**Supplementary Materials**

Supplementary Table 1 Exposure, accessibility variables and health outcome variables for research question 1

|  |  |  |  |
| --- | --- | --- | --- |
| **Independent/outcome variables** | **Response options** | **Excluded where…** | **References** |
| Health status | Self-reported general health | Response recorded = 9 (n = 1) | Single-item self-reported health is consistently associated with use of physician services(Miilunpalo et al., 1997) and mortality(Idler and Benyamini, 1997); has been found to be positively associated with neighbourhood green space(Maas et al., 2006; Mitchell and Popham, 2007) and coastal proximity;(Wheeler et al., 2012) and has been used in an investigation of green spaces and health outcomes in Hong Kong (Wang et al., 2017). |
|  *Good* | Very good, good |
|  *Not good* | Fair, bad, very bad |
| WHO-5 Index  | WHO-5 total Composite of:I have felt: a) cheerful and in good spirits, b) calm and relaxed, c) active and vigorous; d) I woke up feeling fresh and rested; and e) My daily life has been filled with things that interest meAt no time (0)Some of the time (1)Less than half the time (2)More than half the time (3)Most of the time (4)All of the time (5)Sum total multiplied by 4 | Any response for a-e) = 9 (n = 4) | The WHO-5 has previously been associated with green space access internationally(Mitchell et al., 2015) and mental health in the workplace in China (Gao et al., 2014) |
|  *High wellbeing*  |  ≥50 |  |  |
|  *Low wellbeing* | < 50 |  |
|  |  |  |  |
| Indirect exposure | View of nearest blue space from home | No exclusions | Indirect exposure is one of the three types of interaction with nature identified from a review of the literature (Keniger et al., 2013).Views of nature have been found to be associated with mental health and wellbeing (Honold et al., 2016; Kaplan, 2001; Nutsford et al., 2016). In Hong Kong, harbour views have been found to increase property prices (Jim and Chen, 2009). |
|  *Yes* | Yes |
|  *No (ref)* | No |
| Accessible | Nearest blue space within 15 mins walk | No exclusions | Walking distance (perceived) has been found to be related to blue space use frequency in Germany (Völker et al., 2018). |
|  *Yes* | Yes |
|  *No (ref)* | No |
| Incidental exposure | Pass by/through nearest blue space when commuting  | Response recorded = 9 (n= 3) | Incidental exposure, is one of the three types of interaction with nature identified from a review of the literature (Keniger et al., 2013).Regular use of a vegetated trail has been associated with reduced stress (Honold et al., 2016). |
|  *Yes* | Yes |
|  *No (ref)* | No |
| Intentional – blue space | Blue space visits within last 4 weeks | Response recorded = 9 (n = 6) | Intentional exposure, is one of the three types of interaction with nature identified from a review of the literature (Keniger et al., 2013).Marine and coastal environments found to have strongest associations with happiness(MacKerron and Mourato, 2013) and feelings of restoration(Author et al., 2013). |
|  *≥1 a week* | >1 a week, 1 a week |
|  *1-2 a month* | 1-2 a month |
|  *Not at all (ref)* | Not at all |
| Intentional – green space | Green space visits within last 4 weeks | No exclusions | Intentional exposure, is one of the three types of interaction with nature identified from a review of the literature (Keniger et al., 2013).Regular use of a vegetated trail has been associated with reduced stress (Honold et al., 2016). Those living in the greenest areas of Hong Kong have lower risk of mortality (Wang et al., 2017; Xu et al., 2017). |
|  *≥1 a week* | >1 a week, 1 a week |
|  *1-2 a month* | 1-2 a month |
|  *Not at all (ref)* | Not at all |
|  |  |  |

Supplementary Table 2 Nearby blue space characteristics and intentional exposure outcome variable for research question 2

|  |  |  |  |
| --- | --- | --- | --- |
| **Independent/outcome variables** | **Response options** | **Excluded where…** | References |
| Safe | “I feel it is safe” | No exclusions | Perceived safety found to affect visitation of woodland in the UK (Morris et al., 2011). |
|  *Agree* | Slightly agree, agree. strongly agree |
|  *Don’t agree (ref)* | Strongly disagree, disagree, slightly disagree, no comments |
| Presence of wildlife | “There is wildlife to see and enjoy” | Response = 9 (n = 3) | “To follow the seasons, flora and fauna” was one of the most important reasons for visiting green space in a Danish study (Schipperijn et al., 2010). |
|  *Agree* | Slightly agree, agree, strongly agree |
|  *Don’t agree (ref)* | Strongly disagree, disagree, slightly disagree, no comments |
| Free from litter | “The area is free from litter/vandalism” | Response = 9 (n = 2) | Litter was found to affect preferences and trail use in urban green spaces (Arnberger and Eder, 2015; Reynolds et al., 2007). |
|  *Agree* | Slightly agree, agree. strongly agree |
|  *Don’t agree (ref)* | Strongly disagree, disagree, slightly disagree, no comments |
| Good facilities | “There are good facilities” | Response = 9 (n = 1) | Lack of facilities found to be a barrier to visiting woodland in Brittan (Morris et al., 2011). Presence of facilities found to be related to trail use (Reynolds et al., 2007). |
|  *Agree* | Slightly agree, agree. strongly agree |
|  *Don’t agree (ref)* | Strongly disagree, disagree, slightly disagree, no comments |
|  |  |  |  |
| Intentional exposure | Nearest blue space visits in last 4 weeks | No exclusions | Intentional blue space exposure of ≥1 a week found to be related to wellbeing, this study. |
|  *≥1 a week* | 4-6 times, 7-9 times, more than 10 times |
|  *<1 a week (ref)* | 1-2, not at all  |

Supplementary Table 3: Independent variables characterising last visit to blue space for research question 3 with single visit outcome variable

|  |  |  |  |
| --- | --- | --- | --- |
| **Independent/outcome variable** | **Response options** | **Excluded where…** | **References** |
| Duration | Hours and minutes spent in the nearest blue space on last visit | No response given (n = 318) | Longer visits to nature related to mental health and wellbeing (Barton and Pretty, 2010; Shanahan et al., 2016; van den Berg et al., 2016; Author et al., 2013). |
|  *30 - <60 mins* |
|  *60 - <120 mins* |
|  *≥120 mins* |
|  *<30 mins (ref)* |
| Activity intensity | Main activity on last visit. Activities categorised according to their metabolic equivalent of task (MET) rate as in (Author, 2015). MET rate per activity was taken from the ‘Compendium of Physical Activities’(Ainsworth et al., 2017) | Response = 99 or NA and no “other” described (n = 310) | Sports, running and exercise strongest activity related to happiness (MacKerron and Mourato, 2013). |
|  *High* | MET rate ≥6(U.S. Department of Health and Human Services, 2008) Running, cycling, swimming |
|  *Moderate* | MET rate ≥3 - <6(U.S. Department of Health and Human Services, 2008) Strolling, dog walking, hiking, fishing, playing with children, ball game, dance, visiting an attraction, tai chi, tomb sweeping, work |
|  *Low (ref)* | MET rate <3 ((Pate et al., 2008): Socialising, quiet activity e.g. reading, eating and drinking, in car, watching wildlife, BBQ, taking a boat/transport/ferry, photo taking, religious activities, shopping, resting |
| Water contact |  |  |  |
|  *Yes* | Swimming, fishing or on a boat/ferry | Response = 99 or NA and no “other” described (n = 310) |  |
|  *No (ref)* | Different main activity to above |  |
|  |  |  |
| Single visit wellbeing outcome | Composite of:It made me feel: a) happy, b) anxious; c) I found the visit worthwhile; and d) I was satisfied with the visit. Strongly disagree (1)Disagree (2)Slightly disagree (3)No comments (4)Slightly Agree (5)Agree (6)Strongly agree (7)The four items showed good internal consistency (Chronbach’s *α* = 0.69) | Responses = 9 or NA 1. n = 301
2. n = 304
3. n = 303
4. n = 304
 | Four items drawn from the English MENE survey (Natural England, 2017), which represent aspects of subjective wellbeing with the most academic and policy consensus: positive and negative experiential wellbeing evaluative and eudaimonic(Kahneman et al., 1999; O'Donovan et al., 2017). |
|  *High wellbeing* | Mean of responses (b reversed) ≥6 |
|  *Lower wellbeing (ref)* | Mean of responses (b reversed) ≤ 5 |
|  |  |

