



Income Differences in Smoking Prevalences in 245 Districts of South Korea: Patterns by Area Deprivation and Urbanity, 2008-2014

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Objectives: The aim of this study was to measure income differences in smoking prevalence at the district level and to investigate correlations among area deprivation, smoking prevalence, and income differences in smoking prevalence, stratified by urbanity.

Methods: Data were pooled from the Community Health Survey data of South Korea between 2008 and 2014. The age-standardized prevalence of smoking and its interquintile income differences were calculated. We conducted correlation analyses to investigate the association of the deprivation index with smoking prevalence and interquintile differences in smoking prevalence.

Results: Across 245 districts, the median prevalence of smoking in men was 45.9% (95% confidence interval [CI], 43.4 to 48.5%), with an interquartile range (IQR) of 4.6% points. In women, the median prevalence was 3.0% (95% CI, 2.4 to 3.6%) and IQR was 1.6% points. The median interquintile difference in smoking prevalence was 7.4% points (95% CI, 1.6 to 13.2% points) in men and 2.7% points (95% CI, 0.5 to 4.9% points) in women. The correlation coefficients for the association between the deprivation index and smoking prevalence was 0.58, 0.15, -0.22 in metropolitan, urban, and rural areas, respectively, among men, and 0.54, -0.33, -0.43 among women. No meaningful correlation was found between area deprivation and interquintile difference in smoking prevalence. The correlation between smoking prevalence and interquintile difference in smoking prevalence was more evident in women than in men.

Conclusions: This study provides evidence of geographical variations in smoking prevalence and interquintile difference in smoking prevalence. Neither smoking prevalence nor the deprivation index was closely correlated with interquintile income difference in smoking prevalence. Measuring inequalities in smoking prevalence is crucial to developing policies aimed at reducing inequalities in smoking.

Key words: Geography, Income, Korea, Smoking, Socioeconomic factors

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INTRODUCTION

Tobacco smoking is an important risk factor for various health problems including cancers, cardiovascular diseases, and respiratory diseases [1]. Globally, approximately 5.8 million people died from tobacco smoking and 330 000 from exposure to second-hand smoke in 2013 [2]. Among the risk factors contributing to the global burden of disease, first and sec-

ond-hand smoking rose from third place in 1990 to second place in 2013 [2].

South Korea (hereafter Korea) is also facing a smoking epidemic. The smoking prevalence of men has decreased from 66.3% in 1998 to 42.1% in 2013 by tobacco control activities at the government and non-government organizational levels [3]. However, among the Organization for Economic Cooperation and Development countries, smoking rate among men aged 15 or older was highest in Korea in 2013 [4]. According to the Global Burden of Disease study 2013, tobacco smoking was the greatest contributor to the burden of disease in Korea [2]. Smoking is also one of the primary causes of health inequality in Korea. Both men and women with a lower socioeconomic status have been shown to have a higher age-standardized smoking prevalence than their counterparts [5-7]. A prior study showed that the size of the absolute inequalities in all-cause and cardiovascular mortality could be greatly reduced by eradicating smoking [8].

The reduction of socioeconomic inequality in smoking prevalence has been a policy agenda in the Korean government's health promotion policy. The focus has been on reducing the differences according to income levels. Reducing smoking prevalence differences between income levels was first set as a health equity target in the 'National Health Plan 2010' in 2005 [9]. In 2010, the 'National Health Plan 2020' also set targets to reduce differences in smoking prevalence among income levels as well as geographical areas (rural vs. urban areas) [10], and these targets were maintained in 2015 [11]. Some provincial municipalities (such as Seoul) in Korea have monitored socioeconomic differences in smoking and set goals to reduce such differences [12,13]. However, it is difficult to find cases where local district governments (*si, gun, gu*) have set the reduction of socioeconomic inequality in smoking prevalence as a goal in Korea. One main reason behind this is that the socioeconomic differences in smoking prevalence are not being monitored at the local district government level.

Although it may be possible to obtain the smoking prevalence for a *si, gun, or gu* using Community Health Survey (CHS) data in Korea, the sample size of one year data is insufficient to calculate the differences in smoking prevalence according to socioeconomic position indicators such as income level. However, by pooling many years of CHS data, it would be possible to reliably estimate the income differences in smoking prevalence at the level of districts (*si, gun, and gu*).

The magnitude of the income differences in smoking preva-

lence might vary across the local districts. Explaining the geographical variation in the size of inequalities in smoking prevalence is an interesting line of research. In particular, since a previous study showed that the area deprivation index and smoking prevalence (especially for women) are closely related [6], determining the relationship between the area deprivation index and the income differences in smoking prevalence would be warranted. However, since some studies indicated that the area deprivation index was not a strong indicator of health status for Korea's rural areas [14,15], the relationships among the area deprivation index, smoking prevalence, and income differences in smoking prevalence should be clarified in both rural and urban areas.

In this study, we employed pooled data of CHS between 2008 and 2014 and examined the income differences in smoking prevalence at the local administrative district level in Korea. We also explored the relationships among the area deprivation index, smoking prevalence, and income differences in smoking prevalence in both rural and urban areas.

METHODS

Data and Administrative Districts

This study was approved by the Seoul National University Hospital Institutional Review Board. The data came from the CHS raw data, with the compilation of seven years of data (2008-2014). The CHS is a repeated cross-sectional study that has been conducted annually since 2008 on about 900 residents for each of 252 districts. Subjects of the survey were household members who were 19 years old or older. All surveys were conducted with a face-to-face computer-assisted personal interviewing method. This study utilized 1 594 873 of the 1 595 410 total individuals who participated in the survey from 2008 to 2014 as the subjects of analysis, after excluding 537 individuals who had missing values for smoking status.

The administrative districts of the CHS was classified into 17 metropolitan cities and 252 districts according to the 2015 governmental administrative classification. However, in consideration of the changes in administrative units from 2008 to 2014, the administrative districts were reclassified into 245 districts to maintain the consistency of geographical classification over the study periods. In the case of Jeonju-si, although it is currently divided into Wansan-gu and Deokjin-gu, they were combined into a single Jeonju-si. Tonghap Changwon-si was divided into Uichang-gu, Seongsan-gu, Masanhoewon-

gu, Masanhappo-gu, and Jinhae-gu when Changwon-si, Masan-si, and Jinhae-si were combined in 2010. Uichang-gu and Seongsan-gu were combined as Changwon and Masanhoe-won-gu and Masanhappo-gu were also combined as Masan.

Cheongju-si and Chungwon-gun were combined in 2014 and divided into Sangdang-gu, Heungdeok-gu, Seowon-gu, and Cheongwon-gu. However, they were all combined and analyzed in this study as Cheongju-si. In 2008, Cheonan-si created two new districts, Dongnam-gu and Seobuk-gu. However, they were combined as Cheonan-si and analyzed as one unit in this paper. Yeongi-gun was integrated into Sejong Special Autonomous City from July 1 in 2012, and hence was not considered as a separate unit of analysis. For Sejong Special Autonomous City, the analysis was conducted on the data from 2012 to 2014, and since the area deprivation index was based on 2010 census data, Sejong Special Autonomous City was excluded from the analysis related to the area deprivation index. The urbanity was categorized based on the administrative districts with "si" as urban area, "gu" as metropolitan area, and "gun" as rural area.

Smoking

Smoking prevalence was calculated based on the responses to the current smoking status question. Current smokers were defined as respondents who smoked five or more packs (100 or more cigarettes) of cigarettes in their lifetime and replied "yes" to the question "do you smoke currently" (2008), or replied "smokes daily" or "occasionally smokes" (2009 and beyond).

Income

The "equivalized annual household income" using the equivalence scale was used for income [17]. The method used for prior studies [7,18] was used, with the following formula:

$$\text{Equivalized annual household income} = Y / (A + \beta B)^V$$

where Y = annual household income, A = number of adults in household, B = number of household members below the age of 19, β , V = equivalence scale ($\beta = 1$, $V = 0.5$)

Unlike those used from 2008 to 2013, the household income questions in the 2014 CHS shifted to a categorical format for monthly household income ([1] under 500 000 won, [2] 500 000 to 1 000 000 won, [3] 1 000 000 to 2 000 000 won, [4] 2 000 000 to 3 000 000 won, [5] 3 000 000 to 4 000 000 won, [6] 4 000 000

to 5 000 000 won, [7] 5 000 000 to 6 000 000 won, [8] over 6 000 000 won). Hence, in this paper, the median of each of the ranges was taken as the monthly household income, which was then used to calculate the annual household income. For example, those who replied with "500 000 to 1 000 000 won" would be considered as having a monthly household income of 750 000 won and those who replied "over 6 000 000 won" were considered to have a monthly household income of 6 500 000 won.

According to a Household Income and Expenditure Survey in Korea [19], the 80th percentile monthly income of a household of at least two individuals in 2014 was 5 975 453 won. This means that those who responded as earning "over 6 000 000 won" were part of the uppermost quintile, which indicates that the estimation of 6 500 000 won as the monthly income would not be inappropriate. Despite the differences in questions on income in the 2014 CHS data, we used the 2014 data in order to present stable estimates for the income difference in smoking prevalence. In order to take into account the differences in real income from 2008 to 2014, the annual household income was adjusted by consumer price index (CPI) with 2010 as reference year. For example, the 2011 CPI modified household income was calculated by taking the 2011 household income and multiplying the 2010 and 2011 CPI ratio (100/104).

When compiling the CHS data from 2008 to 2014, 111 499 respondents (6.7% of total subjects) were missing for household income information. However, to calculate representative smoking prevalences according to income levels for each district, the entire samples were used. The missing values for income were imputed with use of the following variables: CPI adjusted household income, gender, age, number of household members, education level, and occupation. With these imputed income, the income quintiles of each district were calculated according to gender and age groups.

Because the quintiles were created for each *si*, *gun*, and *gu*, the income quintile in this study could be considered as relative income within individual district (*si*, *gun*, and *gu*). The reason relative income data was used is because the smoking prevalence of the income quintiles in each *si*, *gun*, and *gu* is a meaningful indicator of equity for each district.

The Korean National Health and Nutrition Examination Survey (KNHANES) data contains information on income quartiles rather than income quintiles considering small sample sizes in certain age groups, and have presented information on smoking prevalence by income quintile. However, we used the in-

come quintile, which is more widely used for inequality research.

Area Deprivation Index

The area deprivation index is a summary measure that is used to indicate the material and social deprivation levels of a geographical area, and consists of a number of standardized and weighted variables [20]. Substantial research has proven that the area deprivation index can be useful for uncovering geographical differences in health [21]. Such a relationship between the area deprivation index and health indicators has also been reported in Korea [6,22]. The area deprivation index in this study was calculated based on the 2010 population census data in Korea.

A total of nine variables were used for construction of the area deprivation index: proportion of people living alone, proportion of households with a women household head, proportion of households without a car, proportion of households not living in an apartment, proportion of households living below the minimum housing standard, proportion of people aged 30-64 with no high school diploma, proportion of people in households with economically active heads aged 15-64 who are employed in manual labor, proportion of population aged 65 or over, and proportion of separated, divorced or widowed among people aged ≥ 15 years. Each of the variables was standardized using a Z-score, then combined to calculate the area deprivation index [22]. The median of the area deprivation index was -1.6, the minimum (the lowest deprivation) was -17.7, the maximum (the highest deprivation) was 16.8, and the standard deviation (SD) was 7.8.

Statistical Analysis

After combining seven years (2008-2014) of CHS data, income quintile data (5 groups) were produced using CPI-adjusted equivalized household annual income data for gender (men or women) and six age groups (19-29, 30-39, 40-49, 50-59, 60-69, above 70). Cumulative proportions regarding the equivalized income were used to identify the nearest quintile points in income. Then, population size (denominator) and number of smokers (numerator) for each of 14 700 numerator-denominator groups from 245 *si*, *gun*, and *gu* were determined, and these data were used for calculating the age-standardized smoking prevalence according to gender, districts (*si*, *gun*, *gu*), and income level.

Sample weights were considered in the analysis. The origi-

nal sample weights provided by the CHS data were assigned to represent the entire population of the district. Thus, the variation between individual weights was large, and in the case of subgroup analysis involving respondents with a large sample weight, this would result in a biased estimate. In this study, we recalculated sample weights. The sum of the weights in the district was recalculated to be equal to the total number of respondents in each year. The average weight of respondents was adjusted to be one.

For women, in 970 groups out of 7350 numerator-denominator groups, the number of smokers considering sampling weight was found to be zero. For such cases, the age-standardized rate was calculated by substituting 0.01 for 0 in the numerator to avoid distorting the estimation of the age-standardized rate. The standard population used for the age-standardized rate was the 2010 Korean population census data. This study also provided 95% confidence intervals (CI) of the income differences in smoking prevalence. The 95% CIs were derived using the following formula:

$$\text{Lower} = \text{Diff} - (1.96 \times \sqrt{\frac{P_1(1-P_1)}{N_1} + \frac{P_2(1-P_2)}{N_2}})$$

$$\text{Upper} = \text{Diff} + (1.96 \times \sqrt{\frac{P_1(1-P_1)}{N_1} + \frac{P_2(1-P_2)}{N_2}})$$

Where "Lower" = minimum of the 95% CI, "Upper" = maximum of the 95% CI, "Diff" = difference in the age-standardized smoking prevalence between the upper and lower 20% of income levels.

P_1 = age-standardized smoking prevalence of the highest quintile income level, P_2 = age-standardized smoking prevalence of the lowest quintile income level, N_1 = population of the highest quintile income level, N_2 = population of the lowest quintile income level.

The health inequality between income levels can be presented with different inequality measures such as the prevalence ratio, the relative index of inequality, and the absolute index of inequality. This study used the absolute prevalence difference in smoking between the uppermost quintile and lowermost quintile of the income groups as the measure for health inequality. This was because the 'National Health Plan 2020' has employed the absolute difference in smoking prevalence between the upper and lower tiers of income levels as an equity target indicator [10,11]. In addition, interquintile income difference in smoking prevalence also has the benefit of

being relatively easier for the layperson to understand compared to the prevalence ratio, relative index of inequality, or absolute index of inequality.

We conducted correlation analyses between the age-standardized smoking prevalence and the area deprivation index, and also between the income differences in smoking prevalence in districts (*si*, *gun*, and *gu*) and the area deprivation index. Separate analyses were conducted for urban and rural areas. SAS version 9.4 (SAS Institute Inc., Cary, NC, USA) was used for the analysis.

RESULTS

Table 1 shows the characteristics of the study subjects. Of the 1 594 873 individuals who participated in the CHS, 45.4% were men and 54.6% were women. The average age of the respondents was 46.8 years in metropolitan areas, 50.0 years in urban areas, and 56.9 years in rural areas. The weighted mean age was highest in the rural areas, followed by urban areas, with metropolitan areas the youngest. A total of 315 720 men smoked (smoking prevalence, 43.6%), while 28 830 women (smoking prevalence, 3.3%) smoked. The age-standardized smoking prevalence were 45.8% for men (95% CI, 45.6 to 45.9%) and 3.2% for women (95% CI, 3.1 to 3.2%).

The age-standardized smoking prevalence for men was

lower in the metropolitan areas compared to the urban and rural areas, while that of women was lower in rural areas than metropolitan and urban areas. The area deprivation index had an average of 0.0 and a SD of 7.8. The metropolitan areas had an average deprivation index of -5.0 (SD, 4.4), the urban areas, -2.6 (SD, 5.7), and the rural areas, 7.9 (SD, 5.8), indicating that rural areas had relatively higher deprivation levels.

As seen in Table 2, the median age-standardized smoking prevalence for men in 245 districts was 45.9% (95% CI, 43.4 to 48.5%) in Gangwon-do Chuncheon-si and five other districts, while the minimum was 31.4% (95% CI, 29.3 to 33.5%) in Gyeonggi-do Gwacheon-si, and the maximum was 56.1% (95% CI, 53.3 to 58.8%) in Gangwon-do Taebaek-si; the IQR was 4.6% points (p), and the SD was 3.6%p. For women, the median was 3.0% (95% CI, 2.5 to 3.6%) in Gyeongsangbuk-do Andong-si and nine other districts, the minimum was 0.8% (95% CI, 0.5 to 1.1%) in Jeollanam-do Goheung-gun and one other district, and the maximum was 7.4% (95% CI, 6.5 to 8.3%) in Gyeonggi-do Dongducheon-si. The IQR was 1.6%p and the SD was 1.1%p.

When considering both the districts and the income levels, the lowest age-standardized men smoking prevalence was in the highest income group in Gyeonggi-do Seongnam-si Bundang-gu, at 24.6% (95% CI, 20.6 to 28.7%), while the highest smoking prevalence was in the lowest income level in Gang-

Table 1. Characteristics of local districts and study subjects by urbanity

	Overall	Metropolitan ¹	Urban ¹	Rural ¹
No. of districts	245	98	65	82
Mean (SD) of area deprivation index ²	0.0 (7.8)	-5.0 (4.4)	-2.6 (5.7)	7.9 (5.8)
No. of study subjects	1 594 873	524 696	368 965	422 670
Men	724 697 (45.4)	288 911 (45.5)	204 324 (45.9)	231 462 (45.0)
Women	870 176 (54.6)	346 259 (54.5)	241 036 (54.1)	282 881 (55.0)
Mean age (SD)	51.0 (16.9)	46.8 (16.0)	50.0 (16.6)	56.9 (16.5)
Weighted mean age (SD)	47.8 (19.0)	44.8 (16.8)	46.8 (18.4)	52.3 (22.2)
No. of current smokers (crude smoking rate)	344 550 (21.6)	139 537 (22.0)	100 492 (22.6)	104 521 (20.3)
No. of men smokers	315 720 (43.6)	127 334 (44.1)	92 039 (45.0)	96 347 (41.6)
No. of women smokers	28 830 (3.3)	12 203 (3.5)	8453 (3.5)	8174 (2.9)
Age-standardized smoking rate ³	23.2 (23.1, 23.2)	22.2 (22.1, 22.3)	23.7 (23.6, 23.8)	24.1 (23.9, 24.2)
Age-standardized smoking rate in men	45.8 (45.6, 45.9)	44.2 (44.0, 44.4)	46.4 (46.2, 46.7)	47.0 (46.7, 47.3)
Age-standardized smoking rate in women	3.2 (3.1, 3.2)	3.5 (3.4, 3.6)	3.5 (3.4, 3.6)	2.4 (2.3, 2.4)

Source from the Community Health Survey in Korea, 2008-2014.

Values are presented as number (%) or % (95% confidence interval).

SD, standard deviation.

¹Metropolitan, urban and rural refers to "gu", "si", "gun", respectively.

²The area deprivation index was calculated based on the 2010 Korean census data.

³Age-standardized smoking rates were estimated with the 2010 Korean census population as the reference population, after taking into account the sample weights of the Community Health Survey.

Table 2. Overall age-standardized smoking prevalences, smoking prevalences by income quintile, and interquintile differences in smoking prevalence according to gender among 245 local districts of Korea

Variable	Men					Women				
	Median	SD	Min	Max	IQR	Median	SD	Min	Max	IQR
Overall	45.9%	3.6%	31.4%	56.1%	4.6%p	3.0%	1.1%	0.8%	7.4%	1.6%p
Income Q1 (lowest)	49.9%	4.0%	36.8%	59.8%	5.4%p	4.6%	1.9%	0.4%	13.0%	2.7%p
Income Q2	47.7%	4.2%	32.0%	58.3%	4.9%p	3.3%	1.5%	0.5%	8.0%	2.0%p
Income Q3	45.8%	4.4%	30.2%	56.8%	5.7%p	2.7%	1.2%	0.5%	7.5%	1.8%p
Income Q4	44.1%	4.4%	26.9%	56.1%	5.9%p	2.2%	1.1%	0.2%	6.5%	1.5%p
Income Q5 (highest)	41.8%	4.6%	24.6%	54.7%	6.4%p	1.8%	1.0%	0.2%	5.9%	1.2%p
Q1-Q5	7.4%p	4.1%p	-3.7%p	20.2%p	5.9%p	2.7%p	1.6%p	-1.4%p	9.5%p	2.0%p

Source from the Community Health Survey in Korea, 2008-2014.

SD, standard deviation; Min, minimum; Max, maximum; IQR, interquartile range.

won-do Taebaek-si, at 59.8% (95% CI, 53.6 to 65.9%). The difference between the two was 35.2%p. For women, the highest income group of Jeollanam-do Jangseong-gun and two other gun had the lowest smoking prevalence, at 0.2% (95% CI, 0.0 to 0.4%), and the lowest income group of Gyeonggi-do Dongducheon-si had the highest smoking prevalence, at 13.0% (95% CI, 10.2 to 15.8%). The difference between the two was 12.8%p. The median value of the difference between the men age-standardized smoking prevalence of the uppermost quintile and the lowermost quintile income level was in Gyeonggi-do Bucheon-si Sosa-gu and three other districts, at 7.4%p (95% CI, 1.6 to 13.2%p). The minimum was in Gyeonggi-do Uijeongbu-si, at -3.7%p (95% CI, -9.7 to 2.3%p), and the maximum was in Gyeongsangbuk-do Uljin-gun, at 20.2%p (95% CI, 14.4 to 26.0%p). The IQR was 5.9%p, and the SD was 4.1%p.

The median value of the difference between women age-standardized smoking prevalence was in Gangwon-do Jeongseon-gun and eight other districts, with a value of 2.7%p (95% CI, 0.5 to 4.9%p), the minimum was in Incheon Metropolitan City Ongjin-gun, at -1.4%p (95% CI: -3.8 to 1.0%p), and the maximum was in Gyeonggi-do Dongducheon-si, at 9.5%p (95% CI: 6.5 to 12.5%p). The IQR was 2.0%p and the SD was 1.6%p. The women age-standardized smoking prevalence and the income difference in the age-standardized smoking prevalence were the highest in Gyeonggi-do Dongducheon-si. Of the 245 districts, 236 districts had a difference in men smoking prevalence between income groups greater than 0%p (i.e., with the lower income group having a higher smoking prevalence than the higher income group), while in 239 districts, this was the case for women. When considering the 95% CI, 163 districts out of 245 had a men smoking prevalence of the lowest quintile income level that was significantly greater than

that of the uppermost quintile income level, whereas this was the case for women in 173 districts. There were no districts where the uppermost income quintile had a significantly greater smoking prevalence than the lowest quintile.

Supplemental Tables 1 and 2 show the 10 districts where the age-standardized smoking prevalence and the income difference in smoking prevalence were the greatest or the least. The men age-standardized smoking prevalence was high in Gangwon-do Taebaek-si (56.1%), Gyeonggi-do Pocheon-si (52.7%), Gangwon-do Jeongseon-gun (52.3%), and low in Gyeonggi-do Gwachon-si (31.4%), Gyeonggi-do Seongnam-si Bundang-gu (33.0%), and Seoul Seocho-gu (34.4%). For women, the age-standardized smoking prevalence was high in Gyeonggi-do Dongducheon-si (7.4%), Incheon Metropolitan City Jung-gu (5.9%), and Gyeonggi-do Bucheon-si Ojeong-gu (5.7%), and was low in Jeollanam-do Goheung-gun (0.8%), Jeollanam-do Muan-gun (0.8%), and Jeollanam-do Boseong-gun (1.0%).

The income difference in age-standardized smoking prevalence for men was large in Gyeongsangbuk-do Uljin-gun (20.2%p), Gyeonggi-do Anseong-si (18.0%p), and Seoul Mapo-gu (17.0%p), and was small in Gyeonggi-do Uijeongbu-si (-3.7%p), Gangwon-do Inje-gun (-2.9%p), and Jeollanam-do Jindo-gun (-2.5%p). The income difference in age-standardized smoking prevalence for women was high in Gyeonggi-do Dongducheon-si (9.5%p), Gyeonggi-do Ansan-si Sangrok-gu (6.7%p), and Gyeongsangnam-do Tongyeong-si (6.7%p), and low in Incheon Metropolitan City Ongjin-gun (-1.4%p), Gyeongsangbuk-do Uljin-gun (-1.0%p), and Gyeongsangbuk-do Ulleung-gun (-0.9%p). The men and women age-standardized smoking prevalence and the differences in smoking prevalence between income quintiles for 245 *si*, *gun*, and *gu* can be seen in Supplemental Table 3.

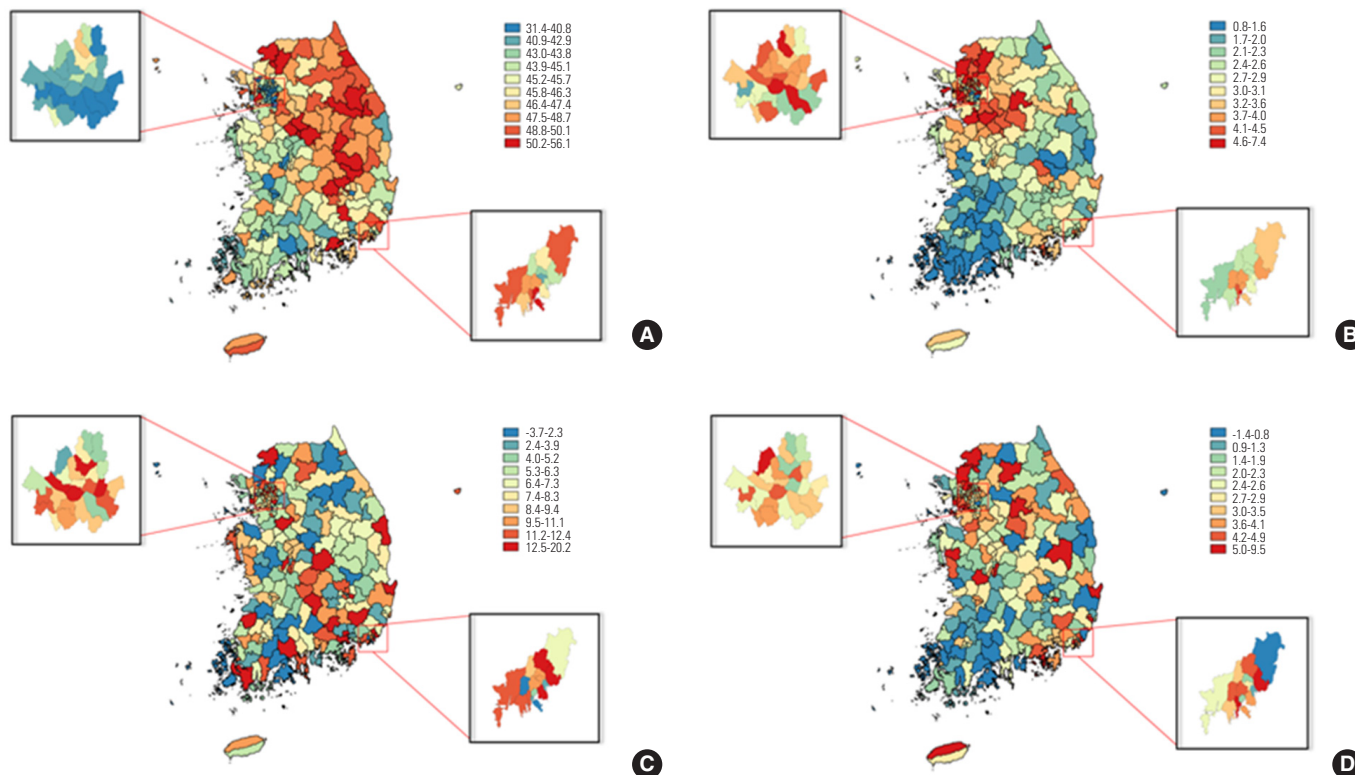


Figure 1. Choropleth maps of age-standardized smoking prevalences for men (A), and women (B) and interquintile differences in smoking prevalences for men (C), and women (D) in Korea. Source from the Community Health Survey in Korea, 2008-2014.

