Supplementary Material (online only) of

**Does grandparental childcare provision affect number, satisfaction and with whom leisure activities are done?**

**Table SM1:** Linear fixed effects models for all leisure activity outcomes for men: the effect grandparental childcare

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| Grandchild No. |  |
|  No grandchild | Ref. |
|  1 Grandchild | 0.077 | 0.103 | 0.019 | -0.137+ | 0.057 |
|  | (0.104) | (0.085) | (0.018) | (0.078) | (0.055) |
|  2 Grandchildren | 0.046 | -0.010 | 0.020 | -0.158 | -0.004 |
|  | (0.129) | (0.106) | (0.018) | (0.097) | (0.069) |
|  3+ Grandchildr. | -0.038 | -0.103 | 0.026 | -0.070 | -0.067 |
|  | (0.165) | (0.127) | (0.024) | (0.115) | (0.086) |
| Grandparental childcare | 0.298\*\* | 0.190\* | 0.045\* | 0.023 | -0.030 |
|  | (0.103) | (0.087) | (0.020) | (0.073) | (0.051) |
| Proximity nearest child |  |
|  Same household | -0.018 | -0.093 | -0.005 | -0.014 | -0.024 |
|  | (0.104) | (0.081) | (0.017) | (0.069) | (0.058) |
|  Neighborhood/ Municipality | Ref. |
|  Within 2 hours | -0.075 | -0.059 | -0.001 | 0.021 | -0.006 |
|  | (0.095) | (0.078) | (0.016) | (0.061) | (0.051) |
|  Further than 2hrs | 0.017 | 0.032 | -0.013 | -0.143+ | -0.003 |
|  | (0.149) | (0.113) | (0.018) | (0.087) | (0.075) |
| In a relationship | 0.161 | 0.018 | -0.020 | -0.345\*\* | -0.047 |
|  | (0.166) | (0.119) | (0.017) | (0.105) | (0.084) |
| Employment status |  |  |  |  |  |
|  Working |  |
|  Retired | 0.472\*\*\* | 0.687\*\*\* | 0.023 | -0.172\* | 0.326\*\*\* |
|  | (0.116) | (0.104) | (0.020) | (0.083) | (0.067) |
|  Not employed | 0.555\*\*\* | 0.736\*\*\* | 0.026 | -0.211\* | 0.278\*\*\* |
|  | (0.153) | (0.131) | (0.021) | (0.105) | (0.080) |
| Physical functioning | 0.011\*\*\* | 0.007\*\*\* | 0.000 | -0.000 | 0.007\*\*\* |
|  | (0.002) | (0.001) | (0.000) | (0.001) | (0.001) |
| Income | 0.099 | 0.010 | -0.003 | 0.109 | -0.071 |
|  High income | (0.104) | (0.085) | (0.016) | (0.068) | (0.057) |
|  | 0.082 | 0.062 | 0.000 | 0.081 | 0.004 |
|  Medium income | (0.079) | (0.064) | (0.013) | (0.050) | (0.039) |
|  | 0.099 | 0.010 | -0.003 | 0.109 | -0.071 |
|  Low income | Ref. |
|  Income (missing) | 0.016 | -0.144 | -0.019 | 0.191\* | -0.074 |
|  | (0.130) | (0.110) | (0.021) | (0.083) | (0.069) |

**Table SM1** (continued)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Age |  |  |  |  |  |
|  40 - 49 | -0.436 | -0.371+ | 0.047 | 0.264 | -0.157 |
|  | (0.275) | (0.210) | (0.041) | (0.180) | (0.144) |
|  50 - 59 | -0.437\*\* | -0.238+ | 0.033 | -0.052 | -0.197\* |
|  | (0.158) | (0.129) | (0.026) | (0.111) | (0.080) |
|  60 - 69 | -0.052 | 0.030 | 0.032\* | -0.059 | -0.038 |
|  | (0.104) | (0.085) | (0.015) | (0.068) | (0.047) |
|  70 – 79 | Ref. |
|  80+ | -0.127 | -0.197\* | 0.009 | -0.106+ | -0.032 |
|  | (0.115) | (0.092) | (0.013) | (0.060) | (0.058) |
| Interview year |  |  |  |  |  |
|  2008 | Ref. |
|  2011 | -0.173\*\* | -0.040 | -0.008 | 0.002 | -0.051 |
|  | (0.067) | (0.049) | (0.009) | (0.044) | (0.034) |
|  2014 | -0.860\*\*\* | -0.475\*\*\* | 0.005 | 0.075 | 0.044 |
|  | (0.079) | (0.061) | (0.012) | (0.053) | (0.040) |
|  2017 | -0.986\*\*\* | -0.417\*\*\* | -0.003 | 0.047 | -0.019 |
|  | (0.103) | (0.080) | (0.015) | (0.066) | (0.051) |
| Number of regular activities |  |  | 0.007\* | 0.123\*\*\* | 0.056\*\*\* |
|  |  |  | (0.003) | (0.014) | (0.011) |
| Constant | 4.397\*\*\* | 1.862\*\*\* | -0.027 | 0.783\*\*\* | 1.963\*\*\* |
|  | (0.283) | (0.222) | (0.048) | (0.186) | (0.152) |
| *R*2 | 0.117 | 0.089 | 0.012 | 0.052 | 0.066 |
| Observations | 4601 | 4601 | 4601 | 4601 | 4601 |

Notes: Beta coefficients and cluster robust standard errors in parentheses.
 + p< 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001.