Supplementary Table 4: *Socio-demographic variables for all research questions*

|  |  |  |  |
| --- | --- | --- | --- |
| **Independent variable** | **Response options** | **Excluded where…** | **References** |
| District |  | Response recorded = 99 (n = 1) | Characteristics vary with district such as population density (Census and Statistics Dept., 2011), green space characteristics (Tian et al., 2011) and commuting patterns (Hui and Lam, 2005). |
|  *HK island* | Central and Western, Wan Chai, Eastern, Southern |
|  *New Territories* | Tsuen Wan, Kwai Tsing, Sai Kung, Tai Po, North, Tuen Mun, Yuen Long, Islands |
|  *Sha Tin* | Sha Tin |
|  *Kowloon (ref)* | Kowloon City, Wong Tai Sin, Kwun Tong, Yau Tsim Mong, Sham Shui Po |
| Physical functioning |  | Response recorded == 9 (n =1) | Visits to the coast found to be more likely if respondents didn’t have an illness or disability (Author et al., 2014). Physical functioning has been found to be related to the WHO-5 Wellbeing Index in an older Japanese sample (Awata et al., 2007), depressive symptoms in adolescents (Denny et al., 2014) and self-reported health in an older sample in Ghana (Fonta et al., 2017). |
|  *Not restricted* | No |
|  *Restricted (ref)* | Yes a lot, Yes to some extent |
| Age |  | Response recorded ==9 (n = 2) | Age found to be related to visits to the coast(Author et al., 2014), self-reported health (Nan et al., 2005), wellbeing (Blanchflower and Oswald, 2004) and, for Hong Kong residents, life satisfaction (Hsu et al., 2017). |
|  *51-60* | 51 - 60 |
|  *61 -70* | 61 - 70 |
|  *<50 (ref)* | 18 – 50 |  |
| Access to garden |  | Response recorded == 9 (n = 21) | Access to a garden has been associated with reduced stress and lower likelihood of obesity (Nielsen and Hansen, 2007). Access to a garden may compensate for the absence of green spaces (de Vries et al., 2003). |
|  *Yes* | Access to private garden, access to private communal garden, access to private outdoor space (not a garden; e.g. balcony) |
|  *No (ref)* | No access to private garden/outdoor space |
| Occupation |  | No exclusions | Those not in full time employment found to visit coast more often (Author et al., 2014).Retirement and unemployment can affect both mental health and physical health (Horner and Cullen, 2016; McKee-Ryan et al., 2005; Oshio and Kan, 2017; Paul and Moser, 2009; Shiba et al., 2017) and healthcare use (Song et al., 2017). |
|  *Others* | Unemployed, permanently sick/disabled, housekeeper, others |  |
|  *Retired* | Retired |  |
|  *Student* | Education/training |  |
|  *Working full time (ref)* | Selecting only: In paid work(full-time/part time) |  |
| Income |  | Response recorded = 12 (n = 1) | Reflects the median household income in Hong Kong of $26,000 HKD (Census and Statistics Dept., 2017). Self-reported health has been found to be related to income (Nan et al., 2005) and the life evaluation component of wellbeing (Kahneman and Deaton, 2010). |
|  *High* | ≥25,000 HKD |
|  *Prefer not to answer* | Prefer not to answer |
|  *Low (ref)* | 0 - 24,999 HKD |
| Sex |  | Response recorded = 9 (n = 2) | Sex found to be related to self-reported health (Crimmins et al., 2011; Nan et al., 2005). Females are more likely to report depressive symptoms (Crimmins et al., 2011). Gender differences in the relationship between green space coverage and health have been found (Richardson and Mitchell, 2010). |
|  *Male* |  |
|  *Female (ref)* |  |
| Meeting recommended PA |  | Reported response == 9 (n = 7) | Higher levels of PA linked to green space visit frequency (Shanahan et al., 2016). Frequency of PA found to be related to physical health and mental health and wellbeing (Mammen and Faulkner, 2013; McMahon et al., 2017; Poitras et al., 2016). |
|  *Yes* | ≥5 days with ≥30-mins PA in the past week |
|  *No (ref)* | <5 days with ≥30-mins PA in the past week |
| **For RQ1 and 2** |  |  |  |
| Children  |  | Reported response = NA (n = 4)  | Visits to the coast were more likely if there were children in the household (Author et al., 2014). Having children in the household related to aspects of wellbeing (Deaton and Stone, 2014). |
|  None  | No children living in household |
|  ≥1 (ref) | 1 or more children living in household |
| Marital status |  |  | Unmarried people are more likely to report lower levels of life satisfaction and higher levels of depression than those who are married (Hsu et al., 2017; Lam et al., 2015; Williams, 2003). People who are married found to be more likely to visit woodlands in England (Morris et al., 2011). |
|  Married | Married or cohabiting | Reported response = 9 (n = 2) |
|  Prefer not to answer | Prefer not to answer |
|  Single (ref) | Single, separated, divorced or widowed |
| Dog ownership |  | No exclusions | Dog walking associated with a reduction in the decline of physical activity and green space use with aging (Dalton et al., 2016). Dog ownership associated with health (Mubanga et al., 2017) and an increased likelihood for coastal visits within the last week (Author et al., 2014). |
|  Yes | Respondent has a dog |
|  No (ref) | No dog |
| **For RQ3** |  |  |  |
| Others on visit to nearest blue space |  | Visits to nature with children associated with less restoration than visits alone (Author et al., 2013). |
|  Adults and children | With one or more of both adults and children on most recent visit | Response = NA (adults n = 300, children n = 301) |
|  Only children | With one or more children no other adults on most recent visit |
|  None  | With no other adults and no other children on most recent visit |
|  Only adults | With one or more adults and no children on most recent visit |
|  |  |  |