Figure 1 (A and B) is shown the age-standardized smoking prevalence for individual *si*, *gun*, and *gu*. For men, parts of the northeast and the southeast of the country are colored in red, indicating a high smoking prevalence, while women showed a high smoking prevalence around the capital city, Seoul. The men smoking prevalence in Seoul was low overall, but the Gangbuk districts were relatively higher than rest of the districts within Seoul. For women in Seoul, a high smoking prevalence was seen in Gwangjin-gu, Yongsan-gu, and Mapo-gu. For men in Busan, the smoking prevalence in western areas, such as Dong-gu and Busanjin-gu, was higher than that of the eastern areas such as Haeundae-gu. For women, part of the western area, Haeundae-gu, and Gijang-gun districts showed a higher smoking prevalence relative to other districts within Busan.

Figure 1 (C and D) shows the smoking prevalence inequality amongst income levels for each *si*, *gun*, and *gu* based on gender. For men, the differences in the southeastern districts and the northeastern districts were relatively large, while for women, the areas around the capital and some of the central districts had relatively large differences. In Seoul, there was a large difference in Mapo-gu, Yongsan-gu, and Gwangjin-gu

districts for men, and in Yongsan-gu and Dongdaemun-gu for women. In Busan, men had relatively large gaps in all areas excluding Saha-gu, Sasang-gu, and Buk-gu, while women had large gaps in the Haeundae-gu, Jung-gu, and Seo-gu areas.

Table 3 presents the correlation coefficients of the area deprivation index with overall smoking prevalence, smoking prevalence of the highest and lowest income quintiles, and interquintile income differences in smoking prevalence. Table 3 also shows the correlation coefficients between smoking prevalence and the income difference in smoking prevalence. For men, the correlation coefficient between the area deprivation index and the age-standardized smoking prevalence was 0.58 ($p < 0.001$) for metropolitan areas. However, the coefficient was drastically lower in urban areas, at 0.15 ($p = 0.24$), and ran in the opposite direction in rural areas, at -0.22 ($p = 0.05$). For women, the coefficient was 0.54 ($p < 0.001$) for metropolitan areas, but was -0.33 ($p = 0.008$) and -0.43 ($p < 0.001$) for urban and rural areas, respectively.

The correlation coefficients of the area deprivation index with smoking prevalence in the highest and lowest income quintiles showed a similar trend. However, the correlation co-

Table 3. Correlation coefficients (r) and associated p-values of the area deprivation index with overall age-adjusted smoking prevalences, smoking prevalences in the highest and lowest income quintiles, and interquintile differences in smoking prevalences and correlation coefficients of smoking prevalence with interquintile differences in smoking prevalence according to gender and urbanity levels

	Correlation of the area deprivation index with								Correlation between smoking prevalence and interquintile differences in smoking prevalence	
	Overall smoking prevalence		Smoking prevalence in the highest income quintile		Smoking prevalence in the lowest income quintile		Interquintile differences in smoking prevalence		r	p-value
	r	p-value	r	p-value	r	p-value	r	p-value		
Men										
Metropolitan	0.58	<0.001	0.50	<0.001	0.55	<0.001	0.04	0.70	-0.03	0.78
Urban	0.15	0.24	0.06	0.62	0.15	0.22	0.08	0.52	-0.16	0.21
Rural	-0.22	0.05	-0.19	0.08	-0.21	0.06	0.01	0.94	-0.07	0.54
Women										
Metropolitan	0.54	<0.001	0.33	<0.001	0.40	<0.001	0.22	0.03	0.38	<0.001
Urban	-0.33	0.008	-0.24	0.06	-0.25	0.04	-0.14	0.28	0.48	<0.001
Rural	-0.43	<0.001	-0.38	<0.001	-0.37	<0.001	-0.16	0.15	0.39	<0.001

Source from the Community Health Survey in Korea, 2008-2014.
Metropolitan, urban and rural refers to "gu", "si", "gun", respectively.

efficient for women in urban areas showed a relatively low value (the correlation coefficient of the highest income quintile, 0.33; $p < 0.001$; the correlation coefficient of the lowest income quintile, 0.40; $p < 0.001$). The correlation coefficient between the area deprivation index and the income difference in age-standardized smoking prevalence was, for men, 0.04 ($p = 0.70$) in metropolitan areas, 0.08 ($p = 0.03$) in urban areas, and -0.01 ($p = 0.94$) in rural areas. For women, the correlation coefficient was 0.22 ($p = 0.03$) in metropolitan areas, -0.14 ($p = 0.28$) in urban areas, and -0.16 ($p = 0.15$) in rural areas. The correlation coefficient between the age-standardized smoking prevalence and the income difference in the age-standardized smoking prevalence was relatively small with values, for men, of -0.03 ($p = 0.77$) for metropolitan areas, -0.16 ($p = 0.21$) for urban areas, and -0.07 ($p = 0.54$) for rural areas. However, for women, the coefficients were relatively large, at 0.38 ($p < 0.001$), and 0.48 ($p < 0.001$), 0.39 ($p < 0.001$), respectively. Figure 2 shows the coefficients graphically, with sample weights based on the population of the individual *si*, *gun*, *gu* taken into account.

Supplemental Figure 1 presents separate analyses for rural and urban areas. Results showed that for men, the patterns of association between smoking prevalence and the area deprivation index were similar for upper and lower income quintiles. However, for women, the patterns varied with urbanity. In metropolitan cities, the magnitude of the positive association between smoking prevalence and the area deprivation index tended to be larger in the lower 20% income group than that

in the uppermost income quintile. In rural areas, however, the reverse was true with the lowest income quintile recording a larger decrease in smoking prevalence as the area deprivation index increased. Meanwhile, in all three areas, the interaction between the deprivation index and the income level variations were not statistically significant.

DISCUSSION

This study demonstrates the magnitude of the inequality in the age-standardized smoking prevalence and the income difference in smoking prevalence for each *si*, *gun*, and *gu* in Korea. The smoking prevalences of each district have been published annually by the Korea Centers for Disease Control and Prevention. However, this study is unique in that no other study has demonstrated the magnitude of the smoking prevalence inequality by income level for each district; nor has the inequality been examined based on the area deprivation index and urbanity. The results of this study should be useful as basic data to inform the development of public health centers' policies and programs for equity in smoking prevalence in each district. Furthermore, local governments might well compare the data on their own area with nationwide data to establish an equity target in smoking prevalence.

The results of this study presented the age-standardized smoking prevalence was higher for lower income groups in most districts. This was true for both men and women. Of the

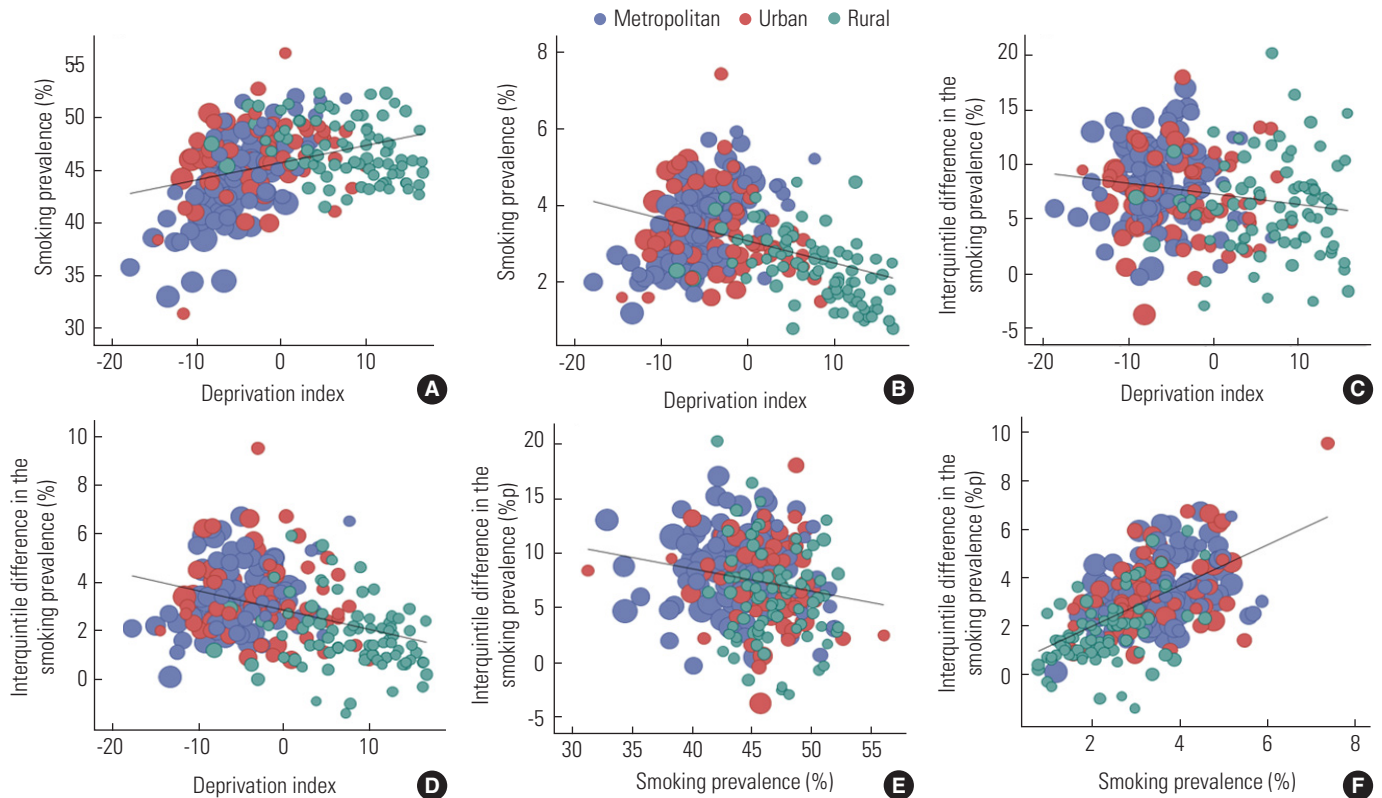


Figure 2. Scatter plots for correlations of the area deprivation index with age-standardized smoking prevalences in men (A), and women (B), and with interquintile differences in smoking prevalences in men (C), and women (D), and correlations between smoking prevalences and interquintile differences in smoking prevalences among men (E) and women (F) in the 245 local districts by urbanity levels. Source from the Community Health Survey in Korea, 2008–2014.

245 districts, 96.3% (236 districts) in men and 97.6% (239 districts) in women had a higher smoking prevalence in the lowest income quintile than in the highest quintile. In other words, income differences in smoking prevalence was observed in the overwhelming majority of districts. In addition, in those few districts where the smoking prevalence of the uppermost income quintile was higher than that of the lowest quintile, the difference was not statistically significant.

Moreover, the income differences in smoking prevalence were statistically significant in 66.5% (163 districts) of total 245 districts in men and 70.6% (173 districts) of total districts in women. These results demonstrate that pro-rich smoking inequality is prevalent for both men and women in Korea. Although a few districts (9 for men and 5 for women) had the income difference in smoking prevalence reversed (but statistically insignificant), this might be attributed to small sample size for each income group, sub-optimal accuracy of income data, and stochastic chance findings.

Analysis results showed that the magnitude of income dif-

ferences in smoking prevalence in the 245 districts was similar to or greater than the magnitude of the variations in smoking prevalence among those districts. The difference between the maximum (Gangwon-do Taebaek-si) and the minimum (Gyeonggi-do Gwacheon-si) men smoking prevalence was 24.7%p, while the difference between the maximum (Seoul Mapo-gu) and minimum (Gyeonggi-do Uijeongbu-si) magnitude of income differences in men smoking prevalence was 23.9%p. The SD of men smoking prevalence in the 245 districts was 3.6%p, while that of the magnitude of income differences in men smoking prevalence was 4.1%p.

The difference between the maximum (Gyeonggi-do Dongducheon-si) and minimum (Jeollanam-do Goheung-gun) women smoking prevalence was 6.6%p, while the difference between the maximum (Gyeonggi-do Dongducheon-si) and minimum (Incheon-si Ongjin-gun) magnitude of income differences in women smoking prevalence was 10.9%p. The SD for women smoking prevalence for the 245 districts was 1.1%p, while that of the magnitude of income differences in

smoking prevalence was 1.6%p. Further research is required to explain the variations in smoking prevalence among districts and the variations in the magnitude of inequality in smoking prevalence between districts.

Analysis results showed discrepancies between the districts with high age-standardized smoking prevalence and those with high inequality in smoking prevalence. This is particularly the case for men. For men, the correlation between the age-standardized smoking prevalence and the magnitude of income differences in smoking prevalence was not evident, while the correlation coefficient for women was around 0.4 to 0.5. In addition, very little correlation was found between the area deprivation index and the income difference in smoking prevalence. These results indicate that measures such as smoking prevalence and area deprivation index are not very useful in estimating the magnitude of inequality in smoking prevalence.

This also demonstrates that promoting policies to reduce smoking prevalence inequality between income levels simply based on the information on the smoking rate and the deprivation level may not be appropriate at the district level. The results showed that to develop a policy to reduce the magnitude of inequality in smoking prevalence, an effort should be exercised to directly measure the magnitude of the smoking inequality. Taking into account that it is difficult to measure the inequality in smoking prevalence according to income with use of the CHS data at the level of districts annually or in a short period of time (for example biennially) due to limitations in sample size, there is a need to adopt a monitoring method that utilizes the health examination data of the national health insurance database.

According to the descriptive model for smoking epidemic in developed countries [23], either no difference in smoking prevalence by socioeconomic status or higher smoking prevalence in the upper social class appears when smoking prevalence increases, while the higher smoking prevalence can be observed in lower social classes when a smoking epidemic occurs and then smoking prevalence decreases. In this study, higher smoking prevalence was generally observed in lower income groups in both gender. However, the smoking prevalence based on the area deprivation index, which can be considered a socioeconomic indicator of geographical areas, showed different patterns according to urbanity. In metropolitan areas, smoking prevalence increased as the area deprivation index increased, but the opposite was the case in rural areas.

This trend was prevalent in women rather than men. These

trends in metropolitan areas can be attributed to both the compositional effect and the contextual effect. Factors such as easily accessible cigarette stores [24], repeated exposure to cigarette advertisements and tobacco industry promotions [25,26], and the slower establishment of non-smoking buildings due to the smaller size of buildings and restaurants [27] might have affected the relatively greater smoking prevalence in districts with higher deprivation in metropolitan areas. In addition, these districts might well have a relatively higher composition of individuals with lower socioeconomic statuses, such as education, occupation, and income. According to a previous Korean study [28], which observed the relationship between socioeconomic position indicators at the level of districts and smoking prevalence, inequality in smoking prevalence due to individual socioeconomic position indicators (education, occupation, and income) was clearly seen in both men and women.

This prior study [28] also revealed that the smoking prevalence according to the district's socioeconomic indicators were not clear for women. It has been posited that cultural factors associated with women smoking might have affected the smoking prevalence patterns based on a district's indicators. There exists the possibility that societal intolerance towards women smoking and cultural differences might have lowered women smoking prevalence in *si* and *gun* areas with high area deprivation indices. A study conducted by Cho et al. [29], which reported differences in smoking prevalence based on occupational categories, indicated that women in the service sector in Korea have a higher smoking prevalence than women with other occupations. Hence, the lack of women in the service sector in rural areas with high area deprivation levels might also explain the phenomena. However, the negative relationship between the area deprivation index and smoking prevalence in rural areas, which also appears for men, cannot be easily explained by these factors.

Supplemental Figure 2 shows the results on the relationship between age-standardized smoking prevalence and the area deprivation index that was explored to explain the relationship between the area deprivation index and smoking prevalence for men in rural areas. According to the results, a strong negative correlation was observed in the 19-29 age group. It is interesting that 19 to 29-year-old men in rural areas with a high area deprivation index had a relatively low smoking prevalence. Supplemental Figure 3 shows the number of people per convenience store based on the area deprivation index for metropolitan, urban, and rural areas. In Supplemental Fig-

ure 3, the number of people per convenience store increased steeply in rural areas as the area deprivation increased [30].

Because advertisement of tobacco products through mass media has been restricted in Korea, tobacco companies have reportedly focused on promotions through displays and posters in convenience stores, image marketing, and corporate social responsibility activities [31]. Internal documents from tobacco companies have revealed that these types of sales promotion activities have targeted the 18-24 age group [32,33]. Considering these factors, it may be possible that the reason the smoking prevalence of people in their 20s decreased as the area deprivation index in rural areas decreased is because of their limited exposure to the promotion strategies of the tobacco industry.

According to this study, for women, as the smoking prevalence increased, the difference in smoking prevalence between income levels also increased. This is probably because the smoking prevalence of women in Korea was low; hence an increase in smoking prevalence also was associated with an increase in the absolute smoking prevalence differences [34].

This study has several limitations. Firstly, the women smoking prevalence of 3.4% measured in this study is lower than the prior analysis results utilizing the KNHANES data [3]. According to a prior study by Jung-Choi et al. [35] using the 2008 KNHANES data, the smoking prevalence estimated from urinary cotinine tests was higher than the self-reported smoking prevalence by 5.3%p in men and 8.0%p in women. In particular, women who live with a spouse or parents or live in a *gun* district had a tendency to underestimate their smoking behavior. These findings suggest that self-reported smoking in women may be subject to bias. In particular, the women smoking from the CHS was likely to be underreported because women were surveyed in households with family members, unlike KNHANES where interviews on smoking behaviors were conducted in separation from household members. Secondly, the income information in the CHS was changed to a categorical response from 2014. In most districts, the percentage of the people responding with 'more than 6 000 000 won' was less than 20%, hence assuming these individuals as the uppermost income level would be appropriate. However, in Seoul Gangnam-gu, Seocho-gu, Songpa-gu, the percentage of respondents was 38.4, 37.1, and 25.1%, respectively. Therefore, there is a possibility that the calculation of the income quintiles for household with more than 6 000 000 won would be inaccurate for some affluent districts.

Despite these limitations, this study is notable in that it reported the size of the income differences in smoking prevalence for each *si*, *gun*, and *gu* throughout the country. Furthermore, it also presented the relationship between the inequality in the smoking prevalence and area deprivation levels in metropolitan, urban, and rural areas.

In summary, this study revealed a large difference in not only smoking prevalences, but also the size of inequality in smoking prevalence among 245 districts in Korea. Districts with a high age-standardized smoking prevalence did not necessarily have a large inequality in smoking prevalence. In addition, the correlation between the area deprivation index and smoking prevalence was different for metropolitan, urban, and rural areas. The relationship between the area deprivation index and size of the smoking prevalence inequality was not evident.

These results suggest that to develop a policy or a target for equity in smoking prevalence in *si*, *gun*, and *gu* areas of Korea, an effort should be exercised to directly measure the magnitude of the inequality in smoking prevalence rather than to assume the magnitude based on overall smoking prevalence or area deprivation indices. Further research to explain the geographical variations in smoking prevalence and the size of inequality in smoking prevalence along with research to examine the time trends in smoking prevalence inequality for each *si*, *gun*, and *gu* is needed.

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CONFLICT OF INTEREST

The authors have no conflicts of interest associated with the material presented in this paper.

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REFERENCES

1. Warren GW, Alberg AJ, Kraft AS, Cummings KM. The 2014 Surgeon General's report: "The health consequences of smoking--50 years of progress": a paradigm shift in cancer care. *Cancer* 2014;120(13):1914-1916.
2. GBD 2013 Risk Factors Collaborators, Forouzanfar MH, Alexander L, Anderson HR, Bachman VF, Biryukov S, et al. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 2015;386(10010):2287-2323.
3. Choi S, Kim Y, Park S, Lee J, Oh K. Trends in cigarette smoking among adolescents and adults in South Korea. *Epidemiol Health* 2014;36:e2014023.
4. Organization for Economic Cooperation and Development. Non-medical determinants of health [cited 2016 Jun 21]. Available from: http://www.oecd-ilibrary.org/social-issues-migration-health/data/oecd-health-statistics/oecd-health-data-non-medical-determinants-of-health_data-00546-en.
5. Khang YH, Cho HJ. Socioeconomic inequality in cigarette smoking: trends by gender, age, and socioeconomic position in South Korea, 1989-2003. *Prev Med* 2006;42(6):415-422.
6. Park EJ, Kim H, Kawachi I, Kim IH, Cho SI. Area deprivation, individual socioeconomic position and smoking among women in South Korea. *Tob Control* 2010;19(5):383-390.
7. Khang YH, Yun SC, Cho HJ, Jung-Choi K. The impact of governmental antismoking policy on socioeconomic disparities in cigarette smoking in South Korea. *Nicotine Tob Res* 2009;11(3):262-269.
8. Khang YH, Lynch JW, Jung-Choi K, Cho HJ. Explaining age-specific inequalities in mortality from all causes, cardiovascular disease and ischaemic heart disease among South Korean male public servants: relative and absolute perspectives. *Heart* 2008;94(1):75-82.
9. Ministry of Health and Welfare. Health Plan 2010. Seoul: Ministry of Health and Welfare; 2005, p. 211 (Korean).
10. Ministry for Health, Welfare and Family Affairs. Health Plan 2020. Seoul: Ministry for Health, Welfare and Family Affairs; 2011, p. 96 (Korean).
11. Ministry of Health and Welfare. Health Plan 2020. Sejong: Ministry of Health and Welfare; 2015, p. 36 (Korean).
12. Khang YH, Jung-Choi K, Cho SH, Cho HJ, Kim MH, Kim KW, et al. Health policy plan for tackling health inequalities in Seoul. Seoul: Seoul Metropolitan Government; 2012, p. 136-137 (Korean).
13. Jung-Choi K, Kong KA, Kim MH, Kim YM, Park JH, Yoon TH. Monitoring trends in health inequalities in Seoul. Seoul: Seoul Metropolitan Government; 2014, p. 67-77 (Korean).
14. Shin H, Lee S, Chu JM. Development of composite deprivation index for Korea: the correlation with standardized mortality ratio. *J Prev Med Public Health* 2009;42(6):392-402 (Korean).
15. Choi MH, Cheong KS, Cho BM, Hwang IK, Kim CH, Kim MH, et al. Deprivation and mortality at the town level in Busan, Korea: an ecological study. *J Prev Med Public Health* 2011;44(6):242-248.
16. Kim YT, Choi BY, Lee KO, Kim H, Chun JH, Kim SY, et al. Overview of Korean Community Health Survey. *J Korean Med Assoc* 2012;55(1):74-83 (Korean).
17. Khang YH, Kim HR. Socioeconomic mortality inequality in Korea: mortality follow-up of the 1998 National Health and Nutrition Examination Survey (NHANES) data. *J Prev Med Public Health* 2006;39(2):115-122 (Korean).
18. Bahk J, Khang YH. Trends in childhood obesity and central adiposity between 1998-2001 and 2010-2012 according to household income and urbanity in Korea. *BMC Public Health* 2016;16:18.
19. Korean Statistical Information Service. The household income and expenditure survey. Share by quintile and decile, household deficit ratio and boundaries (2 and more, household basis) [cited 2016 May 27]. Available from: http://kosis.kr/statHtml/statHtml.do?orgId=101&tblId=DT_1L6E004&vw_cd=MT_ZTITLE&list_id=G_A_4_3_1&seqNo=&lang_mode=ko&language=kor&obj_var_id=&itm_id=&conn_path=E1.
20. Jarman B, Townsend P, Carstairs V. Deprivation indices. *BMJ* 1991;303(6801):523.
21. Carstairs V. Deprivation indices: their interpretation and use in relation to health. *J Epidemiol Community Health* 1995;49 Suppl 2:S3-S8.
22. Yoon TH, Noh M, Han J, Jung-Choi K, Khang YH. Deprivation and suicide mortality across 424 neighborhoods in Seoul, South Korea: a Bayesian spatial analysis. *Int J Public Health* 2015;60(8):969-976.
23. Lopez AD, Collishaw NE, Piha T. A descriptive model of the cigarette epidemic in developed countries. *Tob Control* 1994;3(3):242-247.
24. Shortt NK, Tisch C, Pearce J, Mitchell R, Richardson EA, Hill S, et al. A cross-sectional analysis of the relationship between tobacco and alcohol outlet density and neighbourhood de-

- privation. *BMC Public Health* 2015;15:1014.
25. Pucci LG, Joseph HM Jr, Siegel M. Outdoor tobacco advertising in six Boston neighborhoods. Evaluating youth exposure. *Am J Prev Med* 1998;15(2):155-159.
 26. Barbeau EM, Wolin KY, Naumova EN, Balbach E. Tobacco advertising in communities: associations with race and class. *Prev Med* 2005;40(1):16-22.
 27. Ministry of Government Legislation. National Health Promotion Act: Article 9; 2014 [cited 2017 Feb 26]. Available from: <http://www.law.go.kr/lsInfoP.do?lsiSeq=181391&efYd=20160903#0000> (Korean).
 28. Kim CS, Yun SC, Kim HR, Khang YH. A multilevel study on the relationship between the residential distribution of high class (power elites) and smoking in Seoul. *J Prev Med Public Health* 2006;39(1):30-38 (Korean).
 29. Cho HJ, Khang YH, Yun SC. Occupational differentials in cigarette smoking in South Korea: findings from the 2003 Social Statistics Survey. *J Prev Med Public Health* 2006;39(4):365-370 (Korean).
 30. Yeom KS. 2013 Convenience store. Seoul: Korean Association of Convenience Store Industry; 2013, p. 126-132 (Korean).
 31. Kim MH, Seo JH, Son JI, Cho HJ, Choi YJ. Tobacco control policy in Korea and health inequalities. Seoul: People's Health Institute; 2011, p. 140-143 (Korean).
 32. Ling PM, Glantz SA. Why and how the tobacco industry sells cigarettes to young adults: evidence from industry documents. *Am J Public Health* 2002;92(6):908-916.
 33. Sepe E, Ling PM, Glantz SA. Smooth moves: bar and nightclub tobacco promotions that target young adults. *Am J Public Health* 2002;92(3):414-419.
 34. Scanlan JP. The mismeasure of health disparities. *J Public Health Manag Pract* 2016;22(4):415-419.
 35. Jung-Choi KH, Khang YH, Cho HJ. Hidden female smokers in Asia: a comparison of self-reported with cotinine-verified smoking prevalence rates in representative national data from an Asian population. *Tob Control* 2012;21(6):536-542.

Supplemental Table 1. Ten top and bottom districts in terms of smoking prevalences in South Korea

	Top 10			Bottom 10		
	Province	District	Smoking prevalences (%)	Province	District	Smoking prevalences (%)
Men	Gangwon-do	Taebaek-si	56.1	Gyeonggi-do	Gwacheon-si	31.4
	Gyeonggi-do	Pocheon-si	52.7	Gyeonggi-do	Bundang-gu	33.0
	Gangwon-do	Jeongseon-gun	52.3	Seoul	Seocho-gu	34.4
	Chungcheongbuk-do	Eumseong-gun	52.3	Seoul	Gangnam-gu	34.5
	Gyeongsangbuk-do	Seongju-gun	52.2	Gyeonggi-do	Suji-gu	35.8
	Daegu	Seo-gu	52.0	Gyeonggi-do	Yeongtong-gu	38.2
	Busan	Jung-gu	51.8	Gyeonggi-do	Dongan-gu	38.2
	Busan	Dong-gu	51.6	Chungcheongnam-do	Gyeryong-si	38.4
	Gyeonggi-do	Ojeong-gu	51.5	Seoul	Songpa-gu	38.5
	Gyeongsangbuk-do	Gunwi-gun	51.4	Gyeonggi-do	Giheung-gu	38.6
Women	Gyeonggi-do	Dongducheon-si	7.4	Jeollanam-do	Goheung-gun	0.8
	Incheon	Jung-gu	5.9	Jeollanam-do	Muan-gun	0.8
	Gyeonggi-do	Ojeong-gu	5.7	Jeollanam-do	Boseong-gun	1.0
	Gyeonggi-do	Jungwon-gu	5.6	Jeollanam-do	Sinan-gun	1.0
	Gyeonggi-do	Pocheon-si	5.5	Jeollanam-do	Jangheung-gun	1.0
	Busan	Jung-gu	5.2	Jeollabuk-do	Imsil-gun	1.1
	Incheon	Nam-gu	5.2	Jeollanam-do	Gangjin-gun	1.1
	Gyeonggi-do	Pyeongtaek-si	5.2	Jeollanam-do	Gurye-gun	1.1
	Gyeonggi-do	Osan-si	5.1	Gyeonggi-do	Bundang-gu	1.2
	Incheon	Namdong-gu	5.0	Jeollanam-do	Wando-gun	1.2

Source from the Community Health Survey in South Korea, 2008-2014.

