The Skinny on Obesity: A need for a comprehensive diagnostic of obesity beyond self and health variables to include social and environmental strategic drivers

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ABSTRACT

The rapid increase in the number of obese adults and children in both developed and developing countries is alarming and will strain health resources in the future. A review of pertinent social and built environmental influences that contribute to the prevalence of this chronic disease is examined with reference to current literature. This paper explores the relationship between factors of the built and social environments that ultimately lead to the creation of obesogenic environments. Recognizing the importance of human interaction, coupled with genetic factors, with the built environment in addressing obesity is an important variable, the author argues that rather than evaluating obesity with a retrospective approach, a forward thinking approach in creating built environments which entice human action in the environment should be an ongoing premise in fighting obesity.

TRADITIONAL CONSTURCTS OF OBESITY AND THE NEED FOR THE INCORPORATION OF ENVIRONMENTAL AND BUILT STRATEGIC DRIVERS

Over the past two decades, there has been a rapid increase in the number of obese adults and children across the developed and developing world. Recent obesity studies demonstrate that the rates of childhood and adult obesity around the world are “alarming” and that “an estimated 41 million children under 5 years old are either obese or overweight as of 2014” (Lorenzetti, 2016). These rising global obesity rates have been identified as a serious public health issue that warrants immediate attention and proven prevention efforts due to the detrimental mental, physical, and social impacts on an individual's health (Papas et al., 2007). When it comes to addressing this chronic disease through global health initiatives, governments around the world approach causes of obesity through the medically-based discourses which “predominantly frame obesity as an issue of personal responsibility” or defective genetics (Thomas, Olds, Pettigrew, Randle, & Lewis, 2014, p.115). This approach places the blame on poor individual choices that can be solved by an increase in physical activity to lose weight and making appropriate lifestyle and food choices (Thomas et al., 2014). As a result of this widespread belief that obesity stems from individual responsibility, the preventative measures and policies that have been instilled are primarily aimed at increasing the awareness of obesity and its resulting health consequences, while congruently encouraging behavioural changes in relation to physical activity and food consumption (Thomas et al., 2014). While these strategies play a critical role in the reduction of obesity and improving the health of the overall population, they neglect to acknowledge the external factors that play a role in influencing individual decision making. As well documented in the 2016 World Health Organization’s Commission final report and recommendations: on Ending Childhood Obesity, individual behaviour is shaped by factors that exist within their respective social and physical environments in which they interact with on a daily basis (Magnusson, 2016). In order to slow obesity trends among adult and children populations, it is essential to stop limiting the potential causes of obesity to poor individual lifestyle choices and genetics, and move to models that are inclusive of environment strategic drivers of obesity. This paper will examine the relationship between factors of the built and social environment that contribute to the creation of obesogenic

environments and pose a serious risk to the overall health and wellbeing of children and adults on a global scale.

WHY OBESITY MATTERS

Physical Complications

Before discussing the relationship between obesity and the environment, it is necessary to define obesity and explain why it is a serious public health problem that needs to be dealt with immediately. The definition of obesity varies depending on what age group is being referred to (children, teenagers, elderly), but in adults obesity can be defined "as a condition of abnormal or excess fat accumulation in adipose tissue, to the extent that health may be impaired" (Chan & Woo, 2010, p. 766). This results from "an energy imbalance that occurs when energy consumption exceeds energy expenditure" (Papas et al., 2007, p. 129). The most pragmatic population-level measure of obesity is the Body Mass Index (BMI) of an individual, which is calculated by dividing a person's weight (kg) by their height (m) squared (Chan & Woo, 2010). In adults, a BMI over 30 constitutes obesity (Chan & Woo, 2010). Even though the BMI has shortcomings as it does not "distinguish between weight associated with muscle and weight associated with fat, and the relationship between BMI and body fat content varies according to body build and proportion", it is still the most useful measure in classifying underweight, overweight, and obesity in adults (Chan & Woo, 2010, p. 766). Numerous studies, as evidenced by the prolific research of the United States' National Institute of Health, have been conducted that demonstrate the relationship between excess weight and the risks of a wide range of illnesses ("NHLBI Obesity", 2014). Some of the serious health conditions obese people have a greater risk of developing include high blood pressure, type two diabetes, heart disease, joint problems including osteoarthritis, sleep apnea and respiratory problems, various types of cancer, and metabolic syndrome ("Obesity", 2016).

