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# Health and Wellbeing under COVID-19: The GreenCOVID Survey

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## Context

Given the impact of COVID-19 on populations, especially under lockdown conditions, there has been more attention than ever focused on the role of nature, including green and blue spaces, to act as a form of health-enabler across societies (Morrow-Howell *et al.*, 2020; Shanahan *et al.*, 2016). Access to green space, with its potential for physical activity and mental health support has been specifically identified within the literature as an important asset for neighbourhood and citizen health and wellbeing (Astell-Burt and Feng, 2019; Honey-Roses *et al.*, 2020; Brace *et al.*, 2020). The established positive relationships between access to and benefits from green and blue space are variable over space, both in terms of the kinds of built environments in which people live, but also the availability nearby of natural assets like parks, coasts, rivers, etc.; as well as ease of access to those spaces for all citizens (Bambra *et al.*, 2020; Honey-Roses *et al.*, 2020). With the advent of the COVID-19 pandemic, most countries have developed as part of their public health strategies, a series of lockdown measures in which citizens have either been confined to home, or at best, a small catchment area immediately surrounding their homes (World Heath Organization *et al.*, 2020). As part of a flurry of recent research on such relationships, the GreenCOVID study was carried out by a group of researchers in Spain, the UK and Ireland, all broadly operating to a similar framework and collecting information from the general adult population in each of the three countries. This

short commentary introduces the survey alongside preliminary Irish results specifically focused on household characteristics, access to nearby green space as well as a measure of psychological wellbeing.

## The GreenCOVID Survey

The original survey was designed by the lead author (Garrido-Cumbrera) from the University of Seville and disseminated online across Spain in March/April, 2020. Researchers in the UK and Ireland joined the initiative and disseminated translated versions of the questionnaire survey in June/July, 2020. For the English language version, some small adjustments to the cultural and geographic characteristics were needed but the set of questions posed allows comparisons across all three countries. The survey was designed to collect contextual information on respondents including personal and household characteristics alongside several health measures including physical health, wellbeing and mental health, as well as information on pre- and post-lockdown perceptions and use of green and blue spaces. For the Irish component, ethical approval was granted by Maynooth University and it was disseminated using an approved online survey tool which generated 261 responses. This compared with approximately 500 respondents in England and 2,500 in Spain; the latter running for the longest period. In this short paper, participant's socio-demographic and health characteristics are described by means and standard deviations (SDs) for continuous variables, and proportions for categorical variables. Chi-square tests were used to analyse household characteristics against the distribution of psychological wellbeing and mental health, using the 5-item World Health Organization Well-Being Index [WHO-5] (WHO, 1998) and the Kessler Psychological Distress Scale [K10] (Kessler *et al*., 2003). The former measure is briefly summarised below. The level of statistical significance was set at $\leq 0.05$. Analyses were performed using SPSS v26.0.

## Preliminary Results

### Socio-demographic and health characteristics of participants

From the total of 261 entries received in June/July 2020, 243 eligible participants from the Republic of Ireland are included in this study. Participant socio-demographic and health characteristics are presented in Table 1. The mean age of respondents was $43\pm16$, with a higher participation rate among females. The majority of participants were either married or in a relationship, with a high level of education, currently employed, with normal weight, non-smokers, alcohol consumers, perceived themselves in good health status, likely to be well according to Kessler Psychosocial Distress Scale and had not presented symptoms of COVID-19 or been tested. The wellbeing mean score of the WHO-5 index was $52\pm23$ (min 0- max 100), slightly above the cut-off score of $\leq50$ commonly used for screening depression (Topp *et al*., 2015).

