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Letter to the Editor

Urban Planning for Climate Resilience: A Public Health Imperative

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Dear Editor-in-Chief

Climate change and the integration of public health have emerged as one of the most important challenges for urban areas. The WHO estimates that climate change will cause hundreds of thousands of additional deaths annually in the coming decades (1). Urban residence faces multiple risks including rising temperatures, air pollution, flooding, and the deterioration of urban environments (Table 1) (2,3). These combined threats illustrate the profound interconnection between urban health and climate resilience, underscoring the need for the integration of public health principles into urban planning as a global priority.

Table 1: Urban Climate Risks and Public Health Implications

Urban Hazard	Health Risks
Flooding	Infectious disease outbreaks, injuries
Heatwaves	Heat stress, cardiovascular deaths
Air Pollution	Respiratory and heart-related diseases

South Korea offers a particularly relevant case study of these challenges, while also providing insights into potential solutions that resonate globally. Increases in $PM_{2.5}$ are strongly correlated with hospital admissions for cardiovascular disease in Korea's largest cities, mirroring evidence from Europe and the United States (4). Similarly, heat-related mortality is not confined to rural or impoverished areas, urban residents in dense Korean districts face heightened risk, particularly among the elderly and those with pre-existing conditions (5). These patterns suggest that even in technologically advanced, high-income countries, exposure to environmental factors continues to undermine health resilience, as is the case in low- and middle-income countries.

Despite these vulnerabilities, cities in Korea also illustrate the capacity of urban planning to serve as a public health intervention. Following the COVID-19 pandemic, the use and perception of urban neighborhood parks in South Korea shifted dramatically, with residents reporting increased reliance on green spaces for physical activity, stress relief, and community interaction (6). Such findings highlight how green and blue infrastructure

provides co-benefits by both reducing environmental exposure through cooling effects and air purification and promoting mental and physical health. Furthermore, urban regeneration programs have adopted resilience indicators to assess declining areas and have incorporated social and environmental dimensions of health into planning frameworks (7). These measures are consistent with global recommendations that support the systematic integration of health considerations into urban policies (1, 3).

Equally important is the issue of access to healthcare, unevenly distributed even in advanced healthcare systems. In South Korea, spatial analyses have shown that local healthcare resources are closely linked to unmet healthcare needs, especially in underserved areas (8). This pattern mirrors findings from other regions, including Europe and Latin America, where geographic inequalities in access to healthcare intersect with social deprivation, creating disproportionate vulnerability to climate-related risks. Furthermore, the adoption of innovative analytic methods in Korea, such as agent-based modeling for access to pediatric healthcare, demonstrates how spatial and computational tools can identify hidden vulnerabilities and guide targeted interventions (9). These tools hold global relevance, offering methods to design more equitable and responsive urban systems.

Global and Korean case studies highlight key priorities: expanding green and blue infrastructure to cool and improve air quality, promoting sustainable transportation to reduce greenhouse gas emissions and improve health, ensuring equitable access to healthcare through location-sensitive planning, and adopting advanced tools such as geospatial mapping and simulation modeling to predict hazards and guide evidence-based urban resilience strategies.

Climate change is a global challenge to urban health, but cities are not passive victims of these transformations. Instead, they are vital places where adaptation, mitigation, and innovation can be aligned to protect and promote human well-being. The case of South Korea shows that while even highly developed societies are vulnerable to climate risks, proactive urban planning strategies can reduce exposure, build social resilience, and promote health equity. As the global community faces rising temperatures, worsening air pollution, and increasing social inequalities, reframing urban planning as a public health intervention becomes not only a local necessity, but also a global imperative.

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Conflict of Interest

The authors declare that there is no conflict of interests.

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