Supplemental Table 2. Ten top and bottom districts in terms of interquintile differences in smoking prevalence between the lowest and highest income quintiles in South Korea

	Top 10			Bottom 10		
	Province	District	Interquintile differences in smoking prevalence (%p)	Province	District	Interquintile differences in smoking prevalence (%p)
Men	Gyeongsangbuk-do	Uljin-gun	20.2	Gyeonggi-do	Uijeongbu-si	-3.7
	Gyeonggi-do	Anseong-si	18.0	Gangwon-do	Inje-gun	-2.9
	Seoul	Mapo-gu	17.0	Jeollanam-do	Jindo-gun	-2.5
	Jeollabuk-do	Gochang-gun	16.4	Incheon	Ongjin-gun	-2.2
	Seoul	Gwangjin-gu	15.2	Jeollanam-do	Goheung-gun	-1.6
	Busan	Nam-gu	15.1	Chungcheongbuk-do	Goesan-gun	-0.7
	Seoul	Yongsan-gu	14.8	Chungcheongnam-do	Dangjin-si	-0.4
	Gyeongsangnam-do	Uiryeong-gun	14.7	Gyeonggi-do	Ilsandong-gu	-0.3
	Gyeongsangnam-do	Masan-si	14.6	Chungcheongbuk-do	Jeungpyeong-gun	-0.3
	Busan	Haeundae-gu	14.3	Jeollanam-do	Boseong-gun	0.4
Women	Gyeonggi-do	Dongducheon-si	9.5	Incheon	Ongjin-gun	-1.4
	Gyeonggi-do	Sangnok-gu	6.7	Gyeongsangbuk-do	Uljin-gun	-1.0
	Gyeongsangnam-do	Tongyeong-si	6.7	Gyeongsangbuk-do	Ulleung-gun	-0.9
	Gangwon-do	Wonju-si	6.6	Jeollanam-do	Gurye-gun	-0.5
	Busan	Jung-gu	6.5	Jeollanam-do	Sinan-gun	-0.3
	Gyeonggi-do	Guri-si	6.3	Busan	Gijang-gun	0.0
	Gyeonggi-do	Paju-si	6.2	Gyeonggi-do	Bundang-gu	0.1
	Ulsan	Nam-gu	6.2	Jeollanam-do	Goheung-gun	0.2
	Busan	Haeundae-gu	6.1	Jeollanam-do	Muan-gun	0.4
	Gyeonggi-do	Yeoncheon-gun	5.9	Gangwon-do	Hwacheon-gun	0.5

Source from the Community Health Survey in South Korea, 2008-2014.

Supplemental Table 3. Smoking prevalences, smoking prevalences according to income quintiles, and interquintile differences in smoking prevalence (between the highest [Q5] and the lowest [Q1] income quintiles) in 245 local districts of South Korea.

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Men	Seoul	Jongno-gu	42.5 (40.1, 44.8)	44.7 (39.1, 50.2)	48.4 (42.8, 54.1)	44.8 (39.3, 50.4)	39.2 (34.2, 44.2)	35.6 (30.8, 40.4)	9.1 (3.5, 14.7)	Metropolitan
Men	Seoul	Jung-gu	45.1 (42.7, 47.5)	48.7 (43.0, 54.3)	46.2 (40.7, 51.7)	46.7 (41.2, 52.1)	42.7 (37.4, 47.9)	41.1 (36.0, 46.3)	7.6 (1.9, 13.3)	Metropolitan
Men	Seoul	Yongsan-gu	43.0 (40.6, 45.5)	50.3 (44.4, 56.3)	45.3 (39.9, 50.7)	45.3 (39.7, 51.0)	38.2 (33.0, 43.3)	35.5 (30.5, 40.5)	14.8 (9.0, 20.6)	Metropolitan
Men	Seoul	Seongdong-gu	43.0 (40.6, 45.4)	50.3 (44.5, 56.0)	43.7 (38.4, 48.9)	40.8 (35.5, 46.0)	41.6 (36.4, 46.7)	38.8 (33.6, 44.0)	11.5 (5.7, 17.3)	Metropolitan
Men	Seoul	Gwangjin-gu	42.1 (39.8, 44.5)	49.5 (43.7, 55.4)	46.0 (40.6, 51.5)	41.7 (36.4, 47.0)	39.1 (34.2, 44.0)	34.3 (29.6, 39.1)	15.2 (9.5, 20.9)	Metropolitan
Men	Seoul	Dongdaemun-gu	44.8 (42.4, 47.3)	49.8 (43.9, 55.6)	46.9 (41.3, 52.5)	44.1 (38.7, 49.5)	41.7 (36.4, 47.0)	41.6 (36.2, 47.0)	8.2 (2.4, 14.0)	Metropolitan
Men	Seoul	Jungnang-gu	43.0 (40.6, 45.5)	47.7 (41.9, 53.5)	45.1 (39.6, 50.6)	39.3 (34.1, 44.4)	41.7 (36.5, 47.0)	41.7 (36.3, 47.1)	6.0 (0.1, 11.9)	Metropolitan
Men	Seoul	Seongbuk-gu	46.0 (43.5, 48.4)	50.9 (45.0, 56.8)	50.7 (45.0, 56.5)	48.6 (43.1, 54.1)	41.2 (35.9, 46.4)	38.0 (33.0, 43.0)	12.9 (7.2, 18.6)	Metropolitan
Men	Seoul	Gangbuk-gu	46.6 (44.1, 49.1)	51.8 (45.8, 57.9)	45.7 (40.2, 51.2)	49.2 (43.6, 54.9)	43.0 (37.5, 48.4)	43.4 (37.9, 48.8)	8.4 (2.6, 14.2)	Metropolitan
Men	Seoul	Dobong-gu	44.3 (41.9, 46.7)	47.3 (41.6, 53.0)	47.0 (41.5, 52.5)	44.3 (38.9, 49.7)	41.2 (36.0, 46.3)	42.0 (36.6, 47.4)	5.3 (-0.5, 11.1)	Metropolitan
Men	Seoul	Nowon-gu	40.9 (38.5, 43.2)	42.9 (37.3, 48.4)	41.8 (36.5, 47.1)	40.9 (35.7, 46.1)	40.4 (35.2, 45.7)	38.1 (32.9, 43.3)	4.8 (-1.1, 10.7)	Metropolitan
Men	Seoul	Eunpyeong-gu	43.3 (40.9, 45.7)	45.0 (39.3, 50.6)	46.3 (40.8, 51.7)	42.1 (36.9, 47.3)	40.8 (35.5, 46.1)	41.8 (36.4, 47.1)	3.2 (-2.7, 9.1)	Metropolitan
Men	Seoul	Seodaemun-gu	42.9 (40.5, 45.4)	47.6 (41.8, 53.3)	42.5 (37.2, 47.8)	45.4 (39.9, 50.8)	38.8 (33.7, 43.9)	40.6 (35.2, 45.9)	7.0 (1.1, 12.9)	Metropolitan
Men	Seoul	Mapo-gu	42.3 (39.9, 44.8)	53.0 (46.8, 59.3)	40.9 (35.7, 46.2)	41.8 (36.4, 47.3)	40.8 (35.4, 46.1)	36.0 (31.1, 41.0)	17.0 (11.2, 22.8)	Metropolitan
Men	Seoul	Yangcheon-gu	40.3 (37.9, 42.7)	46.9 (40.9, 52.8)	40.8 (35.6, 46.1)	39.7 (34.4, 45.0)	38.9 (33.8, 44.0)	35.1 (29.9, 40.2)	11.8 (5.8, 17.8)	Metropolitan
Men	Seoul	Gangseo-gu	41.6 (39.3, 44.0)	43.9 (38.4, 49.4)	44.4 (39.1, 49.7)	45.3 (40.0, 50.7)	36.1 (31.3, 40.9)	38.4 (33.3, 43.4)	5.5 (-0.2, 11.2)	Metropolitan
Men	Seoul	Guro-gu	42.6 (40.2, 45.0)	49.1 (43.3, 54.9)	39.5 (34.5, 44.6)	42.8 (37.5, 48.1)	44.2 (38.9, 49.6)	37.5 (32.4, 42.6)	11.6 (5.8, 17.4)	Metropolitan
Men	Seoul	Geumcheon-gu	45.4 (43.0, 47.8)	47.8 (42.3, 53.4)	49.7 (44.3, 55.2)	43.9 (38.6, 49.1)	45.3 (40.1, 50.5)	40.2 (35.1, 45.2)	7.6 (2.0, 13.2)	Metropolitan
Men	Seoul	Yeongdeungpo-gu	39.4 (37.1, 41.7)	45.4 (39.9, 50.8)	41.5 (36.4, 46.6)	38.9 (33.8, 44.1)	34.1 (29.3, 38.8)	36.8 (31.7, 41.8)	8.6 (2.9, 14.3)	Metropolitan
Men	Seoul	Dongjak-gu	39.7 (37.4, 42.0)	45.7 (40.1, 51.3)	39.8 (34.7, 44.8)	40.5 (35.3, 45.8)	38.0 (33.1, 43.0)	34.9 (30.1, 39.8)	10.8 (5.1, 16.5)	Metropolitan
Men	Seoul	Gwanak-gu	41.9 (39.5, 44.3)	47.9 (42.1, 53.8)	41.6 (36.3, 46.9)	40.2 (35.2, 45.2)	42.0 (36.7, 47.3)	38.0 (32.9, 43.1)	9.9 (4.2, 15.6)	Metropolitan
Men	Seoul	Seocho-gu	34.4 (32.2, 36.5)	38.5 (33.3, 43.8)	37.1 (32.1, 42.1)	35.0 (30.2, 39.8)	30.9 (26.4, 35.4)	29.7 (25.1, 34.4)	8.8 (3.1, 14.5)	Metropolitan
Men	Seoul	Gangnam-gu	34.5 (32.4, 36.7)	37.4 (32.2, 42.6)	36.9 (32.1, 41.7)	32.2 (27.5, 36.9)	33.0 (28.4, 37.6)	32.7 (28.0, 37.4)	4.7 (-1.0, 10.4)	Metropolitan
Men	Seoul	Songpa-gu	38.5 (36.3, 40.8)	42.8 (37.3, 48.3)	42.6 (37.3, 47.9)	39.9 (34.8, 45.0)	36.4 (31.5, 41.3)	31.3 (26.8, 35.7)	11.5 (6.0, 17.0)	Metropolitan
Men	Seoul	Gangdong-gu	40.9 (38.5, 43.2)	42.9 (37.5, 48.3)	43.8 (38.4, 49.1)	41.3 (35.9, 46.7)	42.3 (37.0, 47.5)	33.7 (29.0, 38.5)	9.2 (3.6, 14.8)	Metropolitan
Men	Busan	Jung-gu	51.8 (49.0, 54.6)	55.5 (48.9, 62.0)	52.0 (45.8, 58.1)	50.7 (44.7, 56.7)	48.6 (42.7, 54.5)	52.2 (45.9, 58.5)	3.3 (-2.7, 9.3)	Metropolitan
Men	Busan	Seo-gu	50.2 (47.5, 52.8)	55.3 (49.1, 61.5)	55.2 (49.2, 61.2)	52.2 (46.1, 58.3)	45.0 (39.5, 50.6)	42.9 (37.4, 48.5)	12.4 (6.6, 18.2)	Metropolitan
Men	Busan	Dong-gu	51.6 (48.8, 54.3)	53.7 (47.3, 60.0)	52.8 (46.7, 58.9)	51.7 (45.6, 57.9)	50.6 (44.5, 56.6)	48.6 (42.5, 54.7)	5.1 (-0.9, 11.1)	Metropolitan
Men	Busan	Yeongdo-gu	50.8 (48.2, 53.5)	53.1 (46.9, 59.4)	53.5 (47.5, 59.4)	45.9 (40.3, 51.6)	49.3 (43.5, 55.0)	52.4 (46.4, 58.5)	0.7 (-5.2, 6.6)	Metropolitan
Men	Busan	Busanjin-gu	48.0 (45.5, 50.6)	53.0 (46.9, 59.0)	51.3 (45.5, 57.0)	48.0 (42.3, 53.8)	45.5 (40.0, 51.0)	42.3 (36.9, 47.7)	10.7 (4.9, 16.5)	Metropolitan
Men	Busan	Dongnae-gu	43.1 (40.7, 45.5)	47.9 (42.4, 53.4)	46.8 (41.2, 52.5)	43.5 (38.2, 48.9)	39.4 (34.3, 44.4)	36.9 (31.7, 42.1)	11.0 (5.4, 16.6)	Metropolitan
Men	Busan	Nam-gu	46.1 (43.6, 48.6)	52.5 (46.5, 58.5)	48.6 (42.9, 54.3)	43.8 (38.4, 49.2)	47.8 (42.2, 53.5)	37.4 (32.2, 42.6)	15.1 (9.3, 20.9)	Metropolitan
Men	Busan	Buk-gu	45.2 (42.8, 47.7)	48.8 (43.0, 54.6)	46.9 (41.2, 52.6)	44.8 (39.3, 50.3)	46.3 (40.8, 51.7)	39.4 (34.1, 44.7)	9.4 (3.7, 15.1)	Metropolitan
Men	Busan	Haeundae-gu	44.1 (41.7, 46.6)	52.9 (46.8, 59.1)	45.4 (40.0, 50.9)	44.1 (38.6, 49.6)	40.2 (35.0, 45.4)	38.6 (33.4, 43.7)	14.3 (8.4, 20.2)	Metropolitan
Men	Busan	Saha-gu	46.5 (44.0, 49.0)	53.3 (47.2, 59.5)	47.7 (42.2, 53.3)	48.7 (42.9, 54.4)	40.8 (35.6, 46.0)	41.9 (36.6, 47.2)	11.4 (5.6, 17.2)	Metropolitan
Men	Busan	Geumjeong-gu	45.9 (43.4, 48.5)	53.9 (47.6, 60.2)	45.9 (40.1, 51.7)	47.2 (41.7, 52.7)	43.0 (37.7, 48.4)	40.7 (35.5, 45.9)	13.2 (7.5, 18.9)	Metropolitan
Men	Busan	Gangseo-gu	49.5 (46.9, 52.1)	52.8 (46.9, 58.7)	52.4 (46.6, 58.1)	52.3 (46.3, 58.2)	48.5 (42.8, 54.2)	41.4 (36.1, 46.8)	11.4 (5.7, 17.1)	Metropolitan
Men	Busan	Yeonje-gu	42.1 (39.7, 44.6)	46.0 (40.2, 51.7)	46.5 (40.8, 52.1)	41.2 (35.8, 46.6)	41.6 (36.3, 46.8)	35.3 (30.3, 40.4)	10.7 (4.9, 16.5)	Metropolitan
Men	Busan	Suyeong-gu	44.5 (42.0, 47.0)	47.0 (41.3, 52.8)	43.8 (38.4, 49.3)	45.4 (39.9, 50.9)	41.8 (36.5, 47.2)	44.5 (38.8, 50.2)	2.5 (-3.3, 8.3)	Metropolitan
Men	Busan	Sasang-gu	48.3 (45.8, 50.8)	49.3 (43.6, 55.0)	50.9 (45.2, 56.6)	47.7 (42.1, 53.2)	47.2 (41.8, 52.7)	46.9 (41.5, 52.4)	2.4 (-3.2, 8.0)	Metropolitan
Men	Busan	Gijang-gun	49.4 (46.9, 52.0)	51.6 (45.7, 57.5)	49.9 (44.1, 55.8)	51.8 (46.1, 57.6)	48.8 (43.0, 54.5)	44.9 (39.3, 50.4)	6.7 (0.8, 12.6)	Rural
Men	Daegu	Jung-gu	47.2 (44.6, 49.8)	52.4 (46.2, 58.7)	52.7 (46.8, 58.6)	47.6 (41.7, 53.4)	43.2 (37.7, 48.6)	39.9 (34.4, 45.4)	12.5 (6.5, 18.5)	Metropolitan
Men	Daegu	Dong-gu	47.1 (44.6, 49.6)	48.6 (42.7, 54.5)	51.2 (45.5, 56.9)	45.4 (40.0, 50.9)	48.9 (43.2, 54.6)	41.3 (36.1, 46.6)	7.3 (1.5, 13.1)	Metropolitan
Men	Daegu	Seo-gu	52.0 (49.4, 54.7)	53.1 (47.1, 59.1)	52.1 (46.0, 58.2)	51.7 (45.9, 57.4)	53.4 (47.4, 59.5)	50.0 (44.2, 55.8)	3.1 (-2.7, 8.9)	Metropolitan
Men	Daegu	Nam-gu	47.7 (45.1, 50.3)	49.6 (43.7, 55.6)	49.7 (43.7, 55.6)	48.2 (42.6, 53.8)	46.3 (40.5, 52.1)	44.5 (39.0, 50.0)	5.1 (-0.7, 10.9)	Metropolitan
Men	Daegu	Buk-gu	46.4 (44.0, 48.9)	52.0 (46.1, 57.9)	50.2 (44.4, 55.9)	43.6 (38.3, 48.8)	46.9 (41.5, 52.4)	40.0 (34.8, 45.1)	12 (6.3, 17.7)	Metropolitan
Men	Daegu	Suseong-gu	40.8 (38.5, 43.2)	46.5 (40.8, 52.2)	42.0 (36.6, 47.4)	39.8 (34.7, 44.9)	41.8 (36.5, 47.1)	34.0 (29.1, 38.8)	12.5 (6.9, 18.1)	Metropolitan
Men	Daegu	Dalseo-gu	46.3 (43.8, 48.8)	51.5 (45.7, 57.4)	51.5 (45.7, 57.2)	45.7 (40.2, 51.1)	42.1 (36.8, 47.4)	40.3 (35.1, 45.5)	11.2 (5.5, 16.9)	Metropolitan
Men	Daegu	Dalseong-gun	47.5 (45.1, 50.0)	51.0 (45.2, 56.7)	48.0 (42.5, 53.5)	46.2 (40.8, 51.6)	48.4 (42.8, 53.9)	44.0 (38.6, 49.4)	7.0 (1.3, 12.7)	Rural
Men	Incheon	Jung-gu	49.3 (46.7, 51.8)	51.7 (45.7, 57.7)	51.0 (45.2, 56.8)	50.3 (44.6, 56.1)	46.3 (40.8, 51.8)	47.2 (41.5, 53.0)	4.5 (-1.4, 10.4)	Metropolitan
Men	Incheon	Dong-gu	48.8 (46.2, 51.4)	53.0 (46.9, 59.2)	49.7 (43.8, 55.6)	47.4 (41.8, 52.9)	48.2 (42.4, 53.9)	46.6 (41.0, 52.2)	6.4 (0.5, 12.3)	Metropolitan
Men	Incheon	Nam-gu	49.0 (46.4, 51.5)	51.9 (45.8, 58.0)	50.3 (44.5, 56.1)	48.1 (42.6, 53.7)	48.5 (42.9, 54.2)	46.4 (40.8, 52.0)	5.5 (-0.4, 11.4)	Metropolitan

(Continued to the next page)