**Table 1.** Socio-demographic and health characteristics of GreenCOVID participants in Ireland

| Socio-demographic characteristics | | Health characteristics | |
|---|---|---|---|
| **Variables** | **Mean +SD n (%)** | **Variables** | **Mean +SD n (%)** |
| **Age** (n=242) | **43 + 16** | **Self-rated health** (n=242) | |
| 19-29 | 62 (26%) | Very good / Good | 204 (84%) |
| 30-39 | 49 (20%) | Fair / Bad / Very bad | 38 (16%) |
| 40-49 | 47 (19%) | **BMI category** (km/m²) (n=216) | |
| 50-59 | 45 (19%) | Underweight (<18.5) | 7 (3%) |
| 60-69 | 26 (11%) | Normal weight (18.5–24.9) | 104 (48%) |
| >70 | 13 (5%) | Overweight (25-29.9) | 65 (30%) |
| **Gender** (n=243) | | Obese (>30) | 40 (19%) |
| Female | 174 (71.6%) | **Smoking** (n=242) | |
| Male | 68 (28%) | No | 202 (84%) |
| Other | 1 (.4%) | Yes | 40 (16%) |
| **Marital status** (n=243) | | **Alcohol consumption** (n=242) | |
| In a relationship / married | 161 (66%) | No | 39 (16%) |
| Separated / Divorced | 6 (3%) | Yes | 203 (84%) |
| Single | 73 (30%) | **Kessler Psychological Distress Scale** (n=231) | |
| Widow / widower | 3 (1%) | Likely to be well | 106 (46%) |
| **Level of education** (n=243) | | Likely to have a mild disorder | 50 (22%) |
| Primary- Secondary | 26 (11%) | Likely to have a moderate disorder | 29 (13%) |
| Third level | 217 (89%) | Likely to have a severe disorder | 46 (20%) |
| **Employment status** (n=243) | | **WHO-5 Wellbeing index** (n=239) | 52 + 23 |
| Employed, temporary sick leave | 141 (58%) | Negative screening for depression (>50) | 132 (55%) |
| Employed, temporary sick leave | 141 (58%) | Positive screening for depression (≤50) | 107 (45%) |
| Student | 53 (22%) | **COVID-19 status** (n=242) | |
| Housework, other | 11 (4.5%) | No test + no symptoms | 217 (90%) |
| Early retirement, retirement, permanent sick leave | 27 (11%) | No test + symptoms +/- waiting for test | 6 (2%) |
| | | Tested negative | 15 (6%) |
| | | Test positive +/- recovered | 4 (2%) |

BMI= body mass index; SD= standard deviation.
*Relevance of household characteristics and environmental factors for psychosocial well-being*

The majority of participants lived in shared households (91%), located in cities (65%), with 3-4 bedrooms (69%). Most households had at least one element enabling contact with the outdoors (93%), views of green spaces (85%) and no structural issues (64%). Household elements enabling contact with the outdoors included having a terrace, yard, garden, rooftop or balcony. Respondents mean score of quality of available views from their residence was 7.3 ±2.3. None of our respondents had direct views on to blue space.

When asked about the extent to which being, seeing and/or hearing the outdoors was helping them cope with lockdown (in a scale of 0-10, where higher numbers indicated higher contribution), the mean score was 8.54±1.79, with 43% of respondents providing the maximum score (10). Views of blue and green spaces were considered relevant contributors to wellbeing prior to the lockdown, with means of 7±2.4, and 7.68±2.13 respectively. Their perceived importance as contributors to coping during lockdown increased to 7.82±2.45 for views to blue spaces, and 8.84±1.76 for views of green spaces.

Initial results from the bivariate analysis of household characteristics and wellbeing are shown in Table 2. The variables associated with wellbeing were type of household (p=0.005), household spaces enabling outdoor access (p=0.015), issues in the household (p<0.001), and quality of views (p=0.006). Issues in the household that more negatively affected wellbeing included: bad odours, moisture, poor natural lighting, insulation problems, safety issues, neighbours' noise, smoke and poor accessibility for people with physical disabilities.

## Discussion

Our preliminary findings indicate that adults in Ireland perceived that contact with the outdoors and views to green and blue spaces positively impacted their psychological wellbeing, and that this was enhanced during the COVID-19 lockdown. Those living in a household with problems had higher likelihood of lower wellbeing scores, according to the WHO-5 scale. Further analysis, both for the Irish data as well as comparative international data from UK and Spain will allow us to assess attitudes and perceptions of the value of green space that will emerge alongside data on health, physical activity and access to health-enabling resources in people's lives. The GreenCOVID survey will also provide additional insights into how public health policy, together with built environmental characteristics related to green and blue space exposure, affected people's wellbeing during the initial COVID-19 lockdown.

