

Building Health into Communities: A Smart Solution to Public Health Challenges

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I. Introduction

Over the past few decades, the United States has seen a dramatic rise in the prevalence of obesity and its associated comorbidities. Today, 16.9% of American youth and 34.9% of American adults are obese (Ogden, Carroll, Kit, & Flegal, 2014), and nearly half of adults have at least one chronic disease (CDC, 2014). A major factor contributing to the high prevalence of obesity is the lack of physical activity. According to the Centers for Disease Control and Prevention, less than half of all Americans meet the recommended guidelines for physical activity (CDC, 2014).

Although health education campaigns are important to combating obesity, oftentimes individuals, especially those of lower socioeconomic (SES) status, encounter environmental barriers in their community that limit their ability to improve their physical activity. These barriers include: unsafe neighborhoods, poorly maintained walkways and bicycle lanes, limited access to parks or open spaces, outdoor air pollution, long commutes, and inefficient or expensive public transit (BARHII, 2014). Therefore, for people to be able to make healthful behavior changes, they require healthy communities to live, work, learn, and play (CDC, 2014). One promising strategy to building healthy communities is smart growth. As defined by the Environmental Protection Agency, smart growth is a set of broad urban development principles that strive to “protect our natural environment and make our communities more attractive, economically stronger, and more socially diverse” (EPA, 2013). This brief reviews the literature on the

relationship between the built environment and health, and how smart growth can be a solution to the nation’s obesity crisis.

II. Background

Theories of the Built Environment and Health

The built environment is often defined as all aspects of the physical environment made by people for people (Northridge et al, 2003). In order to understand the relationship between public health and the built environment, it is first necessary to understand the historical underpinnings of American urban development. Since the end of World War II, the United States has pursued a low-density and automobile-oriented urban development. Public policies, such as the interstate highway system and suburban housing home loans, has created a structure wherein households are incentivized to move to the suburbs. The large spatial separation between jobs, housing, schools, and other services in the suburbs has forced people to depend on automobiles as a form of travel. As a result, the more active forms of transit (i.e., walking, biking, and public transit) are not rational choices for people to complete their daily activities. Moreover, in the central cities, the trend toward roadway widenings to improve vehicular flow has had the negative impact of reducing the space allocated to pedestrians and bicyclists, reducing streetscape amenities, and increasing vehicular collisions (Frank & Engelke, 2001). In other words, the American auto-centric urban form discourages physical activity.

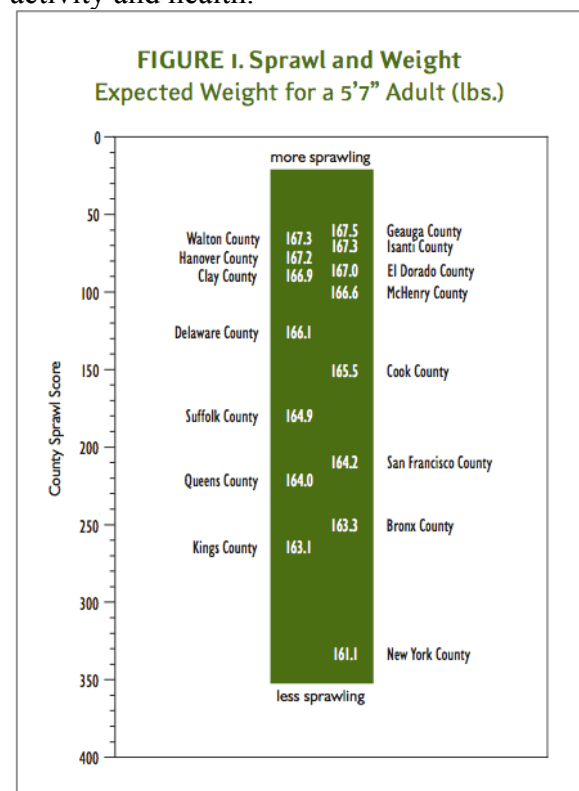
As is well known in the public health literature, significant health benefits can be

