**Supplementary documents**

***Table 1: ANCOVA analysis – Interaction effect between geographic distance and caregiving intensity (Frequency of caregiving) in relation to caregiver social isolation***

|  |  |  |
| --- | --- | --- |
| **Variable** | **F** | ***df*** |
| Gender | 7.33 \*\* | 1 |
| Age | 4.32 \* | 2 |
| Marital status | 26.05 \*\*\* | 1 |
| Highest education | 11.52 \*\*\* | 3 |
| Employment status | .78 | 1 |
| Religion | .19 | 2 |
| Personal annual income | .57 | 3 |
| Country of birth | 7.88 \*\* | 1 |
| Living area | .02 | 1 |
| Self-rate general health | 9.13 \*\* | 1 |
| Care receiver age | .30 | 1 |
| Care receiver gender | 6.07 \* | 1 |
| Care receiver health condition | 5.51 \*\* | 3 |
| Care receiver use professional services | 15.50 \*\*\* | 1 |
| Relationship with care receiver | 1.57 | 3 |
| Primary caregiver | 18.93 \*\*\* | 1 |
| Caregiving activities (ADL) | 12.78 \*\*\* | 1 |
| Caregiving activities (IADL) | 2.98 \* | 2 |
| Frequency of providing care | 13.54 \*\*\* | 3 |
| Geographic distance | 16.44 \*\*\* | 3 |
| **Frequency of providing care x Geographic distance** | 2.02 \* | 9 |

***Table 2: Estimated mean of CSI (standardized) based on Frequency of providing care and Geographic distance***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Frequency of caregiving** | **Geographic distance** | **Estimated mean** | **95% Confidence Interval** | |
| Lower bound | Upper bound |
| **Minimum level** | **Coresident** | .04 | -.23 | .30 |
| **Short distance** | -.21 | -.37 | -.05 |
| **Moderate distance** | .17 | -.06 | .39 |
| **Long distance** | .09 | -.12 | .30 |
| **Low level** | **Coresident** | .08 | -.15 | .31 |
| **Short distance** | -.02 | -.16 | .12 |
| **Moderate distance** | .08 | -.16 | .33 |
| **Long distance** | .58 | .33 | .84 |
| **Moderate level** | **Coresident** | .17 | .02 | .33 |
| **Short distance** | .10 | -.05 | .25 |
| **Moderate distance** | .35 | .08 | .63 |
| **Long distance** | .40 | .14 | .67 |
| **High level** | **Coresident** | .40 | .27 | .53 |
| **Short distance** | .47 | .30 | .64 |
| **Moderate distance** | .98 | .68 | 1.29 |
| **Long distance** | .91 | .56 | 1.25 |

***Table 3: Pairwise comparison of CSI (standardized) based on Frequency of providing care and Geographic distance***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Frequency of caregiving** | **Geographic distance (1)** | **Geographic distance (2)** | **Mean difference** | **95% Confidence Interval** | |
| Lower bound | Upper bound |
| **Minimum level** | **Coresident** | Short distance | .25 | .00 | .50 |
| Moderate distance | -.13 | -.43 | .17 |
| Long distance | -.06 | -.35 | .24 |
| **Short distance** | Coresident | -.25 | -.50 | .00 |
| Moderate distance | -.38 \*\*\* | -.58 | -.18 |
| Long distance | -.30 \*\* | -.49 | -.12 |
| **Moderate distance** | Coresident | .13 | -.17 | .43 |
| Short distance | .38 \*\*\* | .18 | .58 |
| Long distance | .07 | -.17 | .32 |
| **Long distance** | Coresident | .06 | -.24 | .35 |
| Short distance | .30 \*\* | .12 | .49 |
| Moderate distance | -.07 | -.32 | .17 |
| **Low level** | **Coresident** | Short distance | .10 | -.13 | .33 |
| Moderate distance | .00 | -.31 | .30 |
| Long distance | -.50 \*\* | -.81 | -.19 |
| **Short distance** | Coresident | -.10 | -.33 | .13 |
| Moderate distance | -.10 | -.34 | .13 |
| Long distance | -.60 \*\*\* | -.85 | -.36 |
| **Moderate distance** | Coresident | .00 | -.30 | .31 |
| Short distance | .10 | -.13 | .34 |
| Long distance | -.50 \*\* | -.81 | -.18 |
| **Long distance** | Coresident | .50 \*\* | .19 | .81 |
| Short distance | .60 \*\*\* | .36 | .85 |
| Moderate distance | .50 \*\* | .18 | .81 |
| **Moderate level** | **Coresident** | Short distance | .07 | -.10 | .24 |
| Moderate distance | -.18 | -.47 | .11 |
| Long distance | -.23 | -.51 | .05 |
| **Short distance** | Coresident | -.07 | -.24 | .10 |
| Moderate distance | -.25 | -.53 | .02 |
| Long distance | -.30 \* | -.57 | -.03 |
| **Moderate distance** | Coresident | .18 | -.11 | .47 |
| Short distance | .25 | -.02 | .53 |
| Long distance | -.05 | -.40 | .31 |
| **Long distance** | Coresident | .23 | -.05 | .51 |
| Short distance | .30 \* | .03 | .57 |
| Moderate distance | .05 | -.31 | .40 |
| **High level** | **Coresident** | Short distance | -.07 | -.24 | .10 |
| Moderate distance | -.58 \*\*\* | -.89 | -.28 |
| Long distance | -.51 \*\* | -.85 | -.16 |
| **Short distance** | Coresident | .07 | -.10 | .24 |
| Moderate distance | -.52 \*\* | -.83 | -.20 |
| Long distance | -.44 \* | -.79 | -.09 |
| **Moderate distance** | Coresident | .58 \*\*\* | .28 | .89 |
| Short distance | .52 \*\* | .20 | .83 |
| Long distance | .08 | -.35 | .51 |
| **Long distance** | Coresident | .51 \*\* | .16 | .85 |
| Short distance | .44 \* | .09 | .79 |
| Moderate distance | -.08 | -.51 | .35 |

