Using Urban Design to Improve Children's Health – The Smart Cities, Healthy Kids Study

Summary

This article discusses a study that examines the potential for active living in all 60 of Saskatoon's residential neighbourhoods, as well as how active school-age children are in each of these neighbourhoods. The objective is to determine the links between how urban built environments are developed and how they encourage or discourage children to be active.

Key Terms

Neighbourhood active living potential (NALP) refers to the concept of a defined place (in this case, a neighbourhood) being conducive for a physically active lifestyle, as well as the tool used for its measurement. The tool is a 22-item neighbourhood observation survey measuring activity friendliness, safety, density of destinations, and universal accessibility.

Irvine-Minnesota Inventory (IMI) is a neighbourhood audit measuring 229 features that fall within the domains of attractiveness, diversity of destinations, pedestrian access, safety from crime, and safety from traffic.

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The problem of childhood obesity in North America and other advanced countries has reached the point where this generation could face a life expectancy shorter than that of their parents. While there have been numerous studies looking at the causes, the influence of the social and built aspects of neighbourhoods is a relatively new area of study (Oliver & Hayes, 2005).

This article discusses Smart Cities, Healthy Kids, a three-year, multi-phase study that examines the active living potential of all 60 residential neighbourhoods in the City of Saskatoon, Saskatchewan.

Researchers from the Saskatchewan Population Health and Evaluation Research Unit (SPHERU) surveyed students aged 10 to 13 to determine their actual activity levels, and interviewed some children and their families about how they feel their neighbourhood influences how active they are.

Objectives of the Study

The Smart Cities, Healthy Kids study examines how urban planning and design can help encourage more children to be physically active, while helping to reduce the risk of childhood obesity.

There are studies looking at environmental factors that help or hinder active lifestyles (Cao, Makhtarian & Handy, 2009); however, only recently has research been emerging that looks into how our urban built environment – buildings, roads, sidewalks, parks and green spaces – can affect children's activity levels (Sallis & Glanz, 2006).

SPHERU has a companion study under way that examines the city's food environment – access to nutritious food – and how this affects children's health.

Phase 1 - Urban design and measuring neighbourhood active living potential

In the first part of the Smart Cities, Healthy Kids study, the research team looked at how specific planning strategies the city had undertaken over time have now affected the "active living potential" of each residential neighbourhood in the city.

Researchers used two surveys to measure neighbourhoods in terms of how each neighbourhood's design encouraged or discouraged activity.

- First, the team walked through each neighbourhood to measure its active living potential. This involved the use of a 22-item survey (NALP) that covers activity friendliness; safety; density of destinations for work, shopping, and recreation; and universal accessibility (Fuller & Muhajarine, 2010).
- The Irvine-Minnesota Inventory (IMI) was also used. This is a detailed survey covering 229 neighbourhood features, which results in a score being calculated in each of five domains: attractiveness; diversity of destinations; pedestrian access; safety from crime; and safety from traffic.

Both surveys, in general, found that older neighbourhoods with grid-style road layout offered more walkable destinations and a wider variety of destinations, which could increase physical activity. However, newer, suburban subdivisions with curvilinear road layouts had advantages in terms of social aspects and traffic safety.

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Phase 2 - Measuring physical activity in children

In the second phase, researchers set out to determine the relationship between a neighbourhood's active living potential with the reported and actual level of physical activity of the children, aged 10 to 13, who live there.

Researchers recruited 1,610 children to complete two detailed questionnaires about their physical activity.

- One questionnaire was used to collect data on children's perceptions of what aids or hinders their physical activity.
- The second gathered data on the children's structured and unstructured activities.

A subgroup of 465 children was also asked to wear accelerometers for a week to gather objective data about their physical activity (Hume, Salmon & Ball, 2005).

Phase 3 - Gauging parents and children's perceptions of their neighbourhoods

In the final, qualitative portion of the study, the team asked children and their parents about what influence they felt their neighbourhoods had on their activity levels.

- Twenty-four families whose children took part in earlier phases of the study were interviewed, and each child was lent a digital camera to take photographs — a method known as photovoice (Aitken & Wingate, 1993) — of places and things they felt helped or prevented them from being active.

Some of the photos showed places that encouraged physical activity, such as high-quality playground equipment, while others showed where they could take part in registered activities or take dogs for walks.

Other photos showed barriers to physical activity such as evidence of drug paraphernalia and gang activity, or construction work.

Research to Help Neighbourhoods Plan for Health

The Smart Cities, Healthy Kids study exemplifies collaborations between university researchers, decision-makers, and the community. The collaboration includes researchers with multiple disciplinary backgrounds, and decision-makers from the Saskatoon Health Region and the City of Saskatoon, program planners, and community-based organizations, among others.

The goal of the study is to produce research that will help Saskatoon and other cities understand how neighbourhood planning, policies and practices can encourage more active lifestyles, and, by extension, improve children's health today and in the future.

About the Authors

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About the Organization

The Saskatchewan Population Health and Evaluation Research Unit (SPHERU) is a bi-university research unit with offices located across Saskatchewan, in Regina, Prince Albert, and Saskatoon. SPHERU engages in population health research, which is the study of social factors that contribute to the well-being of various groups within the population. Working across various disciplines, SPHERU researchers collaborate with communities, other academics, and policy-makers to undertake this critical research.

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