Supplementary Table 5.Full sample numbers for research question 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | Total   | Total in modelling sample  |  Self-reported health\* |  WHO-5 Wellbeing Index\* |
| Exposure or accessibility | Good | Not good | High | Low |
| N | (%) | N | (%) |  N |  (%) |  N |  (%) |  N | (%) |  N | (%) |
| **Blue space**  |  |  |  |  |  |  |  |  |  |  |  |  |
| Indirect (view) |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes*  | 390 | 39 | 368 | 38.45 | 150 | 40.76 | 218 | 59.24 | 232 | 63.04 | 136 | 36.96 |
|  *No (ref)* | 610 | 61 | 589 | 61.55 | 175 | 29.71 | 411 | 69.78 | 317 | 53.82 | 269 | 45.67 |
| Incidental (commute) |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* | 589 | 59 | 559 | 58.60 | 216 | 38.64 | 343 | 61.36 | 353 | 63.15 | 206 | 36.85 |
|  *No (ref)* | 408 | 41 | 395 | 41.40 | 109 | 27.59 | 286 | 72.41 | 196 | 49.62 | 199 | 50.38 |
| Intentional (visits) |  |  |  |  |  |  |  |  |  |  |  |  |
|  *≥1 a week* | 381 | 38 | 360 | 37.74 | 144 | 40.00 | 216 | 60.00 | 241 | 66.94 | 119 | 33.06 |
|  *1-2 a month* | 353 | 35 | 345 | 36.16 | 120 | 34.78 | 225 | 65.22 | 200 | 57.97 | 145 | 42.03 |
|  *Not at all (ref)* | 260 | 26 | 249 | 26.10 | 61 | 24.50 | 188 | 75.50 | 108 | 43.37 | 141 | 56.63 |
| Within walking distance |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* | 561 | 56 | 531 | 55.66 | 200 | 37.66 | 331 | 62.34 | 333 | 62.71 | 198 | 37.29 |
|  *No (ref)* | 439 | 44 | 423 | 44.34 | 125 | 29.55 | 298 | 70.45 | 216 | 51.06 | 207 | 48.94 |
| **Green space** (intentional) |  |  |  |  |  |  |  |  |  |  |  |  |
|  *≥1 a week* | 570 | 57 | 540 | 56.60 | 212 | 39.26 | 328 | 60.74 | 341 | 63.15 | 199 | 36.85 |
|  *1-2 a month* | 343 | 34 | 329 | 34.49 | 101 | 30.70 | 228 | 69.30 | 175 | 53.19 | 154 | 46.81 |
|  *Not at all (ref)* | 87 | 9 | 85 | 8.91 | 12 | 14.12 | 73 | 85.88 | 33 | 38.82 | 52 | 61.18 |
| District |  |  |  |  |  |  |  |  |  |  |  |  |
|  *HK island* | 88 | 8.8 | 83 | 8.70 | 29 | 34.94 | 54 | 65.06 | 46 | 55.42 | 37 | 44.58 |
|  *New Territories* | 323 | 32.3 | 308 | 32.29 | 120 | 38.96 | 188 | 61.04 | 177 | 57.47 | 131 | 42.53 |
|  *Sha Tin* | 245 | 24.5 | 230 | 24.11 | 78 | 33.91 | 152 | 66.09 | 143 | 62.17 | 87 | 37.83 |
|  *Kowloon (ref)* | 343 | 34.3 | 333 | 34.91 | 98 | 29.43 | 235 | 70.57 | 183 | 54.95 | 150 | 45.05 |
| Physical functioning |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Not restricted* | 697 | 69.7 | 669 | 70.13 | 291 | 43.50 | 378 | 56.50 | 434 | 64.87 | 235 | 35.13 |
|  *Restricted (ref)* | 302 | 30.2 | 285 | 29.87 | 34 | 11.93 | 251 | 88.07 | 115 | 40.35 | 170 | 59.65 |
| Age |  |  |  |  |  |  |  |  |  |  |  |  |
|  *51-60* | 378 | 37.8 | 368 | 38.57 | 128 | 34.78 | 240 | 65.22 | 204 | 55.43 | 164 | 44.57 |
|  *61 -70* | 416 | 41.6 | 388 | 40.67 | 129 | 33.25 | 259 | 66.75 | 241 | 62.11 | 147 | 37.89 |
|  *<50 (ref)* | 204 | 20.4 | 198 | 20.75 | 68 | 34.34 | 130 | 65.66 | 104 | 52.53 | 94 | 47.47 |
| Access to garden |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* | 518 | 51.8 | 501 | 52.52 | 175 | 34.93 | 326 | 65.07 | 312 | 62.28 | 189 | 37.72 |
|  *No (ref)* | 461 | 46.1 | 453 | 47.48 | 150 | 33.11 | 303 | 66.89 | 237 | 52.32 | 216 | 47.68 |
| Occupation |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Others* | 304 | 30.4 | 286 | 29.98 | 71 | 24.83 | 215 | 75.17 | 163 | 56.99 | 123 | 43.01 |
|  *Retired* | 272 | 27.2 | 253 | 26.52 | 106 | 41.90 | 147 | 58.10 | 171 | 67.59 | 82 | 32.41 |
|  *Student* | 9 | 0.9 | 9 | 0.94 | 4 | 44.44 | 5 | 55.56 | 5 | 55.56 | 4 | 44.44 |
|  *Working full time (ref)* | 415 | 41.5 | 406 | 42.56 | 144 | 35.47 | 262 | 64.53 | 210 | 51.72 | 196 | 48.28 |
| Income |  |  |  |  |  |  |  |  |  |  |  |  |
|  *High* | 376 | 37.6 | 368 | 38.57 | 150 | 40.76 | 218 | 59.24 | 224 | 60.87 | 144 | 39.13 |
|  *Prefer not to answer* | 102 | 10.2 | 92 | 9.64 | 35 | 38.04 | 57 | 61.96 | 53 | 57.61 | 39 | 42.39 |
|  *Low (ref)* | 521 | 52.1 | 494 | 51.78 | 140 | 28.34 | 354 | 71.66 | 272 | 55.06 | 222 | 44.94 |
| Sex |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Male* | 493 | 49.3 | 475 | 49.79 | 197 | 41.47 | 278 | 58.53 | 285 | 60.00 | 190 | 40.00 |
|  *Female (ref)* | 505 | 50.5 | 479 | 50.21 | 128 | 26.72 | 351 | 73.28 | 264 | 55.11 | 215 | 44.89 |
| Meeting recommended PA |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* | 210 | 21 | 192 | 20.13 | 92 | 47.92 | 100 | 52.08 | 147 | 76.56 | 45 | 23.44 |
|  *No (ref)* | 790 | 79 | 762 | 79.87 | 233 | 30.58 | 529 | 69.42 | 402 | 52.76 | 360 | 47.24 |
| **For RQ1 and 2** |  |  |  |  |  |  |  |  |  |  |  |  |
| Children  |  |  |  |  |  |  |  |  |  |  |  |  |
|  None  | 784 | 78.4 | 750 | 78.62 | 258 | 34.40 | 492 | 65.60 | 446 | 59.47 | 304 | 40.53 |
|  ≥1 (ref) | 212 | 21.2 | 204 | 21.38 | 67 | 32.84 | 137 | 67.16 | 103 | 50.49 | 101 | 49.51 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Marital status |  |  |  |  |  |  |  |  |  |  |  |  |
|  Married | 786 | 78.6 | 753 | 78.93 | 270 | 35.86 | 483 | 64.14 | 446 | 59.23 | 307 | 40.77 |
|  Prefer not to answer | 10 | 1 | 9 | 0.94 | 2 | 22.22 | 7 | 77.78 | 5 | 55.56 | 4 | 44.44 |
|  Single (ref) | 202 | 20.2 | 192 | 20.13 | 53 | 27.60 | 139 | 72.40 | 98 | 51.04 | 94 | 48.96 |
| Dog ownership |  |  |  |  |  |  |  |  |  |  |  |  |
|  Yes | 73 | 7.3 | 70 | 7.34 | 22 | 31.43 | 48 | 68.57 | 36 | 51.43 | 34 | 48.57 |
|  No (ref) | 927 | 92.7 | 884 | 92.66 | 303 | 34.28 | 581 | 65.72 | 513 | 58.03 | 371 | 41.97 |
| \*These represent totals for modelling sample |