**Figure 1: Interaction effect between geographic distance and caregiving intensity (Frequency of caregiving) in relation to caregiver social isolation**

![A screenshot of a map

Description automatically generated]()

***Table 4: ANCOVA analysis – Interaction effect between geographic distance and caregiving intensity (Caregiving activities-IADL) in relation to caregiver social isolation***

|  |  |  |
| --- | --- | --- |
| **Variable** | **F** | ***df*** |
| Gender | 7.19 \*\* | 1 |
| Age | 4.49 \* | 2 |
| Marital status | 27.17 \*\*\* | 1 |
| Highest education | 12.34 \*\*\* | 3 |
| Employment status | .69 | 1 |
| Religion | .20 | 2 |
| Personal annual income | .69 | 3 |
| Country of birth | 7.66 \*\* | 1 |
| Living area | .00 | 1 |
| Self-rate general health | 9.44 \*\* | 1 |
| Care receiver age | .43 | 1 |
| Care receiver gender | 4.90 \* | 1 |
| Care receiver health condition | 5.23 \*\* | 3 |
| Care receiver use professional services | 13.99 \*\*\* | 1 |
| Relationship with care receiver | 1.72 | 3 |
| Primary caregiver | 18.19 \*\*\* | 1 |
| Caregiving activities (ADL) | 10.69 \*\* | 1 |
| Caregiving activities (IADL) | 3.35 \* | 2 |
| Frequency of providing care | 14.21 \*\*\* | 3 |
| Geographic distance | 14.13 \*\*\* | 3 |
| **Caregiving activities (IADL) x Geographic distance** | 3.20 \*\* | 6 |

***Table 5: Estimated mean of CSI (standardized) based on Caregiving activities (IADL) and Geographic distance***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Caregiving activities (IADL)** | **Geographic distance** | **Estimated mean** | **95% Confidence Interval** | |
| Lower bound | Upper bound |
| 1 to 2 tasks | Coresident | .23 | .06 | .40 |
| Short distance | -.10 | -.23 | .03 |
| Moderate distance | .25 | .05 | .45 |
| Long distance | .40 | .20 | .60 |
| 3 to 4 tasks | Coresident | .05 | -.09 | .19 |
| Short distance | .13 | .00 | .25 |
| Moderate distance | .33 | .12 | .54 |
| Long distance | .34 | .15 | .54 |
| 5 to 6 tasks | Coresident | .17 | .00 | .34 |
| Short distance | .19 | -.01 | .38 |
| Moderate distance | .64 | .29 | .98 |
| Long distance | .70 | .36 | 1.05 |

***Table 6: Pairwise comparison of CSI (standardized) based on Caregiving activities (IADL) and Geographic distance***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Caregiving activities (IADL)** | **Geographic distance (1)** | **Geographic distance (2)** | **Mean difference** | **95% Confidence Interval** | |
| Lower bound | Upper bound |
| **1 to 2 tasks** | **Coresident** | Short distance | .33 \*\*\* | .15 | .51 |
| Moderate distance | -.02 | -.25 | .21 |
| Long distance | -.17 | -.40 | .06 |
| **Short distance** | Coresident | -.33 \*\*\* | -.51 | -.15 |
| Moderate distance | -.35 \*\*\* | -.52 | -.17 |
| Long distance | -.50 \*\*\* | -.67 | -.32 |
| **Moderate distance** | Coresident | .02 | -.21 | .25 |
| Short distance | .35 \*\*\* | .17 | .52 |
| Long distance | -.15 | -.38 | .07 |
| **Long distance** | Coresident | .17 | -.06 | .40 |
| Short distance | .50 \*\*\* | .32 | .67 |
| Moderate distance | .15 | -.07 | .38 |
| **3 to 4 tasks** | **Coresident** | Short distance | -.08 | -.22 | .06 |
| Moderate distance | -.28 \* | -.50 | -.06 |
| Long distance | -.29 \*\* | -.51 | -.08 |
| **Short distance** | Coresident | .08 | -.06 | .22 |
| Moderate distance | -.20 | -.40 | .00 |
| Long distance | -.22 \* | -.40 | -.03 |
| **Moderate distance** | Coresident | .28 \* | .06 | .50 |
| Short distance | .20 | .00 | .40 |
| Long distance | -.02 | -.27 | .24 |
| **Long distance** | Coresident | .29 \*\* | .08 | .51 |
| Short distance | .22 \* | .03 | .40 |
| Moderate distance | .02 | -.24 | .27 |
| **5 to 6 tasks** | **Coresident** | Short distance | -.02 | -.21 | .17 |
| Moderate distance | -.47 \*\* | -.80 | -.13 |
| Long distance | -.53 \*\* | -.88 | -.18 |
| **Short distance** | Coresident | .02 | -.17 | .21 |
| Moderate distance | -.45 \* | -.79 | -.10 |
| Long distance | -.51 \*\* | -.87 | -.16 |
| **Moderate distance** | Coresident | .47 \*\* | .13 | .80 |
| Short distance | .45 \* | .10 | .79 |
| Long distance | -.07 | -.52 | .38 |
| **Long distance** | Coresident | .53 \*\* | .18 | .88 |
| Short distance | .51 \*\* | .16 | .87 |
| Moderate distance | .07 | -.38 | .52 |

**Figure 2:** **Interaction effect between geographic distance and caregiving intensity (Caregiving tasks - IADL) in relation to caregiver social isolation**

![A close up of a map

Description automatically generated]()