

Supplemental Table S1. Full model results of associations between dog-ownership, leisure time walking, time spent in NOE near the home, general health status and mental health.

|  | Leisure time walking (high vs. low) | Time spent in NOE near home (high vs. low) | General health, excellent, (very) good (reference: fair, poor) | Mental health (scale 0-100, higher is better) |
|--|-------------------------------------|--|--|---|
|  | OR (95% CI)                         | OR (95% CI)                                | OR (95% CI)  | $\beta$ (95% CI)                              |
| Dog ownership (vs. not)                                | 2.17 (1.86; 2.54)                   | 2.37 (2.02; 2.79)                          | 0.92 (0.73; 1.15)  | 0.24 (-0.89; 1.37)                            |
| Female sex   | 1.15 (1.00; 1.32)                   | 0.88 (0.76; 1.01)                          | 1.12 (0.91; 1.38)  | -2.07 (-3.08; -1.07)                          |
| Age (per 10 years)                                     | 1.13 (1.07; 1.00)                   | 1.18 (1.11; 1.26)                          | 0.75 (0.68; 0.82)  | 0.70 (0.29; 1.12)                             |
| Household composition (vs. alone)                      |                                     |  |  |   |
| <i>with partner (without children)</i>                 | 1.04 (0.84; 1.28)                   | 0.99 (0.80; 1.24)                          | 1.01 (0.75; 1.37)  | 1.36 (-0.13; 2.85)                            |
| <i>with children &lt;12 yr old</i>                     | 0.87 (0.66; 1.14)                   | 1.55 (1.18; 2.05)                          | 0.88 (0.57; 1.36)  | 2.86 (0.95; 4.76)                             |
| <i>with children &gt;12 yr old</i>                     | 0.88 (0.69; 1.13)                   | 1.12 (0.87; 1.44)                          | 1.00 (0.70; 1.45)  | 1.77 (0.05; 3.49)                             |
| <i>other</i>   | 0.99 (0.76; 1.29)                   | 1.31 (0.99; 1.74)                          | 0.57 (0.39; 0.85)  | 1.16 (-0.75; 3.07)                            |
| <b>p for trend</b>                                     | <b>0.420</b>                        | <b>0.051</b>                               | <b>0.017</b>   | <b>0.228</b>                                  |
| Education (vs. low)                                    |                                     |  |  |   |
| <i>medium</i>  | 1.72 (1.26; 2.36)                   | 1.41 (1.02; 1.95)                          | 0.99 (0.65; 1.49)  | 3.70 (1.55; 5.84)                             |
| <i>high</i>  | 2.12 (1.54; 2.93)                   | 1.15 (0.85; 1.54)                          | 1.26 (0.81; 1.97)  | 4.91 (2.69; 7.12)                             |
| <b>p for trend</b>                                     | <b>&lt;0.001</b>                    | <b>0.192</b>                               | <b>0.052</b>   | <b>&lt;0.001</b>                              |
| Perceived income situation (vs. cannot make ends meet) |                                     |  |  |   |
| <i>enough to get by</i>                                | 0.79 (0.62; 1.00)                   | 1.12 (0.63; 1.08)                          | 1.67 (1.19; 2.35)  | 2.92 (1.22; 4.63)                             |
| <i>comfortable</i>                                     | 0.88 (0.68; 1.13)                   | 1.15 (0.89; 1.50)                          | 5.00 (3.40; 7.36)  | 8.06 (6.26; 9.86)                             |
| <b>p for trend</b>                                     | <b>0.925</b>                        | <b>0.401</b>                               | <b>&lt;0.001</b>   | <b>&lt;0.001</b>                              |
| Physical constraint restricting mobility (vs. not)     |                                     |  |  |   |
| One or more chronic diseases (vs. not)                 | 1.19 (1.01; 1.40)                   | 0.85 (0.72; 1.01)                          | 0.18 (0.14; 0.22)  | -4.16 (-5.34; -2.98)                          |
| Perceived safety of NOE in NBH (vs. very satisfied)    |                                     |  |  |   |
| <i>satisfied</i>                                       | 1.10 (0.85; 1.44)                   | 0.83 (0.63; 1.08)                          | 1.01 (0.66; 1.56)  | -2.47 (-4.33; -0.61)                          |
| <i>neutral</i>   | 1.10 (0.83; 1.48)                   | 0.68 (0.51; 0.92)                          | 0.72 (0.46; 1.15)  | -4.65 (-6.70; -2.61)                          |
| <i>dissatisfied</i>                                    | 1.31 (0.97; 1.78)                   | 0.74 (0.54; 1.01)                          | 0.61 (0.38; 0.97)  | -5.45 (-7.62; -3.28)                          |
| <i>very dissatisfied</i>                               | 1.45 (0.92; 2.30)                   | 0.73 (0.45; 1.17)                          | 0.70 (0.36; 1.37)  | -6.01 (-9.28; -2.73)                          |
| <b>p for trend</b>                                     | <b>0.037</b>                        | <b>0.032</b>                               | <b>0.001</b>   | <b>&lt;0.001</b>                              |
| NBH SES (vs. low)                                      |                                     |  |  |   |
| <i>medium</i>  | 1.08 (0.87; 1.34)                   | 1.05 (0.79; 1.39)                          | 0.92 (0.45; 1.88)  | -0.49 (-2.63; 1.64)                           |
| <i>high</i>  | 1.24 (0.99; 1.55)                   | 1.15 (0.85; 1.54)                          | 0.96 (0.46; 1.99)  | 0.89 (-1.33; 3.10)                            |
| <b>p for trend</b>                                     | <b>0.055</b>                        | <b>0.382</b>                               | <b>0.944</b>   | <b>0.353</b>                                  |

