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Available, Affordable, Accessible, Appealing: The A's of Influencing Healthy Eating and Active Living

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In the work of addressing obesity, there has been a movement to focus on policy, systems, and environmental (PSE) change strategies. These PSE strategies are seen as sustainable with wide reach impacting populations that influences behavior to reduce obesity.[1,2] In 2009, the Centers for Disease Control and Prevention (CDC) released a report on recommended community strategies to combat obesity which stated, "reversing the U.S. obesity epidemic will require population level change that focuses on adopting policies and creating environments that support healthier lifestyle choices."[3] However, what are the characteristics to influence behavior with these strategies?

For nearly a decade working in this field and pushing for policy and environmental changes, I developed criteria that help explain those characteristics. Often diet and activity behavior seem to be associated with cost and convenience, but looking at this more closely, these A's allow to explain behavior influences, especially as it relates to identifying equitable approaches. These influencing characteristics need to be considered in the context in which the desirable behavior is taking place—at home in their community, at school or learning environment, at the workplace and in its community, and at places of play, leisure and recreation and their environments.[4,5]

Available

Is the healthy behavior *available* to the individual where they live, work, learn, and play?

This may seem obvious, but when it comes to opportunities to engage in healthy in behaviors, those opportunities need to be available in the context in which behaviors take place. For healthy eating and active living, it is important to examine the different environments to explore gaps in opportunities to support healthy eating and be physically active. These gaps may differ depending on the setting in which the target behavior is taking place. Does your worksite have healthy choices in the vending machines?

Does the rural community have a grocery store? Are there safe places to walk in your neighborhood?

There are strategies to increase the availability of healthy food and physical activity opportunities. In areas lacking a grocery store, often the solution for increasing healthy food opportunities does not include putting a grocery store. Mobile markets, produce carts, community gardens and transforming corner stores to include the sale of health food can increase opportunities for healthy food.[3]

Vending machine provide quick, convenient snacks, which often are unhealthy, in the work place and schools. Healthy vending offerings give people choice to have a healthy alternative.[3]

Physical activity opportunities have various challenges, especially in urban and rural areas. Zoning for mixed use would provide walkability and bike-ability opportunities and green spaces.

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In addition, shared-use agreements with schools allow for public use of indoor and outdoor faciliites.[3]

Affordable

Is the healthy behavior *affordable* to the individual?

Cost has been a prohibitive factor in healthy living, especially as it relates to diet choices and physical activity. In terms of diet, there is a cost disparity between nutrient-rich foods and less healthy food options.[6] This, of course, poses an economic challenge, and potential barrier, for those from a lower socioeconomic status.

According to Drewnoski, "affordability of healthy foods may have more of an impact on food patterns than does distance to the nearest store. Grains, added sugars, and added fats are inexpensive, good-tasting, and convenient. Their consumption has been linked to lower-quality diets, lower diet costs, and lower socioeconomic status."[7] This leads to the paradox of obesity among those with lower socioeconomic status. Low income and poverty are associated with food insecurity, or reduced quality, variety and desirability of diet with disrupted eating patterns.[8] However, food insecurity has been associated with increased risk of obesity.[9] The correlation between food insecurity and obesity presents the paradox, where despite limited food intake has increased risk of overweight and obesity, largely due to poor quality of food that are energy-dense.

Physical activity opportunities may also come with a cost which can present a barrier toward the active living lifestyle. Fitness center memberships, recreation fees can be prohibitive to participation and there is evidence suggesting that sport participation among youth decreases with increasing cost, especially from low-income families.[10–12] Cost as barrier to physical activity opportunities, such as sports, has led to disparities among low-income youth participation in recreation and sport activities.[10,11]

However, there are pricing strategies to address affordability and costs as a prohibitive factor in healthy living. These may include discounts on fitness and recreation fees for those receiving public benefits and creating a price differential between healthy food and unhealthy food options.[12] In addition, increasing awareness of Federal programs such as the USDA's Supplemental Nutrition Assistance Program (SNAP), Women, Infant and Children Nutrition Supplement Program (WIC), and Senior Farmers' Market Nutrition Program and WIC Farmer's Market Nutrition Program provide affordable opportunity for those eligible.