Psychological Complications

Aside from the physical health risks obesity poses on an individual's wellbeing, there are numerous psychological disorders associated with obesity including depression, eating disorders, and distorted body image (Collingwood, 2016). Compounding individual psychological issues related to obesity are the pejorative societal stigmas attached to obesity. Since our society places a high premium on thinness - especially in women - as a characteristic of physical attractiveness, individuals who are classified as being obese may encounter social attitudes that ridicule and malign them (Young & Powell, 1985). Frequently, obese and overweight individuals are unfairly generalized as lazy, sloppy, asexual, and having a lack of self control (Young & Powell, 1985). These types of undesirable characteristics that society associates with obese people creates a stigma towards this chronic disease, and facilitates the exclusion of obese individuals in day to day activities which causes them to experience a variety of resulting mental health issues (Young & Powell, 1985).

EVIRONMENTAL AND BUILT FACTORS' ROLE

As aforementioned, there is a complex relationship that exists between the prevalence of obesity and the environment. The environment can be broadly defined in heath literature as "all that is external to the individual" (Papas et al., 2007, p. 129). The environment can be thought of in terms of social and physical dimensions, but for now the primary focus will be on the physical built environment. The built environment encompasses aspects of a person's surroundings that are modified or human-made as compared with naturally occurring elements of the environment

(Papas et al., 2007). The built environment includes a variety of things such as parks, green spaces, sidewalks, cleanliness and maintenance of public spaces, transportation systems, and land use mix (Renalds, Smith, & Hale, 2010). These modified elements of the environment have been linked to influencing obesity by promoting an increase of energy consumption and a reduction of energy expenditure (Papas et al., 2007). One part of the built environment that has been linked to obesity and the dearth of support for physical activity are neighborhoods and places of residence (Heinrich et al., 2008). The built environment and its impact on physical activity is associated with mobility factors and walkability (Renalds et al., 2010). For example, studies found that in neighborhoods where there was a presence of sidewalks that had good lighting and were well maintained, residents were encouraged to be physically active and take advantage of these amenities that were afforded to them through the built environment (Renalds et al., 2010). Studies have produced compelling evidence that residents living near areas with a range of complimentary land uses such as physical and recreational facilities, parks and open spaces, connected street systems, shopping developments, and pedestrian friendly environments were more likely to engage in a physically active lifestyle (Renalds et al., 2010). The proximity and accessibility of these developments make alternative means of transport to the automobile such as walking, cycling, and public transit possible. All of these attributes of the built environment influence individual behaviour and facilitate or inhibit physical activity. Residents that lived in communities that promoted physical activity through being pedestrian-friendly or through greater access to physical activity facilities had a low BMI (Renalds et al., 2010). Conversely, urban designs that were more reliant on automobiles as the primary form of transportation due to high commute times were associated with physical inactivity and obesity (Renalds et al., 2010).