NOE= natural outdoor environments; OR= odds ratio; CI= confidence interval; NBH= neighborhood; SES= socioeconomic status. Analytical method: mixed models with random intercept for neighborhoods and adjusted for age, sex, education, neighborhood SES, household composition, perceived income situation, perceived NOE safety, physical constraint restricting mobility, and chronic diseases. Analyses were based on complete cases.

Supplemental Material Zijlema et al - Dog ownership, the natural outdoor environment and health: a cross-sectional study

Supplemental Table S2. Associations between dog-ownership, walking, time in NOE, perceived general and mental health status stratified by access to NOE and residential surrounding greenness

| Dog ownership (vs. not)      | Leisure time walking (high vs. low)<br>OR (95% CI) | Time spent in NOE near home (high vs. low)<br>OR (95% CI) | General health, excellent, (very) good (reference: fair, poor)<br>OR (95% CI) | Mental health (scale 0-100, higher is better)<br>$\beta$ (95% CI) |                            |
|------------------------------|--|---|---|---|----------------------------|
| Number of NOE                | 300m   |   |   |   |                            |
|                              | lowest   | 2.11 (1.76; 2.54) n=2141                                  | 2.42 (1.99; 2.94) n=2368  | 0.87 (0.66; 1.15) n=2414  | 0.37 (-0.99; 1.73) n=2412  |
|                              | highest  | 2.36 (1.77; 3.15) n=1172                                  | 2.32 (1.73; 3.12) n=1162  | 0.84 (0.54; 1.29) n=1172  | 0.38 (-1.62; 2.39) n=1172  |
|                              | 1000m  |   |   |   |                            |
|                              | lowest   | 2.17 (1.75; 2.69) n=1869                                  | 2.47 (1.98; 3.09) n=1843  | 0.85 (0.61; 1.18) n=1869  | -0.72 (-2.24; 0.81) n=1867 |
|                              | highest  | 2.20 (1.75; 2.76) n=1717                                  | 2.32 (1.82; 2.95) n=1687  | 0.87 (0.63; 1.22) n=1717  | 0.68 (-0.98; 2.34) n=1717  |
| Area of NOE                  | 300m   |   |   |   |                            |
|                              | lowest   | 2.24 (1.80; 2.79) n=1832                                  | 2.34 (1.87; 2.94) n=1801  | 0.78 (0.56; 1.08) n=1832  | -0.30 (-1.90; 1.30) n=1830 |
|                              | highest  | 2.15 (1.72; 2.70) n=1754                                  | 2.43 (1.92; 3.08) n=1729  | 0.92 (0.65; 1.28) n=1754  | 0.61 (-0.97; 2.20) n=1754  |
|                              | 1000m  |   |   |   |                            |
|                              | lowest   | 2.19 (1.74; 2.77) n=1799                                  | 2.31 (1.83; 2.92) n=1777  | 0.74 (0.53; 1.03) n=1799  | -0.80 (-2.46; 0.87) n=1797 |
|                              | highest  | 2.18 (1.76; 2.71) n=1787                                  | 2.44 (1.94; 3.07) n=1753  | 0.94 (0.67; 1.30) n=1787  | 0.65 (-0.88; 2.18) n=1787  |
| Surrounding greenness (NDVI) | 100m   |   |   |   |                            |
|                              | lowest   | 2.10 (1.67; 2.63) n=1797                                  | 2.47 (1.96; 3.12) n=1769  | 0.74 (0.53; 1.03) n=1797  | 0.23 (-1.42; 1.89) n=1796  |
|                              | highest  | 2.26 (1.81; 2.81) n=1789                                  | 2.32 (1.84; 2.92) n=1761  | 0.95 (0.68; 1.33) n=1789  | -0.06 (-1.59; 1.47) n=1788 |
|                              | 300m   |   |   |   |                            |
|                              | lowest   | 1.95 (1.56; 2.44) n=1786                                  | 2.33 (1.84; 2.95) n=1757  | 0.77 (0.54; 1.09) n=1786  | 0.43 (-1.25; 2.10) n=1785  |
|                              | highest  | 2.44 (1.96; 3.04) n=1800                                  | 2.50 (1.99; 3.16) n=1773  | 0.98 (0.71; 1.36) n=1800  | -0.11 (-1.62; 1.41) n=1799 |

NOE= natural outdoor environments; OR= odds ratio; CI= confidence interval; NDVI= normalized difference vegetation index.

Analytical method: mixed models with random intercept for neighborhoods and adjusted for age, sex, education, neighborhood SES, household composition, perceived income situation, perceived NOE safety, physical constraint restricting mobility, and chronic diseases. Analyses were based on complete cases.