**Table SM2:** Linear fixed effects models for all leisure activity outcomes for men: the effect of grandparental childcare by intensity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| Grandchild No. |  |
|  No grandchild | Ref. |
|  1 Grandchild | 0.079 | 0.105 | 0.019 | -0.135+ | 0.056 |
|  | (0.104) | (0.085) | (0.018) | (0.078) | (0.055) |
|  2 Grandchildren | 0.053 | -0.005 | 0.020 | -0.153 | -0.006 |
|  | (0.130) | (0.106) | (0.018) | (0.098) | (0.069) |
|  3+ Grandchildr. | -0.031 | -0.098 | 0.026 | -0.065 | -0.070 |
|  | (0.165) | (0.127) | (0.025) | (0.115) | (0.086) |
| Grandparental childcare |  |  |  |  |  |
|  No care | Ref. |
|  Non-intensive | 0.330\*\* | 0.210\* | 0.043\* | 0.048 | -0.041 |
|   | (0.107) | (0.090) | (0.021) | (0.073) | (0.052) |
|  Intensive  | 0.042 | 0.027 | 0.056 | -0.173 | 0.057 |
|  | (0.240) | (0.196) | (0.052) | (0.201) | (0.111) |
| Proximity nearest child |  |
|  Same household | -0.018 | -0.093 | -0.005 | -0.014 | -0.024 |
|  | (0.104) | (0.081) | (0.017) | (0.069) | (0.058) |
|  Neighborhood/ Municipality | Ref. |
|  Within 2 hours | -0.076 | -0.060 | -0.001 | 0.020 | -0.005 |
|  | (0.095) | (0.078) | (0.016) | (0.061) | (0.051) |
|  Further than 2hrs | 0.018 | 0.033 | -0.013 | -0.142 | -0.003 |
|  | (0.149) | (0.113) | (0.018) | (0.087) | (0.075) |
| In a relationship | (0.149) | (0.113) | (0.018) | (0.087) | (0.075) |
|  | 0.163 | 0.019 | -0.020 | -0.344\*\* | -0.048 |
| Employment status |  |  |  |  |  |
|  Working | Ref. |
|  Retired | 0.471\*\*\* | 0.686\*\*\* | 0.023 | -0.173\* | 0.327\*\*\* |
|  | (0.117) | (0.104) | (0.020) | (0.083) | (0.067) |
|  Not employed | 0.554\*\*\* | 0.735\*\*\* | 0.026 | -0.212\* | 0.278\*\*\* |
|  | (0.154) | (0.130) | (0.021) | (0.105) | (0.080) |
| Physical functioning | 0.011\*\*\* | 0.007\*\*\* | 0.000 | -0.000 | 0.007\*\*\* |
|  | (0.002) | (0.001) | (0.000) | (0.001) | (0.001) |

**Table SM2** (continued)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Income |  |  |  |  |  |
|  High income | 0.097 | 0.009 | -0.003 | 0.108 | -0.071 |
|  | (0.104) | (0.085) | (0.016) | (0.068) | (0.057) |
|  Medium income | 0.080 | 0.061 | 0.000 | 0.079 | 0.004 |
|  | (0.079) | (0.064) | (0.013) | (0.050) | (0.039) |
|  Low income | Ref. |
|  Income (missing) | 0.014 | -0.145 | -0.019 | 0.190\* | -0.074 |
|  | (0.130) | (0.110) | (0.021) | (0.083) | (0.069) |
| Age |  |  |  |  |  |
|  40 - 49 | -0.435 | -0.370+ | 0.047 | 0.265 | -0.157 |
|  | (0.275) | (0.210) | (0.041) | (0.180) | (0.144) |
|  50 - 59 | -0.439\*\* | -0.240+ | 0.034 | -0.054 | -0.196\* |
|  | (0.158) | (0.129) | (0.026) | (0.111) | (0.079) |
|  60 - 69 | -0.054 | 0.029 | 0.032\* | -0.060 | -0.038 |
|  | (0.104) | (0.085) | (0.015) | (0.068) | (0.047) |
|  70 - 79 | Ref.  |
|  80+ | -0.126 | -0.196\* | 0.009 | -0.105+ | -0.032 |
|  | (0.115) | (0.092) | (0.013) | (0.060) | (0.059) |
| Interview year |  |  |  |  |  |
|  2008 | Ref. |
|  2011 | -0.173\*\* | -0.040 | -0.008 | 0.002 | -0.051 |
|  | (0.067) | (0.049) | (0.009) | (0.044) | (0.034) |
|  2014 | -0.860\*\*\* | -0.474\*\*\* | 0.004 | 0.076 | 0.044 |
|  | (0.079) | (0.061) | (0.012) | (0.053) | (0.040) |
|  2017 | -0.988\*\*\* | -0.418\*\*\* | -0.003 | 0.046 | -0.018 |
|  | (0.103) | (0.080) | (0.015) | (0.066) | (0.051) |
| Number of regular activities |  |  | 0.007\* | 0.122\*\*\* | 0.056\*\*\* |
|  |  |  | (0.003) | (0.014) | (0.011) |
| Constant | 4.395\*\*\* | 1.861\*\*\* | -0.027 | 0.783\*\*\* | 1.963\*\*\* |
|  | (0.284) | (0.222) | (0.048) | (0.186) | (0.152) |
| *R*2 | 0.118 | 0.090 | 0.012 | 0.053 | 0.067 |
| Observations | 4601 | 4601 | 4601 | 4601 | 4601 |