*Supplementary Table 6: Odds ratios (OR) and 95% Confidence Intervals (CIs)* for unadjusted, adjusted and socio-demographic only models results for research question 1.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Self-reported health outcome |  | WHO-5 Wellbeing Index outcome |
|  | Unadjusted | Socio-demographic | Adjusted |  | Unadjusted | Socio-demographic | Adjusted |
| Variable | OR | 95% CI | OR | 95% CI | OR | 95% CI |  | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| View |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* | 1.4\* | 1.0 – 1.9 |  |  | 1.7\*\* | 1.2 – 2.4 |  | 1.1 | 0.8 – 1.5 |  |  | 1.0 | 0.7 – 1.4 |
|  *No (ref)* | - | - |  |  | - | - |  | - | - |  |  | - | - |
| Walking distance |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* | 1.0 | 0.7 – 1.4 |  |  | 0.8 | 0.6 – 1.2 |  | 1.1 | 0.8 – 1.5 |  |  | 1.1 | 0.8 – 1.6 |
|  *No (ref)* | - | - |  |  | - | - |  | - | - |  |  | - | - |
| Commute |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* | 1.4 | 1.0 – 1.9 |  |  | 1.1 | 0.8 – 1.6 |  | 1.3 | 1.0 – 1.8 |  |  | 1.2 | 0.9 – 1.7 |
|  *No (ref)* | - | - |  |  | - | - |  | - | - |  |  | - | - |
| Blue space visit  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *≥1 a week* | 1.2 | 0.8 – 1.9 |  |  | 1.0 | 0.6 – 1.6 |  | 1.8\*\* | 1.2 – 2.7 |  |  | 1.7\* | 1.1 – 2.6 |
|  *1-2 a month* | 1.3 | 0.9 – 1.9 |  |  | 1.0 | 0.7 – 1.6 |  | 1.5\* | 1.1 – 2.2 |  |  | 1.4 | 1.0 – 2.2 |
|  *Not at all (ref)* | - | - |  |  | - | - |  | - | - |  |  | - | - |
| Green space visit  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *≥1 a week* | 3.0\*\* | 1.5 – 6.0 |  |  | 3.3\*\* | 1.5 – 7.0 |  | 1.7\* | 1.0 – 2.8 |  |  | 1.3 | 0.7 – 2.3 |
|  *1-2 a month* | 2.2\* | 1.1 – 4.4 |  |  | 2.7\* | 1.3 – 5.7 |  | 1.3 | 0.8 – 2.2 |  |  | 1.1 | 0.6 – 1.9 |
|  *Not at all (ref)* | - | - |  |  | - | - |  | - | - |  |  | - | - |
| District |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *HK island* |  |  | 0.9 | 0.5 – 1.7 | 0.8 | 0.4 – 1.5 |  |  |  | 0.8 | 0.5 – 1.3 | 0.7 | 0.4 – 1.2 |
|  *New Territories* |  |  | 1.2 | 0.8 – 1.7 | 1.1 | 0.7 – 1.6 |  |  |  | 0.8 | 0.6 – 1.1 | 0.7\* | 0.5 – 1.0 |
|  *Sha Tin* |  |  | 1.2 | 0.8 – 1.9 | 1.0 | 0.7 – 1.7 |  |  |  | 1.1 | 0.8 – 1.7 | 0.9 | 0.6 – 1.4 |
|  *Kowloon (ref)* |  |  | - |  | - | - |  |  |  | - |  | - |  |
| Physical functioning |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Not restricted* |  |  | 4.6\*\*\* | 3.0 – 7.0 | 5.0\*\*\* | 3.2 – 7.7 |  |  |  | 2.2\*\*\* | 1.6 – 3.1 | 2.2\*\*\* | 1.6 – 3.1 |
|  *Restricted (ref)* |  |  | - |  | - | - |  |  |  | - |  | - |  |
| Age |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *51-60* |  |  | 0.9 | 0.5 – 1.3 | 0.8 | 0.5 – 1.3 |  |  |  | 0.9 | 0.6 – 1.3 | 0.8 | 0.5 – 1.3 |
|  *61 -70* |  |  | 0.7 | 0.4 – 1.3 | 0.7 | 0.4 – 1.2 |  |  |  | 0.9 | 0.5 – 1.5 | 0.8 | 0.5 – 1.4 |
|  *<50 (ref)* |  |  | - |  | - | - |  |  |  | - |  | - |  |
| Access to garden  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* |  |  | 0.8 | 0.6 – 1.1 | 0.8 | 0.6 – 1.1 |  |  |  | 1.6\*\* | 1.2 – 2.1 | 1.5\*\* | 1.1 – 2.0 |
|  *No (ref)* |  |  | - |  | - | - |  |  |  | - |  | - |  |
| Occupation |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Others* |  |  | 0.8 | 0.5 – 1.2 | 0.7 | 0.5 – 1.1 |  |  |  | 1.5\* | 1.0 – 2.3 | 1.5 | 1.0 – 2.2 |
|  *Retired* |  |  | 1.3 | 0.8 – 2.0 | 1.2 | 0.7 – 1.8 |  |  |  | 1.9\*\* | 1.2 –3.0 | 1.8\* | 1.1 – 2.7 |
|  *Student* |  |  | 1.3 | 0.3 – 6.2 | 1.4 | 0.3 – 6.7 |  |  |  | 1.1 | 0.3 – 4.7 | 1.2 | 0.3 – 5.3 |
|  *Work full time (ref)* |  |  | - |  | - | - |  |  |  | - |  | - |  |
| Income |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *High* |  |  | 1.5\* | 1.1 – 2.2 | 1.5\* | 1.0 – 2.1 |  |  |  | 1.4 | 1.0 – 1.9 | 1.3 | 0.9 – 1.9 |
|  *Prefer not to answer* |  |  | 2.0\* | 1.1 – 3.4 | 2.0\* | 1.2 – 3.5 |  |  |  | 1.0 | 0.6 – 1.7 | 1.0 | 0.6 – 1.7 |
|  *Low (ref)* |  |  | - |  |  | - |  |  |  | - |  | - |  |
| Sex |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Male* |  |  | 1.6\*\* | 1.1 – 2.4 | 1.6\* | 1.1 – 2.4 |  |  |  | 1.0 | 0.7 – 1.4 | 1.0 | 0.7 – 1.4 |
|  *Female (ref)* |  |  | - |  | - | - |  |  |  | - |  | - |  |
| Children |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *None* |  |  | 1.0 | 0.7 – 1.5 | 1.0 | 0.7– 1.6 |  |  |  | 1.6\* | 1.1 – 2.4 | 1.6\* | 1.1 – 2.4 |
|  *≥1 (ref)* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Marital status |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Married* |  |  | 1.1 | 0.7 – 1.8 | 1.1 | 0.7 – 1.7 |  |  |  | 1.3 | 0.9 – 1.9 | 1.2 | 0.8 – 1.8 |
|  *Prefer not to answer* |  |  | 0.9 | 0.1 – 5.9 | 1.0 | 0.1 – 7.3 |  |  |  | 2.6 | 0.6 – 11.6 | 3.1 | 0.7 – 13.6 |
|  *Single (ref)* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dog ownership |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Dog* |  |  | 0.9 | 0.5 – 1.7 | 0.9 | 0.5 – 1.7 |  |  |  | 0.8 | 0.5 – 1.4 | 0.9 | 0.5 – 1.5 |
|  *No dog (ref)* |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Physically active |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Yes* |  |  | 2.0\*\*\* | 1.3 – 3.0 | 1.9\*\* | 1.3 – 2.8 |  |  |  | 2.3\*\*\* | 1.5 – 3.6 | 2.2\*\*\* | 1.5 – 3.3 |
|  *No (ref)* |  |  | - |  | - | - |  |  |  | - |  | - |  |
| WHO-5 Index  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *High wellbeing*  |  |  | 4.2\*\*\* | 3.0 –5.9 | 4.0\*\*\* | 2.8 – 5.7 |  |  |  |  |  |  |  |
|  *Low wellbeing* |  |  | - | - | - | - |  |  |  |  |  |  |  |
| Health status |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  *Good* |  |  |  |  |  |  |  |  |  | 4.2\*\*\* | 3.0 – 6.0 | 4.0\*\*\* | 2.8 – 5.7 |
|  *Not good* |  |  |  |  |  |  |  |  |  | - |  | - |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intercept | -2.05 |  | -3.30 |  | -4.35 |  |  | -0.72 |  | -1.86 |  | -2.24 |  |
| N | 954 |  | 954 |  | 954 |  |  | 954 |  | 954 |  | 954 |  |
| AIC | 1200 |  | 1027.3 |  | 1019.7 |  |  | 1270.30 |  | 1139.00 |  | 1137.3 |  |
| Cox & Snell R2 | 0.041 |  | 0.22 |  | 0.24 |  |  | 0.047 |  | 0.19 |  | 0.20 |  |
| Nagelkerke R2 | 0.057 |  | 0.30 |  | 0.33 |  |  | 0.064 |  | 0.26 |  | 0.27 |  |
|  |  |  | OR = Odds Ratio. CI = Confidence Interval. \* p <.05; \*\* p <.01, \*\*\*p < 0.001 |