## Acknowledgements

**Table 2.** Association of household characteristics and wellbeing (WHO-5)*

| WHO-5 Wellbeing Index Screening for Depression* | | | | |
|---|---|---|---|---|
| Variables | Positive wellbeing (≤50) n (%) | Negative wellbeing (≤50) n (%) | Total n (%) | p-Value |
| **Household location** | | | 236 | 0.232 |
| City based | 88 (58%) | 65 (42%) | 153 | |
| Non-city based | 41 (49%) | 42 (51%) | 83 | |
| **Type of household** | | | 239 | **0.016** |
| House | 71 (63%) | 41 (37%) | 112 | |
| Townhouse / Semidetached / Terraced | 50 (52%) | 46 (48%) | 96 | |
| Flat / Apartment | 11 (36%) | 20 (65%) | 31 | |
| **Number of bedrooms** | | | 236 | 0.544 |
| 1-2 | 21 (48%) | 23 (52%) | 44 | |
| 3-4 | 93 (57%) | 70 (43%) | 163 | |
| >5 | 16 (55%) | 13 (45%) | 29 | |
| **Number of people in household** | | | 231 | 0.208 |
| 1 | 10 (46%) | 12 (54%) | 22 | |
| 2-3 | 64 (62%) | 40 (38%) | 104 | |
| >4 | 54 (51%) | 51 (49%) | 105 | |
| **Household spaces enabling outdoors access** | | | 239 | **0.015** |
| Yes | 127 (58%) | 94 (42%) | 221 | |
| No | 5 (28%) | 13 (72%) | 18 | |
| **Issues in household** | | | 234 | **<0.001** |
| Yes | 100 (66%) | 52 (34%) | 152 | |
| No | 27 (33%) | 55 (67%) | 82 | |
| **Green views from household** | | | 239 | 0.217 |
| Yes | 115 (57%) | 87 (43%) | 202 | |
| No | 17 (46%) | 20 (54%) | 37 | |
| **Quality of views from home** | | | 239 | **0.017** |
| Low | 36 (46%) | 42 (54%) | 78 | |
| Middle | 43 (52%) | 40 (48%) | 83 | |
| High | 53 (68%) | 25 (32%) | 78 | |

# *References*

**Astell-Burt, T. and Feng, X. 2019.** Association of Urban Green Space with Mental Health and General Health Among Adults in Australia. *JAMA Network Open*, 2(7) e198209, https://doi.org/10.1001/jamanetworkopen.2019.8209.

**Bambra, C., Riordan, R., Ford, J. and Matthews, F. 2020.** The COVID-19 pandemic and health inequalities. *Journal of Epidemiology and Community Health*, 74(11), 964-8, http://dx.doi.org/10.1136/jech-2020-214401.

**Bech, P. 2004.** Measuring the dimension of Psychological General Well-Being by the WHO-5 119. *WHO Quality of Life Newsletter*, 32, 15-6.

**Braçe, O., Garrido-Cumbrera, M., Foley, R., Correa-Fernández, J. Suárez-Cáceres, G. and Lafortezza, R. 2020.** Is a View of Green Spaces from Home associated with a Lower Risk of Anxiety and Depression? *International Journal of Environmental Research and Public Health*, 17, 7014, https://doi.org/10.3390/ijerph17197014.

**Callaghan, A., McCombe, G., Harrold, A., McMeel, C., Mills, G., Moore-Cherry N. and Cullen, W. 2020.** The impact of green spaces on mental health in urban settings: a scoping review, *Journal of Mental Health*, https://doi.org/10.1080/09638237.2020.1755027.

**Honey-Roses, J., Anguelovski, I, and 14 others 2020.** The impact of COVID-19 on public space: an early review of the emerging questions – design, perceptions and inequities, *Cities and Health*, https://doi.org/10.1080/23748834.2020.1780074.

**Kessler, R.C., Barker, P.R., Colpe, L.J. and 8 others.** 2003. Screening for serious mental illness in the general population. *Archives of General Psychiatry*, 60(2), 184-9, https://doi.org/10.1001/archpsyc.60.2.184.

**Morrow-Howell, N., Galucia, N. and Swinford, E. 2020.** Recovering from the COVID-19 Pandemic: A Focus on Older Adults, *Journal of Aging & Social Policy*, 32 (4-5), 526-35, https://doi.org/10.1080/08959420.2020.1759758.

**Regional Office for Europe World Health Organisation (WHO). 1998.** *Use of Well-Being Measures in Primary Health Care – The DepCare Project. Health for All, Target 12*. Copenhagen: WHO.

**Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. 2015.** The WHO-5 well-being index: A systematic review of the literature. *Psychotherapy and Psychosomatics*. https://doi.org/10.1159/000376585.

**World Heath Organization, European Observatory on Health Systems and Policies, & European Comission. 2020.** *COVID-19 Health System Response Monitor*. https://www.covid19healthsystem.org/mainpage.aspx.