Notes: Beta coefficients and cluster robust standard errors in parentheses.
 + p< 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001.

**Table SM3:** Linear fixed effects models for all leisure activity outcomes for women: the effect grandparental childcare

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) |
|  | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| Grandchild No. |  |
|  No grandchild | Ref. |
|  1 Grandchild | 0.118 | 0.117 | 0.041 | 0.017 | -0.017 |
|  | (0.112) | (0.090) | (0.026) | (0.084) | (0.064) |
|  2 Grandchildren | 0.056 | 0.146 | 0.038 | -0.116 | -0.008 |
|  | (0.147) | (0.122) | (0.029) | (0.100) | (0.080) |
|  3+ Grandchildr. | 0.154 | 0.244+ | 0.064 | -0.091 | 0.114 |
|  | (0.179) | (0.143) | (0.040) | (0.123) | (0.093) |
| Grandparental childcare | 0.099 | -0.017 | 0.007 | -0.007 | -0.017 |
|  | (0.106) | (0.083) | (0.026) | (0.070) | (0.060) |
| Proximity nearest child |  |
|  Same household | -0.116 | -0.028 | 0.003 | -0.049 | -0.009 |
|  | (0.102) | (0.082) | (0.022) | (0.073) | (0.058) |
|  Neighborhood/ Municipality | Ref. |
|  Within 2 hours | 0.008 | 0.037 | -0.026 | 0.042 | -0.033 |
|  | (0.102) | (0.079) | (0.020) | (0.068) | (0.058) |
|  Further than 2hrs | -0.076 | 0.123 | -0.045+ | 0.121 | 0.113 |
|  | (0.147) | (0.110) | (0.026) | (0.108) | (0.085) |
| In a relationship | -0.125 | -0.112 | -0.003 | -0.483\*\*\* | -0.014 |
|  | (0.133) | (0.105) | (0.019) | (0.092) | (0.085) |
| Employment status |  |  |  |  |  |
|  Working | Ref. |
|  Retired | 0.610\*\*\* | 0.522\*\*\* | -0.014 | 0.001 | 0.218\*\*\* |
|  | (0.133) | (0.109) | (0.024) | (0.081) | (0.064) |
|  Not employed | 0.518\*\*\* | 0.594\*\*\* | 0.007 | -0.108 | 0.118+ |
|  | (0.134) | (0.109) | (0.024) | (0.089) | (0.068) |
| Physical functioning | 0.009\*\*\* | 0.006\*\*\* | -0.000 | 0.000 | 0.004\*\*\* |
|  | (0.002) | (0.001) | (0.000) | (0.001) | (0.001) |
| Income |  |  |  |  |  |
|  High income | 0.062 | 0.101 | 0.022 | 0.024 | 0.051 |
|  | (0.102) | (0.084) | (0.019) | (0.068) | (0.057) |
|  Medium income | -0.047 | 0.061 | 0.013 | 0.003 | 0.075+ |
|  | (0.075) | (0.061) | (0.016) | (0.054) | (0.043) |
|  Low income | Ref. |
|  Income (missing) | 0.082 | 0.073 | 0.016 | -0.040 | 0.118+ |
|  | (0.108) | (0.095) | (0.024) | (0.079) | (0.060) |