Accessible

Can an individual get to the healthy *opportunity*?

While a healthy choice may be available, is it accessible to everyone? The term "accessible" is broad, but in this document the term will focus on the ability to get to destinations via transportation. There are transportation disparities as it relates to aging, disability, race/ ethnicity and income. In terms of race and ethnicity, about 20% of African American, 14% of Hispanic and 13% Asian households do not have a car.[13] In addition, about 40% of those with disabilities, or about 6 million people, have transportation difficulties, such as inability to drive or do not have access to other modes of transportation.[14] Further, more than a half million people with

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disabilities do not leave home.[14] Also, nearly 25% of households in poverty do not own a vehicle, compared to 98% of households whose income is $100,000+ have at least one vehicle.[15] Transportation inequities contribute to disparities in employment, healthcare and access to healthy food and physical activity amenities.

Equitable transportation solutions factor the challenges for various socio-economic demographics and other geographic challenges, such as in rural communities. Equitable transportation solutions such as community design allowing for safe walkability/bike-abilty and public transit allow opportunities to increase accessibility.

Community design and the built environment can foster walkable and bike-able destinations. This not only allows for transportation alternatives but the ability to walk and bike to places provide an opportunity itself for physical activity. Distance to playgrounds and parks has been associated with their use. Those who living further away, especially in rural areas are less likely to visit parks or playgrounds.[16]

Mixed-used community design that combines, residential, commercial and institutional uses has been recommended to increase opportunities for physical activity.[3] This allows for walkability and use of transit. Regular transit use is associated with higher physical activity.[17]

Public transit provides accessibility opportunities especially for the elderly, low-income and those with disabilities. As it relates to healthy eating and physical activity, public transit that connects residential to grocery and farmers' markets increases access to healthy food. In rural areas, often public transit is limited, but there is a desire for improved transportation systems to recreation places.[10]

Appealing

Is the opportunity to engage in healthy behavior *appealing*?

Appealing in this context is an umbrella term that identify other factors that contribute to engaging in healthy behaviors. There are many factors that contribute to appeal, and when considered may improve equity—safety, addressing stigma and culturally-appropriate.

Neighborhood safety, whether perceived or real, has been associated to impact physical activity. While we want to promote more green space, parks and playgrounds, it is important to identify safe, convenient and comfortable strategies in the context of neighborhoods and communities.[18]

Stigma has long been a barrier for individuals participating in public programs and engaging in healthy behaviors. Efforts are need to ensure discretion for those participating in public programs, as well as educating and raising awareness of behaviors and programs to reduce and eliminate stigma.

Stigma presents a barrier for eligible individuals to participating in the USDA's Supplemental Nutrition Assistance Program (SNAP), Women Infant and Children Nutrition (WIC) Supplement Program or the National School Lunch Program, Free and Reduced Meal Program. For example, students understand that participation is income based and low-income and poverty are associated with feelings of shame and embarrassment.[19] These feelings may prevent students from participating since peers recognize a social order and hiding their status is preferred. There are several strategies to reduce stigma or eliminate identification in participating in these programs, including avoiding separate lines between competitive foods and food programs and

implementing a cashless system for all students.[20] For adults, a cashless point-of-sale system at farmer's markets accepting SNAP and WIC, such as the use of tokens for all purchases for everyone, reduces identification of those participating in WIC or SNAP.

In addition to participation in public benefits programs, there has been stigma associated with active transportation and use of transit. For example, some individuals assume that walking or cycling as forms of transportation, such as getting to work, is the result of losing his/her drivers' license. This may be more relevant in rural communities since active transportation is not common among residents.[21]

Whether it is age, race/ethnicity, disability, factoring cultural sensitivity can facilitate healthy behaviors.

For example, social networks of common demographics, especially among minority populations are known enablers to physical activity.[22] There are no uniform criteria for culturally-appropriate interventions to support healthy behaviors.[23] Instead, it is important to explore and understand culturally-appropriate characteristics in the context of behavior in a community that will be appealing to population groups.

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