**Supplement**

**Supplementary Table 1**

*Spearman correlation analyses with all relevant variables to test multicollinearity including VIF.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | VIF | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. |
| 1. Loneliness
 | 1.19 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Symptoms of social anxiety
 | 1.28 | .20 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |
| 1. Sex (female)
 | 1.09 | .07 | .09 | 1.00 |  |  |  |  |  |  |  |  |  |  |
| 1. Age
 | 2.02 | -.05 | -.13 | -.03 | 1.00 |  |  |  |  |  |  |  |  |  |
| 1. Education
 | 1.19 | .02 | .03 | -.10 | -.28 | 1.00 |  |  |  |  |  |  |  |  |
| 1. Occupational status
 | 1.81 | .00 | .09 | -.06 | -.66 | .25 | 1.00 |  |  |  |  |  |  |  |
| 1. Equivalized income
 | 1.14 | -.09 | -.05 | -.10 | -.08 | .35 | .21 | 1.00 |  |  |  |  |  |  |
| 1. Partnership
 | 1.82 | -.21 | -.07 | -.06 | .12 | -.05 | -.09 | .10 | 1.00 |  |  |  |  |  |
| 1. Living alone
 | 1.82 | .23 | .07 | .05 | .02 | .00 | -.01 | -.11 | -.67 | 1.00 |  |  |  |  |
| 1. Physical illnesses
 | 1.22 | -.02 | -.05 | -.16 | .39 | -.16 | -.26 | -.07 | .07 | .00 | 1.00 |  |  |  |
| 1. Depression symptoms
 | 1.96 | .29 | .39 | .15 | -.10 | -.03 | .05 | -.13 | -.11 | .10 | -.01 | 1.00 |  |  |
| 1. Symptoms of generalized anxiety
 | 1.77 | .20 | .34 | .15 | -.10 | .06 | .07 | -06 | -.08 | .05 | -.04 | .58 | 1.00 |  |
| 1. Social support
 | 1.22 | -.28 | -.25 | -.03 | .02 | .04 | -.01 | .14 | .20 | -.23 | .001 | -.31 | -.22 | 1.00 |

*Note.* Bivariate Spearman correlations to test multicollinearity of independent variables within the regression model; correlations above .8 are assumed to be an indicator for multicollinearity; VIF= Variance of inflammation factor; VIF values above 10 indicating multicollinearity.

**Supplementary Table 2**

*Fit indices for testing metric invariance*

|  |  |  |
| --- | --- | --- |
|  | Model fit indices | Differences in fit indices |
|  | CFI | RMSEA | SRMR | △ CFI | △ RMSEA | △ SRMR |
| Configural model | 0.999 | .023 | .008 |  |  |  |
| Metric model | 0.998 | .027 | .014 | -0.001 | 0.004 | 0.005 |

*Note.* CFI = Comparative fit index, RMSEA = Root Mean Square Error of Approximation,

CI = Confidence interval, SRMR = Standardized Root Mean Square Residual.

**Supplementary Table 3**

Descriptive and inference statistics of loneliness and social anxiety across baseline and follow-up 5 years after baseline

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | Social anxiety at baseline, N (%) | *p* | *Cramer's V* | Social anxiety at follow-up, N (%) | *p* | *Cramer's V* |
|  | No(N = 13,385) | Yes(N = 1,064) |  |  | No(N=11,266) | Yes(N = 584) |  |  |
| Loneliness at baseline, N (%) |  |  |  |  |  |  |  |  |
|  No | 12,185 (91.22) | 744 (69.92) | <.001 | .13 | 10,283 (91.27) | 412 (70.55) | <.001 | .10 |
|  Yes | 1,173 (8.78) | 320 (30.08) |  |  | 983 (8.73) | 172 (29.45) |  |  |
|  | No(N = 10,888) | Yes(N = 838) |  |  | No(N = 11,146) | Yes(N = 533) |  |  |
| Loneliness at follow-up, N (%) |  |  |  |  |  |  |  |  |
|  No | 9,113 (83.70) | 534 (63.72) | <.001 | .08 | 9,334 (83.74) | 267 (50.09) | <.001 | .11 |
|  Yes | 1,775 (16.30) | 304 (36.28) |  |  | 1,812 (16.26) | 266 (49.91) |  |  |

*Note.* Levels of loneliness and symptoms of social anxiety were presented as absolute numbers and column percentages; Loneliness was measured by the single item “I am frequently alone/have few contacts”; Symptoms of social anxiety were measured by the mini-SPIN; a cut-off of ≥ 2 indicated loneliness, and a cut-off of ≥ 6 indicated social anxiety.