**Table 1**. Descriptive statistics for measures in a population-based analysis of the sample

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Characteristics | Categories | Sample | Range | | Mean a |
| Min | Max |
| Individual-level (L1, N=6909) |  |  |  |  |  |
| Region, % | Town | 2282 |  |  | 33.0% |
|  | City | 2362 |  |  | 34.2% |
|  | Metropolis | 2265 |  |  | 32.8% |
| Gender, % | Men | 3341 |  |  | 48.4% |
|  | Women | 3568 |  |  | 51.6% |
| Age (yrs) | 20-29 | 1113 |  |  | 16.1% |
|  | 30-39 | 1995 |  |  | 28.9% |
|  | 40-49 | 2094 |  |  | 30.3% |
|  | 50-59 | 1164 |  |  | 16.8% |
|  | >=60 | 543 |  |  | 7.9% |
| Educational attainment | Elementary school | 25 |  |  | 0.4% |
|  | Middle school | 52 |  |  | 0.8% |
|  | High school | 1686 |  |  | 24.4% |
|  | College | 4499 |  |  | 65.1% |
|  | Postgraduate | 647 |  |  | 9.4% |
| Annual income (KRW)b | >10000K | 1312 |  |  | 19.0% |
|  | 10000~19999K | 815 |  |  | 11.8% |
|  | 20000~29999K | 1406 |  |  | 20.4% |
|  | 30000~39999K | 1181 |  |  | 17.1% |
|  | 40000~49999K | 740 |  |  | 10.7% |
|  | 50000~59999K | 566 |  |  | 8.2% |
|  | 60000~69999K | 331 |  |  | 4.8% |
|  | 70000~79999K | 232 |  |  | 3.4% |
|  | 80000~89999K | 135 |  |  | 2.0% |
|  | 90000~99999K | 81 |  |  | 1.2% |
|  | >100000K | 110 |  |  | 1.6% |
| Self-rated health status | High | 4285 |  |  | 62.0% |
|  | Low | 2624 |  |  | 38.0% |
| Community-level (L2, J=229)c |  |  |  |  |  |
| NBMI (2017) |  | 228 | 0.02 | 67.7 | 14.87 (±9.81) |
| GRDP (2016) |  | 223 | 287K | 59981K | 7166K (±9064K) |
| TFR (2017) |  | 227 | 0.646 | 2.099 | 1.16 (±0.262) |
| NFMC (2017) |  | 226 | 8 | 13471 | 2069.7 (±2128.5) |
| ROPH (2017) |  | 229 | 18.5 | 46.0 | 30.8 (±5.2) |

a Continuous variables are presented in mean (standard deviation) and categorical variables in percent (%).

b Equivalized annual income; KRW (Korean Won) 10000K = USD $8253.82 (Feb, 2020).

c NBMI (the number of beds of medical institution per 1,000 people; GRDP (gross regional domestic product); TFR (the total fertility rate); NFMC (the number of four major crime); ROPH(the ratio of one-person households)

**Table 2**. Results of factor and reliability analyses on social integration

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Factor | Item | Factor Loading | | | | | | Reliability  (Cronbach a) |
| 1 | 2 | 3 | 4 | 5 | 6 |
| Social Communication | Interfamily communication | 0.839 |  |  |  |  |  | 0.736 |
| Communication between employees | 0.832 |  |  |  |  |  |  |
| Communication between neighbors | 0.653 |  |  |  |  |  |  |
| Intergenerational communication | 0.625 |  |  |  |  |  |  |
| Political Participation | Present opinions to the government or the press |  | 0.818 |  |  |  |  | 0.832 |
| Post any comments on the online bulletin board |  | 0.811 |  |  |  |  |  |
| Submit a petition |  | 0.728 |  |  |  |  |  |
| File a complaint with a civil servant |  | 0.705 |  |  |  |  |  |
| Participate in demonstrations or rally |  | 0.683 |  |  |  |  |  |
| Social Participation  (neighborhood) | Lending tools from neighbors |  |  | 0.901 |  |  |  | 0.873 |
| Get help from neighbors |  |  | 0.886 |  |  |  |  |
| Have a casual conversation with neighbors |  |  | 0.842 |  |  |  |  |
| Visiting the neighbor unofficially |  |  | 0.766 |  |  |  |  |
| Social Participation  (organization) | Volunteer organization |  |  |  | 0.735 |  |  | 0.821 |
| Community public organization (neighborhood associations, etc.) |  |  |  | 0.715 |  |  |  |
| Club (sports, leisure, culture, etc.) |  |  |  | 0.698 |  |  |  |
| Social gathering (reunion, hometown alumni, etc.) |  |  |  | 0.682 |  |  |  |
| Self-improvement groups (certification, etc.) |  |  |  | 0.659 |  |  |  |
| Socioeconomic organization (cooperative society, etc.) |  |  |  | 0.654 |  |  |  |
| Civic organization |  |  |  | 0.594 |  |  |  |
| Social Inclusion  (in-network) | The villagers get together well |  |  |  |  | 0.887 |  | 0.841 |
| The villagers help their neighbors well |  |  |  |  | 0.873 |  |  |
| The villagers are reliable |  |  |  |  | 0.847 |  |  |
| Social Inclusion  (out-of-network) | Stranger |  |  |  |  |  | 0.881 | 0.736 |
| Foreigners living in domestic |  |  |  |  |  | 0.868 |  |
| Neighborhood |  |  |  |  |  | 0.617 |  |
| Eigen-value | | 2.019 | 4.095 | 2.535 | 5.749 | 1.893 | 1.294 |  |
| The Explained Variance (%) | | 57.24 | 46.59 | 73.02 | 40.70 | 49.11 | 45.57 |  |

**Table 3**. Multilevel model analyses affecting low-SRH status a

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Model  parameter | | Model I  (unconditional) | | Model II  (unconditional slope) | | Model III  (conditional) | |
| OR | 95% CI | OR | 95% CI | OR | 95% CI |
| Level 1 | Intercept, γ00 | 0.619 | (0.586-0.654) | 0.585 | (0.551-0.620) | 0.584 | (0.551-0.618) |
| Social Communication |  |  | 0.612e | (0.576-0.650) | 0.611e | (0.576-0.649) |
| Political Participation |  |  | 1.110e | (1.046-1.170) | 1.107e | (1.046-1.170) |
| Social Participation (neighbors) |  |  | 1.132e | (1.065-1.203) | 1.132e | (1.065-1.204) |
| Social Participation  (organizations) |  |  | 0.855e | (0.807-0.905) | 0.853e | (0.806-0.905) |
| Social Inclusion  (in-network) |  |  | 0.798e | (0.752-0.846) | 0.797e | (0.752-0.846) |
| Social Inclusion  (out-of-network) |  |  | 0.689e | (0.652-0.727) | 0.687e | (0.650-0.726) |
| Level 2b | NBMI |  |  |  |  | 1.071c | (1.001-1.145) |
| GRDP |  |  |  |  | 0.917c | (0.839-0.993) |
| TFR |  |  |  |  | 0.985 | (0.924-1.051) |
| NFMC |  |  |  |  | 1.096c | (1.038-1.240) |
| ROPH |  |  |  |  | 0.989c | (0.882-0.990) |

a The gender, age, education, income, and residence type (city districts) of the respondents were adjusted.

b NBMI (the number of beds of medical institution per 1,000 people; GRDP (gross regional domestic product); TFR (the total fertility rate); NFMC (the number of four major crime); ROPH(the ratio of one-person households)

c: p<0.05; d: p<0.01; ee: p<0.001