Supplementary Table 7 Number of respondents for each variable and covariates for research question 2. For the whole sample, modelling sample with exclusions and both possible outcomes in the modelling sample.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variables | Total | Modelling sample | Visit blue space >=1 a week | Visit blue space less often |
|  | N | % | N | % | N | % | N | % |
| View |  |  |  |  |  |  |  |  |
|  *Yes* | 390 | 39.0 | 370 | 38.6 | 173 | 46.8 | 197 | 53.2 |
|  *No (ref)* | 610 | 61.0 | 589 | 61.4 | 108 | 18.3 | 481 | 81.7 |
| Commute |  |  |  |  |  |  |  |  |
|  *Yes* | 589 | 59.0 | 562 | 58.6 | 240 | 42.7 | 322 | 57.3 |
|  *No (ref)* | 408 | 41.0 | 397 | 41.4 | 41 | 10.3 | 356 | 89.7 |
| Walking distance |  |  |  |  |  |  |  |  |
|  *Yes* | 561 | 56.0 | 534 | 55.7 | 236 | 44.2 | 298 | 55.8 |
|  *No (ref)* | 439 | 44.0 | 425 | 44.3 | 45 | 10.6 | 380 | 89.4 |
| Safe |  |  |  |  |  |  |  |  |
|  *Agree* | 661 | 66.1 | 634 | 66.1 | 235 | 37.1 | 399 | 62.9 |
|  *Don’t agree (ref)* | 339 | 33.9 | 325 | 33.9 | 46 | 14.2 | 279 | 85.8 |
| Presence of wildlife |  |  |  |  |  |  |  |  |
|  *Agree* | 524 | 52.6 | 507 | 52.9 | 191 | 37.7 | 316 | 62.3 |
|  *Don’t agree (ref)* | 473 | 47.4 | 452 | 47.1 | 90 | 19.9 | 362 | 80.1 |
| Free from litter |  |  |  |  |  |  |  |  |
|  *Agree* | 453 | 45.4 | 440 | 45.9 | 160 | 36.4 | 280 | 63.6 |
|  *Don’t agree (ref)* | 545 | 54.6 | 519 | 54.1 | 121 | 23.3 | 398 | 76.7 |
| Good facilities |  |  |  |  |  |  |  |  |
|  *Agree* | 755 | 75.6 | 729 | 76.0 | 250 | 34.3 | 479 | 65.7 |
|  *Don’t agree (ref)* | 244 | 24.4 | 230 | 24.0 | 31 | 13.5 | 199 | 86.5 |
| District |  |  |  |  |  |  |  |  |
|  *HK island* | 88 | 8.8 | 84 | 8.8 | 26 | 31.0 | 58 | 69.0 |
|  *New Territories* | 323 | 32.3 | 310 | 32.3 | 97 | 31.3 | 213 | 68.7 |
|  *Sha Tin* | 245 | 24.5 | 232 | 24.2 | 109 | 47.0 | 123 | 53.0 |
|  *Kowloon (ref)* | 343 | 34.3 | 333 | 34.7 | 49 | 14.7 | 284 | 85.3 |
| Physical functioning |  |  |  |  |  |  |  |  |
|  *Not restricted* | 697 | 69.7 | 674 | 70.3 | 205 | 30.4 | 469 | 69.6 |
|  *Restricted (ref)* | 302 | 30.2 | 285 | 29.7 | 76 | 26.7 | 209 | 73.3 |
| Age |  |  |  |  |  |  |  |  |
|  *51-60* | 378 | 37.8 | 368 | 38.4 | 88 | 23.9 | 280 | 76.1 |
|  *61 -70* | 416 | 41.6 | 393 | 41.0 | 153 | 38.9 | 240 | 61.1 |
|  *<50 (ref)* | 204 | 20.4 | 198 | 20.6 | 40 | 20.2 | 158 | 79.8 |
| Access to garden |  |  |  |  |  |  |  |  |
|  *Yes* | 518 | 51.8 | 506 | 52.8 | 161 | 31.8 | 345 | 68.2 |
|  *No (ref)* | 461 | 46.1 | 453 | 47.2 | 120 | 26.5 | 333 | 73.5 |
| Occupation |  |  |  |  |  |  |  |  |
|  *Others* | 304 | 30.4 | 288 | 30.0 | 77 | 26.7 | 211 | 73.3 |
|  *Retired* | 272 | 27.2 | 256 | 26.7 | 107 | 41.8 | 149 | 58.2 |
|  *Student* | 9 | 0.9 | 9 | 0.9 | 1 | 11.1 | 8 | 88.9 |
|  *Working full time (ref)* | 415 | 41.5 | 406 | 42.3 | 96 | 23.6 | 310 | 76.4 |
| Income |  |  |  |  |  |  |  |  |
|  *High* | 376 | 37.6 | 368 | 38.4 | 117 | 31.8 | 251 | 68.2 |
|  *Prefer not to answer* | 102 | 10.2 | 93 | 9.7 | 23 | 24.7 | 70 | 75.3 |
|  *Low (ref)* | 521 | 52.1 | 498 | 51.9 | 141 | 28.3 | 357 | 71.7 |
| Sex |  |  |  |  |  |  |  |  |
|  *Male* | 493 | 49.3 | 477 | 49.7 | 154 | 32.3 | 323 | 67.7 |
|  *Female (ref)* | 505 | 50.5 | 482 | 50.3 | 127 | 26.3 | 355 | 73.7 |
| Meeting recommended PA |  |  |  |  |  |  |  |
|  *Yes* | 210 | 21.0 | 193 | 20.1 | 96 | 49.7 | 97 | 50.3 |
|  *No (ref)* | 790 | 79.0 | 766 | 79.9 | 185 | 24.2 | 581 | 75.8 |
| Children |  |  |  |  |  |  |  |  |
|  *None* | 784 | 78.4 | 755 | 78.7 | 230 | 30.5 | 525 | 69.5 |
|  *≥1 (ref)* | 212 | 21.2 | 204 | 21.3 | 51 | 25.0 | 153 | 75.0 |
| Marital status |  |  |  |  |  |  |  |  |
|  *Married* | 786 | 78.6 | 757 | 78.9 | 234 | 30.9 | 523 | 69.1 |
|  *Prefer not to answer* | 10 | 1.0 | 9 | 0.9 | 1 | 11.1 | 8 | 88.9 |
|  *Single (ref)* | 202 | 20.2 | 193 | 20.1 | 46 | 23.8 | 147 | 76.2 |
| Dog ownership |  |  |  |  |  |  |  |  |
|  *Yes* | 73 | 7.3 | 69 | 7.2 | 23 | 33.3 | 46 | 66.7 |
|  *No (ref)* | 927 | 92.7 | 890 | 92.8 | 258 | 29.0 | 632 | 71.0 |
| Health status |  |  |  |  |  |  |  |  |
|  Good | 340 | 34.0 | 326 | 34.0 | 131 | 40.2 | 195 | 59.8 |
|  Not good | 659 | 65.9 | 633 | 66.0 | 150 | 23.7 | 483 | 76.3 |

