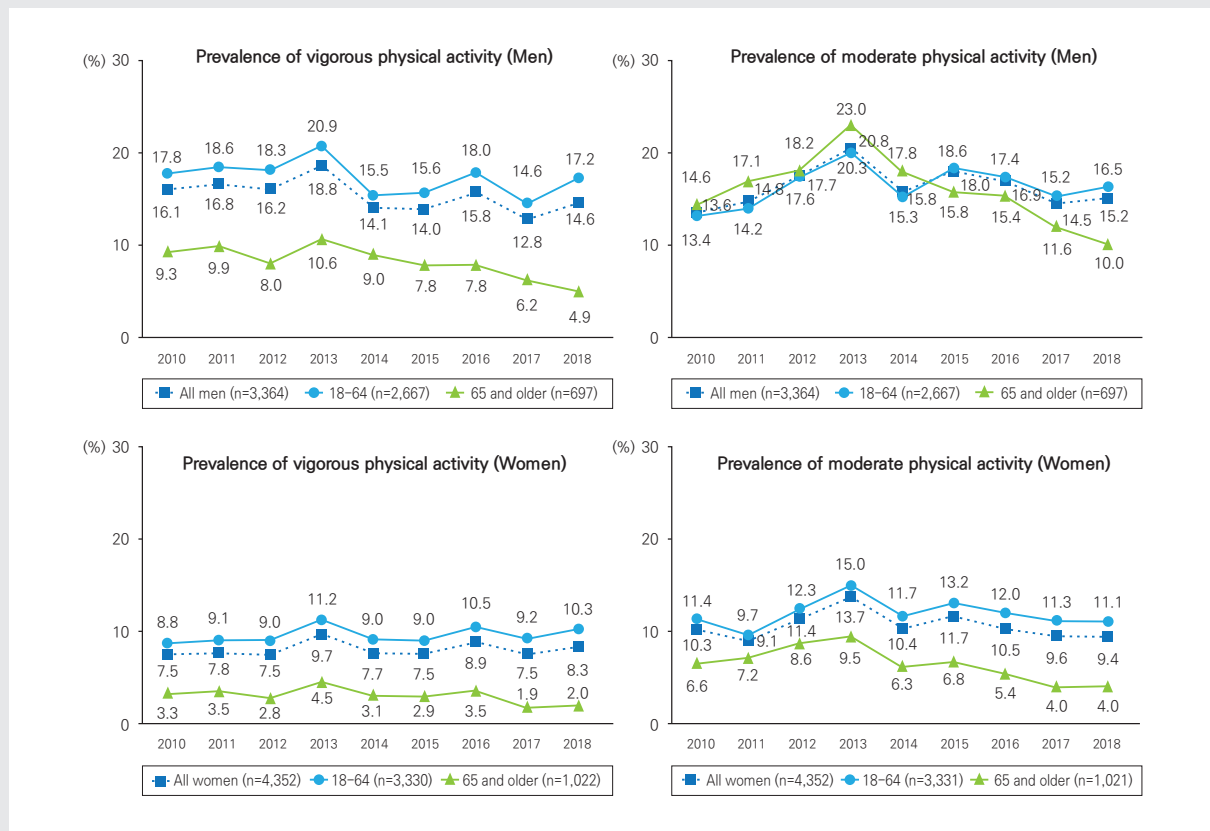
[Prevalence of physical activity] Both women and men who participated in the Korean Health Panel throughout the years 2010~2018 showed no distinct pattern of changes in the prevalence of physical activity, vigorous<sup>1)</sup> or moderate<sup>2)</sup>. In men, the prevalence of vigorous physical activity rose and fell repeatedly, from 16.1 percent in 2010 to 18.8 percent in 2013 and to 14.6 percent in 2018. Men's prevalence of moderate physical activity also underwent ups and downs, from 13.6 percent in 2010 to 20.8 percent in

1) The prevalence of vigorous physical activity refers to the percentage of people who report they engage in physical activities with breathing and the heart rate significantly above the normal levels for at least 20 minutes at a time at least three times a week.  
 2) The prevalence of moderate physical activity refers the percentage of people who report they engage in physical activities with breathing and the heart rate slightly faster than normal levels five times a week, normally for more than 30 minutes at a time.

2013 and to 15.2 percent in 2018. The prevalence of vigorous physical activity for women, at 7.5 percent in 2010 and 8.3 percent in 2018, remained largely unchanged throughout the nine years at levels half those for men. Women’s prevalence of moderate physical activity remained lower than men’s, varying mildly from 10.3 percent in 2010 to 13.7 percent in 2013 to 9.4 percent in 2018.

The prevalence of vigorous physical activity for men aged 65 and older, which, at 9.3 percent in 2010 and already much lower than the 17.8 percent for men aged 18~64, declined successively throughout the 9 years that followed. When it comes to the prevalence of moderate physical activity, however, the difference in changes over the period was less conspicuous between men aged 65 and older and men aged 18~64. In women, the prevalence of physical activity, vigorous and moderate alike, remained lower for those aged 65 and older than for those aged 18~64.