achieved through long-term, moderate physical activity. These positive health outcomes include a reduction in the risk for obesity, heart disease, diabetes, stress, stroke, cancer, depression, and attention deficit disorder (BARHII, 2014). Therefore, in order to improve the public's health, there is a need to focus on creating built environments that are supportive for daily physical activity. For example, one type of urban development that promotes physical activity is mixed-use, which is a development "that blends residential, commercial, cultural, institutional, and where appropriate, industrial uses" (APA, 2014). It has been found that higher density neighborhoods with mixed-use and smaller blocks are associated with increased walking and bicycle use (Frank & Engelke, 2001). By planning for built environments that seamlessly blend physical activity into daily living, public health practitioners and urban planners can help individuals make the healthy choice the easy choice. This improvement to people's physical activity behavior is especially true for low-SES individuals who do not have access to recreational facilities or do not have enough time for structured activities (Frank & Engelke, 2001).

Research on the Built Environment and Health

Over the past decade, there has been an increasing research attention given to the relationship between the built environment and health (Jackson, Dannenberg, & Frumkin, 2013). In a national study conducted in 2003, Ewing and colleagues examined the relationship between urban sprawl and physical activity, obesity, and morbidity. By developing a "sprawl index" for this study, the researchers were able to compare the impacts of sprawl on health across all U.S. counties. It was found that residents of the most sprawling counties

were likely to weigh on average six pounds more than residents of the most compact counties (see Figure 1). In fact, the odds that a county resident will be obese rises ten percent with every 50-point increase in the degree of sprawl on the county sprawl index. Moreover, people in sprawling areas walk less for exercise and have a higher prevalence of hypertension (Ewing et al., 2003). Thus, this study provides strong support to the theory that urban form can have a significant influence on physical activity and health.



Source: McCann, B. & Ewing, R., 2003

In contrast to the Ewing et al. study that examined the impacts of sprawl across U.S. counties, Frank, Anderson, & Schmid (2004) investigated the impacts of mixed-use form specifically across neighborhoods in the Atlanta metropolitan region. By using the Geographic Information Systems (GIS) software and developing a land-use mix index, the researchers were able to examine the level of mixed-use in 1-kilometer buffers

around each participating household. A value of 0 in their land-use mix index represents a single land-use environment (i.e., residential, commercial, office, or institutional) and a value of 1 represents an environment that is evenly distributed across the four land uses and with multiple destinations within walking distance. They found that the odds of obesity declined by 12.2% for each quartile increase in the land-use mix index (see Figure 2). In fact, the proportion of obesity declined from 20.2% in the lowest to 15.5% in the highest land-use mix quartile (Frank, Anderson, & Schmid, 2004). Furthermore, it was found that the odds of obesity declined by 4.2% for each additional kilometer that participants walked daily, but increased by 6% for each hour spent in car per day. Therefore, these results also substantiate the theory that increased levels of mixed use and corresponding moderate physical activity (i.e., walking) are associated with reduced odds of obesity.

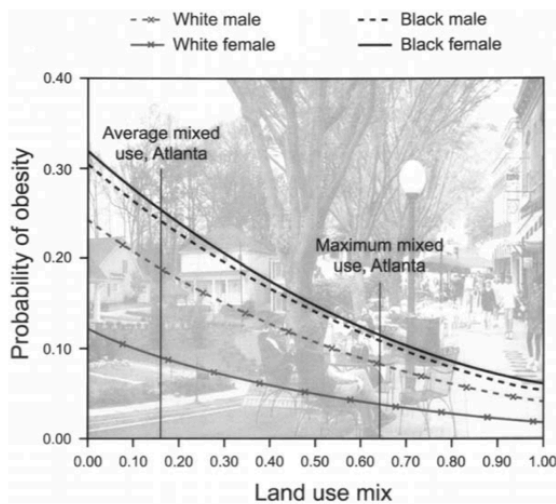


Figure 2. Probability of obesity in relation to land-use mix.