*Supplementary Table 8: Odds ratios (OR) and 95% Confidence Intervals (CIs)* for unadjusted, adjusted and socio-demographic only models for research question 2: Blue Space frequency (ORs in Bold have lower bound CIs ≥1.0).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Unadjusted | Socio-demographic | Adjusted |
| Variables | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| View |  |  |  |  |  |  |
|  *Yes* | 1.8\*\*\* | 1.3 - 2.6 |  |  | 1.7\*\* | 1.2 - 2.5 |
|  *No (ref)* |  |  |  |  |  |  |
| Walking distance |  |  |  |  |  |  |
|  *Yes* | 3.0\*\*\* | 2.0 - 4.4 |  |  | 2.7\*\*\* | 1.8 - 4.2 |
|  *No (ref)* |  |  |  |  |  |  |
| Commute |  |  |  |  |  |  |
|  *Yes* | 3.4\*\*\* | 2.3 - 5.0 |  |  | 3.0\*\*\* | 2.0 - 4.5 |
|  *No (ref)* |  |  |  |  |  |  |
| Safe |  |  |  |  |  |  |
|  *Agree* | 1.7\* | 1.1 - 2.5 |  |  | 1.5 | 1.0 - 2.4 |
|  *Don’t agree (ref)* |  |  |  |  |  |  |
| Presence of wildlife |  |  |  |  |  |  |
|  *Agree* | 1.7\*\* | 1.2 - 2.4 |  |  | 1.6\* | 1.1 - 2.3 |
|  *Don’t agree (ref)* |  |  |  |  |  |  |
| Free from litter |  |  |  |  |  |  |
|  *Agree* | 1.2 | 0.9 - 1.7 |  |  | 1.1 | 0.8 - 1.6 |
|  *Don’t agree (ref)* |  |  |  |  |  |  |
| Good facilities |  |  |  |  |  |  |
|  *Agree* | 1.9\*\* | 1.2 - 3.1 |  |  | 2.0\*\* | 1.2 - 3.3 |
|  *Don’t agree (ref)* |  |  |  |  |  |  |
| District |  |  |  |  |  |  |
|  *HK island* |  |  | 2.5\*\* | 1.4 - 4.5 | 1.8 | 0.9 - 3.5 |
|  *New Territories* |  |  | 2.4\*\*\* | 1.6 - 3.6 | 1.6\* | 1.0 - 2.5 |
|  *Sha Tin* |  |  | 4.8\*\*\* | 3.1 - 7.3 | 2.3\*\*\* | 1.4 - 3.7 |
|  *Kowloon (ref)* |  |  |  |  |  |  |
| Physical functioning |  |  |  |  |  |  |
|  *Not restricted* |  |  | 1.0 | 0.7 - 1.5 | 1.1 | 0.7 - 1.6 |
|  *Restricted (ref)* |  |  |  |  |  |  |
| Age |  |  |  |  |  |  |
|  *51 - 60* |  |  | 1.0 | 0.6 - 1.6 | 1.0 | 0.6 - 1.6 |
|  *61 - 70* |  |  | 1.7 | 1.0 - 2.9 | 1.9\* | 1.0 - 3.4 |
|  *<50 (ref)* |  |  |  |  |  |  |
| Access to garden |  |  |  |  |  |  |
|  *Yes* |  |  | 1.2 | 0.8 - 1.6 | 0.9 | 0.6 - 1.2 |
|  *No (ref)* |  |  |  |  |  |  |
| Occupation  |  |  |  |  |  |  |
|  *Other* |  |  | 0.9 | 0.6 - 1.4 | 0.8 | 0.5 - 1.4 |
|  *Retired* |  |  | 1.4 | 0.9 - 2.2 | 1.1 | 0.7 - 1.8 |
|  *Student* |  |  | 0.3 | 0.0 - 2.8 | 0.4 | 0.0 - 4.4 |
|  *Working full time (ref)* |  |  |  |  |  |  |
| Income |  |  |  |  |  |  |
|  *High* |  |  | 1.6\* | 1.1 - 2.3 | 1.6\* | 1.1 - 2.4 |
|  *Prefer not to answer* |  |  | 0.8 | 0.5 - 1.4 | 0.8 | 0.4 - 1.6 |
|  *Low (ref)* |  |  |  |  |  |  |
| Sex |  |  |  |  |  |  |
|  *Male* |  |  | 1.1 | 0.7 - 1.6 | 1.0 | 0.7 - 1.5 |
|  *Female (ref)* |  |  |  |  |  |  |
| Children |  |  |  |  |  |  |
|  *None* |  |  | 1.2 | 0.8 - 1.8 | 1.3 | 0.8 - 2.1 |
|  *≥1 (ref)* |  |  |  |  |  |  |
| Dog ownership |  |  |  |  |  |  |
|  *Dog* |  |  | 1.3 | 0.7 - 2.3 | 1.6 | 0.8 - 3.0 |
|  *No dog (ref)* |  |  |  |  |  |  |
| Marital status |  |  |  |  |  |  |
|  *Married* |  |  | 1.2 | 0.8 - 1.8 | 1.1 | 0.7 - 1.8 |
|  *Prefer not to answer* |  |  | 0.7 | 0.1 - 6.7 | 3.9 | 0.4 - 37.3 |
|  *Single (ref)* |  |  |  |  |  |  |
| Physically active |  |  |  |  |  |  |
|  *Yes* |  |  | 2.3\*\*\* | 1.6 - 3.4 | 1.9\*\* | 1.2 - 2.9 |
|  *No (ref)* |  |  |  |  |  |  |
| Health status |  |  |  |  |  |  |
|  *Good* |  |  | 1.8\*\*\* | 1.3 - 2.6 | 1.6\* | 1.1 - 2.3 |
|  *Not good* |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Intercept | -4.03 |  | -3.00 |  | -5.25 |  |
| N | 959.00 |  | 959 |  | 959.00 |  |
| AIC | 920.95 |  | 1041.3 |  | 895.17 |  |
| Cox & Snell | 0.23 |  | 0.153 |  | 0.28 |  |
| Nagelkerke | 0.33 |  | 0.217 |  | 0.40 |  |
| OR = Odds Ratio. CI = Confidence Interval. \* p <.05; \*\* p <.01, \*\*\*p < 0.001 |