Supplemental Table 3. Continued from the previous page

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Men	Incheon	Yeonsu-gu	42.5 (40.0, 44.9)	50.3 (44.0, 56.5)	40.6 (35.3, 46.0)	42.7 (37.4, 48.0)	41.7 (36.2, 47.1)	37.5 (32.3, 42.7)	12.8 (6.9, 18.7)	Metropolitan
Men	Incheon	Namdong-gu	44.9 (42.4, 47.5)	50.6 (44.3, 56.8)	45.3 (39.6, 51.1)	43.5 (38.1, 49.0)	45.3 (39.5, 51.1)	39.8 (34.3, 45.2)	10.8 (4.8, 16.8)	Metropolitan
Men	Incheon	Bupyeong-gu	45.4 (43.0, 47.9)	46.5 (40.7, 52.3)	48.0 (42.4, 53.6)	44.4 (38.9, 49.9)	42.2 (36.9, 47.6)	46.0 (40.5, 51.5)	0.5 (-5.3, 6.3)	Metropolitan
Men	Incheon	Gyeyang-gu	46.1 (43.5, 48.6)	51.0 (44.9, 57.1)	44.0 (38.4, 49.6)	45.5 (40.0, 51.1)	46.2 (40.6, 51.7)	44.8 (39.0, 50.5)	6.2 (0.2, 12.2)	Metropolitan
Men	Incheon	Seo-gu	47.1 (44.6, 49.6)	52.1 (46.1, 58.1)	46.8 (41.4, 52.2)	45.0 (39.8, 50.2)	47.6 (41.9, 53.2)	44.0 (38.5, 49.6)	8.1 (2.3, 13.9)	Metropolitan
Men	Incheon	Ganghwa-gun	46.9 (44.1, 49.6)	50.3 (43.7, 56.9)	50.2 (44.0, 56.5)	45.4 (39.5, 51.2)	42.9 (37.1, 48.7)	45.9 (39.6, 52.2)	4.4 (-1.5, 10.3)	Rural
Men	Incheon	Ongjin-gun	47.6 (45.0, 50.3)	45.5 (39.6, 51.3)	50.1 (44.0, 56.3)	47.8 (42.0, 53.6)	47.0 (41.1, 52.9)	47.7 (41.6, 53.7)	-2.2 (-8.2, 3.8)	Rural
Men	Gwangju	Dong-gu	45.1 (42.6, 47.6)	47.9 (42.1, 53.8)	47.3 (41.6, 53.0)	44.6 (39.1, 50.2)	46.1 (40.4, 51.8)	39.6 (34.3, 44.9)	8.3 (2.5, 14.1)	Metropolitan
Men	Gwangju	Seo-gu	39.7 (37.5, 42.0)	43.6 (38.2, 49.0)	41.1 (35.9, 46.3)	40.2 (35.2, 45.2)	37.9 (33.1, 42.8)	36.2 (31.3, 41.0)	7.4 (1.8, 13.0)	Metropolitan
Men	Gwangju	Nam-gu	42.4 (40.0, 44.7)	48.0 (42.4, 53.7)	44.0 (38.6, 49.3)	40.6 (35.5, 45.7)	40.3 (35.2, 45.3)	39.3 (34.3, 44.3)	8.7 (3.1, 14.3)	Metropolitan
Men	Gwangju	Buk-gu	40.6 (38.3, 42.9)	43.2 (37.8, 48.6)	43.5 (38.3, 48.8)	42.0 (36.9, 47.1)	37.8 (32.8, 42.8)	36.2 (31.4, 41.1)	7.0 (1.3, 12.7)	Metropolitan
Men	Gwangju	Gwangsan-gu	43.7 (41.3, 46.0)	48.6 (42.8, 54.4)	44.1 (38.9, 49.2)	43.5 (38.2, 48.8)	44.0 (38.8, 49.1)	38.5 (33.6, 43.5)	10.1 (4.5, 15.7)	Metropolitan
Men	Daejeon	Dong-gu	45.9 (43.4, 48.3)	51.5 (45.6, 57.4)	48.3 (42.8, 53.8)	44.0 (38.5, 49.5)	45.1 (39.7, 50.6)	40.3 (35.1, 45.5)	11.2 (5.4, 17.0)	Metropolitan
Men	Daejeon	Jung-gu	46.1 (43.6, 48.6)	51.0 (45.0, 56.9)	49.5 (43.7, 55.3)	44.9 (39.4, 50.4)	45.8 (40.2, 51.3)	38.9 (33.7, 44.1)	12.1 (6.3, 17.9)	Metropolitan
Men	Daejeon	Seo-gu	42.1 (39.8, 44.5)	47.0 (41.2, 52.8)	41.9 (36.8, 46.9)	40.5 (35.3, 45.7)	43.5 (38.2, 48.7)	38.7 (33.6, 43.7)	8.3 (2.6, 14.0)	Metropolitan
Men	Daejeon	Yuseong-gu	39.2 (36.9, 41.5)	45.5 (40.1, 50.9)	43.7 (38.4, 49.0)	39.6 (34.5, 44.7)	34.2 (29.3, 39.1)	31.5 (26.6, 36.3)	14.0 (8.5, 19.5)	Metropolitan
Men	Daejeon	Daedeok-gu	44.7 (42.3, 47.1)	44.7 (39.1, 50.2)	47.2 (41.6, 52.7)	43.5 (38.3, 48.8)	46.7 (41.2, 52.1)	41.0 (35.7, 46.3)	3.7 (-2.1, 9.5)	Metropolitan
Men	Ulsan	Jung-gu	47.1 (44.6, 49.6)	51.8 (46.0, 57.7)	46.5 (41.1, 51.9)	47.0 (41.4, 52.6)	44.7 (39.3, 50.1)	45.8 (40.3, 51.4)	6.0 (0.3, 11.7)	Metropolitan
Men	Ulsan	Nam-gu	45.5 (43.0, 48.0)	49.3 (43.3, 55.4)	46.4 (40.9, 51.9)	46.7 (41.2, 52.2)	44.3 (38.8, 49.7)	41.3 (36.0, 46.5)	8.0 (2.3, 13.7)	Metropolitan
Men	Ulsan	Dong-gu	48.2 (45.7, 50.7)	56.4 (50.1, 62.8)	49.7 (44.1, 55.4)	46.4 (41.0, 51.8)	43.1 (38.0, 48.2)	46.8 (40.8, 52.9)	9.6 (4.0, 15.2)	Metropolitan
Men	Ulsan	Buk-gu	42.9 (40.5, 45.3)	47.6 (41.8, 53.3)	46.6 (40.9, 52.4)	41.4 (36.3, 46.4)	39.0 (33.9, 44.2)	40.3 (35.0, 45.6)	7.3 (1.7, 12.9)	Metropolitan
Men	Ulsan	Ulju-gun	45.4 (43.0, 47.8)	48.3 (42.6, 54.0)	49.0 (43.5, 54.6)	40.2 (35.1, 45.3)	43.7 (38.4, 48.9)	45.6 (40.0, 51.2)	2.7 (-3.1, 8.5)	Rural
Men	Sejong	Sejong	44.1 (40.4, 47.8)	45.9 (37.2, 54.6)	46.0 (37.7, 54.2)	44.9 (36.7, 53.2)	42.3 (34.3, 50.2)	41.7 (33.2, 50.1)	4.2 (-4.8, 13.2)	Metropolitan
Men	Gyeonggi-do	Gangan-gu	43.2 (40.8, 45.6)	48.8 (42.9, 54.7)	43.1 (37.9, 48.3)	44.3 (38.9, 49.7)	42.0 (36.6, 47.4)	37.9 (32.9, 42.9)	10.9 (5.2, 16.6)	Metropolitan
Men	Gyeonggi-do	Gwanseon-gu	46.1 (43.7, 48.6)	52.1 (46.3, 58.0)	48.1 (42.7, 53.5)	44.5 (39.1, 49.9)	44.2 (38.9, 49.6)	41.1 (35.6, 46.5)	11.0 (5.2, 16.8)	Metropolitan
Men	Gyeonggi-do	Paldal-gu	45.9 (43.5, 48.4)	48.4 (42.7, 54.0)	49.2 (43.5, 54.8)	47.4 (41.9, 52.9)	43.1 (37.8, 48.5)	41.1 (35.8, 46.5)	7.3 (1.5, 13.1)	Metropolitan
Men	Gyeonggi-do	Yeongtong-gu	38.2 (35.8, 40.6)	39.6 (34.2, 45.0)	37.7 (32.4, 43.0)	39.7 (34.0, 45.4)	36.5 (31.4, 41.5)	37.6 (32.2, 43.0)	2.0 (-3.6, 7.6)	Metropolitan
Men	Gyeonggi-do	Sujeong-gu	47.3 (44.8, 49.8)	51.2 (45.5, 57.0)	51.7 (45.9, 57.4)	45.8 (40.4, 51.1)	46.4 (41.0, 51.8)	41.3 (36.0, 46.7)	9.9 (4.1, 15.7)	Metropolitan
Men	Gyeonggi-do	Jungwon-gu	50.5 (48.0, 53.0)	54.4 (48.4, 60.3)	52.8 (47.1, 58.5)	49.7 (44.2, 55.1)	49.1 (43.3, 54.9)	46.8 (41.3, 52.3)	7.6 (1.9, 13.3)	Metropolitan
Men	Gyeonggi-do	Bundang-gu	33.0 (31.0, 35.1)	37.6 (32.7, 42.6)	34.9 (30.3, 39.6)	32.6 (28.0, 37.2)	34.8 (30.1, 39.5)	24.6 (20.6, 28.7)	13.0 (7.7, 18.3)	Metropolitan
Men	Gyeonggi-do	Uijeongbu-si	45.8 (43.3, 48.3)	43.2 (37.6, 48.8)	47.3 (41.8, 52.8)	45.1 (39.4, 50.8)	46.2 (40.6, 51.7)	46.9 (41.1, 52.7)	-3.7 (-9.7, 2.3)	Urban
Men	Gyeonggi-do	Manan-gu	44.8 (42.4, 47.2)	50.1 (44.2, 56.0)	46.9 (41.5, 52.3)	43.4 (38.1, 48.7)	44.1 (39.0, 49.3)	39.6 (34.4, 44.8)	10.5 (4.7, 16.3)	Metropolitan
Men	Gyeonggi-do	Dongan-gu	38.2 (36.0, 40.5)	40.0 (34.9, 45.0)	41.7 (36.4, 46.9)	39.5 (34.3, 44.6)	35.1 (30.0, 40.2)	35.2 (30.4, 39.9)	4.8 (-0.7, 10.3)	Metropolitan
Men	Gyeonggi-do	Wonmi-gu	43.5 (41.0, 45.9)	46.7 (41.0, 52.5)	45.0 (39.6, 50.4)	43.5 (38.0, 49.0)	41.1 (36.0, 46.1)	41.2 (35.7, 46.6)	5.5 (-0.4, 11.4)	Metropolitan
Men	Gyeonggi-do	Sosa-gu	40.5 (38.2, 42.9)	45.7 (40.0, 51.5)	39.8 (34.7, 44.8)	40.5 (35.2, 45.8)	39.0 (33.9, 44.1)	38.3 (33.2, 43.4)	7.4 (1.6, 13.2)	Metropolitan
Men	Gyeonggi-do	Ojeong-gu	51.5 (48.9, 54.1)	54.0 (48.1, 59.9)	52.0 (46.2, 57.8)	52.3 (46.5, 58.1)	51.6 (45.8, 57.4)	47.3 (41.6, 53.0)	6.7 (1.0, 12.4)	Metropolitan
Men	Gyeonggi-do	Gwangmyeong-si	43.9 (41.5, 46.3)	46.4 (40.8, 51.9)	46.7 (41.1, 52.3)	45.6 (40.1, 51.1)	41.9 (36.6, 47.1)	39.0 (34.0, 44.1)	7.4 (1.7, 13.1)	Urban
Men	Gyeonggi-do	Pyeongtaek-si	47.4 (45.7, 49.2)	49.9 (45.8, 54.0)	49.1 (45.2, 53.1)	44.3 (40.6, 48.0)	48.6 (44.7, 52.5)	45.2 (41.4, 48.9)	4.7 (0.7, 8.7)	Urban
Men	Gyeonggi-do	Dongducheon-si	50.4 (47.8, 53.0)	53.7 (47.6, 59.8)	52.6 (46.5, 58.6)	49.5 (43.9, 55.1)	48.5 (42.7, 54.4)	48.1 (42.2, 53.9)	5.6 (-0.3, 11.5)	Urban
Men	Gyeonggi-do	Sangnok-gu	45.5 (43.0, 47.9)	49.4 (43.7, 55.0)	46.6 (40.9, 52.2)	48.1 (42.2, 53.9)	42.3 (37.0, 47.6)	41.0 (35.7, 46.3)	8.4 (2.6, 14.2)	Metropolitan
Men	Gyeonggi-do	Danwon-gu	48.1 (45.6, 50.6)	54.1 (47.9, 60.4)	49.9 (44.2, 55.6)	45.1 (39.8, 50.5)	46.6 (41.2, 52.0)	45.6 (40.0, 51.3)	8.5 (2.8, 14.2)	Metropolitan
Men	Gyeonggi-do	Deogyang-gu	44.8 (42.4, 47.2)	49.8 (43.9, 55.8)	44.2 (38.8, 49.5)	44.8 (39.3, 50.2)	46.8 (41.4, 52.3)	38.0 (32.9, 43.1)	11.8 (6.0, 17.6)	Metropolitan
Men	Gyeonggi-do	Ilsandong-gu	40.2 (37.8, 42.5)	41.0 (35.6, 46.5)	42.6 (37.3, 47.9)	35.4 (30.5, 40.2)	40.5 (35.3, 45.8)	41.3 (35.8, 46.8)	-0.3 (-6.2, 5.6)	Metropolitan
Men	Gyeonggi-do	Ilsanseo-gu	40.4 (38.1, 42.8)	44.8 (39.3, 50.2)	42.0 (36.8, 47.2)	42.0 (36.8, 47.3)	37.0 (32.0, 42.0)	36.4 (31.4, 41.4)	8.4 (2.7, 14.1)	Metropolitan
Men	Gyeonggi-do	Gwacheon-si	31.4 (29.3, 33.5)	38.3 (33.1, 43.6)	32.0 (27.4, 36.6)	30.2 (25.5, 34.8)	26.9 (22.7, 31.2)	29.9 (25.1, 34.7)	8.4 (2.7, 14.1)	Urban
Men	Gyeonggi-do	Guri-si	46.0 (43.5, 48.5)	52.9 (46.9, 59.0)	47.0 (41.2, 52.7)	47.1 (41.5, 52.7)	42.3 (37.0, 47.6)	40.4 (35.1, 45.7)	12.5 (6.6, 18.4)	Urban
Men	Gyeonggi-do	Namyangju-si	46.0 (43.5, 48.5)	50.2 (44.5, 56.0)	46.8 (41.2, 52.4)	45.9 (40.4, 51.4)	45.5 (40.1, 50.9)	40.7 (35.3, 46.2)	9.5 (3.6, 15.4)	Urban
Men	Gyeonggi-do	Osan-si	49.6 (47.0, 52.2)	56.7 (50.4, 63.1)	46.3 (40.9, 51.8)	48.9 (43.1, 54.6)	51.7 (45.7, 57.8)	44.5 (39.0, 50.1)	12.2 (6.5, 17.9)	Urban
Men	Gyeonggi-do	Siheung-si	50.4 (47.8, 52.9)	54.0 (48.0, 60.0)	48.0 (42.7, 53.4)	51.6 (45.7, 57.5)	50.6 (45.0, 56.2)	47.7 (42.1, 53.4)	6.3 (0.7, 11.9)	Urban
Men	Gyeonggi-do	Gunpo-si	41.0 (38.7, 43.3)	43.4 (38.1, 48.8)	43.7 (38.6, 48.9)	40.7 (35.6, 45.8)	41.8 (36.6, 47.0)	35.1 (30.3, 40.0)	8.3 (2.6, 14.0)	Urban
Men	Gyeonggi-do	Uiwang-si	41.4 (39.0, 43.7)	45.5 (40.0, 51.1)	43.7 (38.3, 49.0)	39.3 (34.2, 44.3)	41.6 (36.5, 46.6)	36.6 (31.7, 41.4)	8.9 (3.3, 14.5)	Urban
Men	Gyeonggi-do	Hanam-si	43.8 (41.4, 46.2)	46.5 (40.8, 52.2)	44.4 (39.0, 49.9)	43.9 (38.6, 49.3)	41.5 (36.3, 46.7)	42.3 (36.9, 47.7)	4.2 (-1.7, 10.1)	Urban
Men	Gyeonggi-do	Cheoin-gu	49.7 (47.2, 52.2)	51.8 (46.1, 57.6)	51.2 (45.6, 56.9)	50.4 (44.9, 56.0)	49.2 (43.6, 54.9)	45.8 (40.5, 51.1)	6.0 (0.4, 11.6)	Metropolitan
Men	Gyeonggi-do	Giheung-gu	38.6 (36.4, 40.9)	40.6 (35.4, 45.9)	40.7 (35.7, 45.8)	37.5 (32.6, 42.4)	38.5 (33.6, 43.5)	35.4 (30.6, 40.2)	5.2 (-0.5, 10.9)	Metropolitan

(Continued to the next page)

Supplemental Table 3. Continued from the previous page

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Men	Gyeonggi-do	Suji-gu	35.8 (33.6, 37.9)	36.8 (31.9, 41.8)	37.3 (32.4, 42.3)	36.8 (31.9, 41.7)	36.4 (31.7, 41.1)	30.8 (26.2, 35.4)	6.0 (0.4, 11.6)	Metropolitan
Men	Gyeonggi-do	Paju-si	46.0 (43.5, 48.5)	46.9 (41.2, 52.7)	48.0 (42.4, 53.6)	46.3 (40.8, 51.7)	42.8 (37.5, 48.0)	46.3 (40.7, 52.0)	0.6 (-5.3, 6.5)	Urban
Men	Gyeonggi-do	Icheon-si	46.9 (44.5, 49.4)	53.3 (47.4, 59.2)	49.7 (44.0, 55.4)	41.3 (36.1, 46.4)	47.6 (42.0, 53.1)	42.7 (37.3, 48.1)	10.6 (4.9, 16.3)	Urban
Men	Gyeonggi-do	Anseong-si	48.8 (46.3, 51.3)	59.8 (53.6, 65.9)	50.3 (44.6, 56.1)	47.7 (42.3, 53.1)	44.1 (38.7, 49.5)	41.8 (36.6, 47.1)	18.0 (12.4, 23.6)	Urban
Men	Gyeonggi-do	Gimpo-si	46.3 (43.8, 48.7)	51.9 (46.1, 57.8)	50.3 (44.6, 56.0)	44.7 (39.4, 50.0)	42.2 (37.1, 47.4)	42.3 (37.1, 47.6)	9.6 (3.9, 15.3)	Urban
Men	Gyeonggi-do	Hwaseong-si	44.2 (41.8, 46.6)	46.6 (41.1, 52.1)	48.6 (42.9, 54.4)	40.4 (35.4, 45.4)	45.2 (39.7, 50.8)	40.2 (34.9, 45.5)	6.4 (0.7, 12.1)	Urban
Men	Gyeonggi-do	Gwangju-si	47.8 (45.4, 50.3)	49.5 (43.9, 55.1)	47.7 (42.3, 53.1)	47.2 (41.9, 52.6)	48.6 (43.0, 54.2)	46.2 (40.7, 51.6)	3.3 (-2.4, 9.0)	Urban
Men	Gyeonggi-do	Yangju-si	46.9 (44.4, 49.4)	49.9 (44.2, 55.6)	49.0 (43.3, 54.6)	46.3 (40.8, 51.8)	46.8 (41.4, 52.3)	42.5 (37.2, 47.8)	7.4 (1.6, 13.2)	Urban
Men	Gyeonggi-do	Pocheon-si	52.7 (50.0, 55.3)	51.7 (45.6, 57.8)	57.3 (51.2, 63.4)	53.8 (47.9, 59.6)	51.1 (45.4, 56.9)	49.5 (43.7, 55.3)	2.2 (-3.7, 8.1)	Urban
Men	Gyeonggi-do	Yeouju-gun	47.2 (44.7, 49.7)	49.7 (43.9, 55.5)	51.8 (46.0, 57.6)	46.8 (41.2, 52.3)	45.2 (39.8, 50.7)	42.1 (36.6, 47.6)	7.6 (1.8, 13.4)	Urban
Men	Gyeonggi-do	Yeoncheon-gun	51.3 (48.6, 54.0)	55.8 (49.3, 62.3)	55.2 (48.9, 61.5)	55.0 (48.8, 61.1)	47.8 (41.9, 53.8)	42.8 (37.4, 48.2)	13.0 (7.3, 18.7)	Rural
Men	Gyeonggi-do	Gapyeong-gun	48.0 (45.3, 50.6)	51.4 (45.1, 57.7)	49.5 (43.7, 55.3)	47.4 (41.6, 53.1)	46.2 (40.4, 52.1)	45.1 (39.2, 51.0)	6.3 (0.4, 12.2)	Rural
Men	Gyeonggi-do	Yangpyeong-gun	45.6 (43.0, 48.2)	46.9 (40.9, 52.9)	49.0 (43.2, 54.8)	44.6 (38.9, 50.3)	45.7 (40.2, 51.3)	41.0 (35.4, 46.5)	5.9 (0.1, 11.7)	Rural
Men	Gangwon-do	Chuncheon-si	45.9 (43.4, 48.5)	54.1 (47.7, 60.5)	47.6 (41.8, 53.4)	45.1 (39.5, 50.7)	41.6 (36.3, 47.0)	41.9 (36.5, 47.4)	12.2 (6.2, 18.2)	Urban
Men	Gangwon-do	Wonju-si	49.5 (47.0, 52.0)	50.5 (44.7, 56.3)	49.6 (44.0, 55.2)	51.9 (46.1, 57.6)	48.1 (42.7, 53.6)	46.8 (41.2, 52.3)	3.7 (-2.1, 9.5)	Urban
Men	Gangwon-do	Gangneung-si	49.3 (46.7, 51.9)	53.0 (46.7, 59.3)	53.2 (47.1, 59.3)	50.7 (44.9, 56.4)	46.4 (40.7, 52.0)	43.6 (38.1, 49.1)	9.4 (3.5, 15.3)	Urban
Men	Gangwon-do	Donghae-si	46.9 (44.4, 49.4)	52.2 (46.3, 58.2)	48.6 (42.9, 54.2)	46.5 (40.9, 52.1)	44.0 (38.6, 49.4)	42.8 (37.3, 48.3)	9.4 (3.6, 15.2)	Urban
Men	Gangwon-do	Taebaek-si	56.1 (53.3, 58.8)	57.2 (50.8, 63.6)	58.3 (52.1, 64.5)	56.0 (49.8, 62.2)	54.1 (48.2, 60.1)	54.7 (48.4, 60.9)	2.5 (-3.3, 8.3)	Urban
Men	Gangwon-do	Sokcho-si	48.7 (46.1, 51.4)	52.8 (46.6, 59.1)	48.5 (42.8, 54.3)	53.0 (46.9, 59.1)	47.5 (41.7, 53.3)	41.5 (36.0, 47.0)	11.3 (5.3, 17.3)	Urban
Men	Gangwon-do	Samcheok-si	49.2 (46.6, 51.8)	51.7 (45.6, 57.8)	53.8 (47.7, 60.0)	46.5 (40.9, 52.1)	48.8 (43.0, 54.5)	45.3 (39.7, 51.0)	6.4 (0.6, 12.2)	Urban
Men	Gangwon-do	Hongcheon-gun	49.7 (47.1, 52.4)	54.7 (48.4, 61.0)	48.8 (43.1, 54.5)	51.0 (45.0, 57.0)	47.7 (42.0, 53.4)	46.7 (40.9, 52.5)	8.0 (2.3, 13.7)	Rural
Men	Gangwon-do	Hoengseong-gun	46.4 (43.8, 49.1)	43.7 (37.9, 49.4)	46.4 (40.6, 52.3)	50.4 (44.3, 56.5)	49.5 (43.4, 55.6)	41.4 (35.8, 47.1)	2.3 (-3.5, 8.1)	Rural
Men	Gangwon-do	Pyeongwol-gun	50.8 (48.0, 53.5)	53.8 (47.2, 60.3)	52.1 (45.9, 58.2)	48.1 (42.2, 54.0)	53.9 (47.5, 60.3)	46.3 (40.3, 52.3)	7.5 (1.7, 13.3)	Rural
Men	Gangwon-do	Pyeongchang-gun	49.7 (47.0, 52.4)	52.0 (45.7, 58.3)	50.3 (44.2, 56.5)	47.7 (41.9, 53.6)	48.9 (43.0, 54.8)	49.6 (43.4, 55.7)	2.4 (-3.5, 8.3)	Rural
Men	Gangwon-do	Jeongseon-gun	52.3 (49.6, 55.0)	53.2 (46.8, 59.5)	55.8 (49.6, 61.9)	52.8 (46.8, 58.8)	50.0 (44.2, 55.9)	50.0 (43.9, 56.0)	3.2 (-2.6, 9.0)	Rural
Men	Gangwon-do	Cheorwon-gun	46.8 (44.2, 49.3)	47.3 (41.5, 53.2)	48.6 (43.0, 54.2)	49.2 (43.3, 55.1)	46.2 (40.5, 51.8)	41.9 (36.3, 47.4)	5.4 (-0.4, 11.2)	Rural
Men	Gangwon-do	Hwacheon-gun	49.7 (47.0, 52.4)	53.5 (47.0, 59.9)	52.6 (46.6, 58.7)	50.5 (44.4, 56.5)	48.3 (42.3, 54.3)	43.6 (37.8, 49.3)	9.9 (4.0, 15.8)	Rural
Men	Gangwon-do	Yanggu-gun	48.8 (46.1, 51.5)	49.9 (43.7, 56.1)	51.5 (45.1, 57.8)	49.2 (43.3, 55.0)	47.2 (41.3, 53.1)	46.8 (40.9, 52.7)	3.1 (-2.9, 9.1)	Rural
Men	Gangwon-do	Inje-gun	48.2 (45.7, 50.8)	46.4 (40.8, 52.0)	46.3 (40.8, 51.8)	49.8 (44.1, 55.5)	49.3 (43.7, 55.0)	49.3 (43.5, 55.1)	-2.9 (-8.6, 2.8)	Rural
Men	Gangwon-do	Goseong-gun	49.2 (46.5, 52.0)	55.7 (49.0, 62.5)	50.9 (44.8, 57.0)	49.0 (42.8, 55.3)	42.1 (36.5, 47.7)	48.5 (42.3, 54.6)	7.2 (1.3, 13.1)	Rural
Men	Gangwon-do	Yangyang-gun	50.9 (48.1, 53.7)	53.5 (47.0, 60.1)	46.0 (40.2, 51.8)	49.0 (42.7, 55.3)	56.1 (49.6, 62.5)	50.2 (44.0, 56.5)	3.3 (-2.6, 9.2)	Rural
Men	Chungcheongbuk-do	Cheongju-si	43.9 (42.6, 45.3)	48.9 (45.6, 52.3)	45.5 (42.4, 48.6)	45.4 (42.3, 48.6)	40.3 (37.4, 43.2)	39.8 (36.9, 42.6)	9.1 (5.8, 12.4)	Metropolitan
Men	Chungcheongbuk-do	Chungju-si	48.5 (45.9, 51.0)	47.3 (41.4, 53.2)	51.7 (45.9, 57.4)	51.2 (45.5, 56.9)	47.5 (42.0, 53.0)	44.4 (38.8, 49.9)	2.9 (-3.0, 8.8)	Urban
Men	Chungcheongbuk-do	Jecheon-si	47.7 (45.2, 50.3)	53.7 (47.5, 59.9)	49.8 (44.1, 55.6)	45.5 (39.9, 51.2)	44.9 (39.4, 50.4)	44.4 (38.7, 50.2)	9.3 (3.4, 15.2)	Urban
Men	Chungcheongbuk-do	Boeun-gun	45.7 (43.0, 48.5)	51.2 (44.5, 57.8)	48.7 (42.2, 55.2)	41.8 (36.3, 47.3)	40.2 (34.2, 46.1)	47.8 (41.3, 54.2)	3.4 (-2.6, 9.4)	Rural
Men	Chungcheongbuk-do	Okcheon-gun	47.4 (44.8, 50.0)	50.7 (44.6, 56.8)	45.9 (40.2, 51.7)	48.3 (42.6, 54.0)	49.2 (43.1, 55.4)	42.3 (36.7, 47.9)	8.4 (2.7, 14.1)	Rural
Men	Chungcheongbuk-do	Yeongdong-gun	45.2 (42.6, 47.9)	51.3 (45.0, 57.5)	46.4 (40.4, 52.4)	45.6 (39.8, 51.5)	42.9 (37.2, 48.5)	39.5 (33.9, 45.1)	11.8 (6.0, 17.6)	Rural
Men	Chungcheongbuk-do	Jincheon-gun	51.1 (48.5, 53.7)	55.7 (49.6, 61.8)	50.0 (44.2, 55.7)	50.9 (45.1, 56.6)	49.2 (43.5, 54.9)	49.6 (43.7, 55.4)	6.1 (0.3, 11.9)	Rural
Men	Chungcheongbuk-do	Goesan-gun	50.7 (47.9, 53.6)	45.1 (38.9, 51.3)	55.3 (48.8, 61.8)	56.0 (49.4, 62.6)	50.0 (43.8, 56.2)	45.8 (39.6, 52.0)	-0.7 (-6.5, 5.1)	Rural
Men	Chungcheongbuk-do	Eumseong-gun	52.3 (49.7, 54.9)	54.4 (48.2, 60.5)	56.6 (50.4, 62.8)	53.2 (47.4, 59.0)	51.3 (45.7, 56.9)	46.3 (40.6, 52.1)	8.1 (2.4, 13.8)	Rural
Men	Chungcheongbuk-do	Danyang-gun	47.8 (45.1, 50.4)	50.6 (44.2, 57.0)	51.2 (45.2, 57.2)	47.1 (41.3, 52.9)	45.6 (39.6, 51.6)	43.8 (37.8, 49.8)	6.8 (0.9, 12.7)	Rural
Men	Chungcheongbuk-do	Jeungpyeong-gun	51.1 (48.6, 53.7)	50.6 (44.7, 56.5)	51.7 (45.9, 57.5)	50.8 (45.3, 56.4)	51.4 (45.6, 57.3)	50.9 (45.1, 56.7)	-0.3 (-6.1, 5.5)	Rural
Men	Chungcheongnam-do	Cheonan-si	45.8 (43.3, 48.2)	50.7 (44.9, 56.6)	47.6 (42.0, 53.1)	44.9 (39.4, 50.4)	42.0 (36.9, 47.1)	44.0 (38.6, 49.3)	6.7 (1.0, 12.4)	Metropolitan
Men	Chungcheongnam-do	Gongju-si	45.0 (42.5, 47.5)	42.0 (36.6, 47.4)	48.5 (42.8, 54.2)	49.3 (43.5, 55.2)	44.6 (39.1, 50.0)	40.4 (34.7, 46.0)	1.6 (-4.1, 7.3)	Urban
Men	Chungcheongnam-do	Boryeong-si	46.4 (43.9, 49.0)	52.9 (46.6, 59.2)	47.8 (42.1, 53.5)	50.3 (44.4, 56.2)	38.1 (33.0, 43.3)	43.0 (37.3, 48.6)	9.9 (4.0, 15.8)	Urban
Men	Chungcheongnam-do	Asan-si	46.6 (44.2, 49.1)	51.9 (46.1, 57.7)	47.2 (41.7, 52.8)	43.1 (37.8, 48.3)	47.1 (41.5, 52.6)	44.2 (38.9, 49.5)	7.7 (2.1, 13.3)	Urban
Men	Chungcheongnam-do	Seosan-si	45.7 (43.2, 48.2)	49.4 (43.6, 55.1)	49.1 (43.4, 54.8)	49.0 (43.3, 54.6)	41.1 (35.8, 46.3)	40.1 (35.0, 45.2)	9.3 (3.6, 15.0)	Urban
Men	Chungcheongnam-do	Nonsan-si	48.0 (45.4, 50.7)	51.3 (45.1, 57.6)	48.7 (43.0, 54.5)	45.3 (39.4, 51.2)	48.1 (42.4, 53.9)	46.6 (40.5, 52.8)	4.7 (-1.3, 10.7)	Urban
Men	Chungcheongnam-do	Gyeryong-si	38.4 (36.0, 40.7)	45.2 (39.4, 51.0)	40.0 (34.8, 45.2)	34.8 (29.9, 39.8)	36.2 (31.2, 41.1)	35.7 (30.5, 40.9)	9.5 (3.5, 15.5)	Urban
Men	Chungcheongnam-do	Geumsan-gun	47.2 (44.5, 49.9)	48.9 (42.8, 55.0)	46.5 (40.6, 52.4)	50.4 (44.3, 56.6)	45.1 (39.1, 51.0)	44.7 (38.8, 50.6)	4.2 (-1.7, 10.1)	Rural
Men	Chungcheongnam-do	Buyeo-gun	46.1 (43.4, 48.9)	45.9 (39.6, 52.1)	51.5 (45.0, 57.9)	43.5 (37.7, 49.4)	44.0 (38.1, 50.0)	45.1 (39.0, 51.2)	0.8 (-5.1, 6.7)	Rural
Men	Chungcheongnam-do	Seocheon-gun	43.4 (40.7, 46.1)	49.2 (42.7, 55.7)	45.6 (39.4, 51.8)	41.9 (36.0, 47.8)	40.5 (34.7, 46.2)	39.9 (34.0, 45.8)	9.3 (3.3, 15.3)	Rural
Men	Chungcheongnam-do	Cheongyang-gun	43.5 (40.8, 46.2)	44.7 (38.5, 50.8)	44.2 (38.2, 50.1)	42.2 (36.3, 48.0)	45.0 (38.8, 51.2)	41.4 (35.4, 47.4)	3.3 (-2.6, 9.2)	Rural
Men	Chungcheongnam-do	Hongseong-gun	45.2 (42.6, 47.8)	50.3 (44.1, 56.5)	47.1 (41.2, 53.0)	44.9 (39.1, 50.7)	44.2 (38.5, 49.9)	39.6 (34.2, 45.1)	10.7 (4.9, 16.5)	Rural

(Continued to the next page)