**Table SM3** (continued)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Age |  |  |  |  |  |
|  40 - 49 | -0.249 | -0.195 | 0.076 | -0.091 | -0.154 |
|  | (0.227) | (0.179) | (0.047) | (0.165) | (0.125) |
|  50 - 59 | -0.171 | 0.078 | 0.076\* | -0.102 | -0.140+ |
|  | (0.156) | (0.128) | (0.031) | (0.110) | (0.085) |
|  60 - 69 | -0.031 | 0.269\*\* | 0.038+ | -0.036 | 0.011 |
|  | (0.103) | (0.087) | (0.020) | (0.073) | (0.057) |
|  70 - 79 | Ref. |
|  80+ | -0.156 | -0.155 | 0.045+ | -0.061 | -0.064 |
|  | (0.127) | (0.107) | (0.025) | (0.075) | (0.073) |
| Interview year |  |  |  |  |  |
|  2008 | Ref. |
|  2011 | -0.061 | 0.038 | 0.006 | 0.016 | -0.018 |
|  | (0.068) | (0.052) | (0.012) | (0.046) | (0.035) |
|  2014 | -0.659\*\*\* | -0.298\*\*\* | 0.012 | 0.085 | 0.113\* |
|  | (0.081) | (0.064) | (0.015) | (0.057) | (0.046) |
|  2017 | -0.733\*\*\* | -0.252\*\* | 0.014 | -0.068 | 0.096+ |
|  | (0.105) | (0.081) | (0.019) | (0.073) | (0.058) |
| Number of regular activities |  |  | 0.003 | 0.123\*\*\* | 0.069\*\*\* |
|  |  |  | (0.004) | (0.014) | (0.011) |
| Constant | 4.444\*\*\* | 1.627\*\*\* | -0.002 | 0.994\*\*\* | 1.969\*\*\* |
|  | (0.255) | (0.202) | (0.053) | (0.178) | (0.156) |
| *R*2 | 0.073 | 0.059 | 0.008 | 0.053 | 0.047 |
| Observations | 4608 | 4608 | 4608 | 4608 | 4608 |

Notes: Beta coefficients and cluster robust standard errors in parentheses.
 + p< 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001.

**Table SM4:** Linear fixed effects models for all leisure activity outcomes for women: the effect of grandparental childcare by intensity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) |
|  | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| Grandchild No. |  |
|  No grandchild | Ref. |
|  1 Grandchild | 0.114 | 0.115 | 0.040 | 0.017 | -0.015 |
|  | (0.111) | (0.090) | (0.026) | (0.084) | (0.064) |
|  2 Grandchildren | 0.049 | 0.142 | 0.037 | -0.116 | -0.004 |
|  | (0.146) | (0.121) | (0.029) | (0.100) | (0.079) |
|  3+ Grandchildr. | 0.160 | 0.247+ | 0.065 | -0.092 | 0.111 |
|  | (0.178) | (0.143) | (0.040) | (0.123) | (0.092) |
| Grandparental childcare |  |  |  |  |  |
|  No care | Ref. |
|  Non-intensive | -0.048 | -0.111 | -0.007 | -0.006 | 0.053 |
|   | (0.110) | (0.088) | (0.026) | (0.074) | (0.062) |
|  Intensive  | 0.742\*\*\* | 0.394\* | 0.067 | -0.014 | -0.327\*\* |
|  | (0.200) | (0.154) | (0.064) | (0.125) | (0.122) |
| Proximity nearest child |  |
|  Same household | -0.126 | -0.034 | 0.002 | -0.049 | -0.004 |
|  | (0.101) | (0.081) | (0.022) | (0.073) | (0.058) |
|  Neighborhood/ Municipality | Ref. |
|  Within 2 hours | 0.002 | 0.033 | -0.027 | 0.042 | -0.030 |
|  | (0.101) | (0.078) | (0.020) | (0.068) | (0.057) |
|  Further than 2hrs | -0.088 | 0.116 | -0.046+ | 0.121 | 0.119 |
|  | (0.147) | (0.109) | (0.026) | (0.108) | (0.085) |
| In a relationship | -0.125 | -0.112 | -0.003 | -0.483\*\*\* | -0.014 |
|  | (0.132) | (0.104) | (0.019) | (0.092) | (0.084) |
| Employment status |  |  |  |  |  |
|  Working | Ref. |
|  Retired | 0.600\*\*\* | 0.515\*\*\* | -0.015 | 0.001 | 0.222\*\*\* |
|  | (0.132) | (0.109) | (0.024) | (0.081) | (0.064) |
|  Not employed | 0.522\*\*\* | 0.597\*\*\* | 0.008 | -0.108 | 0.115+ |
|  | (0.134) | (0.109) | (0.024) | (0.089) | (0.068) |
| Physical functioning | 0.009\*\*\* | 0.006\*\*\* | 0.000 | 0.000 | 0.004\*\*\* |
|  | (0.002) | (0.001) | (0.000) | (0.001) | (0.001) |