Supplementary Table 9 Full response counts for research question 3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Total | Total in regression sample | High wellbeing\* | Not high wellbeing\* |
|  | N | % | N | % | N | % | N | % |
| Duration |  |  |  |  |  |  |  |  |
|  *30 - <60 mins* | 162 | 23.8 | 152 | 23.5 | 87 | 57.2 | 65 | 42.8 |
|  *60 - <120 mins* | 226 | 33.1 | 218 | 33.7 | 148 | 67.9 | 70 | 32.1 |
|  *≥120 mins* | 173 | 25.4 | 160 | 24.8 | 103 | 64.4 | 57 | 35.6 |
|  *<30 mins (ref)* | 121 | 17.7 | 116 | 18.0 | 56 | 48.3 | 60 | 51.7 |
| Activity intensity |  |  |  |  |  |  |
|  *High* | 87 | 12.6 | 85 | 13.2 | 71 | 83.5 | 14 | 16.5 |
|  *Med* | 537 | 77.8 | 500 | 77.4 | 295 | 59.0 | 205 | 41.0 |
|  *Low (ref)* | 66 | 9.6 | 61 | 9.4 | 28 | 45.9 | 33 | 54.1 |
| Water contact |  |  |  |  |  |  |  |  |
|  *Yes* | 28 | 4.1 | 26 | 4.0 | 21 | 80.8 | 5 | 19.2 |
|  *No (ref)* | 662 | 95.9 | 620 | 96.0 | 373 | 60.2 | 247 | 39.8 |
| Safe |  |  |  |  |  |  |  |  |
|  *Agree* | 661 | 66.1 | 478 | 74.0 | 320 | 66.9 | 158 | 33.1 |
|  *Don’t agree (ref)* | 339 | 33.9 | 168 | 26.0 | 74 | 44.0 | 94 | 56.0 |
| Presence of wildlife |  |  |  |  |  |  |  |
|  *Agree* | 524 | 52.6 | 372 | 57.6 | 254 | 68.3 | 118 | 31.7 |
|  *Don’t agree (ref)* | 473 | 47.4 | 274 | 42.4 | 140 | 51.1 | 134 | 48.9 |
| Free from litter |  |  |  |  |  |  |  |  |
|  *Agree* | 453 | 45.4 | 321 | 49.7 | 210 | 65.4 | 111 | 34.6 |
|  *Don’t agree (ref)* | 545 | 54.6 | 325 | 50.3 | 184 | 56.6 | 141 | 43.4 |
| Good facilities |  |  |  |  |  |  |  |  |
|  *Agree* | 755 | 75.6 | 539 | 83.4 | 343 | 63.6 | 196 | 36.4 |
|  *Don’t agree (ref)* | 244 | 24.4 | 107 | 16.6 | 51 | 47.7 | 56 | 52.3 |
| District |  |  |  |  |  |  |  |  |
|  *HK island* | 88 | 8.8 | 58 | 9.0 | 36 | 62.1 | 22 | 37.9 |
|  *New Territories* | 323 | 32.3 | 216 | 33.4 | 131 | 60.6 | 85 | 39.4 |
|  *Sha Tin* | 245 | 24.5 | 187 | 28.9 | 112 | 59.9 | 75 | 40.1 |
|  *Kowloon (ref)* | 343 | 34.3 | 185 | 28.6 | 115 | 62.2 | 70 | 37.8 |
| Physical functioning |  |  |  |  |  |  |  |
|  *Not restricted* | 697 | 69.8 | 454 | 70.3 | 293 | 64.5 | 171 | 37.7 |
|  *Restricted (ref)* | 302 | 30.2 | 192 | 29.7 | 111 | 57.8 | 81 | 42.2 |
| Age |  |  |  |  |  |  |  |  |
|  *51-60* | 378 | 37.9 | 243 | 37.6 | 152 | 62.6 | 91 | 37.4 |
|  *61 -70* | 416 | 41.7 | 292 | 45.2 | 179 | 61.3 | 113 | 38.7 |
|  *<50 (ref)* | 204 | 20.4 | 111 | 17.2 | 63 | 56.8 | 48 | 43.2 |
| Access to garden |  |  |  |  |  |  |  |  |
|  *Yes* | 518 | 52.9 | 362 | 56.0 | 221 | 61.0 | 141 | 39.0 |
|  *No (ref)* | 461 | 47.1 | 284 | 44.0 | 173 | 60.9 | 111 | 39.1 |
| Occupation |  |  |  |  |  |  |  |  |
|  *Others* | 304 | 30.4 | 188 | 29.1 | 113 | 60.1 | 75 | 39.9 |
|  *Retired* | 272 | 27.2 | 201 | 31.1 | 131 | 65.2 | 70 | 34.8 |
|  *Student* | 9 | 0.9 | 5 | 0.8 | 1 | 20.0 | 4 | 80.0 |
|  *Working full time (ref)* | 415 | 41.5 | 252 | 39.0 | 149 | 59.1 | 103 | 40.9 |
| Income |  |  |  |  |  |  |  |  |
|  *High* | 376 | 37.6 | 249 | 38.5 | 160 | 64.3 | 89 | 35.7 |
|  *Prefer not to answer* | 102 | 10.2 | 59 | 9.1 | 34 | 57.6 | 25 | 42.4 |
|  *Low (ref)* | 521 | 52.2 | 338 | 52.3 | 200 | 59.2 | 138 | 40.8 |
| Sex |  |  |  |  |  |  |  |  |
|  *Male* | 493 | 49.4 | 336 | 52.0 | 213 | 63.4 | 123 | 36.6 |
|  *Female (ref)* | 505 | 50.6 | 310 | 48.0 | 181 | 58.4 | 129 | 41.6 |
| Meeting recommended PA |  |  |  |  |  |  |
|  *Yes* | 210 | 21.0 | 153 | 23.7 | 99 | 64.7 | 54 | 35.3 |
|  *No (ref)* | 790 | 79.0 | 493 | 76.3 | 295 | 59.8 | 198 | 40.2 |
| *Others on visit* |  |  |  |  |  |  |  |  |
|  Adults and children | 144 | 20.6 | 126 | 19.5 | 85 | 67.5 | 41 | 32.5 |
|  Children | 1 | 0.1 | 1 | 0.2 | 1 | 100.0 | 0 | 0.0 |
|  None | 7 | 1.0 | 6 | 0.9 | 3 | 50.0 | 3 | 50.0 |
|  Only adults (reff) | 547 | 78.3 | 513 | 79.4 | 305 | 59.5 | 208 | 40.5 |
| WHO-5 Index  |  |  |  |  |  |  |  |  |
|  *High wellbeing*  | 569 | 57.1 | 405 | 62.7 | 284 | 70.1 | 121 | 29.9 |
|  *Low wellbeing* | 427 | 42.9 | 241 | 37.3 | 110 | 45.6 | 131 | 54.4 |
|  |  |  |  | \*Totals are given for regression modelling sample |

*Supplementary Table 10: Odds ratios (OR) and 95% Confidence Intervals (CIs)* for unadjusted, adjusted and socio-demographic only models for research question 3: Wellbeing on specific visits (ORs in Bold have lower bound CIs ≥1.0).

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Unadjusted | Socio-demographic | Adjusted |
|  | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| Duration |  |  |  |  |  |  |
|  *30 - <60 mins* | 1.3 | 0.8 - 2.2 |  |  | 1.3 | 0.7 - 2.2 |
|  *60 - <120 mins* | 1.9\*\* | 1.2 - 3.1 |  |  | 1.9\* | 1.1 - 3.1 |
|  *≥120 mins* | 1.7\* | 1.0 - 2.9 |  |  | 1.5 | 0.9 - 2.5 |
|  *<30 mins (ref)* |  |  |  |  |  |  |
| Activity intensity |  |  |  |  |  |
|  *High* | 4.3\*\*\* | 1.9 - 10.0 |  |  | 4.0\*\* | 1.7 - 9.5 |
|  *Med* | 1.5 | 0.8 - 2.6 |  |  | 1.3 | 0.7 - 2.3 |
|  *Low (ref)* |  |  |  |  |  |  |
| Water contact |  |  |  |  |  |  |
|  *Yes* | 1.2 | 0.4 - 3.8 |  |  | 1.2 | 0.4 -3.9 |
|  *No (ref)* |  |  |  |  |  |  |
| Safe |  |  |  |  |  |  |
|  *Agree* | 1.7\*\*\* | 1.5 - 3.2 |  |  | 2.1\*\*\* | 1.4 - 3.2 |
|  *Don’t agree (ref)* |  |  |  |  |  |
| Presence of wildlife |  |  |  |  |
|  *Agree* | 1.7\*\* | 1.2 - 2.4 |  |  | 1.7\*\* | 1.1 - 2.4 |
|  *Don’t agree (ref)* |  |  |  |  |  |
| Free from litter |  |  |  |  |
|  *Agree* | 1.2 | 0.8 - 1.7 |  |  | 1.1 | 0.8 - 1.6 |
|  *Don’t agree (ref)* |  |  |  |  |  |
| Good facilities |  |  |  |  |  |
|  *Agree* | 1.9 | 0.8 - 1.9 |  |  | 1.2 | 0.7 - 1.9 |
|  *Don’t agree (ref)* |  |  |  |  |  |
| District |  |  |  |  |  |  |
|  *HK island* |  |  | 1.0 | 0.5 - 1.8 | 1.0 | 0.5 - 2.0 |
|  *New Territories* |  |  | 0.9 | 0.6 - 1.3 | 0.7 | 0.5 - 1.2 |
|  *Sha Tin* |  |  | 0.9 | 0.6 - 1.4 | 0.8 | 0.5 - 1.2 |
|  *Kowloon (ref)* |  |  |  |  |  |  |
| Physical functioning |  |  |  |  |  |
|  *Not restricted* |  |  | 1.0 | 0.7 - 1.4 | 1.0 | 0.7 - 1.5 |
|  *Restricted (ref)* |  |  |  |  |  |  |
| Age |  |  |  |  |  |  |
|  *51-60* |  |  | 1.3 | 0.8 - 2.1 | 1.3 | 0.8 - 2.2 |
|  *61 -70* |  |  | 1.1 | 0.6 - 1.9 | 1.1 | 0.6 - 2.1 |
|  *<50 (ref)* |  |  |  |  |  |  |
| Access to garden |  |  |  |  |  |  |
|  *Yes* |  |  | 0.9 | 0.6 - 1.2 | 0.9 | 0.6 - 1.2 |
|  *No (ref)* |  |  |  |  |  |  |
| Occupation |  |  |  |  |  |  |
|  *Others* |  |  | 1.1 | 0.7 - 1.8 | 1.2 | 0.8 - 2.0 |
|  *Retired* |  |  | 1.2 | 0.8 - 2.0 | 1.2 | 0.7 - 1.9 |
|  *Student* |  |  | 0.2 | 0.0 - 1.7 | 0.1 | 0.0 - 1.9 |
|  *Working full time (ref)* |  |  |  |  |  |  |
| Income |  |  |  |  |  |  |
|  *High* |  |  | 1.1 | 0.8 - 1.7 | 1.1 | 0.7 - 1.7 |
|  *Prefer not to answer* |  |  | 0.9 | 0.5 - 1.6 | 0.9 | 0.5 - 1.7 |
|  *Low (ref)* |  |  |  |  |  |  |
| Meeting recommended PA |  |  |  |  |
|  *Yes* |  |  | 1.0 | 0.6 - 1.5 | 0.8 | 0.5 - 1.3 |
|  *No (ref)* |  |  |  |  |  |  |
| Sex |  |  |  |  |  |  |
|  *Male* |  |  | 1.1 | 0.8 - 1.6 | 1.1 | 0.7 - 1.6 |
|  *Female (ref)* |  |  |  |  |  |  |
| *Others on visit* |  |  |  |  |  |  |
|  Adults and children |  |  | 1.6 | 1.0 - 2.4 | 1.4 | 0.8 - 2.3 |
|  Children |  |  | NA | NA | NA | NA |
|  None |  |  | 0.8 | 0.1 - 4.7 | 0.9 | 0.1 - 6.3 |
|  Only adults (reff) |  |  |  |  |  |  |
| WHO-5 Index  |  |  |  |  |  |  |
|  *High wellbeing*  |  |  | 2.9\*\*\* | 2.0 - 4.1 | 2.4\*\*\* | 1.7 - 3.5 |
|  *Low wellbeing* |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| (Intercept) | -1.52 |  | -0.38 |  | -1.88 |  |
| N | 646 |  | 646 |  | 646 |  |
| AIC | 812.92 |  | 814.1 |  | 814.1 |  |
| Cox & Snell pseudo-*R2* | 0.107 |  | 0.076 |  | 0.154 |  |
| Nagalkerke pseudo-*R2* | 0.145 |  | 0.103 |  | 0.209 |  |
| OR = Odds Ratio. CI = Confidence Interval. \* p <.05; \*\* p <.01, \*\*\*p < 0.001 |

