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| Supplementary Material 1. General characteristics of study population in men and women |
| Variables | Total (n=580) | Men(n=238) | Women(n=342) | p-value |
| MMSE-K | 25 | [22, 27] | 26 | [24, 28] | 24 | [20, 27] | <0.001 |
| Gender role score | 6.8  | ± | 1.7  | 6.6  | ± | 1.9  | 6.9  | ± | 1.6  | 0.096  |
| Patriarchal mindset score | 13.7  | ± | 5.9  | 14.0  | ± | 6.3  | 13.6  | ± | 5.5  | 0.442  |
| Age, yr | 72.6  | ± | 7.0  | 73.1  | ± | 6.4  | 72.3  | ± | 7.4  | 0.196  |
| Household income, KRW | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
|  < 10,000,000  | 314 | (54.1) | 109 | (45.8) | 205 | (59.9) | <0.001 |
|  < 20,000,000  | 124 | (21.4) | 59 | (24.8) | 65 | (19.0) | 　 |
|  < 30,000,000  | 53 | (9.1) | 27 | (11.3) | 26 | (7.6) | 　 |
|  ≥ 30,000,000  | 46 | (7.9) | 29 | (12.2) | 17 | (5.0) | 　 |
| Education  | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
|  Less than elementary school | 197 | (34.0) | 21 | (8.8) | 176 | (51.5) | <0.001 |
|  Elementary school | 224 | (38.6) | 106 | (44.5) | 118 | (34.5) | 　 |
|  Middle school | 79 | (13.6) | 55 | (23.1) | 24 | (7.0) | 　 |
|  High school | 55 | (9.5) | 37 | (15.6) | 18 | (5.3) | 　 |
|  College + | 25 | (4.3) | 19 | (8.0) | 6 | (1.8) | 　 |
| Hypertension | 284 | (49.3) | 97 | (41.1) | 187 | (55.0) | 0.001  |
| physical activity  | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| <1/week | 280 | (48.3) | 104 | (43.7) | 177 | (51.5) | 0.013  |
| 1-4/week | 66 | (11.4) | 30 | (12.6) | 36 | (10.5) | 　 |
| 5/week or more | 71 | (12.2) | 41 | (17.2) | 30 | (8.8) | 　 |
| Social relationship | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
|  Social network size≤3 | 353 | (61.3) | 136 | (57.6) | 217 | (63.8) | 0.134  |
|  Social network size>3 | 223 | (38.7) | 100 | (42.4) | 123 | (36.2) | 　 |
| Relationship with a spouse | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
|  Weak | 294 | (50.7) | 82 | (34.5) | 212 | (62.0) | <0.001 |
|  Strong | 286 | (49.3) | 156 | (65.5) | 130 | (38.0) | 　 |
| Spouse constrain  | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
|  Weak | 363 | (62.6) | 131 | (55.0) | 232 | (67.8) | 0.002  |
|  Strong | 217 | (37.4) | 107 | (45.0) | 110 | (32.2) | 　 |
| Smoking | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
|  Former/Non-smokers | 522 | (90.0) | 183 | (76.9) | 339 | (99.1) | <0.001 |
|  Current smokers | 58 | (10.0) | 55 | (23.1) | 3 | (0.9) | 　 |
| Drinking | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
|  Former/Non-drinkers | 469 | (80.9) | 143 | (60.1) | 326 | (95.3) | <0.001 |
|  Current drinkers | 111 | (19.1) | 95 | (39.9) | 16 | (4.7) | 　 |
| Values are shown as mean±SD, median[IQR], or number (%). |

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| Supplementary Material 2. Association between gender role stereotype and cognitive decline in study participants living in Township L |
| Gender role  | Case / no. of participants (%) | Odds ratio (95% CI) for dementia |
| Unadjusted | Multiple-adjusted\*  |
| **Total (n=948)** |  |  |  |
| Conservative to gender roles | 157 / 685 (22.9) | 3.26 | (2.03-5.22) | 2.31  | (1.37-3.89) |
| Open to gender roles | 22 / 263 (8.4) | 1.00 | 1.00 |
| **Men (n=392)** |  |  | 　 |
| Conservative to gender roles | 47 / 246 (19.1) | 3.21 | (1.57-6.58) | 2.93  | (1.55-5.52) |
| Open to gender roles | 10 / 146 (6.9) | 1.00 | 1.00 |
| **Women (n=556)** |  |  | 　 |
| Conservative to gender roles | 110 / 439 (25.1) | 2.93 | (1.35-6.36) | 1.97  | (0.97-4.01) |
| Open to gender roles | 12 / 117 (10.3) | 1.00 | 1.00 |
| \* adjusted for sex, age, household income, education, smoking and drinking status.  |