[Figure 3] Trends in the prevalence of physical activity in adults who participated in the Korean Health Panel Survey for years 2010~2018



Note: As the figures shown here are prevalence estimates for physical activity in those whose health behaviors were reported in the Korean Health Panel Survey for years 2010 through 2018, they may differ from estimates gained from cross-sectional data that are representative of the population for a given year.

## Changes in health behavior by educational attainment level

There were no marked differences between people of different educational attainments in trends in the prevalence either of high-risk drinking or of physical activity. However, in the case of men aged 18~64, however, the difference attributed to educational attainments persisted in the prevalence of current smoking, which, in the period 2010~2018, declined from 52.5 percent to 42.1 percent for those with a high school diploma and from 44.8 percent to 34.8 percent for those with a college degree or higher. As for men who were 65 or older in 2010, the difference in the prevalence of current smoking narrowed, between those with a middle school diploma and those with a high school diploma or higher, from 8.8 percentage points to 2.3 percentage points during the nine years.

[Table 1] Trends (2010~2018) in health behaviors in Korean Health Panel Survey participants who were aged 18~64 in 2010, by educational attainment

		2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Prevalence of current smoking</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=518)</b>	49.6	49.0	46.0	45.2	43.2	38.4	37.5	36.3	36.1
	<b>High school diploma (n=1151)</b>	52.3	51.6	49.9	50.5	50.3	43.2	45.8	44.1	42.1
	<b>College degree or higher (n=997)</b>	44.8	43.9	42.6	41.7	41.4	36.2	36.4	36.0	34.8
<b>Women</b>	<b>Middle school diploma or lower (n=1058)</b>	3.9	3.4	3.1	3.2	3.3	3.0	2.8	3.2	2.8
	<b>High school diploma (n=2173)</b>	1.4	1.6	1.9	1.8	1.9	1.5	1.4	1.6	1.4
<b>Prevalence of high-risk drinking</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=518)</b>	27.2	26.8	25.5	24.7	23.2	23.6	21.6	21.6	18.0
	<b>High school diploma (n=1152)</b>	27.9	26.2	26.6	25.7	27.3	26.9	26.4	26.4	25.4
	<b>College degree or higher (n=994)</b>	24.0	23.6	23.1	18.6	25.0	24.5	22.3	22.3	22.8
<b>Women</b>	<b>Middle school diploma or lower (n=1057)</b>	3.1	2.7	3.3	3.0	2.9	2.5	2.6	1.9	2.2
	<b>High school diploma (n=2274)</b>	3.8	3.7	3.8	3.9	4.7	4.5	4.2	4.4	4.3
<b>Prevalence of vigorous physical activity</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=518)</b>	15.4	14.9	15.6	19.1	14.5	11.8	14.1	7.3	11.8
	<b>High school diploma (n=1152)</b>	19.8	20.5	19.4	22.7	15.7	18.9	18.3	16.5	20.3
	<b>College degree or higher (n=997)</b>	16.8	18.3	18.6	19.8	15.7	18.9	18.3	16.5	20.3
<b>Women</b>	<b>Middle school diploma or lower (n=1057)</b>	8.5	6.2	6.8	10.2	6.3	6.4	7.5	6.3	5.9
	<b>High school diploma (n=2273)</b>	8.9	10.4	9.9	11.7	10.3	10.1	11.9	10.6	12.4
<b>Prevalence of moderate physical activity</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=518)</b>	18.2	18.2	21.2	25.1	17.0	21.0	17.6	14.1	15.8
	<b>High school diploma (n=1152)</b>	14.2	14.2	18.2	21.8	15.2	19.9	19.1	16.6	17.7
	<b>College degree or higher (n=997)</b>	9.9	12.0	14.9	16.0	14.4	15.8	15.3	14.2	15.6
<b>Women</b>	<b>Middle school diploma or lower (n=1057)</b>	15.0	12.5	15.6	19.2	14.6	14.9	13.1	11.7	11.4
	<b>High school diploma (n=2274)</b>	9.7	8.4	10.8	13.1	10.4	12.4	11.5	11.1	11.0

Note: The educational levels as determined here are based on the difference in the number of smokers between women and men and the difference in the distribution of men and women by educational attainment; as the figures shown here are prevalence estimates for current smoking, high-risk drinking and physical activity in those whose health behaviors were reported in the Korean Health Panel Survey for years 2010 through 2018, they may differ from estimates gained from cross-sectional data that are representative of the population for a given year.