**Table SM4** (continued)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Income |  |  |  |  |  |
|  High income | 0.076 | 0.110 | 0.023 | 0.024 | 0.044 |
|  | (0.102) | (0.084) | (0.019) | (0.068) | (0.058) |
|  Medium income | -0.045 | 0.062 | 0.013 | 0.003 | 0.074+ |
|  | (0.075) | (0.061) | (0.016) | (0.054) | (0.043) |
|  Low income | Ref. |
|  Income (missing) | 0.091 | 0.078 | 0.017 | -0.040 | 0.113+ |
|  | (0.108) | (0.095) | (0.024) | (0.079) | (0.060) |
| Age |  |  |  |  |  |
|  40 - 49 | -0.242 | -0.190 | 0.077 | -0.091 | -0.157 |
|  | (0.227) | (0.179) | (0.047) | (0.165) | (0.125) |
|  50 - 59 | -0.173 | 0.077 | 0.075\* | -0.102 | -0.139 |
|  | (0.156) | (0.127) | (0.031) | (0.110) | (0.085) |
|  60 - 69 | -0.039 | 0.264\*\* | 0.037+ | -0.036 | 0.015 |
|  | (0.103) | (0.087) | (0.020) | (0.073) | (0.057) |
|  70 - 79 | Ref. |
|  80+ | -0.152 | -0.152 | 0.045+ | -0.061 | -0.066 |
|  | (0.127) | (0.107) | (0.025) | (0.075) | (0.073) |
| Interview year |  |  |  |  |  |
|  2008 |  |
|  2011 | -0.064 | 0.036 | 0.006 | 0.016 | -0.017 |
|  | (0.068) | (0.052) | (0.012) | (0.046) | (0.035) |
|  2014 | -0.656\*\*\* | -0.296\*\*\* | 0.012 | 0.085 | 0.113\* |
|  | (0.081) | (0.064) | (0.015) | (0.057) | (0.046) |
|  2017 | -0.727\*\*\* | -0.248\*\* | 0.014 | -0.068 | 0.095 |
|  | (0.105) | (0.081) | (0.019) | (0.073) | (0.058) |
| Number of regular activities |  |  | 0.002 | 0.123\*\*\* | 0.072\*\*\* |
|  |  |  | (0.004) | (0.014) | (0.011) |
| Constant | 4.444\*\*\* | 1.627\*\*\* | -0.000 | 0.994\*\*\* | 1.959\*\*\* |
|  | (0.253) | (0.201) | (0.053) | (0.178) | (0.155) |
| *R*2 | 0.078 | 0.062 | 0.009 | 0.053 | 0.050 |
| Observations | 4608 | 4608 | 4608 | 4608 | 4608 |

Notes: Beta coefficients and cluster robust standard errors in parentheses.
 + p< 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001.

**Table SM5**: Logistic regression to predict participation in 2011, conditional on participation in 2008

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Men |  | Women |  |
| No Grandchildren | Ref. |
| 1 Grandchild | 0.206 | (0.144) | -0.150 | (0.138) |
| 2 Grandchildren | -0.006 | (0.144) | -0.095 | (0.138) |
| 3+ Grandchildren | 0.146 | (0.124) | -0.033 | (0.130) |
| Grandparental childcare | 0.316\* | (0.139) | -0.002 | (0.127) |
| No children | Ref. |
| Same household | -0.196 | (0.136) | 0.334\* | (0.140) |
| Neighborhood/Municipality | -0.294\* | (0.150) | 0.255+ | (0.154) |
| Within 2hrs | -0.198 | (0.151) | 0.353\* | (0.156) |
| Further than 2hrs | -0.231 | (0.192) | 0.549\*\* | (0.185) |
| Provide childcare | 0.134 | (0.214) | 0.165 | (0.177) |
| High income | Ref. |
| Medium income | -0.345\*\*\* | (0.100) | -0.100 | (0.104) |
| Low income | -0.533\*\*\* | (0.112) | -0.381\*\*\* | (0.112) |
| Income (missing) | -1.182\*\*\* | (0.147) | -0.552\*\*\* | (0.134) |
| In a relationship | 0.115 | (0.116) | 0.042 | (0.093) |
| Working | Ref. |
| Retired | 0.193 | (0.165) | 0.153 | (0.149) |
| Not retired | 0.302+ | (0.164) | -0.065 | (0.117) |
| Physical functioning | 0.007\*\* | (0.002) | 0.002 | (0.002) |
| Self-rated health | -0.001 | (0.054) | 0.044 | (0.055) |
| Network size | 0.072\*\*\* | (0.014) | 0.063\*\*\* | (0.014) |
| 40 - 49 years | -0.063 | (0.201) | 0.176 | (0.187) |
| 50 - 59 years | -0.021 | (0.183) | 0.373\* | (0.169) |
| 60 - 69 years | 0.039 | (0.113) | 0.345\*\* | (0.121) |
| 70 - 79 years | Ref. |
| 80 - 91 years | -0.587\*\* | (0.185) | -0.545\*\* | (0.191) |
| Low education | -0.388\* | (0.193) | -0.224\* | (0.112) |
| Medium education | Ref. |
| High education | 0.493\*\*\* | (0.083) | 0.355\*\*\* | (0.092) |
| Constant | -0.977\*\* | (0.306) | -1.034\*\*\* | (0.286) |
| Observations | 3036 |  | 2998 |  |
| *Pseudo R*2 | 0.063 |  | 0.048 |  |