Along with physical activity, another way that the built environment is connected to obesity is with regards to the access of food outlets. Since obesity is caused by a combination of excessive food intake, and a lack of physical activity, one of the most effective ways to prevent obesity is through maintaining a balanced healthy diet. Even though diet may be solely dependent on the choices of an individual, there are many factors that influence the decision making process of what a person consumes. If an individual lives in an area with limited availability to healthy fresh foods such as fruits, vegetables, meats, and dairy products, they are more likely to have a diet that consists of energy-dense foods that are high in sugars and fat (Papas et al., 2007). Urban designs that had an absence of healthy food outlets such as supermarkets and grocery stores are known as food deserts, and are associated with higher probability of obesity in residents of the surrounding areas (Papas et al., 2007). When residents of a given community have to travel greater distances in order to purchase healthy foods, they may be influenced to find more convenient, closer alternatives within their communities. Neighborhoods that had higher numbers of fast-food outlets or convenience stores were associated with higher BMI rates among adults and children (Papas et al., 2007). Another factor influencing the eating habits of an individual is relative cost of food. Fresh produce is often times very expensive to purchase which discourages some individuals from buying food of greater nutritional value and instead influencesf them to find cheaper less-healthy alternatives. There is compelling evidence that proves that "wholesome foods such as lean meats and fresh produce often cost more and that lower-cost diets are often high in starches, added sugars, and added fats" contribute to weight gain (Wakefield, 2004, p. 617). The decision making process to buy foods of lesser nutritional value due to cost can be observed in people of low socioeconomic status (Papas et al., 2007). People who are characterized by low average incomes often times cannot afford to spend a lot of money on fresh foods which leads them to resort to finding cheaper,

unhealthier alternatives (Papas et al., 2007). Although maintaining a healthy balanced diet appears to be the sole responsibility of the individual, the available food outlets in the surrounding built environment heavily influence a person's decision of what they will consume. The prevalence of obesity globally is inextricably linked to the built environments in which an individual resides. Aspects of the built environment like neighborhoods and mixed-land use play a crucial role in supporting lifestyle choices that result in either adverse or beneficial health consequences for the individual through the facilitation or prevention of physical activity and healthy diet.

SOCIAL DIMENSIONS AS STRATIGIC DRIVERS OF OBESITY

Aside from the physical elements of the environment, there is also a social dimension that is connected to the presence of obesity. The social environment is a very broad term that encompasses "the groups to which we belong, the neighborhoods in which we live, the organization of our workplaces, and the policies we create to order our lives" (Yen & Syme, 1995, p. 287). It is important to understand that the physical and social environment do not exist independently of each other, because "any environment is the result of the continuing interaction between natural and man-made components, social processes, and the relationships between individuals and groups" (Yen & Syme, 1995, p. 288). An example of the dynamic relationship between the social and physical environment and how it relates to obesity can be observed in neighborhoods. A difference between the two environments with regards to residential areas is that the built environment of neighborhoods has been linked to health through the promotion of physical activity and social environments and is hypothesized to promote health behaviors through the provision of social support and cohesion (Child et al., 2016). The level of social support and cohesion in a neighborhood is dependent on factors like social capital, neighborhood trust, and socioeconomic composition (Matthews & Yang, 2010). These factors are not static and vary across various populations and groups in society.

To fully understand how these factors relate to obesity, it is imperative to recognize that there is a link between socioeconomic status and the resulting social environments. In our society, there are systemic inequalities that have significant impacts on health and studies show that racial-ethnic and socioeconomic status influence and shape an "individual's exposure to and experience of virtually all known psychosocial, and many biomedical, risk factors for health" including obesity (House, 2002, p. 134). In other words, socioeconomic position is a fundamental cause that increases exposure to health risks factors like obesity, even as it changes over time (House, 2002). Thus, many chronic diseases including obesity were once more prevalent in upper socioeconomic levels, "but as their prevalence in the population and their impact on individual and population health have increased, they have become increasingly more prevalent at lower socioeconomic levels" (House, 2002, p. 134). Evidence in support of this claim can be seen in the higher probability of obese adults and children who live in low socioeconomic neighborhoods.

One aspect of the built environment that has ties to the social environment and the prevalence of obesity is the quality of housing development and neighborhood stability. In low socioeconomic neighborhoods, the "quality and safety can be impaired by physical decay and incivilities (e.g., graffiti, crime), resulting in unhealthy resident behaviors" (Heinrich et al., 2008, p. 188). The crime that occurs in these residential neighborhoods promotes physical inactivity because even though there might be built constructs that encourage residents to be physically active, the risks of the

residents falling victim to violence outweighs the benefits of utilizing these components. For example, if a neighborhood is notorious for people getting mugged on the streets, residents are more inclined to drive rather than walk to their destination in order to avoid being robbed. Low socioeconomic neighborhoods are often characterized by instability and incivilities that are associated with higher BMI (Heinrich et al., 2008).

