

Loss of Green Space in India Shown to Be Associated with Higher Cardiometabolic Risk

Study is one of the first to analyse the relationship between urban development and health in a low- or middle-income country

Barcelona, 11 May 2020.- Although the health benefits of **green space** are supported by a growing body of evidence, **few studies on this topic have been carried out in low- and middle-income countries**. A new study by the Barcelona Institute for Global Health ([ISGlobal](#)), a centre supported by the "la Caixa" Foundation, which analysed data on more than 6,000 people living in an area south of **Hyderabad (India)**, offers evidence that **urban development leading to a reduction in green space may be associated with an increase in several cardiometabolic risk factors**.

Most earlier studies in high-income countries have focused on urban green space (parks, urban forests, gardens, etc.), but their findings may have **limited applicability** to low and middle income country settings where green space largely consists of farmland and bare, open areas.

The team behind the ISGlobal-coordinated [CHAI project](#) decided to investigate the association between land-use changes involving the conversion of natural and crop to built up land use and **cardiometabolic risk factors**—hypertension, obesity and hyperglycaemia—in a periurban area south of Hyderabad undergoing urbanisation. The study also explored the possible mediating roles of **air pollution, physical activity and stress** in these associations.

The study included health data from over 6,000 adults and the authors analysed **changes in land use over a 14-year period across an area of 700 km²** using classification methods based on satellite remote sensing data from Landsat missions. Levels of **air pollution** (suspended particulate matter measuring less than 2.5 µm, or PM_{2.5}) were estimated as part of the CHAI project. The cardiometabolic risk factors studied included blood pressure, triglycerides, cholesterol and fasting glucose, and participants answered survey questions about their lifestyle and stress indicators.

The findings, published in [Environmental Health Perspectives](#), showed that a **fast increase in built-up land use within 300 m of a person's residence was associated with an increase in metabolic risk factors**. People whose neighbourhoods experienced faster urban development compared to those whose neighbourhoods did not change had **higher blood pressure (both systolic and diastolic), waist circumference and fasting glucose values**.

Analysis by sex revealed that **women** suffered more than men the health impact of the **loss of green space**. A possible explanation for this disparity could be "differences in mobility patterns because women spend a substantially larger portion of the day close to their homes (74%) than men (52%)", explained **Carles Milà**, lead author of the study.

In connection with the link between urban development and increased cardiometabolic risk, Milà noted that "the study has shown that this association may, in part, be mediated by an increase in air pollution and a **reduction in physical activity**" due to the loss of green space close to residential areas. No association with stress was found.

ISGlobal researcher **Cathryn Tonne**, who coordinates the CHAI project and led the new study, concluded: “The findings of this study support the **need to integrate health into urban planning** to reduce the negative health impacts of urbanisation, especially in cities or neighbourhoods that are undergoing rapid land-use changes.”

Reference

Milà C, Ranzani O, Sánchez M, Ambros A, Bhogadi S, Kinra S, Kogevinas M, Dadvand P, Tonne C. Land-Use Change and Cardiometabolic Risk Factors in an Urbanizing Area of South India: A Population-Based Cohort Study. *Environment Health Perspectives*, 3 April 2020. <https://doi.org/10.1289/EHP5445>

About ISGlobal

The Barcelona Institute for Global Health, ISGlobal, is the fruit of an innovative alliance between the “la Caixa” Foundation and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. ISGlobal is a consolidated hub of excellence in research that has grown out of work first started in the world of health care by the Hospital Clínic and the Parc de Salut MAR and in the academic sphere by the University of Barcelona and Pompeu Fabra University. The pivotal mechanism of its work model is the transfer of knowledge generated by scientific research to practice, a task undertaken by the institute’s Education and Policy and Global Development departments. ISGlobal has been named a Severo Ochoa Centre of Excellence and is a member of the CERCA programme of the Generalitat de Catalunya.

ISGlobal Press Office

Marta Solano
marta.solano@isglobal.org
+34 93 214 73 33 / +34 661 45 16 00

Pau Rubio
pau.rubio@isglobal.org
+34 93 214 73 33 / +34 696 91 28 41

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