

Two- and three-dimensional indicators of green and grey space exposure and mental health in a large Italian cohort

The aim of the present study was to explore the link between 2D and 3D indicators of green and grey spaces and the prevalence of psychiatric disorders in a large population-based group from Rome, Italy. Data from 593,894 adults (≥ 30 years) participating in the Rome Longitudinal Study were analyzed. Mental health outcomes were determined through drug prescriptions (such as antidepressants, antipsychotics, mood stabilizers, anxiolytics, hypnotics, and sedatives) or hospitalizations for psychiatric diagnoses (including schizophrenia spectrum disorder, depression, anxiety, stress-related disorders, somatoform disorders, and substance use disorders). Participants' addresses were used to assign exposure to indicators like the Normalized Difference Vegetation Index (NDVI), green and grey volumes, number of trees, and the Normalized Difference Green-Grey Volume Index (NDGG). Cox proportional hazards regression models were employed, and potential effect modification by sex, age, and deprivation index was assessed. Protective associations were found between NDVI and the number of trees and certain medications (such as antipsychotics and lithium), as well as between NDGG and other medications (like anxiolytics, hypnotics, and sedatives). Adverse associations were observed between grey volume and specific medications. The study suggests that higher levels of green space around residences may be associated with decreased use of psychiatric drugs, whereas greater exposure to grey spaces may lead to increased use. Accurately characterizing green and grey spaces is emphasized as important for mental health treatment and promotion.

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