Another reason why obesity is more prevalent among low socioeconomic neighborhoods is the inadequacy of resources. In residential areas with high-income status, residents are provided with a variety of services that encourage physical activity, whereas in lower class neighborhoods mixed-land use is limited so the residents may not have access to the same free physical activity resources (Heinrich et al., 2008). In more supportive neighborhoods, "greater resource accessibility, more amenities, and fewer incivilities were related to lower obesity prevalence rates among residents" (Heinrich et al., 208, p. 190). The increased safety of these neighborhoods enables a level of trust to be built among residents and fosters a more active lifestyle. The prevalence of obesity in residential areas of low socioeconomic status can be attributed to the complex relationship between the physical and social environment.

OBERSITY AS A SYSTEMIC GLOBAL PROBLEM

So far this paper has argued that obesity is the result of the interaction between diet, genetics, physical activity, and the environment (Papas et al, 2007). Due to the complexity of its components, this chronic illness poses many challenges to global health initiatives attempting to tackle this problem. Even though obesity was originally thought to be a disease of the rich wealthy countries, there has been a steady increase in the prevalence of this disease worldwide. In high income countries like Canada and the United States, the population groups most likely to experience this disease and the resulting health consequences are the individuals that belong to low-income minority populations (Heinrich et al., 2008). The reasons for this are attributable to the unequal distribution of health among our society based on the social hierarchy of socioeconomic status. This inequity of health among various populations of different socioeconomic status is directly connected to obesity and the critical role the social and built environments play in the facilitation of the spread of this disease. Since obesity results from a combination of individual responsibility and the environment, many prevention methods have been proposed in order to stop the spread of this disease.

A tactic being employed to reduce worldwide obesity is that planners and developers are beginning to build communities that promote physical activity through a wide range of mixed land use (Wakefield, 2004). This close collaboration between urban planning and public health professionals helps in the implementation of effective intervention and policies that might translate into improved health for urban populations (Northridge, Sclar, & Biswas, 2003). To successfully reduce the rise of obesity, policymakers must take into account numerous external elements that influence and shape not only individual decision-making, but also their respective social and built environments. This grassroots level approach to preventing obesity by making changes to the built environment is innovative and a positive step in the direction towards promoting good health through physical activity and inter-connected communities.

CALLING FOR NEW MODELS EXAMINING THE CAUSES OF OBESITY

Rather than continuing with the downstream method of blaming the individual for the prevalence of obesity, a switch to the upstream approach of studying how the social constructs and built environment surrounding us influences our health is mandated (Child et al., 2016). Instead of trying to solve these health problems after they have already happened, new heuristics and methodologies suggest that the best way to solve these issues is to start building communities and neighborhoods that promote physical activity, along with good health. If urban planners begin to build communities that are appealing because they are safe, stable, pedestrian friendly, and are in proximity to a variety of land uses, people would be living in environments that facilitate physical activity, potentially resulting in healthier lifestyles. If we want to succeed in the elimination of obesity, it is essential to stop viewing health as one area of study and social and physical environments as another. We need to discontinue this dualistic way of thinking and understand that our environments surrounding us directly play into our health and wellbeing.

Furthermore, when we are examining the connections between health and our social relationships, we need to acknowledge that the unequal distribution of health among individuals and groups is due to the systemic inequalities that exist within our society. This new method in addressing health issues is essential if we want to succeed in effectively decreasing the prevalence of obesity in our society. Admittedly, the built environment is an important aspect in the fight against obesity, however human thought and interaction, coupled with genetic-related factors, with the built environment regarding exercise and food intake remains a confounding variable across all levels in the study of obesogenic causes.

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