Environmental determinants of childhood obesity: a meta-analysis

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Abstract

Background The increasing prevalence of childhood obesity has contributed to the growing global burden of chronic diseases over the life course, which has been largely attributed to obesogenic environments. This giant-scale review was done to translate existing obesogenic environmental studies into evidence-based governance for fighting childhood obesity and promoting life-course health.

Methods Following a standard strategy of literature search and inclusion, all obesogenic environmental studies, published since the inception of the electronic databases, were reviewed to identify the evidence on associations with childhood obesity of 16 obesogenic environmental factors, including 10 built environmental factors or indices (ie, land-use mix, street connectivity, residential density, speed limit, urban sprawl, and access to green space, public transport, bike lanes, sidewalks, and neighbourhood aesthetics) and six food environmental factors (ie, access to convenience stores, supermarkets, grocery stores, full-service restaurants, fast-food restaurants, and fruit and vegetable markets). A meta-analysis was conducted to quantify the influence of each factor with sufficient studies on childhood obesity.

Findings A total of 24 155 search results were found and filtered, with 457 studies included in the analysis. All built environmental factors, except speed limit and urban sprawl, were negatively associated with childhood obesity by encouraging physical activity while discouraging sedentary behaviours; the access to all food venues, except convenience stores and fast-food restaurants, was negatively associated with childhood obesity by encouraging their healthy eating behaviours. There were some globally consistent associations, such as between greater access to fast-food restaurants in the neighbourhood and more fast-food consumption, between better access to bike lanes and more physical activity, between better access to sidewalks and reduced sedentary behaviours, and between greater access to green space and more physical activity and less TV or computer screen time.

Interpretation Findings have formed the unprecedentedly inclusive evidence for policy making and the establishment of the future research agenda regarding the obesogenic environment.

Contributors
PJ conceived the study, and all authors conducted the study. PJ and SY supervised the study.

Declaration of interests
We declare no competing interests.