Supplemental Table 3. Continued from the previous page

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Men	Chungcheongnam-do	Yesan-gun	46.4 (43.8, 49.1)	50.3 (44.0, 56.7)	43.8 (38.0, 49.5)	45.7 (39.9, 51.5)	49.9 (43.8, 56.0)	42.5 (36.6, 48.3)	7.8 (1.9, 13.7)	Rural
Men	Chungcheongnam-do	Taeon-gun	43.1 (40.5, 45.7)	50.8 (44.6, 57.1)	42.5 (36.5, 48.4)	41.5 (36.1, 46.9)	42.9 (37.2, 48.6)	38.8 (33.2, 44.4)	12.0 (6.2, 17.8)	Rural
Men	Chungcheongnam-do	Dangjin-si	45.7 (43.2, 48.1)	48.0 (42.3, 53.7)	48.3 (42.7, 53.9)	43.0 (37.7, 48.2)	41.2 (36.1, 46.3)	48.4 (42.6, 54.1)	-0.4 (-6.2, 5.4)	Urban
Men	Jeollabuk-do	Jeonju-si	40.3 (38.0, 42.6)	46.0 (40.4, 51.7)	40.9 (35.7, 46.0)	36.8 (31.9, 41.8)	41.4 (36.3, 46.5)	36.6 (31.7, 41.6)	9.4 (3.7, 15.1)	Metropolitan
Men	Jeollabuk-do	Gunsan-si	44.2 (41.8, 46.6)	45.7 (40.2, 51.2)	45.7 (40.3, 51.1)	45.8 (40.2, 51.4)	44.7 (39.5, 50.0)	39.5 (34.4, 44.6)	6.2 (0.5, 11.9)	Urban
Men	Jeollabuk-do	Iksan-si	40.0 (37.7, 42.3)	44.0 (38.5, 49.4)	42.1 (36.9, 47.3)	38.7 (33.8, 43.6)	38.0 (33.0, 43.1)	37.7 (32.7, 42.7)	6.3 (0.7, 11.9)	Urban
Men	Jeollabuk-do	Jeongeup-si	48.1 (45.4, 50.7)	49.6 (43.4, 55.7)	46.4 (40.6, 52.2)	53.8 (47.5, 60.1)	42.7 (37.2, 48.3)	47.5 (41.5, 53.5)	2.1 (-3.8, 8.0)	Urban
Men	Jeollabuk-do	Namwon-si	41.1 (38.6, 43.6)	38.7 (33.2, 44.1)	47.1 (41.2, 53.0)	43.5 (37.8, 49.2)	39.1 (33.7, 44.5)	36.5 (31.3, 41.8)	2.2 (-3.5, 7.9)	Urban
Men	Jeollabuk-do	Gimje-si	43.3 (40.7, 45.8)	48.9 (42.8, 55.0)	45.4 (39.6, 51.2)	43.4 (37.8, 49.0)	38.8 (33.5, 44.1)	40.0 (34.3, 45.7)	8.9 (3.1, 14.7)	Urban
Men	Jeollabuk-do	Wanju-gun	43.3 (40.9, 45.6)	46.4 (40.8, 51.9)	38.6 (33.6, 43.6)	46.8 (41.5, 52.1)	45.2 (39.7, 50.6)	40.0 (34.9, 45.1)	6.4 (0.8, 12.0)	Rural
Men	Jeollabuk-do	Jinan-gun	44.6 (41.9, 47.4)	48.9 (42.1, 55.7)	44.7 (39.0, 50.4)	44.6 (38.3, 50.8)	42.4 (36.5, 48.2)	43.8 (37.5, 50.1)	5.1 (-1.0, 11.2)	Rural
Men	Jeollabuk-do	Muju-gun	48.8 (45.9, 51.6)	53.9 (47.0, 60.8)	47.4 (41.5, 53.3)	55.1 (48.5, 61.7)	44.4 (38.4, 50.4)	42.6 (36.5, 48.6)	11.3 (5.3, 17.3)	Rural
Men	Jeollabuk-do	Jangsu-gun	46.7 (43.9, 49.5)	47.8 (41.3, 54.3)	49.5 (43.1, 56.0)	51.6 (45.1, 58.1)	42.0 (36.2, 47.8)	42.6 (36.6, 48.6)	5.2 (-0.8, 11.2)	Rural
Men	Jeollabuk-do	Imsil-gun	45.4 (42.7, 48.0)	44.9 (38.5, 51.4)	48.3 (42.3, 54.3)	49.8 (43.4, 56.1)	45.1 (39.2, 51.0)	38.1 (32.8, 43.5)	6.8 (0.8, 12.8)	Rural
Men	Jeollabuk-do	Sunchang-gun	43.2 (40.5, 45.9)	45.1 (38.9, 51.4)	41.7 (35.9, 47.5)	42.2 (36.5, 47.9)	44.7 (38.5, 50.8)	42.5 (36.5, 48.5)	2.6 (-3.4, 8.6)	Rural
Men	Jeollabuk-do	Gochang-gun	45.1 (42.3, 47.8)	52.4 (45.6, 59.2)	49.0 (42.5, 55.5)	42.3 (36.6, 48.0)	46.0 (39.8, 52.2)	36.0 (30.4, 41.6)	16.4 (10.5, 22.3)	Rural
Men	Jeollabuk-do	Buan-gun	45.6 (42.9, 48.3)	48.2 (41.9, 54.6)	45.9 (39.6, 52.2)	42.8 (37.2, 48.3)	46.7 (40.4, 53.0)	45.3 (38.9, 51.6)	2.9 (-3.2, 9.0)	Rural
Men	Jeollanam-do	Naju-si	45.4 (42.7, 48.0)	47.1 (41.1, 53.2)	48.2 (42.1, 54.2)	44.8 (39.1, 50.6)	44.2 (38.5, 49.9)	42.4 (36.6, 48.3)	4.7 (-1.3, 10.7)	Urban
Men	Jeollanam-do	Mokpo-si	43.3 (41.0, 45.7)	53.6 (47.6, 59.7)	43.3 (38.0, 48.6)	38.9 (34.0, 43.8)	40.4 (35.4, 45.5)	41.3 (36.1, 46.6)	12.3 (6.5, 18.1)	Urban
Men	Jeollanam-do	Yeosu-si	43.8 (41.4, 46.2)	50.2 (44.3, 56.1)	48.1 (42.5, 53.7)	41.4 (36.2, 46.7)	40.9 (35.8, 46.1)	38.8 (33.7, 43.9)	11.4 (5.7, 17.1)	Urban
Men	Jeollanam-do	Suncheon-si	40.1 (37.8, 42.3)	46.7 (41.0, 52.4)	38.3 (33.4, 43.3)	43.5 (38.3, 48.7)	38.5 (33.5, 43.6)	33.5 (28.7, 38.3)	13.2 (7.5, 18.9)	Urban
Men	Jeollanam-do	Gwangyang-si	42.5 (40.1, 44.8)	46.3 (40.7, 51.9)	46.2 (40.8, 51.6)	41.4 (36.1, 46.7)	40.0 (34.9, 45.1)	38.6 (33.6, 43.7)	7.7 (2.1, 13.3)	Urban
Men	Jeollanam-do	Damyang-gun	43.2 (40.7, 45.8)	44.8 (38.9, 50.8)	44.5 (38.9, 50.2)	46.6 (40.8, 52.4)	42.5 (37.0, 48.1)	37.0 (31.5, 42.5)	7.8 (2.0, 13.6)	Rural
Men	Jeollanam-do	Gokseong-gun	43.8 (41.1, 46.6)	43.5 (37.2, 49.9)	42.8 (36.9, 48.8)	47.0 (40.6, 53.4)	44.5 (38.2, 50.8)	41.2 (35.0, 47.3)	2.3 (-3.7, 8.3)	Rural
Men	Jeollanam-do	Gurye-gun	43.2 (40.5, 45.9)	45.7 (39.3, 52.0)	47.3 (41.0, 53.5)	43.1 (37.2, 49.0)	41.4 (35.7, 47.1)	38.0 (32.1, 43.9)	7.7 (1.7, 13.7)	Rural
Men	Jeollanam-do	Goheung-gun	44.8 (41.9, 47.6)	47.2 (40.3, 54.1)	43.2 (37.2, 49.3)	41.3 (35.3, 47.4)	44.9 (38.4, 51.3)	48.8 (41.9, 55.7)	-1.6 (-7.6, 4.4)	Rural
Men	Jeollanam-do	Boseong-gun	43.6 (40.8, 46.4)	40.8 (34.8, 46.9)	44.4 (38.2, 50.6)	51.5 (44.9, 58.0)	39.8 (33.9, 45.8)	40.4 (34.3, 46.5)	0.4 (-5.5, 6.3)	Rural
Men	Jeollanam-do	Hwasun-gun	45.5 (42.9, 48.1)	47.5 (41.6, 53.4)	47.2 (41.4, 53.0)	49.2 (43.2, 55.1)	37.7 (32.5, 42.9)	45.9 (40.0, 51.8)	1.6 (-4.4, 7.6)	Rural
Men	Jeollanam-do	Jangheung-gun	45.0 (42.3, 47.8)	48.5 (41.9, 55.2)	51.3 (44.6, 58.0)	47.1 (40.9, 53.4)	41.3 (35.5, 47.2)	36.8 (31.0, 42.7)	11.7 (5.6, 17.8)	Rural
Men	Jeollanam-do	Gangjin-gun	44.7 (41.9, 47.5)	47.7 (41.0, 54.4)	51.7 (45.3, 58.2)	40.4 (34.5, 46.3)	42.6 (36.6, 48.6)	40.7 (34.8, 46.6)	7.0 (1.0, 13.0)	Rural
Men	Jeollanam-do	Haenam-gun	43.8 (41.2, 46.5)	51.2 (44.7, 57.8)	44.7 (38.8, 50.6)	42.3 (36.6, 48.0)	43.6 (37.9, 49.4)	37.3 (31.6, 43.0)	13.9 (7.9, 19.9)	Rural
Men	Jeollanam-do	Yeongam-gun	44.4 (41.9, 46.9)	46.3 (40.6, 52.1)	47.2 (41.5, 52.8)	43.9 (38.4, 49.4)	42.7 (37.3, 48.0)	42.3 (36.8, 47.8)	4.0 (-1.8, 9.8)	Rural
Men	Jeollanam-do	Muan-gun	41.5 (39.1, 43.9)	43.3 (37.6, 49.1)	47.9 (42.2, 53.6)	36.3 (31.3, 41.3)	43.1 (37.7, 48.4)	36.9 (31.8, 41.9)	6.4 (0.6, 12.2)	Rural
Men	Jeollanam-do	Hampyeong-gun	48.8 (45.9, 51.7)	54.5 (47.6, 61.3)	49.8 (43.3, 56.3)	47.4 (41.1, 53.7)	47.8 (41.7, 53.9)	44.1 (37.7, 50.5)	10.4 (4.4, 16.4)	Rural
Men	Jeollanam-do	Yeonggwang-gun	45.8 (43.2, 48.4)	48.3 (42.2, 54.4)	50.1 (44.0, 56.2)	46.1 (40.2, 52.0)	42.3 (36.7, 47.9)	42.2 (36.5, 47.9)	6.1 (0.3, 11.9)	Rural
Men	Jeollanam-do	Jangseong-gun	44.5 (41.9, 47.1)	46.9 (40.7, 53.0)	50.2 (43.8, 56.5)	45.8 (40.0, 51.5)	40.8 (35.2, 46.4)	38.9 (33.4, 44.3)	8.0 (2.1, 13.9)	Rural
Men	Jeollanam-do	Wando-gun	47.4 (44.6, 50.2)	50.6 (44.1, 57.2)	48.4 (42.2, 54.6)	45.1 (39.0, 51.2)	47.5 (41.5, 53.6)	45.3 (38.9, 51.6)	5.3 (-0.6, 11.2)	Rural
Men	Jeollanam-do	Jindo-gun	47.6 (44.8, 50.5)	46.9 (40.5, 53.2)	50.2 (43.8, 56.7)	48.1 (41.8, 54.3)	43.5 (37.5, 49.4)	49.4 (42.8, 56.0)	-2.5 (-8.5, 3.5)	Rural
Men	Jeollanam-do	Sinan-gun	42.7 (40.0, 45.3)	46.2 (39.8, 52.7)	42.1 (36.4, 47.9)	40.3 (34.5, 46.0)	39.9 (34.3, 45.5)	45.2 (38.8, 51.5)	1.0 (-5.0, 7.0)	Rural
Men	Gyeongsangbuk-do	Nam-gu	48.8 (46.3, 51.3)	52.6 (46.8, 58.4)	50.4 (44.9, 56.0)	56.8 (50.8, 62.9)	45.4 (40.1, 50.8)	38.6 (33.7, 43.4)	14.0 (8.5, 19.5)	Metropolitan
Men	Gyeongsangbuk-do	Buk-gu	44.2 (41.8, 46.6)	46.8 (41.1, 52.5)	47.1 (41.7, 52.5)	44.1 (38.7, 49.4)	42.2 (36.9, 47.5)	40.2 (35.0, 45.4)	6.6 (0.9, 12.3)	Metropolitan
Men	Gyeongsangbuk-do	Gyeongju-si	44.6 (42.2, 47.1)	48.2 (42.4, 54.0)	49.7 (43.9, 55.5)	47.3 (41.7, 52.9)	39.7 (34.6, 44.8)	38.4 (33.2, 43.5)	9.8 (4.0, 15.6)	Urban
Men	Gyeongsangbuk-do	Gimcheon-si	48.8 (46.2, 51.4)	53.8 (47.7, 59.8)	50.6 (44.7, 56.6)	50.2 (44.4, 56.0)	46.1 (40.3, 51.9)	43.2 (37.8, 48.7)	10.6 (4.9, 16.3)	Urban
Men	Gyeongsangbuk-do	Andong-si	47.7 (45.1, 50.2)	50.5 (44.5, 56.5)	47.7 (41.9, 53.5)	50.3 (44.4, 56.3)	45.1 (39.5, 50.7)	44.7 (39.1, 50.3)	5.8 (0.0, 11.6)	Urban
Men	Gyeongsangbuk-do	Gumi-si	48.8 (47.0, 50.6)	51.9 (47.4, 56.5)	49.3 (45.1, 53.4)	48.8 (44.7, 52.9)	47.9 (43.9, 51.9)	46.7 (42.9, 50.6)	5.2 (1.1, 9.3)	Urban
Men	Gyeongsangbuk-do	Yeongju-si	49.3 (46.6, 52.0)	51.8 (45.6, 58.1)	50.1 (44.0, 56.2)	50.9 (45.0, 56.8)	48.6 (42.6, 54.5)	45.0 (39.2, 50.7)	6.8 (1.0, 12.6)	Urban
Men	Gyeongsangbuk-do	Yeongcheon-si	48.7 (46.0, 51.4)	51.2 (44.9, 57.4)	53.1 (47.0, 59.2)	48.3 (42.3, 54.2)	44.6 (38.9, 50.4)	46.1 (40.2, 52.1)	5.1 (-0.8, 11.0)	Urban
Men	Gyeongsangbuk-do	Sangju-si	48.7 (45.9, 51.4)	55.1 (48.6, 61.6)	50.9 (44.9, 57.0)	46.0 (40.0, 52.0)	49.3 (43.3, 55.4)	41.8 (36.1, 47.5)	13.3 (7.6, 19.0)	Urban
Men	Gyeongsangbuk-do	Mungyeong-si	47.6 (44.9, 50.3)	51.9 (45.3, 58.4)	54.2 (47.9, 60.6)	42.9 (37.0, 48.9)	43.9 (38.2, 49.6)	45.0 (38.9, 51.0)	6.9 (0.9, 12.9)	Urban
Men	Gyeongsangbuk-do	Gyeongsan-si	45.9 (43.5, 48.3)	48.9 (43.2, 54.5)	47.8 (42.4, 53.3)	46.1 (40.7, 51.5)	43.6 (38.3, 48.9)	43.6 (38.4, 48.8)	5.3 (-0.4, 11.0)	Urban
Men	Gyeongsangbuk-do	Gunwi-gun	51.4 (48.4, 54.5)	51.9 (44.6, 59.2)	55.9 (48.9, 63.0)	50.7 (44.2, 57.2)	48.3 (41.8, 54.7)	50.2 (43.2, 57.2)	1.7 (-4.4, 7.8)	Rural
Men	Gyeongsangbuk-do	Uiseong-gun	50.6 (47.6, 53.6)	50.9 (44.0, 57.9)	53.4 (46.2, 60.6)	50.3 (44.0, 56.6)	53.2 (46.2, 60.2)	45.0 (38.5, 51.6)	5.9 (0.0, 11.8)	Rural
Men	Gyeongsangbuk-do	Cheongsong-gun	49.0 (46.1, 51.9)	49.8 (43.0, 56.6)	52.1 (45.6, 58.7)	50.5 (43.8, 57.1)	47.6 (41.2, 53.9)	44.9 (38.4, 51.4)	4.9 (-1.2, 11.0)	Rural
Men	Gyeongsangbuk-do	Yeongyang-gun	48.0 (45.1, 50.8)	52.2 (45.4, 59.0)	51.3 (44.7, 57.8)	48.8 (42.5, 55.1)	43.4 (37.3, 49.5)	44.2 (38.0, 50.4)	8.0 (2.0, 14.0)	Rural

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Supplemental Table 3. Continued from the previous page

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Men	Gyeongsangbuk-do	Yeongdeok-gun	47.5 (44.6, 50.5)	52.0 (45.0, 59.0)	54.5 (47.7, 61.2)	46.8 (40.3, 53.3)	40.4 (34.3, 46.4)	44.4 (38.0, 50.8)	7.6 (1.4, 13.8)	Rural
Men	Gyeongsangbuk-do	Cheongdo-gun	45.6 (42.8, 48.4)	47.8 (41.2, 54.3)	48.6 (42.3, 54.9)	46.2 (40.1, 52.4)	44.9 (38.7, 51.0)	40.0 (34.1, 45.9)	7.8 (1.8, 13.8)	Rural
Men	Gyeongsangbuk-do	Goryeong-gun	49.2 (46.5, 52.0)	51.9 (45.5, 58.2)	50.5 (44.2, 56.7)	47.0 (41.2, 52.7)	49.0 (42.9, 55.1)	48.4 (42.0, 54.8)	3.5 (-2.5, 9.5)	Rural
Men	Gyeongsangbuk-do	Seongju-gun	52.2 (49.4, 55.1)	54.5 (47.8, 61.2)	52.8 (46.5, 59.2)	49.8 (43.5, 56.1)	52.3 (45.9, 58.7)	51.7 (45.3, 58.1)	2.8 (-3.1, 8.7)	Rural
Men	Gyeongsangbuk-do	Chilgok-gun	51.1 (48.5, 53.6)	56.5 (50.5, 62.6)	52.1 (46.2, 58.0)	50.0 (44.3, 55.7)	51.5 (45.8, 57.2)	45.3 (39.8, 50.8)	11.2 (5.5, 16.9)	Rural
Men	Gyeongsangbuk-do	Yecheon-gun	50.2 (47.3, 53.1)	54.4 (47.4, 61.4)	55.3 (48.4, 62.2)	45.5 (39.5, 51.5)	48.1 (41.8, 54.4)	48.9 (42.2, 55.5)	5.5 (-0.4, 11.4)	Rural
Men	Gyeongsangbuk-do	Bonghwa-gun	48.3 (45.4, 51.2)	47.8 (41.5, 54.1)	50.8 (44.2, 57.3)	52.2 (45.5, 58.8)	48.8 (42.5, 55.1)	41.2 (35.0, 47.4)	6.6 (0.7, 12.5)	Rural
Men	Gyeongsangbuk-do	Uljin-gun	42.2 (39.7, 44.7)	51.4 (44.9, 57.8)	40.2 (34.7, 45.7)	49.7 (43.7, 55.6)	38.4 (33.0, 43.8)	31.2 (26.4, 36.1)	20.2 (14.4, 26.0)	Rural
Men	Gyeongsangbuk-do	Ulleung-gun	45.5 (42.9, 48.1)	50.1 (43.8, 56.4)	46.0 (40.1, 51.9)	48.5 (42.5, 54.5)	44.9 (39.2, 50.7)	37.7 (32.3, 43.2)	12.4 (6.4, 18.4)	Rural
Men	Gyeongsangnam-do	Changwon-si	42.6 (40.2, 45.0)	45.1 (39.5, 50.8)	44.6 (39.0, 50.3)	42.6 (37.3, 48.0)	39.5 (34.4, 44.7)	41.2 (35.6, 46.7)	3.9 (-1.7, 9.5)	Metropolitan
Men	Gyeongsangnam-do	Masan-si	46.3 (43.8, 48.7)	53.6 (47.5, 59.6)	47.9 (42.4, 53.4)	47.6 (42.1, 53.2)	43.3 (38.0, 48.7)	39.0 (34.0, 44.1)	14.6 (8.9, 20.3)	Metropolitan
Men	Gyeongsangnam-do	Jinju-si	42.7 (40.3, 45.1)	50.0 (44.0, 55.9)	45.5 (39.9, 51.0)	42.0 (36.8, 47.2)	37.6 (32.7, 42.6)	38.4 (33.3, 43.6)	11.6 (5.8, 17.4)	Urban
Men	Gyeongsangnam-do	Jinhae-si	46.5 (44.0, 49.0)	47.5 (41.7, 53.3)	51.9 (46.2, 57.6)	44.9 (39.4, 50.3)	45.4 (40.1, 50.7)	43.0 (37.6, 48.5)	4.5 (-1.4, 10.4)	Metropolitan
Men	Gyeongsangnam-do	Tongyeong-si	46.2 (43.7, 48.6)	49.8 (44.0, 55.6)	45.5 (40.2, 50.7)	43.3 (38.0, 48.5)	48.2 (42.6, 53.7)	44.5 (39.1, 49.8)	5.3 (-0.5, 11.1)	Urban
Men	Gyeongsangnam-do	Sacheon-si	45.5 (43.0, 48.0)	51.0 (45.0, 57.1)	41.8 (36.4, 47.2)	47.0 (41.5, 52.6)	47.3 (41.7, 52.9)	39.9 (34.7, 45.2)	11.1 (5.3, 16.9)	Urban
Men	Gyeongsangnam-do	Gimhae-si	46.7 (44.2, 49.2)	50.3 (44.3, 56.3)	47.1 (41.8, 52.5)	47.1 (41.4, 52.8)	43.7 (38.4, 48.9)	45.9 (40.3, 51.5)	4.4 (-1.3, 10.1)	Urban
Men	Gyeongsangnam-do	Miryang-si	46.1 (43.5, 48.7)	54.3 (47.9, 60.8)	49.6 (43.6, 55.6)	46.8 (41.0, 52.6)	38.8 (33.5, 44.0)	40.9 (35.3, 46.5)	13.4 (7.6, 19.2)	Urban
Men	Gyeongsangnam-do	Geoje-si	47.4 (44.9, 49.8)	54.3 (48.5, 60.1)	47.4 (41.9, 52.9)	50.3 (44.6, 55.9)	43.2 (38.1, 48.4)	42.4 (37.3, 47.6)	11.9 (6.4, 17.4)	Urban
Men	Gyeongsangnam-do	Yangsang-si	49.6 (47.1, 52.1)	53.1 (47.3, 58.9)	49.6 (43.9, 55.2)	47.7 (42.5, 52.9)	51.6 (45.8, 57.5)	45.9 (40.5, 51.3)	7.2 (1.6, 12.8)	Urban
Men	Gyeongsangnam-do	Uiryeong-gun	45.8 (42.9, 48.7)	52.8 (45.6, 59.9)	46.7 (40.4, 52.9)	47.0 (40.7, 53.3)	44.5 (38.2, 50.8)	38.1 (32.2, 44.1)	14.7 (8.5, 20.9)	Rural
Men	Gyeongsangnam-do	Haman-gun	45.7 (43.2, 48.2)	49.6 (43.6, 55.6)	45.3 (39.7, 50.9)	44.0 (38.6, 49.4)	43.4 (38.0, 48.8)	47.0 (41.1, 52.8)	2.6 (-3.3, 8.5)	Rural
Men	Gyeongsangnam-do	Changnyeong-gun	50.2 (47.4, 53.0)	54.4 (47.8, 61.0)	48.6 (42.5, 54.6)	52.0 (45.8, 58.2)	52.2 (45.9, 58.5)	43.7 (37.9, 49.5)	10.7 (4.8, 16.6)	Rural
Men	Gyeongsangnam-do	Goseong-gun	50.2 (47.4, 52.9)	52.3 (45.9, 58.7)	52.1 (45.8, 58.4)	50.4 (44.3, 56.5)	48.1 (42.1, 54.2)	47.8 (41.8, 53.9)	4.5 (-1.5, 10.5)	Rural
Men	Gyeongsangnam-do	Namhae-gun	46.0 (43.0, 48.9)	46.6 (39.9, 53.4)	46.7 (40.1, 53.4)	48.8 (42.0, 55.6)	45.1 (38.8, 51.4)	42.8 (36.5, 49.2)	3.8 (-2.3, 9.9)	Rural
Men	Gyeongsangnam-do	Hadong-gun	46.8 (44.1, 49.6)	50.5 (43.9, 57.2)	49.3 (42.9, 55.6)	48.4 (42.2, 54.6)	42.4 (36.6, 48.2)	43.7 (37.8, 49.6)	6.8 (0.8, 12.8)	Rural
Men	Gyeongsangnam-do	Sancheong-gun	43.8 (41.0, 46.6)	44.8 (38.2, 51.4)	47.2 (41.1, 53.4)	46.3 (39.7, 52.8)	37.3 (31.7, 42.9)	42.9 (36.5, 49.4)	1.9 (-4.3, 8.1)	Rural
Men	Gyeongsangnam-do	Hamyang-gun	43.7 (41.0, 46.4)	45.8 (39.4, 52.3)	42.0 (36.1, 47.8)	46.9 (40.6, 53.3)	45.5 (39.3, 51.6)	38.0 (32.3, 43.7)	7.8 (1.8, 13.8)	Rural
Men	Gyeongsangnam-do	Geochang-gun	45.7 (43.1, 48.4)	53.2 (46.7, 59.7)	52.5 (46.3, 58.8)	43.3 (37.5, 49.1)	39.1 (33.7, 44.4)	40.6 (34.8, 46.3)	12.6 (6.7, 18.5)	Rural
Men	Gyeongsangnam-do	Hapcheon-gun	45.9 (43.1, 48.7)	50.9 (44.1, 57.8)	47.4 (41.1, 53.7)	51.1 (44.5, 57.8)	39.8 (34.0, 45.5)	41.0 (34.8, 47.2)	9.9 (3.8, 16.0)	Rural
Men	Jeju-do	Jeju-si	48.1 (46.6, 49.6)	53.1 (49.4, 56.8)	50.8 (47.3, 54.4)	49.4 (45.9, 52.9)	45.2 (42.0, 48.4)	42.9 (39.9, 46.0)	10.2 (6.8, 13.6)	Urban
Men	Jeju-do	Seogwipo-si	49.3 (47.8, 50.9)	52.6 (48.9, 56.3)	52.1 (48.5, 55.8)	48.9 (45.5, 52.3)	46.5 (43.1, 49.9)	46.9 (43.4, 50.3)	5.7 (2.1, 9.3)	Urban
Women	Seoul	Jongno-gu	4.1 (3.4, 4.7)	5.5 (3.7, 7.2)	3.4 (2.0, 4.8)	5.5 (3.7, 7.2)	4.4 (2.9, 5.9)	1.8 (0.8, 2.7)	3.7 (1.8, 5.6)	Metropolitan
Women	Seoul	Jung-gu	4.6 (3.8, 5.3)	7.0 (4.9, 9.1)	6.2 (4.3, 8.1)	3.6 (2.2, 5.1)	2.8 (1.5, 4.1)	3.4 (1.9, 4.8)	3.6 (1.2, 6.0)	Metropolitan
Women	Seoul	Yongsan-gu	4.9 (4.1, 5.6)	7.6 (5.5, 9.7)	6.0 (4.2, 7.8)	4.6 (3.0, 6.1)	3.4 (2.1, 4.8)	2.9 (1.6, 4.1)	4.7 (2.4, 7.0)	Metropolitan
Women	Seoul	Seongdong-gu	3.9 (3.3, 4.6)	5.2 (3.4, 6.9)	3.3 (2.0, 4.7)	3.2 (1.9, 4.5)	4.7 (3.1, 6.3)	3.3 (1.9, 4.7)	1.9 (-0.3, 4.1)	Metropolitan
Women	Seoul	Gwangjin-gu	3.5 (2.9, 4.1)	5.1 (3.4, 6.8)	3.8 (2.4, 5.2)	4.2 (2.7, 5.8)	1.8 (0.9, 2.8)	2.4 (1.3, 3.5)	2.7 (0.7, 4.7)	Metropolitan
Women	Seoul	Dongdaemun-gu	4.1 (3.4, 4.8)	7.3 (5.2, 9.4)	4.8 (3.2, 6.4)	3.1 (1.8, 4.4)	3.4 (2.0, 4.8)	2.3 (1.2, 3.4)	5.0 (2.7, 7.3)	Metropolitan
Women	Seoul	Jungnang-gu	3.9 (3.3, 4.5)	5.7 (3.9, 7.5)	4.7 (3.1, 6.2)	2.0 (1.0, 3.0)	4.5 (3.0, 6.0)	2.5 (1.3, 3.6)	3.2 (1.1, 5.3)	Metropolitan
Women	Seoul	Seongbuk-gu	3.7 (3.1, 4.4)	4.1 (2.6, 5.6)	4.0 (2.9, 5.9)	4.8 (3.2, 6.4)	2.7 (1.5, 3.9)	2.6 (1.4, 3.7)	1.5 (-0.4, 3.4)	Metropolitan
Women	Seoul	Gangbuk-gu	4.9 (4.2, 5.7)	7.5 (5.5, 9.6)	5.7 (4.0, 7.5)	3.2 (1.9, 4.5)	4.2 (2.7, 5.7)	4.2 (2.6, 5.8)	3.3 (0.8, 5.8)	Metropolitan
Women	Seoul	Dobong-gu	3.3 (2.7, 3.9)	5.0 (3.3, 6.6)	3.8 (2.4, 5.2)	3.2 (1.9, 4.4)	1.4 (0.5, 2.2)	3.3 (2.0, 4.6)	1.7 (-0.4, 3.8)	Metropolitan
Women	Seoul	Nowon-gu	3.0 (2.4, 3.6)	4.8 (3.2, 6.4)	2.5 (1.4, 3.6)	3.4 (2.0, 4.7)	1.8 (0.8, 2.8)	2.5 (1.3, 3.7)	2.3 (0.3, 4.3)	Metropolitan
Women	Seoul	Eunpyeong-gu	4.2 (3.5, 4.9)	7.5 (5.5, 9.5)	3.3 (2.0, 4.7)	3.1 (1.8, 4.3)	4.8 (3.2, 6.4)	2.4 (1.3, 3.6)	5.1 (2.8, 7.4)	Metropolitan
Women	Seoul	Seodaemun-gu	3.9 (3.3, 4.6)	6.1 (4.3, 8.0)	4.4 (2.8, 5.9)	4.2 (2.7, 5.6)	1.9 (0.9, 3.0)	3.1 (1.8, 4.4)	3.0 (0.8, 5.2)	Metropolitan
Women	Seoul	Mapo-gu	4.5 (3.8, 5.2)	6.4 (4.5, 8.3)	5.6 (3.8, 7.4)	3.9 (2.5, 5.3)	3.5 (2.1, 4.8)	3.2 (1.9, 4.5)	3.2 (1.0, 5.4)	Metropolitan
Women	Seoul	Yangcheon-gu	2.1 (1.6, 2.6)	5.4 (3.7, 7.2)	1.8 (0.8, 2.7)	1.9 (0.9, 2.9)	0.8 (0.1, 1.5)	0.9 (0.2, 1.6)	4.5 (2.7, 6.3)	Metropolitan
Women	Seoul	Gangseo-gu	3.3 (2.7, 3.9)	4.0 (3.1, 6.3)	4.1 (2.6, 5.6)	2.7 (1.6, 3.9)	2.8 (1.5, 4.0)	2.2 (1.1, 3.3)	2.5 (0.6, 4.4)	Metropolitan
Women	Seoul	Guro-gu	2.9 (2.3, 3.4)	4.3 (2.8, 5.9)	3.5 (2.2, 4.8)	2.2 (1.1, 3.3)	2.5 (1.4, 3.7)	1.8 (0.8, 2.8)	2.5 (0.7, 4.3)	Metropolitan
Women	Seoul	Geumcheon-gu	3.7 (3.0, 4.3)	5.4 (3.6, 7.2)	5.3 (3.6, 7.0)	3.3 (2.0, 4.6)	2.7 (1.5, 3.9)	1.5 (0.5, 2.4)	3.9 (2.0, 5.8)	Metropolitan
Women	Seoul	Yeongdeungpo-gu	3.0 (2.4, 3.6)	4.6 (3.0, 6.2)	3.3 (1.9, 4.6)	2.4 (1.2, 3.5)	2.7 (1.5, 4.0)	1.9 (0.9, 2.9)	2.7 (0.8, 4.6)	Metropolitan
Women	Seoul	Dongjak-gu	2.7 (2.1, 3.2)	5.5 (3.7, 7.3)	3.2 (1.8, 4.5)	2.1 (1.0, 3.2)	1.0 (0.3, 1.7)	1.8 (0.8, 2.8)	3.7 (1.7, 5.7)	Metropolitan
Women	Seoul	Gwanak-gu	4.6 (3.9, 5.4)	6.8 (4.8, 8.9)	4.8 (3.1, 6.5)	5.0 (3.4, 6.7)	3.6 (2.2, 5.0)	3.0 (1.7, 4.3)	3.8 (1.5, 6.1)	Metropolitan
Women	Seoul	Seocho-gu	2.4 (1.9, 2.9)	3.8 (2.4, 5.3)	3.0 (1.8, 4.3)	1.7 (0.8, 2.6)	1.9 (0.9, 2.9)	1.3 (0.5, 2.2)	2.5 (0.8, 4.2)	Metropolitan
Women	Seoul	Gangnam-gu	4.9 (4.2, 5.6)	7.2 (5.2, 9.1)	6.1 (4.3, 7.9)	3.4 (2.1, 4.7)	3.9 (2.5, 5.2)	4.1 (2.6, 5.6)	3.1 (0.7, 5.5)	Metropolitan

