



## Review

# From built environment to health inequalities: An explanatory framework based on evidence

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## ABSTRACT

**Objective:** The Health in All Policies strategy aims to engage every policy domain in health promotion. The more socially disadvantaged groups are usually more affected by potential negative impacts of policies if they are not health oriented. The built environment represents an important policy domain and, apart from its housing component, its impact on health inequalities is seldom assessed. **Methods:** A scoping review of evidence on the built environment and its health equity impact was carried out, searching both urban and medical literature since 2000 analysing socio-economic inequalities in relation to different components of the built environment. **Results:** The proposed explanatory framework assumes that key features of built environment (identified as density, functional mix and public spaces and services), may influence individual health through their impact on both natural environment and social context, as well as behaviours, and that these effects may be unequally distributed according to the social position of individuals. **Conclusion:** In general, the expected links proposed by the framework are well documented in the literature; however, evidence of their impact on health inequalities remains uncertain due to confounding factors, heterogeneity in study design, and difficulty to generalize evidence that is still very embedded to local contexts.

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## Introduction

A large proportion of the world population is presently living in urban areas, and this trend is going to increase in the future (Global health Observatory GHO data, 2014). According to Barton et al. (2003) urban design is related to inhabitants' health, and its primary objective should be quality of life. It is nowadays fundamental to understand how the urban environment, including physical and social contexts, affects people's health and how this impact varies according to personal characteristics such as social position (O'Donoghue, 2007).

Such health variations are interpreted as social inequalities in health when they affect the poor more than the rich and could be avoidable. In 1991, Dahlgren and Whitehead published a framework that described the role of social determinants of health assuming a progressive influence from general socioeconomic cultural and environmental conditions to individual, through several layers, including the urban environment. Urban setting can be assumed as a field for increasing public health and reducing health inequalities: Barton (2005) explored the effects of planning practice and urban policy-making on health and wellbeing, highlighting the impact of urban built environment on the other components of neighbourhood ecosystems, including both upper (natural resources) and lower layer (local activities, community and people). He endorsed a comprehensive and integrated vision of human settlements as ecosystems, proposing a framework to help urban planners understand the complexity of settlements, and providing an "ecosystem health map": he set the stage for interdisciplinarity as a need in urban planning practices.

While knowledge on the effects of urban built environment on health starts to be quite developed, with a great attention for physical activity and mental health as the most explored pathways, up to now only few researchers have reviewed impacts of the built environment on health inequalities, and a comprehensive picture based on evidence is missing. Some authors reviewed the literature, but they mainly focused on the effects of some specific urban policies, as Thomson (2008) did with Area based Initiatives in the UK, but some contradictory results emerged mainly because of the macro level of analysis. Northridge and Freeman (2011) deliver a picture of the complexity of causal pathways, comprehensive not only of built environment (specifically 'urban form'), but collecting evidence also on environmental hazards, social segregation, food environments: they also highlight a strong incoherence in what is known, which may require a lower scale analysis (municipality or neighbourhood) and a focus on specific mechanisms. Starting from this background, we will try to shed a light on specific pathways linking urban environment components to health inequalities.

## Objectives

The aim of this work is to identify the most meaningful relationships between built environment and health inequalities in urban areas, in order to provide a logical foundation for both scientific research and policy making.

We attempt to answer to the following questions: does the built environment have any effect on health inequalities by influencing natural environment (link 1), social context (link 2), and behavioural aspects (link 3)?

Built environment is meant here as the space, the physical settlement, where all the activities related to the city take place: it may be described

as the complex of buildings, streets, greenspace and infrastructure, considered in its form, networks and aesthetic character. Urban policies go beyond the aim of this article: the *status quo* of a city is our main object, and we look for evidence limited to socio-economic inequalities.

## Methods

Whitehead and Dahlgren (1991)'s framework was the reference model for the scheme used to examine possible links between urban design and health inequalities. The new framework underwent an iterative process of progressive adjustments operated by a multidisciplinary team of experts in urban planning, public health, social and political sciences, based on both literature research and interdisciplinary consensus. According to Whitehead and colleagues, we kept, even if in another graphic shape, the four level over the individual characteristics (namely 1. individual lifestyles factors, 2. social and community networks, 3. living and working conditions – in which we added our focus, the built environment – and 4. general socioeconomic, cultural and environmental conditions). Specifically, we wanted to restrict our attention to a single segment of the third arch (built environment) and to physical conditions of the fourth one (natural environment); due to the tight connections between the two we preferred to put both on the same level. Differently from the reference model, the main causal flows are depicted.

To emphasize the effects on health inequalities we followed a broad scoping approach for searching the literature, adopting selective criteria for articles inclusion, keeping only those really focused on inequalities.

The main effort was in conciliating different approaches to research and knowledge: urban planning literature normally adopts a deductive, expert opinion based method, while public health is grounded in an evidence-based, empirical approach. Because of these two different epistemological approaches, different search methodologies were followed. When looking for characteristics of urban design and their impacts on risk factors, we searched the best literature available on urban field databases (EBSCO, Google scholar, and others) and articles suggested by experts, which helped to focus on mechanisms and their description. When looking for health outcomes, the most common databases belonging to public health domains were searched (Medline, Cihnal, Embase, Cochrane Library): when indexation (Mesh) was available, priority was given to indexed words, otherwise related terms would be searched as text words. Considering the medical competence of these archives, the terms used were related to structural determinants (for example "urban"[tw], "neighbourhood"[tw], "Residential characteristics"[Mesh], "built environment"[tw], "cities"[Mesh]) and to socioeconomic determinants ("socioeconomic factors" [Mesh], "equity"[tw], "health disparities"[Mesh], "inequalities"[tw]), not explicitly to health, which was considered to be intrinsic to the nature of the storage. Related articles were also searched for (without temporal

**Table 1**  
Selection process for the review.

	Number of articles	Selected on title	Selected on abstract	Final selection
Link 1	2175	198	37	8
Link 2	84	15	7	1
Link 3	19,252	350	66	10
Reviews (all themes)	201	41	18	4
Total	21,712	604	128	23

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