
Can public squares compensate for the lack of urban greenness? Using smartphone tracking data to explore the link between open spaces and exposure when walking

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Abstract

The access and exposure to greenness has been associated with benefits for both the mental and physical health of urban residents. However, in the city of Barcelona, which has experienced several urban densification processes since mid-19th century, there are a low proportion of green areas (EEA, 2017). This lack of greenness is compensated with other types of open spaces such as public squares and beaches. This study explores the levels of exposure to open spaces achieved by walking in the city, and the differences detected between neighbourhoods with different urban form.

A total of 22,476 georeferenced walking locations were obtained from a group of young adults (n= 31) residing in Barcelona, which downloaded a free commercial smartphone app that tracked their mobility through GPS and mobile network signals during a week. The itineraries carried out on foot were buffered in order to identify the amount of environmental parks, trees, public squares... participants were exposed to. Differences in environmental exposure were observed for neighbourhoods (pre-1850 vs post-1850) with different street width, building height, amount of opens spaces... through the average exposure to trees, major parks, beaches and squares when walking.

First results point at significant differences regarding the average exposure to public squares (Sig.=0.000), major parks (Sig.=0.019), but not for trees (Sig.=0.80) between walking itineraries in the analysed neighbourhoods. Itineraries carried out on foot in pre-1850 neighbourhoods show higher access to public squares but lower access to major parks.

This ongoing study stresses the importance of public squares for cities when urban form does not favour greenness. The use of accurate smartphone tracking data shows its potential for obtaining objective PA data for public health research.

Keywords: open spaces, dense cities, exposure, health, Barcelona

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