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| Supplementary Material 3. Association between gender role stereotype and continuous MMSE-K scores using linear regression analysis |
| **Gender role** | unadjusted | 　 | Model 1 | 　 | Model 2 |
| β (score) | SE | p value | 　 | β (score) | SE | p value | 　 | β (score) | SE | p value |
| **Total participants (n=580)** | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| Open | ref | 　 | ref | 　 | ref |
| Conservative | -1.830  | 0.395  | <0.001 | 　 | -1.223  | 0.349  | <0.001 | 　 | -0.934  | 0.428  | 0.030  |
| continuous, per 1 score decrease | -0.395  | 0.115  | <0.001 | 　 | -0.216  | 0.102  | 0.034  | 　 | -0.171  | 0.129  | 0.184  |
| **Men (n=238)** | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| Open | ref | 　 | ref | 　 | ref |
| Conservative | -0.963  | 0.448  | 0.033  | 　 | -0.668  | 0.434  | 0.125  | 　 | -0.885  | 0.498  | 0.077  |
| continuous, per 1 score decrease | -0.057  | 0.121  | 0.640  | 　 | -0.005  | 0.116  | 0.968  | 　 | -0.004  | 0.136  | 0.974  |
| **Women (n=342)** |  |  |  |  | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| Open | ref | 　 | ref | 　 | ref |
| Conservative | -2.562  | 0.566  | <0.001 | 　 | -1.587  | 0.498  | 0.002  | 　 | -0.904  | 0.650  | 0.166  |
| continuous, per 1 score decrease | -0.796  | 0.174  | <0.001 | 　 | -0.372  | 0.157  | 0.018  | 　 | -0.305  | 0.208  | 0.145  |
| Model 1: adjusted for sex and age |
| Model 2: adjusted for sex, age, hypertension, household income, education, physical activity, social relationship, smoking and drinking status.  |

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| Supplementary Material 4. Association between patriarchal mindset and continuous MMSE-K scores using linear regression analysis  |
| **Patriarchal mindset** | unadjusted | 　 | Model 1 | 　 | Model 2 |
| β (score) | SE | p value | 　 | β (score) | SE | p value | 　 | β (score) | SE | p value |
| **Total participants (n=580)** | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| Open | ref | 　 | ref | 　 | ref |
| Conservative | -0.899  | 0.398  | 0.024  | 　 | -0.231  | 0.349  | 0.509  | 　 | -0.115  | 0.418  | 0.784  |
| continuous, per 1 score decrease | -0.083  | 0.034  | 0.015  | 　 | -0.028  | 0.030  | 0.352  | 　 | -0.036  | 0.034  | 0.294  |
| **Men (n=238)** | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| Open | ref | 　 | ref | 　 | ref |
| Conservative | -0.801  | 0.444  | 0.073  | 　 | -0.442  | 0.432  | 0.307  | 　 | -0.462  | 0.488  | 0.345  |
| continuous, per 1 score decrease | -0.080  | 0.035  | 0.023  | 　 | -0.048  | 0.034  | 0.167  | 　 | -0.058  | 0.037  | 0.126  |
| **Women (n=342)** |  |  |  |  | 　 | 　 | 　 | 　 | 　 | 　 | 　 |
| Open | ref | 　 | ref | 　 | ref |
| Conservative | -0.920  | 0.580  | 0.113  | 　 | -0.161  | 0.501  | 0.749  | 　 | -0.012  | 0.620  | 0.985  |
| continuous, per 1 score decrease | -0.074  | 0.052  | 0.160  | 　 | -0.028  | 0.045  | 0.529  | 　 | -0.043  | 0.054  | 0.429  |
| Model 1: adjusted for sex and age |
| Model 2: adjusted for sex, age, hypertension, household income, education, physical activity, social relationship, smoking and drinking status.  |