(Continued to the next page)

Supplemental Table 3. Continued from the previous page

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Women	Seoul	Songpa-gu	2.4 (1.9, 2.9)	4.6 (3.0, 6.2)	2.2 (1.1, 3.3)	2.6 (1.4, 3.8)	1.3 (0.5, 2.1)	1.3 (0.5, 2.2)	3.3 (1.5, 5.1)	Metropolitan
Women	Seoul	Gangdong-gu	4.3 (3.6, 5.0)	5.8 (4.0, 7.6)	6.1 (4.2, 7.9)	4.0 (2.6, 5.5)	3.0 (1.7, 4.3)	2.8 (1.6, 4.0)	3.0 (0.8, 5.2)	Metropolitan
Women	Busan	Jung-gu	5.2 (4.4, 6.0)	8.8 (6.4, 11.1)	5.9 (4.0, 7.7)	4.2 (2.6, 5.8)	5.0 (3.3, 6.7)	2.3 (1.2, 3.5)	6.5 (4.1, 8.9)	Metropolitan
Women	Busan	Seo-gu	4.3 (3.6, 5.0)	7.7 (5.5, 9.8)	3.8 (2.4, 5.2)	4.5 (2.8, 6.1)	3.3 (1.9, 4.6)	2.3 (1.2, 3.4)	5.4 (3.1, 7.7)	Metropolitan
Women	Busan	Dong-gu	4.0 (3.3, 4.7)	5.3 (3.6, 6.9)	4.5 (2.9, 6.0)	4.5 (2.8, 6.1)	2.3 (1.1, 3.5)	3.5 (2.0, 4.9)	1.8 (-0.3, 3.9)	Metropolitan
Women	Busan	Yeongdo-gu	3.7 (3.0, 4.3)	6.0 (4.2, 7.9)	5.0 (3.3, 6.7)	2.5 (1.4, 3.6)	2.7 (1.5, 3.8)	2.2 (1.0, 3.3)	3.8 (1.7, 5.9)	Metropolitan
Women	Busan	Busanjin-gu	3.8 (3.2, 4.5)	6.5 (4.7, 8.4)	4.4 (2.8, 5.9)	3.6 (2.2, 5.0)	2.7 (1.5, 3.8)	1.8 (0.9, 2.8)	4.7 (2.6, 6.8)	Metropolitan
Women	Busan	Dongnae-gu	2.5 (2.0, 3.0)	3.7 (2.3, 5.2)	3.1 (1.8, 4.4)	1.6 (0.7, 2.5)	2.2 (1.1, 3.3)	1.9 (0.8, 3.0)	1.8 (0.1, 3.5)	Metropolitan
Women	Busan	Nam-gu	2.8 (2.2, 3.3)	5.3 (3.5, 7.0)	3.1 (1.8, 4.4)	2.3 (1.2, 3.4)	2.2 (1.2, 3.2)	1.1 (0.3, 2.0)	4.2 (2.3, 6.1)	Metropolitan
Women	Busan	Buk-gu	2.7 (2.2, 3.3)	4.6 (3.0, 6.3)	2.8 (1.5, 4.1)	2.4 (1.3, 3.6)	2.3 (1.2, 3.4)	1.4 (0.4, 2.3)	3.2 (1.4, 5.0)	Metropolitan
Women	Busan	Haeundae-gu	3.8 (3.1, 4.4)	7.7 (5.6, 9.7)	4.3 (2.7, 5.8)	2.7 (1.5, 4.0)	2.7 (1.5, 3.9)	1.6 (0.7, 2.6)	6.1 (3.9, 8.3)	Metropolitan
Women	Busan	Saha-gu	2.7 (2.1, 3.2)	5.0 (3.3, 6.6)	3.6 (2.2, 4.9)	1.9 (0.9, 2.9)	1.4 (0.5, 2.3)	1.6 (0.7, 2.5)	3.4 (1.5, 5.3)	Metropolitan
Women	Busan	Geumjeong-gu	2.5 (1.9, 3.0)	5.5 (3.7, 7.3)	2.9 (1.6, 4.2)	1.9 (0.9, 3.0)	1.3 (0.4, 2.1)	0.9 (0.2, 1.6)	4.6 (2.7, 6.5)	Metropolitan
Women	Busan	Gangseo-gu	2.3 (1.8, 2.8)	3.6 (2.1, 5.0)	3.3 (2.0, 4.5)	1.7 (0.7, 2.6)	1.7 (0.8, 2.7)	1.0 (0.3, 1.7)	2.6 (1.0, 4.2)	Metropolitan
Women	Busan	Yeonje-gu	2.7 (2.2, 3.3)	4.8 (3.2, 6.5)	2.4 (1.3, 3.5)	2.9 (1.6, 4.3)	1.7 (0.8, 2.6)	2.0 (0.9, 3.1)	2.8 (0.9, 4.7)	Metropolitan
Women	Busan	Suyeong-gu	2.8 (2.2, 3.3)	2.7 (1.5, 3.9)	3.6 (2.2, 5.0)	2.7 (1.5, 3.9)	3.5 (2.1, 4.9)	1.3 (0.4, 2.2)	1.4 (0.0, 2.8)	Metropolitan
Women	Busan	Sasang-gu	4.1 (3.4, 4.8)	7.2 (5.1, 9.4)	5.2 (3.5, 6.9)	4.1 (2.6, 5.6)	2.1 (0.9, 3.3)	2.2 (1.1, 3.3)	5.0 (2.7, 7.3)	Metropolitan
Women	Busan	Gijang-gun	3.4 (2.8, 4.0)	3.3 (1.9, 4.6)	3.6 (2.2, 5.0)	4.1 (2.6, 5.5)	2.8 (1.6, 4.0)	3.3 (2.0, 4.6)	0.0 (-1.9, 1.9)	Rural
Women	Daegu	Jung-gu	4.5 (3.8, 5.3)	7.7 (5.5, 9.9)	5.3 (3.6, 7.0)	3.6 (2.2, 5.0)	3.8 (2.3, 5.2)	2.4 (1.2, 3.6)	5.3 (3.0, 7.6)	Metropolitan
Women	Daegu	Dong-gu	3.4 (2.8, 4.0)	4.5 (2.9, 6.1)	3.0 (1.7, 4.2)	4.4 (2.8, 5.9)	2.4 (1.2, 3.5)	2.6 (1.5, 3.8)	1.9 (-0.1, 3.9)	Metropolitan
Women	Daegu	Seo-gu	3.3 (2.7, 3.9)	4.6 (2.9, 6.3)	3.8 (2.3, 5.2)	3.2 (1.9, 4.6)	2.7 (1.5, 3.9)	2.4 (1.2, 3.6)	2.2 (0.2, 4.2)	Metropolitan
Women	Daegu	Nam-gu	4.5 (3.8, 5.2)	5.8 (4.0, 7.6)	5.2 (3.5, 6.9)	3.6 (2.2, 5.0)	4.9 (3.3, 6.6)	3.0 (1.6, 4.3)	2.8 (0.7, 4.9)	Metropolitan
Women	Daegu	Buk-gu	2.2 (1.7, 2.7)	4.0 (2.4, 5.5)	2.5 (1.3, 3.7)	1.9 (0.9, 3.0)	1.1 (0.3, 1.9)	1.6 (0.6, 2.5)	2.4 (0.6, 4.2)	Metropolitan
Women	Daegu	Suseong-gu	3.1 (2.5, 3.6)	6.8 (4.8, 8.8)	3.2 (1.8, 4.5)	2.7 (1.5, 3.9)	1.9 (0.9, 3.0)	0.9 (0.2, 1.6)	5.9 (3.9, 7.9)	Metropolitan
Women	Daegu	Dalseo-gu	2.4 (1.9, 2.9)	4.0 (2.5, 5.5)	3.2 (1.9, 4.5)	2.4 (1.2, 3.6)	1.0 (0.2, 1.7)	1.4 (0.5, 2.3)	2.6 (0.9, 4.3)	Metropolitan
Women	Daegu	Dalseong-gun	2.3 (1.8, 2.8)	3.1 (1.8, 4.5)	3.4 (2.0, 4.8)	1.8 (0.8, 2.7)	1.4 (0.5, 2.2)	1.9 (0.9, 2.9)	1.2 (-0.5, 2.9)	Rural
Women	Incheon	Jung-gu	5.9 (5.1, 6.7)	7.7 (5.5, 9.9)	7.4 (5.4, 9.4)	5.3 (3.5, 7.1)	4.5 (2.9, 6.1)	4.7 (3.0, 6.3)	3.0 (0.4, 5.6)	Metropolitan
Women	Incheon	Dong-gu	3.7 (3.0, 4.3)	5.7 (3.8, 7.7)	3.8 (2.4, 5.3)	4.2 (2.6, 5.7)	2.2 (1.0, 3.3)	2.5 (1.3, 3.7)	3.2 (1.1, 5.3)	Metropolitan
Women	Incheon	Nam-gu	5.2 (4.4, 5.9)	7.9 (5.7, 10.1)	5.7 (3.9, 7.5)	4.2 (2.6, 5.8)	3.9 (2.4, 5.4)	4.2 (2.6, 5.7)	3.7 (1.1, 6.3)	Metropolitan
Women	Incheon	Yeonsu-gu	3.5 (2.9, 4.1)	7.1 (5.1, 9.0)	3.7 (2.2, 5.3)	3.4 (2.0, 4.8)	1.7 (0.7, 2.7)	1.6 (0.7, 2.6)	5.5 (3.4, 7.6)	Metropolitan
Women	Incheon	Namdong-gu	5.0 (4.2, 5.7)	7.5 (5.5, 9.5)	5.5 (3.7, 7.2)	4.3 (2.8, 5.7)	4.4 (2.8, 5.9)	3.2 (1.9, 4.5)	4.3 (2.0, 6.6)	Metropolitan
Women	Incheon	Bupyeong-gu	4.5 (3.8, 5.2)	7.1 (5.1, 9.1)	4.1 (2.6, 5.6)	4.1 (2.6, 5.6)	3.2 (1.9, 4.6)	3.8 (2.4, 5.2)	3.3 (0.9, 5.7)	Metropolitan
Women	Incheon	Gyeyang-gu	3.8 (3.2, 4.4)	5.5 (3.8, 7.3)	3.8 (2.4, 5.2)	4.2 (2.8, 5.7)	1.9 (0.9, 2.9)	3.5 (2.1, 4.9)	2.0 (-0.2, 4.2)	Metropolitan
Women	Incheon	Seo-gu	4.0 (3.4, 4.7)	5.2 (3.5, 7.0)	3.6 (2.2, 5.0)	3.4 (2.1, 4.8)	4.1 (2.6, 5.7)	3.7 (2.2, 5.2)	1.5 (-0.7, 3.7)	Metropolitan
Women	Incheon	Ganghwa-gun	2.8 (2.2, 3.5)	3.5 (1.8, 5.1)	4.9 (3.0, 6.8)	1.9 (0.8, 3.1)	1.5 (0.5, 2.6)	2.1 (0.8, 3.4)	1.4 (-0.3, 3.1)	Rural
Women	Incheon	Ongjin-gun	3.0 (2.3, 3.7)	3.6 (1.9, 5.4)	1.9 (0.8, 3.1)	2.6 (1.2, 4.0)	2.0 (0.8, 3.2)	5.0 (3.0, 7.0)	-1.4 (-3.8, 1.0)	Rural
Women	Gwangju	Dong-gu	2.1 (1.6, 2.6)	3.8 (2.3, 5.3)	2.5 (1.4, 3.7)	1.7 (0.7, 2.6)	1.3 (0.4, 2.2)	1.2 (0.4, 2.1)	2.6 (0.9, 4.3)	Metropolitan
Women	Gwangju	Seo-gu	2.0 (1.5, 2.4)	4.3 (2.7, 5.9)	1.1 (0.3, 1.9)	1.7 (0.7, 2.7)	1.6 (0.6, 2.5)	1.3 (0.5, 2.1)	3.0 (1.3, 4.7)	Metropolitan
Women	Gwangju	Nam-gu	1.7 (1.3, 2.1)	3.1 (1.7, 4.4)	2.3 (1.2, 3.4)	0.8 (0.2, 1.4)	1.7 (0.7, 2.7)	0.7 (0.1, 1.3)	2.4 (1.0, 3.8)	Metropolitan
Women	Gwangju	Buk-gu	2.2 (1.7, 2.6)	4.0 (2.5, 5.5)	2.8 (1.5, 4.0)	1.1 (0.4, 1.9)	1.8 (0.9, 2.8)	1.2 (0.4, 2.0)	2.8 (1.1, 4.5)	Metropolitan
Women	Gwangju	Gwangsan-gu	2.5 (1.9, 3.0)	4.7 (3.0, 6.4)	3.3 (1.9, 4.7)	1.7 (0.7, 2.7)	1.4 (0.5, 2.3)	1.3 (0.5, 2.2)	3.4 (1.6, 5.2)	Metropolitan
Women	Daejeon	Dong-gu	3.7 (3.1, 4.4)	7.0 (4.9, 9.2)	4.5 (2.9, 6.1)	3.4 (2.0, 4.8)	2.0 (1.0, 3.0)	2.0 (0.9, 3.0)	5.0 (2.7, 7.3)	Metropolitan
Women	Daejeon	Jung-gu	4.0 (3.4, 4.7)	7.0 (5.0, 9.0)	4.0 (2.6, 5.5)	3.9 (2.5, 5.4)	3.4 (2.1, 4.8)	2.1 (1.0, 3.3)	4.9 (2.7, 7.1)	Metropolitan
Women	Daejeon	Seo-gu	3.7 (3.1, 4.4)	6.1 (4.2, 8.0)	4.3 (2.7, 5.8)	2.7 (1.5, 3.9)	3.2 (1.8, 4.5)	2.5 (1.3, 3.7)	3.6 (1.4, 5.8)	Metropolitan
Women	Daejeon	Yuseong-gu	2.2 (1.7, 2.8)	3.6 (2.1, 5.1)	1.8 (0.7, 2.8)	1.4 (0.5, 2.4)	3.1 (1.8, 4.4)	1.0 (0.2, 1.9)	2.6 (1.0, 4.2)	Metropolitan
Women	Daejeon	Daedeok-gu	3.2 (2.6, 3.8)	3.6 (2.1, 5.0)	4.1 (2.6, 5.6)	3.6 (2.1, 5.1)	3.0 (1.7, 4.3)	1.7 (0.7, 2.6)	1.9 (0.2, 3.6)	Metropolitan
Women	Ulsan	Jung-gu	3.6 (2.9, 4.2)	6.5 (4.6, 8.4)	4.0 (2.5, 5.5)	2.7 (1.5, 4.0)	2.9 (1.6, 4.1)	1.7 (0.6, 2.7)	4.8 (2.7, 6.9)	Metropolitan
Women	Ulsan	Nam-gu	3.6 (2.9, 4.3)	8.2 (5.8, 10.5)	2.9 (1.6, 4.3)	3.2 (1.7, 4.7)	2.0 (0.8, 3.1)	2.0 (0.8, 3.2)	6.2 (3.8, 8.6)	Metropolitan
Women	Ulsan	Dong-gu	2.6 (2.0, 3.2)	4.6 (2.8, 6.3)	2.1 (1.0, 3.2)	2.4 (1.1, 3.7)	1.6 (0.6, 2.6)	2.5 (1.1, 4.0)	2.1 (0.1, 4.1)	Metropolitan
Women	Ulsan	Buk-gu	2.2 (1.6, 2.8)	3.1 (1.5, 4.7)	2.5 (1.3, 3.8)	1.1 (0.2, 2.0)	2.2 (0.9, 3.4)	2.0 (0.8, 3.3)	1.1 (-0.6, 2.8)	Metropolitan
Women	Ulsan	Ulju-gun	2.1 (1.6, 2.6)	3.9 (2.4, 5.4)	2.9 (1.6, 4.2)	1.8 (0.8, 2.8)	1.1 (0.4, 1.8)	1.0 (0.3, 1.8)	2.9 (1.2, 4.6)	Rural
Women	Sejong	Sejong	3.1 (2.2, 4.0)	5.6 (2.8, 8.3)	3.9 (1.7, 6.2)	3.2 (1.2, 5.3)	1.5 (0.2, 2.9)	1.4 (0.0, 3.0)	4.2 (1.2, 7.2)	Metropolitan
Women	Gyeonggi-do	Jangan-gu	3.2 (2.6, 3.8)	4.3 (2.8, 5.8)	3.7 (2.3, 5.2)	3.4 (2.0, 4.8)	2.5 (1.3, 3.7)	2.0 (0.9, 3.1)	2.3 (0.5, 4.1)	Metropolitan
Women	Gyeonggi-do	Gwonseon-gu	4.9 (4.1, 5.6)	8.7 (6.4, 10.9)	4.6 (3.0, 6.3)	4.4 (2.8, 6.0)	2.8 (1.6, 4.0)	4.0 (2.5, 5.5)	4.7 (2.1, 7.3)	Metropolitan

(Continued to the next page)