[Table 2] Trends (2010~2018) in health behaviors in Korean Health Panel Survey participants who were 65 or older in 2010, by educational attainment

		2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Prevalence of current smoking</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=433)</b>	34.9	33.0	29.1	27.7	27.5	23.1	20.6	18.0	17.8
	<b>High school diploma or higher (n=264)</b>	26.1	22.4	21.6	20.8	19.3	17.8	17.4	14.4	15.5
<b>Women</b>	<b>Primary school diploma or lower (n=800)</b>	4.8	3.9	3.1	3.0	4.5	2.5	3.5	3.0	2.8
	<b>Middle school diploma or higher (n=222)</b>	2.3	1.8	2.3	1.8	0.9	0.9	1.4	0.9	0.9
<b>Prevalence of high-risk drinking</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=433)</b>	14.6	15.0	13.2	12.7	14.6	9.5	7.9	6.7	6.9
	<b>High school diploma or higher (n=264)</b>	13.6	10.2	11.4	9.5	11.4	8.7	6.1	5.7	3.4
<b>Women</b>	<b>Primary school diploma or lower (n=735)</b>	0.8	0.4	0.4	0.1	0.5	0.4	0.1	0.4	0.3
	<b>Middle school diploma or higher (n=198)</b>	0.5	0.0	0.5	0.5	0.5	0.0	0.0	0.0	0.0
<b>Prevalence of vigorous physical activity</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=433)</b>	9.2	8.1	5.5	9.7	7.6	7.9	6.7	5.1	2.5
	<b>High school diploma or higher (n=264)</b>	9.5	12.9	12.1	12.1	11.4	7.6	9.5	8.0	8.7
<b>Women</b>	<b>Primary school diploma or lower (n=800)</b>	3.0	3.3	2.1	4.4	2.8	2.3	2.8	1.4	1.5
	<b>Middle school diploma or higher (n=222)</b>	4.5	4.5	5.4	5.0	4.5	5.4	6.3	3.6	3.6
<b>Prevalence of moderate physical activity</b>										
<b>Men</b>	<b>Middle school diploma or lower (n=433)</b>	16.2	18.7	18.7	24.0	18.2	16.4	14.8	10.2	9.0
	<b>High school diploma or higher (n=264)</b>	12.1	14.4	17.4	21.2	17.1	14.8	16.3	14.0	11.7
<b>Women</b>	<b>Primary school diploma or lower (n=799)</b>	6.0	7.8	8.6	9.3	5.8	6.8	5.1	3.9	4.3
	<b>Middle school diploma or higher (n=222)</b>	8.6	5.0	8.6	10.4	8.1	6.8	6.3	4.5	3.2

Note: The educational levels as determined here are based on the difference in the number of smokers between women and men and the difference in the distribution of men and women by educational attainment; as the figures shown here are prevalence estimates for current smoking, high-risk drinking and physical activity in those whose health behaviors were reported in the Korean Health Panel Survey for years 2010 through 2018, they may differ from estimates gained from cross-sectional data that are representative of the population for a given year.

## Concluding remarks

This study examined the prevalence of smoking, drinking and physical activity in people whose health behaviors had been tracked every year by the Korean Health Panel Survey over its first nine years (2010~2018). The results show that current smoking rates markedly declined with age. The decline with age in the prevalence of high-risk drinking, however, was of a relatively small magnitude. Also, the prevalence of physical activity registered no pattern of increase with age. It should be noted that while the Korea National Health and Nutrition Examination Survey, with its cross-sectional data, allows a grasp of the state of health behaviors among population groups representing the whole population at a given point of time, the advantage of the Korean Health Panel Survey, tracking as it does the same population groups over time, lies in that through it one can examine health behaviors from the life course perspective. Changes in health behaviors that were reported every year in the Korean Health

Panel Survey should be construed as a combination of an age effect and a period effect<sup>3)</sup>.

In men who in 2010 were 65 or older, the prevalence of vigorous physical activity declined in the 9-year period, along with the smoking rate and the prevalence of high-risk drinking. This may be construed as a consequence in part of an increased incidence of new diseases or a worsening of existing diseases, both characteristic of a population of older adults in the process of further aging. There is a need for further research effort to look into the relationship between changes in the pattern of physical activity and advancement in age.

Even after having declined by 11.6 percentage points from its 2010 level, men's smoking prevalence was still high at 33.8 percent in 2018. A comparison of smoking rates in men who were 65 or older in 2010 and in men who were 18 to 64 years of age shows that the difference in the smoking prevalence between the two groups continued until 2018, remaining largely unchanged in magnitude. To achieve the goal of cutting men's prevalence of smoking to 25.0 percent by 2030, as manifested in the Health Plan 2030, would require encompassing and proactive policy measures. The benefit of a reduced smoking prevalence can be great especially for men in their 20's and 30's, as the health gains of smoking cessation and of not smoking in the first place stay on throughout the life course. In this respect, there is a policy need to induce young people to quit and not to start smoking.

Women's prevalence of physical activity has stayed at low levels, in the vicinity of 50 to 70 percent of men's. Also, whereas in men there was little difference in the prevalence of moderate physical activity between those aged 65 and older and those aged 18 to 64, in women the older group, compared to those aged 18 to 64, had a much lower prevalence at below 10 percent. Considering the quality of life of older Koreans and later-life risks such as those of injuries from a fall, there is a need for policy effort to promote physical activity among women in old age.

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3) The age effect refers to changes in health behaviors that occur with the years; the period effect refers to health behavior changes attributable to various events over a given period of time, including the implementation of a certain health policy.