Standard errors in parentheses

+ *p* < 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

**Table SM6:** Logistic regression to predict participation in 2014, conditional on participation in 2011

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Men |  | Women |  |
| No Grandchildren | Ref. |
| 1 Grandchild | -0.126 | (0.251) | 0.002 | (0.252) |
| 2 Grandchildren | -0.152 | (0.237) | 0.396 | (0.248) |
| 3+ Grandchildren | -0.351+ | (0.205) | -0.084 | (0.220) |
| Grandparental childcare | 0.399+ | (0.230) | 0.032 | (0.222) |
| No children | Ref. |
| Same HH | -0.025 | (0.232) | -0.053 | (0.260) |
| Neighborhood/Municipality | -0.049 | (0.254) | -0.333 | (0.276) |
| Within 2hrs | 0.045 | (0.250) | 0.022 | (0.277) |
| Further than 2hrs | -0.227 | (0.306) | -0.014 | (0.322) |
| Provide childcare | -0.436 | (0.366) | -0.024 | (0.336) |
| High income | Ref. |
| Medium income | 0.173 | (0.168) | 0.260 | (0.183) |
| Low income | 0.090 | (0.181) | 0.054 | (0.186) |
| Income (missing) | 0.009 | (0.272) | -0.272 | (0.269) |
| In a relationship | 0.273 | (0.194) | -0.034 | (0.163) |
| Working | Ref. |
| Retired | -0.085 | (0.295) | -0.129 | (0.255) |
| Not retired | -0.095 | (0.300) | -0.148 | (0.229) |
| Physical functioning | 0.017\*\*\* | (0.003) | 0.009\* | (0.003) |
| Self-rated health | 0.123 | (0.092) | -0.072 | (0.096) |
| Network size | 0.028 | (0.025) | 0.096\*\*\* | (0.027) |
| 40 - 49 years | -0.395 | (0.367) | -0.383 | (0.332) |
| 50 - 59 years | 0.175 | (0.325) | -0.321 | (0.281) |
| 60 - 69 years | 0.362+ | (0.196) | 0.026 | (0.209) |
| 70 - 79 years | Ref. |
| 80 - 91 years | 0.095 | (0.232) | -0.783\*\* | (0.269) |
| Low education | -0.715+ | (0.365) | -0.310 | (0.197) |
| Medium education | Ref. |
| High education | 0.114 | (0.137) | 0.163 | (0.157) |
| Constant | -1.175\* | (0.536) | 0.676 | (0.500) |
| Observations | 1386 |  | 1415 |  |
| *R*2 | 0.067 |  | 0.048 |  |

Standard errors in parentheses

+ *p* < 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

**Table SM7:** Logistic regression to predict participation in 2017, conditional on participation in 2014 (for the baseline 2008)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Men |  | Women |  |
| No Grandchildren | Ref. |
| 1 Grandchild | -0.332 | (0.237) | -0.163 | (0.237) |
| 2 Grandchildren | -0.181 | (0.244) | -0.247 | (0.235) |
| 3+ Grandchildren | -0.092 | (0.225) | -0.140 | (0.221) |
| Grandparental childcare | 0.319 | (0.226) | -0.034 | (0.206) |
| No children | Ref. |
| Same HH | -0.558\* | (0.273) | 0.079 | (0.261) |
| Neighborhood/Municipality | -0.232 | (0.290) | 0.215 | (0.279) |
| Within 2hrs | -0.340 | (0.283) | 0.153 | (0.272) |
| Further than 2hrs | -0.223 | (0.355) | -0.075 | (0.312) |
| Provide childcare | 0.315 | (0.394) | 0.145 | (0.287) |
| High income |  |  |  |  |
| Medium income | 0.279 | (0.183) | -0.081 | (0.179) |
| Low income | 0.101 | (0.196) | -0.015 | (0.191) |
| Income (Missing) | -0.536+ | (0.303) | 0.011 | (0.303) |
| In a relationship | 0.299 | (0.209) | 0.095 | (0.159) |
| Working | Ref. |
| Retired | -0.380 | (0.309) | 0.272 | (0.258) |
| Not retired | -0.457 | (0.329) | -0.229 | (0.237) |
| Physical functioning | 0.005 | (0.004) | 0.009\* | (0.003) |
| Self-rated health | 0.191\* | (0.097) | 0.051 | (0.102) |
| Network size | 0.002 | (0.027) | 0.019 | (0.026) |
| 40 - 49 years | 0.095 | (0.425) | 0.124 | (0.364) |
| 50 - 59 years | 0.102 | (0.336) | -0.142 | (0.286) |
| 60 - 69 years | 0.378+ | (0.217) | 0.234 | (0.212) |
| 70 - 79 years | Ref. |
| 80 - 91 years | 0.096 | (0.226) | -0.796\*\* | (0.252) |
| Low education | -0.210 | (0.414) | -0.376+ | (0.209) |
| Medium education | Ref. |
| High education | 0.356\* | (0.148) | -0.103 | (0.150) |
| Constant | 0.025 | (0.567) | 0.069 | (0.522) |
| Observations | 1209 |  | 1287 |  |
| *R*2 |  0.044 |  | 0.041 |  |