*Supplementary Table 11: Odds ratios (OR) and 95% Confidence Intervals (CIs)* for unadjusted, adjusted and socio-demographic only models for research question 1: depression risk threshold for the WHO-5 Wellbeing Index.

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Unadjusted | Socio-demographic | Adjusted |
|  | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| View |  |  |  |  |  |  |
|  *Yes* | 1.2 | 0.8 - 1.9 |  |  | 1.3 | 0.8 - 2.1 |
|  *No (ref)* |  |  |  |  |  |
| Walking distance |  |  |  |  |  |
|  *Yes* | 1.2 | 0.8 - 1.7 |  |  | 1.0 | 0.6 - 1.6 |
|  *No (ref)* |  |  |  |  |  |
| Commute |  |  |  |  |  |  |
|  *Yes* | 1.3 | 0.9 - 1.8 |  |  | 1.2 | 0.8 - 1.8 |
|  *No (ref)* |  |  |  |  |  |
| Blue space visit  |  |  |  |  |  |
|  *≥1 a week* | 2.0\*\* | 1.2 - 3.3 |  |  | 1.8\* | 1.0 - 3.1 |
|  *1-2 a month* | 1.6\* | 1.0 - 2.4 |  |  | 1.5 | 0.9 - 2.4 |
|  *Not at all (ref)* |  |  |  |  |  |
| Green space visit  |  |  |  |  |  |
|  *≥1 a week* | 1.5 | 0.8 - 2.7 |  |  | 1.2 | 0.6 - 2.3 |
|  *1-2 a month* | 1.2 | 0.7 - 2.2 |  |  | 1.1 | 0.6 - 2.1 |
|  *Not at all (ref)* |  |  |  |  |  |
| District |  |  |  |  |  |  |
|  *HK island* |  | 1.5 | 0.7 - 3,3 | 1.4 | 0.6 - 3.1 |
|  *New Territories* |  | 0.9 | 0.6 - 1.4 | 0.8 | 0.5 - 1.3 |
|  *Sha Tin* |  | 1.1 | 0.7 - 1.8 | 0.8 | 0.5 - 1.4 |
|  *Kowloon (ref)* |  |  |  |  |  |
| Physical functioning |  |  |  |  |  |
|  *Not restricted* |  | 2.8\*\*\* | 1.9 - 4.0 | 2.8\*\*\* | 1.9 -4.2 |
|  *Restricted (ref)* |  |  |  |  |  |
| Age |  |  |  |  |  |  |
|  *51-60* |  |  | 0.8 | 0.5 - 1.3 | 0.7 | 0.4 - 1.2 |
|  *61 -70* |  |  | 0.9 | 0.5 - 1.6 | 0.8 | 0.4 - 1.5 |
|  *<50 (ref)* |  |  |  |  |  |
| Access to garden  |  |  |  |  |  |
|  *Yes* |  |  | 1.8\*\* | 1.2 - 2.5 | 1.6\*\* | 1.1 - 2.4 |
|  *No (ref)* |  |  |  |  |  |
| Occupation |  |  |  |  |  |
|  *Others* |  |  | 1.1 | 0.7 - 1.8 | 1.1 | 0.7 - 1.8 |
|  *Retired* |  |  | 1.6 | 0.9 - 2.8 | 1.5 | 0.8 - 2.6 |
|  *Student* |  | 0.7 | 0.1 - 4.0 | 0.8 | 0.1 - 4.8 |
|  *Work full time (ref)* |  |  |  |  |
| Income |  |  |  |  |  |  |
|  *High* |  |  | 1.1 | 0.7 - 1.7 | 1.1 | 0.7 - 1.7 |
|  *Prefer not to answer* | 0.9 | 0.5 - 1.8 | 1.0 | 0.5 - 1.9 |
|  *Low (ref)* |  |  |  |  |  |
| Sex |  |  |  |  |  |  |
|  *Male* |  |  | 1.0 | 0.6 - 1.5 | 0.9 | 0.6 - 1.4 |
|  *Female (ref)* |  |  |  |  |  |
| Children |  |  |  |  |  |  |
|  *≥1*  |  |  | 1.1 | 0.7 - 1.8 | 1.1 | 0.7 - 1.8 |
| None (ref) |  |  |  |  |  |
| Marital status |  |  |  |  |  |
|  *Married* |  | 0.7 | 0.4 - 1.3 | 0.7 | 0.4 - 1.4 |
|  *Prefer not to answer* |  |  |  |  |
|  *Single (ref)* |  |  |  |  |  |
| Dog ownership |  | 1.4 | 0.9 - 2.3 | 1.4 | 0.9 - 2.3 |
|  *Dog* |  |  | 5.2 | 0.6 - 46.6 | 6.4 | 0.7 - 59.4 |
|  *No dog (ref)* |  |  |  |  |  |
| Physically active |  |  |  |  |  |
|  *Yes* |  |  | 3.3\*\*\* | 1.7 - 6.4 | 3.2\*\*\* | 1.6 - 6.2 |
|  *No (ref)* |  |  |  |  |  |  |
| Health status |  |  |  |  |  |  |
|  *Good* |  |  | 4.1\*\*\* | 2.4 - 7.3 | 3.8\*\*\* | 2.1 - 6.7 |
|  *Not good (ref)* |  |  | - | - | - | - |
|  |  |  |  |  |  |  |
| (Intercept) | 0.62 |  | -0.16 |  | -0.54 |  |
| N | 954 |  | 954 |  | 954 |  |
| AIC | 863.3 |  | 790.5 |  | 791.5 |  |
| Cox & Snell R2 (%) | 3.2 |  | 12.6 |  | 13.8 |  |
| OR = Odds Ratio. CI = Confidence Interval. \* p <.05; \*\* p <.01, \*\*\*p < 0.001 |

Supplementary Figure 1: Districts as grouped for modelling



Supplementary Figure 2: Duration of visits to blue space (n = 682; 18 people provided details about their visit but duration information was missing).

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