**Supplementary Table S1.** Summary of Measurement Items and Variable Coding.

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension** | **Original Code** | **Final Code** | **Measurement Item Descriptions** |
| Aging Anxiety | E44A | AA1 | Concern about self-care ability in old age. |
| E44B | AA2 | Concern about decision-making ability in old age. |
| E44C | AA3 | Concern about financial situation in old age. |
| Digital Usage Tendency | A28.5 | DUT1 | Tendency to use internet media in the past year. |
| A28.6 | DUT2 | Tendency to use customized information on mobile phones in the past year. |
| A30.12 | DUT3 | Frequency of internet use during leisure time in the past year. |
| Environmental Perception | E35A | EP1 | Perceived air pollution in the community. |
| E35B | EP2 | Perceived water pollution in the community. |
| E35C | EP3 | Perceived noise pollution in the community. |
| E35D | EP4 | Perceived lighting conditions in the community. |
| Social Capital | E36E | SC1 | Frequency of neighborhood interactions. |
| E36F | SC2 | Trust among neighbors in the community. |
| E35D | SC3 | Perceived public safety in the community. |
| Mental Health | A17 | MH1 | Level of depression or frustration in the past four weeks. |
| E6 | MH2 | Degree to which emotional problems interfered with daily life or work. |
| E7 | MH3 | Degree to which emotional problems reduced attention or concentration in work/life. |

**Supplementary Table S2.** Demographic characteristics of the sample.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Category** | **Frequency** | **Percent (%)** |
| Gender | Male | 177 | 48.9 |
| Female | 185 | 51.1 |
| Region | Anhui Province | 90 | 24.9 |
| Jiangsu Province | 130 | 35.9 |
| Zhejiang Province | 142 | 39.2 |
| Age | 18-29 years | 53 | 14.6 |
| 30-44 years | 82 | 22.7 |
| 45-59 years | 88 | 24.3 |
| 60 years and above | 139 | 38.4 |
| Ethnicity | Han | 361 | 99.7 |
| Zhuang | 1 | 0.3 |
| Highest Educational Attainment | No formal education | 22 | 6.1 |
| Traditional private school/literacy class | 2 | 0.6 |
| Primary school | 80 | 22.1 |
| Junior high school | 106 | 29.3 |
| Vocational high school | 10 | 2.8 |
| General high school | 35 | 9.7 |
| Secondary technical school (Zhongzhuan) | 15 | 4.1 |
| Technical school | 1 | 0.3 |
| Junior college (Adult Higher Education) | 17 | 4.7 |
| Junior college (Regular Higher Education) | 19 | 5.2 |
| Bachelor’s degree (Adult Higher Education) | 13 | 3.6 |
| Bachelor’s degree (Regular Higher Education) | 37 | 10.2 |
| Postgraduate or above | 5 | 1.4 |

**Supplementary Table S3.** Descriptive statistics and normality test results for measurement items.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Dimension** | **Item** | **Mean** | **SD** | **Skewness** | **Kurtosis** | **Overall Mean** | **Overall SD** |
| Aging Anxiety | AA1 | 3.392 | 1.151 | -0.425 | -0.938 | 3.172 | 0.923 |
| AA2 | 3.133 | 1.088 | -0.136 | -1.166 |
| AA3 | 2.992 | 1.192 | 0.046 | -1.187 |
| Digital Usage Tendency | DUT1 | 3.580 | 1.614 | -0.694 | -1.180 | 3.166 | 1.331 |
| DUT2 | 2.113 | 1.449 | 0.888 | -0.758 |
| DUT3 | 3.804 | 1.735 | -0.917 | -1.056 |
| Environmental Perception | EP1 | 3.678 | 0.970 | -0.490 | 0.247 | 3.818 | 0.742 |
| EP2 | 3.803 | 0.934 | -0.532 | 0.396 |
| EP3 | 3.600 | 1.099 | -0.535 | -0.135 |
| EP4 | 4.190 | 0.900 | -0.882 | 0.514 |
| Social Capital | SC1 | 3.768 | 0.945 | -0.709 | -0.014 | 3.957 | 0.674 |
| SC2 | 3.898 | 0.860 | -0.773 | 0.563 |
| SC3 | 4.204 | 0.716 | -0.916 | 1.609 |
| Mental Health | MH1 | 3.992 | 1.011 | -0.679 | -0.274 | 4.076 | 0.785 |
| MH2 | 4.171 | 0.929 | -1.015 | 0.650 |
| MH3 | 4.064 | 0.914 | -0.630 | -0.250 |