Source: Frank, Anderson, & Schmid, 2004

Finally, Besser & Dannenberg (2005) examined how public transit affects walking patterns. In their national study of American households, they found that

individuals who used public transit spent a median of 19 minutes daily walking to and from transit. Moreover, rail users, minorities, people in households earning <\$15,000 a year, and people in high-density urban areas were more likely to spend ≥ 30 minutes walking to and from transit daily (Besser & Dannenberg, 2005). These findings are significant for they not only validate the claim that public transit and living in high-density urban areas are supportive of physical activity, but also that public transit can help low-income and minority groups attain the recommended level of daily physical activity.

Smart Growth and Health

Although there are various strategies through which public health practitioners and urban planners can improve the built environment for health, one promising approach is smart growth. As defined earlier, smart growth is a set of broad urban development principles that strive to “protect our natural environment and make our communities more attractive, economically stronger, and more socially diverse” (EPA, 2013). These principles are achieved through planning for mixed-use neighborhoods, mixed-income housing, parks and green spaces, compact and transit oriented development, revitalization of neighborhoods, and more efficient use of existing infrastructure (Geller, 2003). By emphasizing and implementing these smart growth elements into communities across the nation, smart growth has an enormous potential to promote walkable and bikeable neighborhoods and thus enhance the health of populations.

Despite the general lack of research specifically on smart growth policies and projects, Durand and colleagues (2011) conducted a review of the literature on built environment factors that have been used in smart growth planning to determine whether

they are associated with physical activity or body mass. They found that five smart growth factors (diverse housing types, mixed land use, housing density, compact development patterns and levels of open space) were associated with increased levels of physical activity, primarily walking (Durand et al., 2011). This finding indicates that several features of smart growth planning promote everyday physical activity, and thus are beneficial for public health.

Challenges to Smart Growth

Despite its many benefits to public health, smart growth faces a few challenges to implementation in communities across the nation. Firstly, the high construction costs and development fees of higher-density projects causes smart growth initiatives to often run into fiscal barriers (Cervero, 2004). However, even when cost issues are addressed, the political barriers of restrictive zoning laws and NIMBY (not in my back yard) forces often impede smart growth projects (Cervero, 2004).

III. Policy Implications and Recommendations

The review of the existing literature suggests that the built environment has significant impacts on public health. By planning for mixed-use, compact, and transit-oriented neighborhoods, public health practitioners and urban planners can integrate physical activity into people's everyday activities. Since obesity and its associated comorbidities continue to remain at epidemic levels, it is imperative for local governments to implement plans and policies (such as smart growth) that will improve the built environment and promote physical activity.

Given that low-SES individuals tend to have less power and privilege to advocate for improvements to their communities

(Phelan, Link & Tehranifar, 2010) and have been historically deprived of investments to their built environment (California Newsreel, 2008), it is essential that these communities be included and given priority in the policy and planning process. If large-scale investments to the built environment of low-SES communities are implemented, then these neighborhoods can be economically strengthened and health inequities can be reduced.

Furthermore, since fiscal and political barriers are major concerns for implementation of smart growth elements, public health practitioners should actively seek partnerships with local urban planning, environmental, and business organizations. By doing so, a broad coalition of supporters for healthy built environments can be established, which will help to more easily raise public support and funding for smart growth projects.

Although environmental interventions can be costly and require many policy changes before health improvements are realized, the long-term benefits that can be achieved are worth the investment in our communities. Only by making the healthy choice the easy choice will we be able to combat the nation's obesity crisis.

IV. Resources of Interest

CDC Designing and Building Healthy Places: <http://www.cdc.gov/healthyplaces/>

EPA Smart Growth:
<http://www.epa.gov/smartgrowth/>

Smart Growth America:
<http://www.smartgrowthamerica.org/>

Change Lab Solutions:
<http://changelabsolutions.org/>

Human Impact Partners:
<http://www.humanimpact.org/>

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