Supplemental Table 3. Continued from the previous page

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Women	Gyeonggi-do	Paldal-gu	5.0 (4.2, 5.7)	7.1 (5.0, 9.1)	6.7 (4.8, 8.6)	5.1 (3.4, 6.8)	3.8 (2.3, 5.2)	2.3 (1.1, 3.4)	4.8 (2.5, 7.1)	Metropolitan
Women	Gyeonggi-do	Yeongtong-gu	2.1 (1.6, 2.7)	3.8 (2.2, 5.4)	2.4 (1.2, 3.7)	1.1 (0.2, 2.0)	0.9 (0.2, 1.6)	2.2 (0.8, 3.6)	1.6 (-0.2, 3.4)	Metropolitan
Women	Gyeonggi-do	Sujeong-gu	4.8 (4.0, 5.5)	5.7 (3.9, 7.6)	7.3 (5.3, 9.3)	4.6 (3.0, 6.1)	3.7 (2.2, 5.2)	2.5 (1.3, 3.8)	3.2 (1.1, 5.3)	Metropolitan
Women	Gyeonggi-do	Jungwon-gu	5.6 (4.8, 6.4)	7.1 (5.1, 9.2)	6.8 (4.8, 8.7)	4.6 (3.0, 6.2)	5.2 (3.5, 7.0)	4.7 (3.0, 6.3)	2.4 (-0.2, 5.0)	Metropolitan
Women	Gyeonggi-do	Bundang-gu	1.2 (0.9, 1.6)	1.5 (0.6, 2.5)	1.8 (0.8, 2.8)	1.0 (0.3, 1.8)	0.4 (0.0, 0.9)	1.4 (0.5, 2.3)	0.1 (-1.2, 1.4)	Metropolitan
Women	Gyeonggi-do	Uijeongbu-si	4.8 (4.0, 5.5)	6.3 (4.4, 8.1)	4.6 (3.1, 6.2)	5.1 (3.5, 6.8)	3.7 (2.3, 5.1)	4.1 (2.6, 5.5)	2.2 (-0.1, 4.5)	Urban
Women	Gyeonggi-do	Manan-gu	4.2 (3.5, 4.9)	6.3 (4.4, 8.2)	5.7 (3.9, 7.4)	4.6 (3.0, 6.2)	2.2 (1.1, 3.3)	2.5 (1.3, 3.6)	3.8 (1.6, 6.0)	Metropolitan
Women	Gyeonggi-do	Dongan-gu	2.0 (1.5, 2.4)	3.1 (1.8, 4.3)	2.8 (1.6, 4.1)	1.9 (0.9, 2.9)	1.2 (0.4, 2.0)	0.8 (0.1, 1.4)	2.3 (0.9, 3.7)	Metropolitan
Women	Gyeonggi-do	Wonmi-gu	3.5 (2.9, 4.1)	5.2 (3.4, 7.0)	4.5 (2.9, 6.1)	3.4 (2.0, 4.7)	3.0 (1.7, 4.3)	1.3 (0.4, 2.1)	3.9 (2.0, 5.8)	Metropolitan
Women	Gyeonggi-do	Sosa-gu	3.2 (2.6, 3.8)	6.0 (4.1, 7.9)	2.8 (1.5, 4.0)	2.7 (1.5, 3.9)	2.9 (1.7, 4.1)	1.6 (0.7, 2.6)	4.4 (2.4, 6.4)	Metropolitan
Women	Gyeonggi-do	Ojeong-gu	5.7 (4.9, 6.5)	6.8 (4.8, 8.8)	6.7 (4.9, 8.6)	5.8 (4.0, 7.6)	4.6 (3.0, 6.2)	4.3 (2.7, 5.9)	2.5 (0.0, 5.0)	Metropolitan
Women	Gyeonggi-do	Gwangmyeong-si	3.7 (3.0, 4.3)	5.4 (3.6, 7.3)	3.6 (2.2, 5.0)	3.3 (2.0, 4.7)	3.1 (1.8, 4.4)	3.0 (1.7, 4.4)	2.4 (0.2, 4.6)	Urban
Women	Gyeonggi-do	Pyeongtaek-si	5.2 (4.7, 5.7)	8.1 (6.6, 9.6)	5.6 (4.3, 6.8)	4.2 (3.1, 5.3)	4.6 (3.5, 5.8)	3.5 (2.5, 4.5)	4.6 (2.8, 6.4)	Urban
Women	Gyeonggi-do	Dongducheon-si	7.4 (6.5, 8.3)	13.0 (10.2, 15.8)	6.7 (4.7, 8.6)	7.5 (5.4, 9.6)	6.5 (4.6, 8.4)	3.5 (2.1, 5.0)	9.5 (6.5, 12.5)	Urban
Women	Gyeonggi-do	Sangnok-gu	4.5 (3.8, 5.2)	8.9 (6.6, 11.2)	3.7 (2.3, 5.1)	4.5 (3.0, 6.0)	3.2 (1.9, 4.6)	2.2 (1.1, 3.4)	6.7 (4.3, 9.1)	Metropolitan
Women	Gyeonggi-do	Danwon-gu	4.9 (4.1, 5.7)	8.4 (6.1, 10.8)	4.8 (3.1, 6.5)	4.4 (2.8, 6.0)	4.2 (2.6, 5.8)	3.1 (1.7, 4.4)	5.3 (2.8, 7.8)	Metropolitan
Women	Gyeonggi-do	Deogyang-gu	4.7 (3.9, 5.4)	7.9 (5.8, 10.0)	6.4 (4.6, 8.2)	4.0 (2.5, 5.5)	2.8 (1.5, 4.1)	2.1 (1.0, 3.2)	5.8 (3.5, 8.1)	Metropolitan
Women	Gyeonggi-do	Ilsandong-gu	3.1 (2.5, 3.6)	6.5 (4.6, 8.5)	2.4 (1.2, 3.5)	3.0 (1.7, 4.3)	1.9 (0.9, 2.9)	1.6 (0.7, 2.6)	4.9 (2.8, 7.0)	Metropolitan
Women	Gyeonggi-do	Ilsanseo-gu	2.5 (2.0, 3.0)	4.6 (2.9, 6.2)	2.5 (1.3, 3.6)	2.2 (1.1, 3.4)	1.4 (0.5, 2.3)	1.9 (0.8, 2.9)	2.7 (0.8, 4.6)	Metropolitan
Women	Gyeonggi-do	Gwacheon-si	1.6 (1.2, 2.1)	3.3 (2.0, 4.7)	2.3 (1.1, 3.5)	1.2 (0.4, 2.0)	0.7 (0.0, 1.3)	0.6 (0.0, 1.2)	2.7 (1.2, 4.2)	Urban
Women	Gyeonggi-do	Guri-si	5.0 (4.2, 5.7)	8.5 (6.3, 10.7)	5.4 (3.7, 7.1)	4.8 (3.2, 6.5)	4.0 (2.5, 5.4)	2.2 (1.0, 3.3)	6.3 (3.9, 8.7)	Urban
Women	Gyeonggi-do	Namyangju-si	4.1 (3.5, 4.8)	6.5 (4.6, 8.4)	3.8 (2.4, 5.3)	5.0 (3.4, 6.7)	2.2 (1.1, 3.3)	3.1 (1.8, 4.5)	3.4 (1.1, 5.7)	Urban
Women	Gyeonggi-do	Osan-si	5.1 (4.4, 5.9)	5.3 (3.6, 7.1)	8.0 (5.8, 10.2)	5.6 (3.8, 7.4)	4.3 (2.6, 5.9)	2.4 (1.2, 3.6)	2.9 (0.8, 5.0)	Urban
Women	Gyeonggi-do	Siheung-si	4.8 (4.0, 5.6)	7.7 (5.5, 9.9)	5.5 (3.8, 7.3)	3.8 (2.3, 5.3)	4.1 (2.6, 5.5)	3.2 (1.8, 4.6)	4.5 (2.0, 7.0)	Urban
Women	Gyeonggi-do	Gunpo-si	3.3 (2.7, 3.9)	5.9 (4.1, 7.7)	4.5 (3.0, 6.0)	2.2 (1.1, 3.3)	2.2 (1.1, 3.4)	1.4 (0.6, 2.3)	4.5 (2.5, 6.5)	Urban
Women	Gyeonggi-do	Uiwang-si	2.7 (2.2, 3.3)	4.7 (3.0, 6.4)	3.5 (2.1, 4.9)	2.5 (1.3, 3.7)	1.3 (0.4, 2.2)	1.7 (0.8, 2.7)	3.0 (1.1, 4.9)	Urban
Women	Gyeonggi-do	Hanam-si	2.9 (2.4, 3.5)	5.3 (3.6, 7.1)	3.7 (2.3, 5.2)	2.6 (1.4, 3.8)	1.8 (0.9, 2.8)	1.3 (0.4, 2.1)	4.0 (2.1, 5.9)	Urban
Women	Gyeonggi-do	Cheoin-gu	4.2 (3.5, 4.9)	6.4 (4.5, 8.3)	5.0 (3.3, 6.7)	4.4 (2.8, 5.9)	2.7 (1.5, 4.0)	2.6 (1.4, 3.8)	3.8 (1.6, 6.0)	Metropolitan
Women	Gyeonggi-do	Giheung-gu	2.7 (2.2, 3.3)	4.9 (3.1, 6.6)	2.6 (1.4, 3.8)	1.9 (0.8, 2.9)	1.8 (0.7, 2.9)	2.7 (1.4, 3.9)	2.2 (0.2, 4.2)	Metropolitan
Women	Gyeonggi-do	Suji-gu	2.0 (1.5, 2.4)	3.4 (2.0, 4.8)	2.6 (1.4, 3.8)	1.3 (0.5, 2.2)	1.0 (0.3, 1.8)	1.3 (0.5, 2.2)	2.1 (0.5, 3.7)	Metropolitan
Women	Gyeonggi-do	Paju-si	4.9 (4.2, 5.6)	9.3 (7.0, 11.6)	4.1 (2.6, 5.6)	3.4 (2.0, 4.8)	4.6 (3.1, 6.2)	3.1 (1.8, 4.5)	6.2 (3.6, 8.8)	Urban
Women	Gyeonggi-do	Icheon-si	4.6 (3.9, 5.3)	6.7 (4.8, 8.7)	4.5 (2.9, 6.1)	3.6 (2.2, 5.0)	4.3 (2.7, 5.8)	3.9 (2.4, 5.4)	2.8 (0.4, 5.2)	Urban
Women	Gyeonggi-do	Anseong-si	4.7 (4.0, 5.4)	7.0 (5.0, 9.0)	4.6 (3.1, 6.2)	5.2 (3.5, 6.9)	3.1 (1.8, 4.4)	3.4 (2.0, 4.8)	3.6 (1.3, 5.9)	Urban
Women	Gyeonggi-do	Gimpo-si	3.0 (2.4, 3.6)	3.9 (2.4, 5.4)	5.2 (3.5, 6.9)	2.1 (1.0, 3.2)	2.1 (1.0, 3.2)	1.6 (0.6, 2.5)	2.3 (0.5, 4.1)	Urban
Women	Gyeonggi-do	Hwaseong-si	3.1 (2.5, 3.7)	4.8 (3.1, 6.5)	3.0 (1.7, 4.4)	2.9 (1.6, 4.2)	3.2 (1.8, 4.5)	1.4 (0.5, 2.3)	3.4 (1.6, 5.2)	Urban
Women	Gyeonggi-do	Gwangju-si	3.1 (2.5, 3.7)	5.1 (3.3, 6.8)	3.4 (2.1, 4.8)	2.2 (1.1, 3.3)	2.0 (1.0, 3.1)	3.1 (1.7, 4.4)	2.0 (-0.2, 4.2)	Urban
Women	Gyeonggi-do	Yangju-si	4.5 (3.8, 5.2)	5.4 (3.6, 7.1)	4.1 (2.6, 5.7)	5.9 (4.1, 7.7)	3.7 (2.3, 5.2)	3.4 (1.9, 4.8)	2.0 (-0.2, 4.2)	Urban
Women	Gyeonggi-do	Pocheon-si	5.5 (4.7, 6.3)	7.3 (5.2, 9.4)	5.9 (4.1, 7.8)	3.9 (2.4, 5.4)	4.6 (3.0, 6.1)	5.9 (4.0, 7.8)	1.4 (-1.3, 4.1)	Urban
Women	Gyeonggi-do	Yeoju-gun	3.9 (3.2, 4.6)	5.8 (3.9, 7.8)	3.5 (2.1, 4.9)	3.3 (2.0, 4.7)	4.1 (2.6, 5.6)	2.9 (1.5, 4.3)	2.9 (0.7, 5.1)	Urban
Women	Gyeonggi-do	Yeoncheon-gun	4.2 (3.5, 4.9)	7.8 (5.5, 10.0)	4.2 (2.6, 5.9)	4.1 (2.5, 5.6)	3.1 (1.8, 4.5)	1.9 (0.8, 2.9)	5.9 (3.6, 8.2)	Rural
Women	Gyeonggi-do	Gapyeong-gun	3.7 (3.1, 4.4)	6.3 (4.3, 8.3)	4.9 (3.1, 6.6)	2.3 (1.2, 3.5)	2.5 (1.2, 3.8)	2.7 (1.5, 4.0)	3.6 (1.3, 5.9)	Rural
Women	Gyeonggi-do	Yangpyeong-gun	3.7 (3.0, 4.3)	4.1 (2.5, 5.6)	3.9 (2.4, 5.4)	3.3 (1.9, 4.8)	3.7 (2.1, 5.2)	3.3 (1.8, 4.9)	0.8 (-1.2, 2.8)	Rural
Women	Gangwon-do	Chuncheon-si	3.4 (2.7, 4.0)	7.3 (5.1, 9.4)	3.9 (2.4, 5.4)	2.5 (1.4, 3.6)	1.8 (0.8, 2.9)	1.6 (0.7, 2.6)	5.7 (3.5, 7.9)	Urban
Women	Gangwon-do	Wonju-si	4.7 (3.9, 5.4)	8.8 (6.5, 11.2)	4.9 (3.2, 6.5)	3.8 (2.3, 5.2)	3.8 (2.4, 5.3)	2.2 (1.1, 3.3)	6.6 (4.1, 9.1)	Urban
Women	Gangwon-do	Gangneung-si	2.7 (2.1, 3.3)	5.4 (3.5, 7.3)	2.4 (1.2, 3.6)	2.6 (1.3, 3.8)	2.3 (1.1, 3.4)	1.1 (0.3, 2.0)	4.3 (2.4, 6.2)	Urban
Women	Gangwon-do	Donghae-si	3.5 (2.9, 4.2)	5.2 (3.4, 7.0)	4.2 (2.6, 5.7)	3.5 (2.0, 4.9)	2.9 (1.6, 4.2)	2.0 (0.9, 3.1)	3.2 (1.2, 5.2)	Urban
Women	Gangwon-do	Taebaek-si	4.4 (3.7, 5.1)	7.6 (5.4, 9.8)	4.2 (2.6, 5.7)	2.4 (1.3, 3.6)	2.9 (1.6, 4.2)	4.9 (3.2, 6.7)	2.7 (0.0, 5.4)	Urban
Women	Gangwon-do	Sokcho-si	5.0 (4.2, 5.7)	8.5 (6.3, 10.8)	6.6 (4.6, 8.5)	2.7 (1.5, 4.0)	3.1 (1.8, 4.4)	3.8 (2.3, 5.4)	4.7 (2.1, 7.3)	Urban
Women	Gangwon-do	Samcheok-si	2.6 (2.0, 3.2)	4.3 (2.5, 6.1)	4.1 (2.4, 5.8)	2.5 (1.2, 3.7)	1.7 (0.6, 2.8)	0.6 (0.0, 1.2)	3.7 (2.0, 5.4)	Urban
Women	Gangwon-do	Hongcheon-gun	3.1 (2.4, 3.7)	5.2 (3.4, 7.1)	2.6 (1.3, 3.9)	2.0 (0.9, 3.1)	2.7 (1.4, 4.1)	3.1 (1.7, 4.4)	2.1 (-0.1, 4.3)	Rural
Women	Gangwon-do	Hoengseong-gun	3.0 (2.3, 3.6)	5.6 (3.5, 7.7)	2.7 (1.3, 4.2)	3.1 (1.6, 4.5)	1.9 (0.8, 3.1)	1.5 (0.6, 2.5)	4.1 (2.1, 6.1)	Rural
Women	Gangwon-do	Yeongwol-gun	3.7 (2.9, 4.4)	5.8 (3.7, 7.8)	3.6 (2.0, 5.3)	4.4 (2.6, 6.2)	2.3 (0.8, 3.7)	2.1 (0.9, 3.3)	3.7 (1.6, 5.8)	Rural
Women	Gangwon-do	Pyeongchang-gun	2.4 (1.8, 2.9)	3.5 (1.9, 5.0)	2.7 (1.4, 4.0)	2.9 (1.5, 4.3)	0.8 (0.2, 1.3)	2.1 (0.9, 3.3)	1.4 (-0.4, 3.2)	Rural
Women	Gangwon-do	Jeongseon-gun	3.1 (2.4, 3.7)	5.4 (3.5, 7.4)	2.9 (1.6, 4.2)	2.7 (1.3, 4.1)	1.7 (0.6, 2.7)	2.7 (1.4, 4.1)	2.7 (0.5, 4.9)	Rural
Women	Gangwon-do	Cheorwon-gun	3.1 (2.5, 3.7)	6.0 (4.0, 7.9)	2.7 (1.5, 3.9)	3.4 (1.9, 4.8)	1.7 (0.7, 2.7)	1.8 (0.7, 2.9)	4.2 (2.0, 6.4)	Rural
Women	Gangwon-do	Hwacheon-gun	2.6 (2.0, 3.1)	1.7 (0.7, 2.8)	2.9 (1.4, 4.3)	3.7 (2.2, 5.3)	3.2 (1.7, 4.6)	1.2 (0.4, 2.0)	0.5 (-0.9, 1.9)	Rural

(Continued to the next page)

Supplemental Table 3. Continued from the previous page

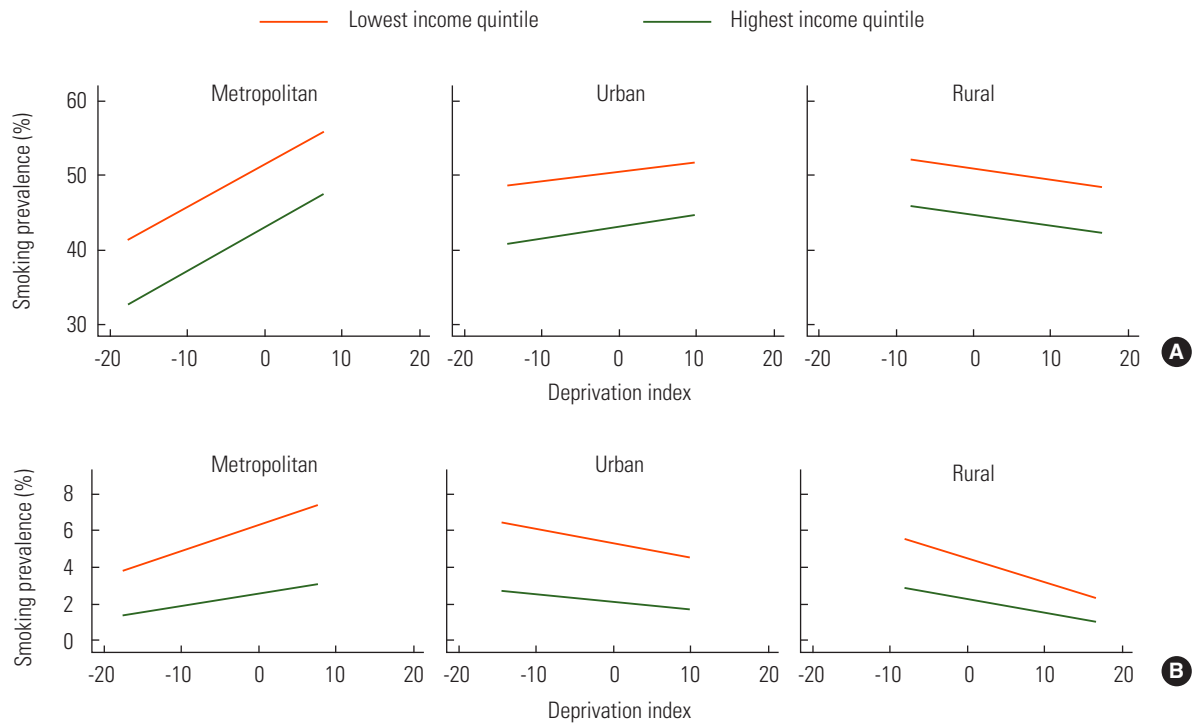
Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Women	Gangwon-do	Yanggu-gun	2.5 (2.0, 3.1)	4.6 (2.9, 6.3)	3.3 (1.9, 4.7)	1.4 (0.4, 2.3)	1.5 (0.6, 2.5)	1.9 (0.8, 3.0)	2.7 (0.7, 4.7)	Rural
Women	Gangwon-do	Inje-gun	2.1 (1.6, 2.6)	3.3 (1.8, 4.7)	2.7 (1.4, 4.1)	1.3 (0.5, 2.1)	1.5 (0.6, 2.5)	1.5 (0.6, 2.4)	1.8 (0.1, 3.5)	Rural
Women	Gangwon-do	Goseong-gun	2.4 (1.8, 3.0)	3.8 (2.3, 5.4)	3.5 (1.8, 5.3)	1.1 (0.3, 1.9)	1.1 (0.2, 2.0)	2.5 (1.1, 4.0)	1.3 (-0.6, 3.2)	Rural
Women	Gangwon-do	Yangyang-gun	2.8 (2.2, 3.5)	4.9 (3.1, 6.8)	3.0 (1.5, 4.6)	3.1 (1.6, 4.7)	2.0 (0.8, 3.2)	0.9 (0.0, 1.8)	4.0 (2.2, 5.8)	Rural
Women	Chungcheongbuk-do	Cheongju-si	3.1 (2.8, 3.4)	4.5 (3.6, 5.4)	4.3 (3.4, 5.2)	3.2 (2.4, 4.0)	2.0 (1.4, 2.7)	1.5 (1.0, 2.1)	3.0 (2.0, 4.0)	Metropolitan
Women	Chungcheongbuk-do	Chungju-si	4.5 (3.8, 5.2)	6.6 (4.6, 8.6)	7.1 (5.1, 9.1)	4.3 (2.7, 5.8)	2.4 (1.3, 3.5)	2.2 (1.1, 3.3)	4.4 (2.2, 6.6)	Urban
Women	Chungcheongbuk-do	Jecheon-si	3.2 (2.6, 3.8)	5.7 (3.9, 7.6)	2.6 (1.4, 3.8)	2.7 (1.4, 3.9)	2.5 (1.4, 3.7)	2.2 (1.0, 3.3)	3.5 (1.4, 5.6)	Urban
Women	Chungcheongbuk-do	Boeun-gun	2.7 (2.0, 3.4)	3.4 (1.7, 5.0)	4.9 (2.9, 7.0)	2.2 (0.9, 3.5)	1.7 (0.5, 2.9)	1.3 (0.2, 2.4)	2.1 (0.4, 3.8)	Rural
Women	Chungcheongbuk-do	Okcheon-gun	3.2 (2.6, 3.8)	3.4 (2.1, 4.7)	4.6 (3.0, 6.2)	3.8 (2.3, 5.4)	2.4 (1.2, 3.6)	1.7 (0.8, 2.7)	1.7 (0.0, 3.4)	Rural
Women	Chungcheongbuk-do	Yeongdong-gun	2.6 (2.0, 3.1)	3.4 (1.9, 4.8)	3.8 (2.3, 5.4)	2.6 (1.3, 3.9)	1.7 (0.7, 2.7)	1.4 (0.6, 2.3)	2.0 (0.4, 3.6)	Rural
Women	Chungcheongbuk-do	Jincheon-gun	4.2 (3.5, 4.9)	6.3 (4.3, 8.2)	3.2 (1.8, 4.6)	4.0 (2.5, 5.6)	3.7 (2.3, 5.1)	3.9 (2.4, 5.5)	2.4 (0.0, 4.8)	Rural
Women	Chungcheongbuk-do	Goesan-gun	3.1 (2.5, 3.8)	3.4 (1.9, 4.9)	4.6 (2.6, 6.6)	2.7 (1.3, 4.1)	2.6 (1.4, 3.7)	2.5 (1.1, 3.8)	0.9 (-0.9, 2.7)	Rural
Women	Chungcheongbuk-do	Eumseong-gun	4.6 (3.8, 5.3)	5.8 (3.9, 7.8)	4.9 (3.2, 6.6)	4.7 (3.0, 6.5)	3.9 (2.4, 5.4)	3.5 (2.0, 5.0)	2.3 (0.0, 4.6)	Rural
Women	Chungcheongbuk-do	Danyang-gun	2.5 (1.9, 3.0)	4.1 (2.5, 5.6)	2.9 (1.6, 4.2)	1.4 (0.6, 2.2)	2.1 (0.9, 3.2)	1.9 (0.8, 2.9)	2.2 (0.3, 4.1)	Rural
Women	Chungcheongbuk-do	Jeungpyeong-gun	4.6 (3.8, 5.3)	7.2 (5.1, 9.2)	5.5 (3.7, 7.3)	4.5 (2.9, 6.1)	3.4 (2.0, 4.8)	2.3 (1.2, 3.4)	4.9 (2.6, 7.2)	Rural
Women	Chungcheongnam-do	Cheonan-si	4.0 (3.3, 4.7)	5.2 (3.5, 7.0)	5.2 (3.5, 6.9)	4.1 (2.6, 5.6)	2.9 (1.6, 4.1)	2.7 (1.5, 4.0)	2.5 (0.4, 4.6)	Metropolitan
Women	Chungcheongnam-do	Gongju-si	2.9 (2.3, 3.5)	4.4 (2.8, 6.1)	1.7 (0.7, 2.6)	2.1 (1.0, 3.2)	3.6 (2.1, 5.0)	2.7 (1.4, 4.0)	1.7 (-0.3, 3.7)	Urban
Women	Chungcheongnam-do	Boryeong-si	3.6 (3.0, 4.3)	6.7 (4.5, 8.8)	3.3 (1.8, 4.8)	2.9 (1.6, 4.2)	3.4 (1.9, 4.8)	2.1 (1.1, 3.1)	4.6 (2.4, 6.8)	Urban
Women	Chungcheongnam-do	Asan-si	3.5 (2.9, 4.2)	6.3 (4.3, 8.3)	3.0 (1.6, 4.3)	3.2 (1.8, 4.6)	3.0 (1.6, 4.4)	2.2 (1.1, 3.3)	4.1 (1.9, 6.3)	Urban
Women	Chungcheongnam-do	Seosan-si	2.8 (2.2, 3.4)	4.1 (2.5, 5.7)	3.6 (2.1, 5.0)	1.8 (0.8, 2.8)	2.9 (1.6, 4.3)	1.6 (0.7, 2.5)	2.5 (0.7, 4.3)	Urban
Women	Chungcheongnam-do	Nonsan-si	3.2 (2.6, 3.8)	6.3 (4.2, 8.4)	3.5 (2.1, 4.9)	1.6 (0.7, 2.6)	3.2 (1.9, 4.6)	1.3 (0.6, 2.1)	5.0 (2.9, 7.1)	Urban
Women	Chungcheongnam-do	Gyeryong-si	1.6 (1.2, 2.1)	3.6 (2.1, 5.0)	1.1 (0.2, 1.9)	1.3 (0.3, 2.2)	0.8 (0.1, 1.5)	1.6 (0.6, 2.5)	2.0 (0.3, 3.7)	Urban
Women	Chungcheongnam-do	Geumsan-gun	2.8 (2.2, 3.4)	3.7 (2.1, 5.3)	2.7 (1.5, 4.0)	2.9 (1.6, 4.3)	2.5 (1.3, 3.6)	2.3 (1.1, 3.4)	1.4 (-0.4, 3.2)	Rural
Women	Chungcheongnam-do	Buyeo-gun	1.9 (1.4, 2.4)	2.8 (1.4, 4.3)	1.6 (0.7, 2.4)	2.6 (1.2, 4.1)	0.9 (0.2, 1.6)	1.5 (0.4, 2.6)	1.3 (-0.3, 2.9)	Rural
Women	Chungcheongnam-do	Seocheon-gun	1.6 (1.1, 2.0)	2.3 (1.0, 3.6)	2.1 (1.0, 3.2)	1.2 (0.5, 1.9)	0.9 (0.1, 1.7)	1.5 (0.4, 2.7)	0.8 (-0.7, 2.3)	Rural
Women	Chungcheongnam-do	Cheongyang-gun	1.6 (1.2, 2.0)	2.7 (1.3, 4.0)	1.5 (0.6, 2.5)	1.4 (0.6, 2.2)	1.2 (0.3, 2.0)	1.2 (0.4, 2.1)	1.5 (0.0, 3.0)	Rural
Women	Chungcheongnam-do	Hongseong-gun	3.4 (2.8, 4.1)	6.7 (4.5, 8.8)	4.0 (2.4, 5.6)	2.7 (1.5, 4.0)	2.6 (1.4, 3.8)	1.2 (0.4, 2.0)	5.5 (3.4, 7.6)	Rural
Women	Chungcheongnam-do	Yesan-gun	3.3 (2.6, 3.9)	4.5 (2.8, 6.3)	3.0 (1.7, 4.3)	3.8 (2.2, 5.4)	2.7 (1.3, 4.2)	2.2 (0.9, 3.6)	2.3 (0.3, 4.3)	Rural
Women	Chungcheongnam-do	Taean-gun	2.5 (1.9, 3.1)	3.8 (2.1, 5.6)	3.0 (1.5, 4.5)	1.6 (0.6, 2.7)	2.4 (1.1, 3.6)	1.8 (0.6, 2.9)	2.0 (0.2, 3.8)	Rural
Women	Chungcheongnam-do	Dangjin-si	3.8 (3.1, 4.5)	5.7 (3.8, 7.5)	2.6 (1.4, 3.8)	3.8 (2.3, 5.4)	2.3 (1.2, 3.5)	4.7 (3.0, 6.5)	1.0 (-1.4, 3.4)	Urban
Women	Jeollabuk-do	Jeonju-si	2.1 (1.6, 2.6)	4.6 (3.0, 6.2)	3.1 (1.9, 4.4)	1.1 (0.3, 1.8)	1.1 (0.4, 1.9)	0.8 (0.1, 1.5)	3.8 (2.1, 5.5)	Metropolitan
Women	Jeollabuk-do	Gunsan-si	2.9 (2.3, 3.5)	5.8 (3.9, 7.7)	1.9 (0.8, 2.9)	1.7 (0.7, 2.6)	2.6 (1.4, 3.8)	2.8 (1.5, 4.1)	3.0 (0.8, 5.2)	Urban
Women	Jeollabuk-do	Iksan-si	1.8 (1.4, 2.3)	3.9 (2.5, 5.3)	2.2 (1.1, 3.3)	1.5 (0.6, 2.4)	0.5 (0.0, 1.0)	1.0 (0.2, 1.7)	2.9 (1.3, 4.5)	Urban
Women	Jeollabuk-do	Jeongeup-si	2.3 (1.8, 2.9)	2.8 (1.5, 4.1)	2.4 (1.2, 3.6)	3.2 (1.7, 4.7)	1.8 (0.7, 2.8)	1.7 (0.6, 2.7)	1.1 (-0.5, 2.7)	Urban
Women	Jeollabuk-do	Namwon-si	2.4 (1.9, 3.0)	4.0 (2.4, 5.5)	2.2 (1.1, 3.2)	1.6 (0.6, 2.6)	2.8 (1.6, 4.1)	1.5 (0.7, 2.4)	2.5 (0.8, 4.2)	Urban
Women	Jeollabuk-do	Gimje-si	1.5 (1.1, 2.0)	1.9 (0.7, 3.1)	1.1 (0.2, 1.9)	2.5 (1.2, 3.8)	1.7 (0.6, 2.7)	0.5 (0.1, 0.8)	1.4 (0.2, 2.6)	Urban
Women	Jeollabuk-do	Wanju-gun	1.9 (1.4, 2.3)	3.7 (2.3, 5.2)	2.5 (1.3, 3.7)	1.3 (0.5, 2.1)	1.2 (0.4, 2.1)	0.7 (0.1, 1.4)	3.0 (1.4, 4.6)	Rural
Women	Jeollabuk-do	Jinan-gun	1.4 (1.0, 1.9)	2.4 (1.0, 3.7)	1.7 (0.7, 2.7)	1.0 (0.4, 1.6)	0.8 (0.1, 1.5)	1.4 (0.5, 2.4)	1.0 (-0.5, 2.5)	Rural
Women	Jeollabuk-do	Muju-gun	2.0 (1.5, 2.5)	3.6 (1.9, 5.3)	2.1 (1.0, 3.3)	2.0 (0.8, 3.2)	1.1 (0.5, 1.7)	1.1 (0.2, 2.0)	2.5 (0.9, 4.1)	Rural
Women	Jeollabuk-do	Jangsu-gun	2.0 (1.5, 2.5)	3.1 (1.6, 4.6)	0.7 (0.3, 1.2)	2.8 (1.3, 4.2)	2.2 (0.8, 3.6)	1.1 (0.5, 1.8)	2.0 (0.4, 3.6)	Rural
Women	Jeollabuk-do	Imsil-gun	1.1 (0.8, 1.4)	1.5 (0.5, 2.4)	1.4 (0.5, 2.2)	0.9 (0.3, 1.6)	0.8 (0.2, 1.4)	0.8 (0.3, 1.4)	0.7 (-0.4, 1.8)	Rural
Women	Jeollabuk-do	Sunchang-gun	1.3 (0.9, 1.7)	2.6 (1.3, 3.9)	0.8 (0.3, 1.4)	1.2 (0.3, 2.0)	0.8 (0.2, 1.3)	1.2 (0.4, 2.1)	1.4 (0.0, 2.8)	Rural
Women	Jeollabuk-do	Gochang-gun	2.1 (1.6, 2.6)	3.0 (1.6, 4.3)	2.0 (0.9, 3.2)	1.8 (0.8, 2.8)	1.8 (0.7, 3.0)	2.0 (0.7, 3.2)	1.0 (-0.7, 2.7)	Rural
Women	Jeollabuk-do	Buan-gun	1.7 (1.3, 2.2)	4.3 (2.5, 6.2)	1.7 (0.8, 2.6)	1.2 (0.4, 2.1)	1.0 (0.3, 1.6)	0.7 (0.1, 1.3)	3.6 (2.0, 5.2)	Rural
Women	Jeollanam-do	Naju-si	1.8 (1.3, 2.2)	2.6 (1.2, 4.0)	2.2 (1.0, 3.3)	0.8 (0.1, 1.5)	1.5 (0.5, 2.5)	1.8 (0.6, 3.0)	0.8 (-0.8, 2.4)	Urban
Women	Jeollanam-do	Mokpo-si	2.2 (1.7, 2.7)	4.5 (2.9, 6.1)	1.9 (0.9, 3.0)	2.3 (1.2, 3.4)	1.3 (0.4, 2.1)	1.0 (0.3, 1.8)	3.5 (1.8, 5.2)	Urban
Women	Jeollanam-do	Yeosu-si	2.2 (1.7, 2.7)	4.3 (2.7, 5.9)	1.9 (0.9, 3.0)	1.5 (0.6, 2.3)	1.3 (0.5, 2.1)	1.7 (0.8, 2.7)	2.6 (0.8, 4.4)	Urban
Women	Jeollanam-do	Suncheon-si	1.6 (1.2, 2.1)	1.9 (0.8, 2.9)	1.8 (0.8, 2.8)	2.3 (1.1, 3.4)	1.4 (0.5, 2.3)	1.0 (0.2, 1.8)	0.9 (-0.4, 2.2)	Urban
Women	Jeollanam-do	Gwangyang-si	2.1 (1.6, 2.6)	3.7 (2.2, 5.2)	2.3 (1.2, 3.4)	1.7 (0.7, 2.7)	1.6 (0.7, 2.6)	1.0 (0.3, 1.8)	2.7 (1.1, 4.3)	Urban
Women	Jeollanam-do	Damyang-gun	1.7 (1.2, 2.1)	2.0 (0.9, 3.2)	2.1 (1.0, 3.3)	1.8 (0.6, 3.1)	1.3 (0.4, 2.1)	1.0 (0.4, 1.6)	1.0 (-0.3, 2.3)	Rural
Women	Jeollanam-do	Gokseong-gun	1.5 (1.1, 2.0)	2.6 (1.2, 4.0)	1.1 (0.5, 1.7)	1.1 (0.4, 1.9)	1.3 (0.4, 2.2)	1.8 (0.7, 3.0)	0.8 (-0.8, 2.4)	Rural
Women	Jeollanam-do	Gurye-gun	1.1 (0.7, 1.4)	0.5 (0.1, 0.9)	1.6 (0.7, 2.6)	1.5 (0.5, 2.5)	0.7 (0.2, 1.1)	1.0 (0.2, 1.8)	-0.5 (-1.4, 0.4)	Rural
Women	Jeollanam-do	Goheung-gun	0.8 (0.4, 1.2)	0.6 (0.0, 1.2)	0.9 (0.0, 1.9)	0.9 (0.2, 1.6)	1.3 (0.0, 2.5)	0.4 (0.0, 1.0)	0.2 (-0.5, 0.9)	Rural
Women	Jeollanam-do	Boseong-gun	1.0 (0.7, 1.4)	1.8 (0.6, 2.9)	1.2 (0.4, 2.0)	0.6 (0.0, 1.2)	0.5 (0.1, 1.0)	1.1 (0.2, 2.0)	0.7 (-0.6, 2.0)	Rural
Women	Jeollanam-do	Hwasun-gun	2.2 (1.7, 2.7)	2.7 (1.5, 4.0)	2.2 (1.1, 3.3)	2.5 (1.3, 3.7)	2.3 (1.2, 3.4)	1.4 (0.5, 2.2)	1.3 (-0.2, 2.8)	Rural
Women	Jeollanam-do	Jangheung-gun	1.0 (0.6, 1.3)	2.7 (1.2, 4.2)	0.8 (0.1, 1.5)	0.8 (0.1, 1.5)	0.6 (0.1, 1.1)	0.2 (0.0, 0.4)	2.5 (1.2, 3.8)	Rural

