

Older people, the natural environment and common mental disorders: cross-sectional results from the Cognitive Function and Ageing Study

Supporting information

A stratified analysis of rural/urban areas

The definition of rural and urban areas was based on the 2011 Rural/Urban Classification and categorised into three groups: urban conurbations (N=1036), urban city and town (N=981) and rural areas (N=380). Since the sample size of the rural population was small with 90% in the highest quartile of natural environment exposure, the analysis mainly focused on the urban population. After excluding participants in rural areas, living in the highest quartile of natural environment exposure was associated with 40-50% lower odds of depressive and anxiety symptoms and their co-occurrence (Table S1). In urban conurbations, there was a significant decreasing trend in the odds of anxiety symptoms from the lowest to highest quartile of natural environment (p-value for trend <0.01). Living in the second quartile of natural environment exposure was associated with 35% lower odds (OR: 0.65, 95% CI: 0.46, 0.90) and the odds further decreased 5% in the third (OR: 0.61, 95% CI: 0.42, 0.87) and 10% in the fourth (OR: 0.54, 95% CI: 0.25, 1.20) quartile (Model 2). Similarly, the graduated decrease of odds from the lowest to highest quartile of natural environment exposure was found in

co-occurrence of depression and anxiety symptoms. The effect sizes were not materially attenuated after controlling for area deprivation (Model 3). In residents of urban cities and towns, the lowest odds of depressive and anxiety symptoms therefore still appeared in the highest quartile of natural environment.

Table S1 The associations between natural environment exposure, depression and anxiety in different urban contexts

		Depressive symptoms		Anxiety symptoms		Co-occurrence of depression and anxiety	
		Model 2	Model 3	Model 2	Model 3	Model 2	Model 3
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Urban areas (N=2044)							
Natural environment	Q1 (lowest)	1.00	1.00	1.00	1.00	1.00	1.00
	Q2	0.97 (0.71, 1.32)	1.03 (0.75, 1.39)	0.75 (0.57, 0.98)	0.76 (0.57, 1.00)	0.73 (0.50, 1.06)	0.76 (0.52, 1.12)
	Q3	0.94 (0.69, 1.28)	1.07 (0.78, 1.47)	0.86 (0.65, 1.13)	0.91 (0.69, 1.21)	0.72 (0.49, 1.06)	0.83 (0.56, 1.23)
	Q4 (highest)	0.59 (0.37, 0.96)	0.74 (0.45, 1.22)	0.57 (0.38, 0.86)	0.61 (0.40, 0.93)	0.46 (0.25, 0.86)	0.57 (0.30, 1.10)
Urban conurbation (N=1063)							
Natural environment	Q1 (lowest)	1.00	1.00	1.00	1.00	1.00	1.00
	Q2	1.07 (0.76, 1.52)	1.15 (0.81, 1.62)	0.65 (0.46, 0.90)	0.65 (0.47, 0.91)	0.72 (0.46, 1.13)	0.78 (0.51, 1.21)
	Q3	0.88 (0.59, 1.30)	0.96 (0.65, 1.44)	0.61 (0.42, 0.87)	0.65 (0.45, 0.95)	0.52 (0.31, 0.88)	0.61 (0.36, 1.04)
	Q4 (highest)	0.87 (0.39, 1.97)	1.15 (0.49, 2.66)	0.54 (0.25, 1.20)	0.56 (0.24, 1.26)	0.41 (0.12, 1.38)	0.58 (0.17, 1.97)
Urban city and town (N=981)							
Natural environment	Q1 (lowest)	1.00	1.00	1.00	1.00	1.00	1.00
	Q2	0.76 (0.42, 1.38)	0.80 (0.45, 1.43)	1.01 (0.62, 1.64)	1.04 (0.65, 1.66)	0.72 (0.36, 1.47)	0.75 (0.37, 1.52)
	Q3	0.91 (0.53, 1.56)	1.03 (0.60, 1.76)	1.21 (0.78, 1.90)	1.29 (0.83, 2.00)	0.88 (0.47, 1.69)	0.98 (0.51, 1.87)
	Q4 (highest)	0.47 (0.24, 0.92)	0.57 (0.29, 1.12)	0.63 (0.37, 1.09)	0.72 (0.43, 1.22)	0.43 (0.18, 0.98)	0.50 (0.21, 1.16)

p.: p-value of test for trend; **Model 2:** Adjusted for all individual level factors including age, gender, education, social class and the number of chronic illnesses; **Model 3:** Adjusted for all individual level factors and area deprivation