Standard errors in parentheses

+ *p* < 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

**Table SM8:** Logistic regression to predict participation in 2017, conditional on participation in 2014 (for the baseline 2008)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Men |  | Women |  |
| No Grandchildren | Ref. |
| 1 Grandchild | 0.139 | (0.140) | 0.221 | (0.145) |
| 2 Grandchildren | -0.027 | (0.141) | 0.158 | (0.145) |
| 3+ Grandchildren | -0.127 | (0.128) | -0.005 | (0.136) |
| Grandparental childcare | 0.115 | (0.130) | -0.142 | (0.122) |
| No children | Ref. |
| Same HH | 0.325\* | (0.136) | -0.265+ | (0.142) |
| Neighborhood/Municipality | 0.115 | (0.149) | -0.211 | (0.157) |
| Within 2hrs | 0.128 | (0.147) | -0.162 | (0.157) |
| Further than 2hrs | 0.294 | (0.195) | -0.269 | (0.189) |
| Provide childcare | -0.289 | (0.177) | 0.120 | (0.161) |
| High income | Ref. |
| Medium income | -0.341\*\*\* | (0.102) | -0.231\* | (0.107) |
| Low income | -0.470\*\*\* | (0.117) | -0.376\*\* | (0.119) |
| Income (Missing) | -1.254\*\*\* | (0.157) | -1.013\*\*\* | (0.151) |
| In a relationship | -0.019 | (0.118) | -0.015 | (0.094) |
| Working | Ref. |
| Retired | 0.247+ | (0.150) | 0.377\*\* | (0.143) |
| Not retired | 0.059 | (0.175) | 0.276\* | (0.132) |
| Physical functioning | 0.007\*\*\* | (0.002) | 0.004\* | (0.002) |
| Self-rated health | 0.112\* | (0.057) | 0.079 | (0.057) |
| Network size | 0.051\*\*\* | (0.014) | 0.078\*\*\* | (0.015) |
| 40 - 49 years | 0.010 | (0.192) | 0.130 | (0.191) |
| 50 - 59 years | 0.187 | (0.171) | 0.317+ | (0.168) |
| 60 - 69 years | 0.186 | (0.118) | 0.176 | (0.126) |
| 70 - 79 years | Ref. |
| 80 - 91 years | -0.436\* | (0.180) | -0.310 | (0.191) |
| Low education | -0.768\*\*\* | (0.216) | -0.601\*\*\* | (0.135) |
| Medium education | Ref. |
| High education | 0.311\*\*\* | (0.084) | 0.136 | (0.090) |
| Constant | -1.235\*\*\* | (0.298) | -0.828\*\* | (0.294) |
| Observations | 2970 |  | 2875 |  |
| *R*2 |  0.062 |  | 0.053 |  |

Standard errors in parentheses

+ *p* < 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

**Table SM9:** Complete case linear fixed effects models for all leisure activity outcomes for men: a) the effect grandparental childcare and b) the effect of grandparental childcare by intensity

|  |  |  |
| --- | --- | --- |
|  | **Complete case models** | **Complete case models with IPW** |
| a) | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| No provision of grandparental childcare | Ref. | Ref. |
| Provision of grandparental childcare | 0.332\* | 0.126 | 0.029 | 0.020 | 0.006 | 0.464\* | 0.498\*\* | 0.062 | 0.048 | -0.123 |
| (0.134) | (0.108) | (0.025) | (0.089) | (0.062) | (0.201) | (0.190) | (0.041) | (0.124) | (0.080) |
| Observations | 2944 | 2944 | 2944 | 2944 | 2944 | 2940 | 2940 | 2940 | 2940 | 2940 |
| *R*2 (within) | 0.117 | 0.085 | 0.017 | 0.049 | 0.066 | 0.142 | 0.096 | 0.031 | 0.079 | 0.076 |
|  |  |  |  |  |  |  |  |  |  |  |
|  | **Complete case models** | **Complete case models with IPW** |
| b) | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| Provide no grandparental childcare | Ref. |  |
| Provision of non-intensive grandparental childcare | 0.327\* | 0.111 | 0.029 | 0.049 | -0.007 | 0.448\* | 0.469\*\* | 0.033 | 0.070 | -0.156 |
| (0.140) | (0.111) | (0.027) | (0.090) | (0.062) | (0.224) | (0.180) | (0.054) | (0.129) | (0.096) |
| Provision of intensive grandparental childcare | 0.368 | 0.242 | 0.030 | -0.209 | 0.108 | 0.589\*\* | 0.725+ | 0.286+ | -0.125 | 0.133 |
| (0.283) | (0.272) | (0.063) | (0.239) | (0.134) | (0.226) | (0.383) | (0.159) | (0.186) | (0.112) |
| Observations | 2944 | 2944 | 2944 | 2944 | 2944 | 2940 | 2940 | 2940 | 2940 | 2940 |
| *R*2 (within) | 0.117 | 0.085 | 0.017 | 0.050 | 0.066 | 0.142 | 0.097 | 0.044 | 0.079 | 0.077 |