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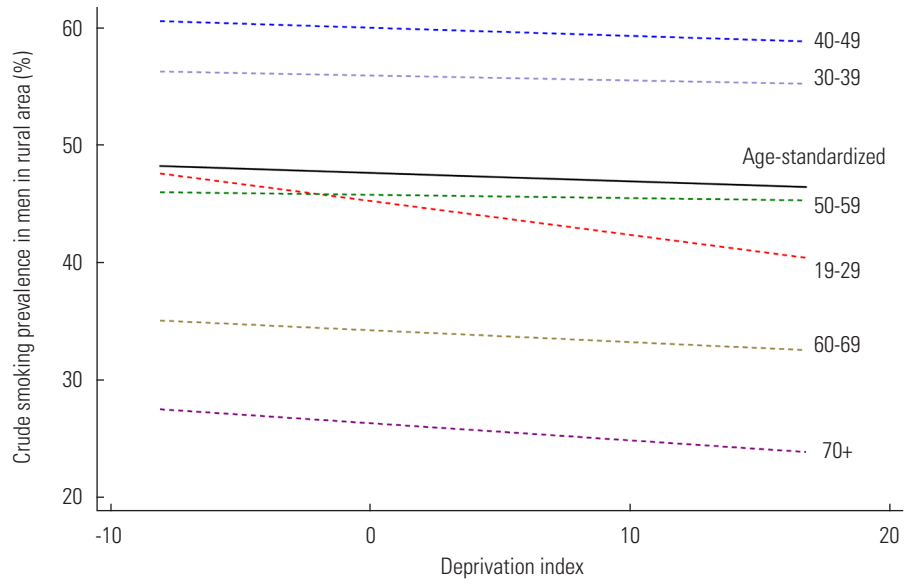
Supplemental Table 3. Continued from the previous page

Gender	Provinces	Districts	Overall	Q1 (lowest)	Q2	Q3	Q4	Q5 (highest)	Q1-Q5	Urbanity
Women	Jeollanam-do	Gangjin-gun	1.1 (0.7, 1.4)	1.3 (0.4, 2.3)	0.8 (0.0, 1.5)	1.7 (0.6, 2.7)	0.9 (0.2, 1.7)	0.7 (0.0, 1.5)	0.6 (-0.4, 1.6)	Rural
Women	Jeollanam-do	Haenam-gun	1.5 (1.0, 2.0)	2.7 (1.1, 4.3)	1.4 (0.4, 2.3)	0.5 (0.0, 1.0)	1.8 (0.7, 3.0)	1.1 (0.1, 2.2)	1.6 (0.2, 3.0)	Rural
Women	Jeollanam-do	Yeongam-gun	1.4 (0.9, 1.8)	2.1 (0.9, 3.3)	1.5 (0.5, 2.5)	0.5 (0.0, 1.0)	1.6 (0.6, 2.7)	1.0 (0.2, 1.8)	1.1 (-0.2, 2.4)	Rural
Women	Jeollanam-do	Muan-gun	0.8 (0.5, 1.1)	0.9 (0.1, 1.6)	1.8 (0.7, 2.9)	0.6 (0.0, 1.2)	0.2 (0.0, 0.4)	0.5 (0.1, 0.9)	0.4 (-0.5, 1.3)	Rural
Women	Jeollanam-do	Hampyeong-gun	1.8 (1.3, 2.3)	1.7 (0.6, 2.8)	2.0 (0.8, 3.3)	2.2 (0.8, 3.6)	2.0 (0.7, 3.2)	1.0 (0.2, 1.8)	0.7 (-0.5, 1.9)	Rural
Women	Jeollanam-do	Yeonggwang-gun	2.8 (2.1, 3.4)	4.7 (2.8, 6.7)	2.1 (1.0, 3.2)	3.5 (1.8, 5.1)	1.4 (0.5, 2.3)	2.6 (1.2, 4.0)	2.1 (0.1, 4.1)	Rural
Women	Jeollanam-do	Jangseong-gun	1.2 (0.8, 1.6)	1.0 (0.3, 1.7)	2.2 (1.0, 3.5)	0.9 (0.2, 1.6)	1.5 (0.6, 2.5)	0.2 (0.0, 0.5)	0.8 (0.0, 1.6)	Rural
Women	Jeollanam-do	Wando-gun	1.2 (0.8, 1.7)	2.5 (1.0, 4.0)	1.6 (0.5, 2.7)	0.6 (0.0, 1.3)	0.4 (0.1, 0.8)	1.1 (0.1, 2.1)	1.4 (0.0, 2.8)	Rural
Women	Jeollanam-do	Jindo-gun	1.5 (1.0, 1.9)	2.9 (1.3, 4.5)	1.0 (0.2, 1.8)	1.2 (0.3, 2.1)	0.9 (0.1, 1.7)	1.4 (0.3, 2.4)	1.5 (0.0, 3.0)	Rural
Women	Jeollanam-do	Sinan-gun	1.0 (0.5, 1.4)	0.4 (0.0, 1.0)	0.5 (0.0, 1.4)	1.6 (0.4, 2.8)	1.6 (0.2, 2.9)	0.7 (0.0, 1.6)	-0.3 (-1.1, 0.5)	Rural
Women	Gyeongsangbuk-do	Nam-gu	4.0 (3.4, 4.7)	7.2 (5.2, 9.3)	4.0 (2.5, 5.5)	4.1 (2.6, 5.7)	3.0 (1.7, 4.3)	1.7 (0.7, 2.7)	5.5 (3.3, 7.7)	Metropolitan
Women	Gyeongsangbuk-do	Buk-gu	2.3 (1.8, 2.8)	4.4 (2.8, 6.0)	2.8 (1.5, 4.0)	2.4 (1.3, 3.5)	1.5 (0.6, 2.3)	0.7 (0.1, 1.4)	3.7 (2.0, 5.4)	Metropolitan
Women	Gyeongsangbuk-do	Gyeongju-si	3.0 (2.4, 3.5)	3.4 (2.1, 4.7)	4.4 (2.8, 5.9)	2.5 (1.3, 3.6)	2.1 (1.1, 3.2)	2.6 (1.5, 3.8)	0.8 (-1.0, 2.6)	Urban
Women	Gyeongsangbuk-do	Gimcheon-si	2.9 (2.4, 3.5)	4.5 (2.9, 6.1)	4.4 (2.8, 5.9)	2.6 (1.4, 3.8)	1.6 (0.7, 2.5)	1.6 (0.7, 2.5)	2.9 (1.1, 4.7)	Urban
Women	Gyeongsangbuk-do	Andong-si	3.0 (2.5, 3.6)	7.1 (4.9, 9.3)	3.6 (2.2, 5.0)	2.5 (1.3, 3.7)	1.2 (0.5, 2.0)	1.2 (0.4, 1.9)	5.9 (3.8, 8.0)	Urban
Women	Gyeongsangbuk-do	Gumi-si	4.4 (3.9, 4.9)	6.2 (4.7, 7.6)	5.9 (4.6, 7.2)	5.2 (3.9, 6.5)	2.4 (1.5, 3.2)	2.7 (1.8, 3.5)	3.5 (1.9, 5.1)	Urban
Women	Gyeongsangbuk-do	Yeongju-si	2.7 (2.1, 3.2)	4.1 (2.4, 5.7)	2.9 (1.7, 4.0)	3.0 (1.6, 4.3)	2.3 (1.2, 3.4)	1.2 (0.4, 2.0)	2.9 (1.2, 4.6)	Urban
Women	Gyeongsangbuk-do	Yeongcheon-si	3.3 (2.7, 3.9)	4.2 (2.7, 5.7)	3.4 (2.0, 4.7)	3.9 (2.3, 5.5)	3.2 (1.8, 4.5)	1.8 (0.9, 2.7)	2.4 (0.6, 4.2)	Urban
Women	Gyeongsangbuk-do	Sangju-si	2.1 (1.6, 2.6)	4.0 (2.4, 5.6)	2.4 (1.4, 3.4)	1.7 (0.7, 2.8)	1.2 (0.5, 1.9)	1.0 (0.3, 1.7)	3.0 (1.4, 4.6)	Urban
Women	Gyeongsangbuk-do	Mungyeong-si	2.7 (2.1, 3.2)	4.1 (2.4, 5.7)	2.0 (1.1, 3.0)	3.3 (1.8, 4.8)	2.9 (1.6, 4.2)	1.4 (0.7, 2.1)	2.7 (0.9, 4.5)	Urban
Women	Gyeongsangbuk-do	Gyeongsan-si	2.4 (1.9, 2.9)	3.9 (2.4, 5.4)	1.7 (0.7, 2.6)	1.8 (0.8, 2.8)	2.0 (0.9, 3.0)	2.5 (1.3, 3.6)	1.4 (-0.5, 3.3)	Urban
Women	Gyeongsangbuk-do	Gunwi-gun	1.3 (0.9, 1.7)	1.9 (1.0, 2.9)	1.7 (0.9, 2.6)	1.0 (0.3, 1.7)	1.4 (0.2, 2.5)	0.7 (0.1, 1.3)	1.2 (0.0, 2.4)	Rural
Women	Gyeongsangbuk-do	Uiseong-gun	1.3 (0.9, 1.8)	3.3 (1.4, 5.2)	0.8 (0.3, 1.3)	1.5 (0.6, 2.4)	0.7 (0.1, 1.4)	0.4 (0.0, 0.8)	2.9 (1.4, 4.4)	Rural
Women	Gyeongsangbuk-do	Cheongsong-gun	1.8 (1.3, 2.3)	3.0 (1.6, 4.5)	0.9 (0.2, 1.7)	3.0 (1.3, 4.6)	1.3 (0.2, 2.3)	0.9 (0.4, 1.4)	2.1 (0.6, 3.6)	Rural
Women	Gyeongsangbuk-do	Yeongyang-gun	1.8 (1.3, 2.3)	1.8 (0.8, 2.9)	3.1 (1.6, 4.7)	1.3 (0.3, 2.2)	1.5 (0.3, 2.7)	1.2 (0.5, 1.9)	0.6 (-0.7, 1.9)	Rural
Women	Gyeongsangbuk-do	Yeongdeok-gun	1.7 (1.2, 2.2)	2.6 (1.2, 4.1)	2.4 (1.1, 3.8)	1.5 (0.4, 2.6)	1.2 (0.4, 1.9)	0.8 (0.1, 1.6)	1.8 (0.5, 3.1)	Rural
Women	Gyeongsangbuk-do	Cheongdo-gun	2.6 (2.1, 3.2)	4.6 (3.0, 6.3)	2.6 (1.6, 3.7)	1.7 (0.7, 2.7)	2.1 (0.9, 3.4)	2.0 (0.8, 3.1)	2.6 (0.7, 4.5)	Rural
Women	Gyeongsangbuk-do	Goryeong-gun	2.3 (1.8, 2.8)	3.0 (1.6, 4.3)	3.2 (1.9, 4.5)	2.5 (1.3, 3.6)	2.1 (1.0, 3.2)	0.8 (0.3, 1.3)	2.2 (0.7, 3.7)	Rural
Women	Gyeongsangbuk-do	Seongju-gun	2.8 (2.3, 3.4)	5.3 (3.5, 7.0)	3.1 (1.7, 4.4)	2.9 (1.7, 4.1)	1.2 (0.3, 2.0)	1.6 (0.8, 2.4)	3.7 (1.8, 5.6)	Rural
Women	Gyeongsangbuk-do	Chilgok-gun	3.9 (3.2, 4.6)	4.1 (2.5, 5.6)	4.5 (2.9, 6.1)	4.3 (2.7, 5.8)	3.3 (1.9, 4.6)	3.5 (2.1, 4.8)	0.6 (-1.4, 2.6)	Rural
Women	Gyeongsangbuk-do	Yecheon-gun	2.3 (1.7, 2.8)	2.4 (1.1, 3.7)	2.7 (1.4, 4.0)	3.1 (1.6, 4.6)	1.7 (0.7, 2.7)	1.5 (0.8, 2.2)	0.9 (-0.6, 2.4)	Rural
Women	Gyeongsangbuk-do	Bonghwa-gun	2.0 (1.5, 2.5)	2.6 (1.3, 3.9)	2.0 (1.1, 3.0)	1.1 (0.2, 2.0)	2.9 (1.3, 4.6)	1.2 (0.4, 2.0)	1.4 (-0.1, 2.9)	Rural
Women	Gyeongsangbuk-do	Uljin-gun	2.2 (1.7, 2.8)	2.5 (1.2, 3.7)	1.3 (0.4, 2.1)	2.1 (1.0, 3.2)	2.0 (0.8, 3.2)	3.5 (1.8, 5.2)	-1.0 (-2.8, 0.8)	Rural
Women	Gyeongsangbuk-do	Ulleung-gun	2.7 (2.0, 3.3)	2.3 (1.0, 3.7)	3.6 (1.9, 5.2)	2.9 (1.4, 4.4)	1.6 (0.5, 2.7)	3.2 (1.5, 4.9)	-0.9 (-2.8, 1.0)	Rural
Women	Gyeongsangnam-do	Changwon-si	2.6 (2.0, 3.1)	4.1 (2.5, 5.7)	3.9 (2.3, 5.5)	2.1 (0.9, 3.2)	2.1 (0.9, 3.2)	0.7 (0.0, 1.4)	3.4 (1.8, 5.0)	Metropolitan
Women	Gyeongsangnam-do	Masan-si	3.5 (2.9, 4.1)	5.3 (3.5, 7.0)	4.5 (3.0, 6.1)	1.9 (0.9, 2.9)	3.8 (2.4, 5.2)	1.9 (1.0, 2.9)	3.4 (1.5, 5.3)	Metropolitan
Women	Gyeongsangnam-do	Jinju-si	3.7 (3.1, 4.4)	6.5 (4.6, 8.4)	5.5 (3.8, 7.2)	2.0 (1.0, 3.1)	2.6 (1.5, 3.7)	2.3 (1.2, 3.3)	4.2 (2.1, 6.3)	Urban
Women	Gyeongsangnam-do	Jinhae-si	2.8 (2.2, 3.4)	5.1 (3.3, 6.8)	2.2 (1.1, 3.4)	2.8 (1.6, 4.1)	2.3 (1.2, 3.4)	1.7 (0.7, 2.7)	3.4 (1.4, 5.4)	Metropolitan
Women	Gyeongsangnam-do	Tongyeong-si	4.2 (3.5, 4.9)	8.7 (6.5, 11.0)	3.6 (2.3, 5.0)	2.9 (1.6, 4.1)	3.8 (2.4, 5.2)	2.0 (1.0, 3.0)	6.7 (4.3, 9.1)	Urban
Women	Gyeongsangnam-do	Sacheon-si	2.6 (2.0, 3.1)	3.9 (2.4, 5.4)	2.6 (1.4, 3.8)	2.9 (1.6, 4.2)	1.8 (0.8, 2.7)	1.6 (0.8, 2.4)	2.3 (0.6, 4.0)	Urban
Women	Gyeongsangnam-do	Gimhae-si	3.0 (2.4, 3.6)	5.3 (3.6, 7.0)	3.0 (1.7, 4.3)	3.0 (1.7, 4.3)	2.4 (1.2, 3.6)	1.3 (0.4, 2.2)	4.0 (2.1, 5.9)	Urban
Women	Gyeongsangnam-do	Miryang-si	3.1 (2.5, 3.7)	5.9 (4.2, 7.6)	3.9 (2.4, 5.4)	1.9 (0.9, 2.9)	2.1 (1.1, 3.2)	1.6 (0.7, 2.5)	4.3 (2.3, 6.3)	Urban
Women	Gyeongsangnam-do	Geoje-si	3.4 (2.7, 4.0)	6.3 (4.3, 8.3)	3.1 (1.7, 4.5)	2.4 (1.2, 3.6)	3.2 (1.7, 4.6)	2.1 (0.9, 3.2)	4.2 (2.0, 6.4)	Urban
Women	Gyeongsangnam-do	Yongsan-si	2.7 (2.1, 3.2)	4.2 (2.7, 5.7)	2.1 (1.0, 3.2)	3.0 (1.7, 4.3)	1.8 (0.8, 2.8)	2.4 (1.2, 3.5)	1.8 (-0.1, 3.7)	Urban
Women	Gyeongsangnam-do	Uiryeong-gun	2.5 (1.9, 3.1)	3.7 (1.9, 5.5)	3.4 (1.6, 5.2)	2.4 (1.2, 3.7)	1.8 (0.8, 2.7)	1.3 (0.4, 2.2)	2.4 (0.8, 4.0)	Rural
Women	Gyeongsangnam-do	Haman-gun	2.3 (1.8, 2.8)	4.2 (2.7, 5.7)	1.8 (0.9, 2.7)	1.9 (0.9, 2.9)	1.9 (0.9, 2.8)	1.8 (0.9, 2.8)	2.4 (0.6, 4.2)	Rural
Women	Gyeongsangnam-do	Changnyeong-gun	2.5 (2.0, 3.0)	3.4 (2.0, 4.7)	2.3 (1.3, 3.3)	2.8 (1.5, 4.0)	1.9 (1.0, 2.9)	2.4 (1.3, 3.5)	1.0 (-0.8, 2.8)	Rural
Women	Gyeongsangnam-do	Goseong-gun	3.6 (3.0, 4.3)	6.6 (4.6, 8.6)	1.7 (0.9, 2.5)	4.5 (2.8, 6.2)	3.3 (1.9, 4.7)	2.0 (1.1, 2.9)	4.6 (2.5, 6.7)	Rural
Women	Gyeongsangnam-do	Namhae-gun	2.1 (1.5, 2.6)	2.3 (1.2, 3.5)	3.1 (1.6, 4.6)	1.5 (0.7, 2.4)	1.5 (0.5, 2.5)	1.7 (0.6, 2.8)	0.6 (-0.9, 2.1)	Rural
Women	Gyeongsangnam-do	Hadong-gun	3.0 (2.4, 3.6)	4.5 (2.7, 6.3)	2.8 (1.6, 4.1)	3.3 (1.9, 4.7)	1.8 (0.9, 2.7)	2.4 (1.3, 3.5)	2.1 (0.2, 4.0)	Rural
Women	Gyeongsangnam-do	Sancheong-gun	2.6 (2.0, 3.1)	3.4 (2.0, 4.8)	2.8 (1.7, 4.0)	3.4 (1.8, 4.9)	1.9 (0.8, 3.1)	1.4 (0.8, 2.0)	2.0 (0.4, 3.6)	Rural
Women	Gyeongsangnam-do	Hamyang-gun	2.0 (1.5, 2.4)	2.2 (1.1, 3.3)	3.1 (1.7, 4.5)	1.8 (1.0, 2.6)	1.4 (0.7, 2.1)	1.3 (0.7, 2.0)	0.9 (-0.5, 2.3)	Rural
Women	Gyeongsangnam-do	Geochang-gun	2.6 (2.1, 3.1)	4.5 (2.8, 6.2)	1.8 (0.9, 2.8)	2.4 (1.3, 3.5)	2.4 (1.2, 3.5)	1.9 (0.9, 2.8)	2.6 (0.8, 4.4)	Rural
Women	Gyeongsangnam-do	Hapcheon-gun	2.2 (1.7, 2.8)	2.1 (1.1, 3.1)	4.4 (2.6, 6.3)	2.4 (1.2, 3.7)	1.4 (0.6, 2.1)	1.0 (0.5, 1.5)	1.1 (-0.2, 2.4)	Rural
Women	Jeju-do	Jeju-si	3.5 (3.1, 3.9)	7.2 (5.9, 8.5)	4.2 (3.2, 5.2)	2.7 (1.9, 3.4)	2.2 (1.5, 2.8)	1.9 (1.3, 2.5)	5.3 (4.0, 6.6)	Urban
Women	Jeju-do	Seogwipo-si	3.0 (2.6, 3.3)	4.5 (3.4, 5.5)	4.1 (3.1, 5.2)	2.5 (1.7, 3.2)	2.3 (1.6, 3.0)	1.5 (0.9, 2.1)	3.0 (1.9, 4.1)	Urban

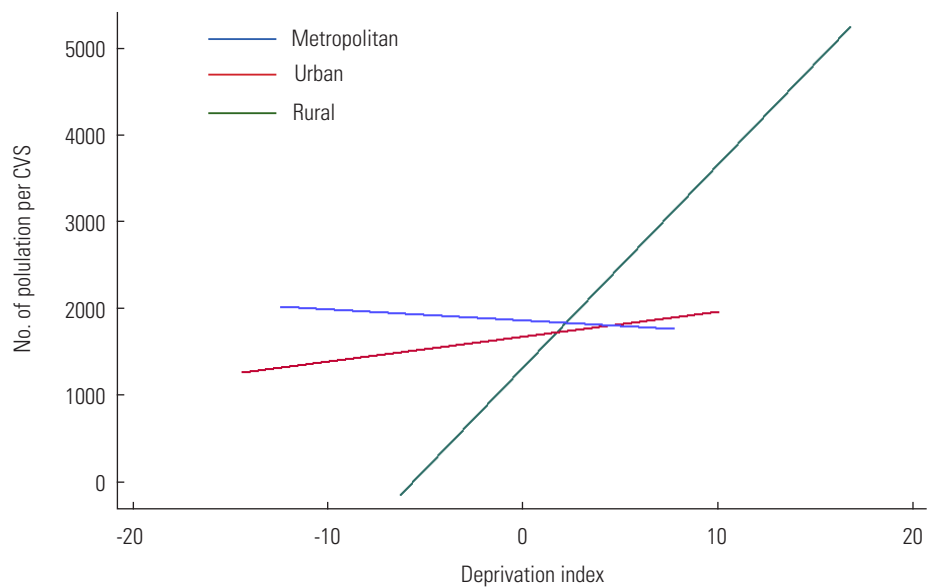
Source from the Community Health Survey in South Korea, 2008-2014.



Supplemental Figure 1. Linear regression lines for the association of area deprivation index with age-adjusted smoking prevalence in the highest and lowest income quintiles in Korean men (A) and women (B). Source from the Community Health Survey in Korea, 2008-2014.



Supplemental Figure 2. Associations of area deprivation index and age-group specific smoking prevalences among men in rural areas. Source from Community Health Survey in Korea, 2008-2014.



Supplemental Figure 3. Associations of the area deprivation index with the number of population per each convenience store. Source from Korea Association of Convenience Store Industry and Statistics Korea, 2012. CVS, convenience store.