Notes: Beta coefficients and cluster robust standard errors in parentheses. All control variables applied. + p< 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001.

Full tablea available upon request?

**Table SM10:** Complete case linear fixed effects models for all leisure activity outcomes for women: a) the effect grandparental childcare and b) the effect of grandparental childcare by intensity

|  |  |  |
| --- | --- | --- |
|  | **Complete case models** | **Complete case models with IPW** |
| a) | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| No provision of grandparental childcare | Ref. | Ref. |
| Provision of grandparental childcare | 0.169 | 0.060 | -0.001 | -0.139 | -0.042 | 0.267 | 0.105 | -0.014 | -0.207 | -0.105 |
| (0.137) | (0.111) | (0.033) | (0.085) | (0.074) | (0.166) | (0.139) | (0.035) | (0.126) | (0.081) |
| Observations | 2918 | 2918 | 2918 | 2918 | 2918 | 2904 | 2904 | 2904 | 2904 | 2904 |
| *R*2 (within) | 0.085 | 0.063 | 0.010 | 0.063 | 0.058 | 0.119 | 0.064 | 0.012 | 0.069 | 0.058 |
|  |  |  |  |  |  |  |  |  |  |  |
|  | **Complete case models** | **Complete case models with IPW** |
| b) | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation | No. of regular activities | No. of frequent activities | At least one activity with relatives | No. of activities with friends/ others | Subjective evaluation |
| Provide no grandparental childcare | Ref. |  |
| Provision of non-intensive grandparental childcare | -0.002 | -0.051 | -0.012 | -0.144 | 0.041 | 0.088 | -0.043 | -0.023 | -0.212+ | -0.040 |
| (0.144) | (0.116) | (0.035) | (0.088) | (0.078) | (0.177) | (0.150) | (0.039) | (0.126) | (0.088) |
|  |  |  |  |  |  |  |  |  |  |  |
| Provision of intensive grandparental childcare | 0.885\*\*\* | 0.524\*\* | 0.047 | -0.117 | -0.390\*\* | 0.971\*\*\* | 0.686\*\* | 0.025 | -0.190 | -0.365\*\* |
| (0.235) | (0.198) | (0.074) | (0.159) | (0.129) | (0.239) | (0.212) | (0.096) | (0.241) | (0.137) |
| Observations | 2918 | 2918 | 2918 | 2918 | 2918 | 2904 | 2904 | 2904 | 2904 | 2904 |
| *R*2 (within) | 0.091 | 0.067 | 0.011 | 0.063 | 0.063 | 0.125 | 0.071 | 0.013 | 0.069 | 0.060 |

Notes: Beta coefficients and cluster robust standard errors in parentheses. All control variables applied. + p< 0.1, \* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001.

Full tablea available upon request?

**Figure SM1:** Rotation analysis for the effect of grandparental childcare on the number of regular activities (Men)



Note: Coefficients and 95% confidence intervals

**Figure SM2:** Rotation analysis for the effect of grandparental childcare on the number of regular activities (Women)



Note: Coefficients and 95% confidence intervals

**Figure SM3:** Rotation analysis for the effect of grandparental childcare on the number of frequent activities (Men)



Note: Coefficients and 95% confidence intervals

**Figure SM4:** Rotation analysis for the effect of grandparental childcare on the number of frequent activities (Women)



Note: Coefficients and 95% confidence intervals

**Figure SM5:** Rotation analysis for the effect of grandparental childcare on at least one activity carried out with relatives (Men)



Note: Coefficients and 95% confidence intervals

**Figure SM6:** Rotation analysis for the effect of grandparental childcare on at least one activity carried out with relatives (Women)



Note: Coefficients and 95% confidence intervals

**Figure SM7:** Rotation analysis for the effect of grandparental childcare on the number of activities carried out with friends/others (Men)



Note: Coefficients and 95% confidence intervals

**Figure SM8:** Rotation analysis for the effect of grandparental childcare on the number of activities carried out with friends/others (Women)



Note: Coefficients and 95% confidence intervals