

Active Living Research

Using Evidence to Prevent Childhood Obesity
and Create Active Communities

RESEARCH BRIEF

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Neighborhood Safety and Personal Attitude May Impact Walking Among Low Socioeconomic Status People

Introduction

Regular physical activity can help prevent chronic diseases, decrease the risk of obesity, and enhance mental health, but people with lower socioeconomic status are less likely to be physically active. Increasing walking among people with lower socioeconomic status could reduce socioeconomic disparities in physical activity, and lead to higher rates of walking overall. We used a computer-based model of adults' walking behavior in a hypothetical city to examine the possible impact of interventions on overall walking, and on walking for different purposes, among different socioeconomic groups.

Key Findings

According to our model, people may walk more often if they have a more positive attitude towards walking, but walking may be limited by other features of the environment, such as safety. Improving neighborhood safety led to more walking among lower socioeconomic status groups, and this effect was magnified in neighborhoods with a greater percentage of land dedicated to non-residential uses.

Methodology

Our computer model represents a hypothetical city of 108,000 adults. Each individual is assigned certain properties, including socioeconomic status, attitude towards walking, and home and work locations. The model simulates individuals performing activities such as traveling to work, for shopping and for recreation. Whether an individual "walks" depends on the distance to different activities, walking ability and attitude towards walking. In this model, an individual's attitude towards walking evolves over time through several types of feedbacks including prior walking experiences (e.g., the safety level of the walking route), and attitudes of the other individuals within her/his social network. Parameters such as probabilities and maximum walking distances for different activities were calibrated using data from 2001 National Household Travel Survey.

SOURCE

Yang, Y., Diez Roux, A.V., Auchincloss, A.H., Rodríguez, D.A., Brown, D.G. (2012). Exploring walking differences by socioeconomic status using a spatial agent-based model. *Health & Place*, 18(1), 96-99.

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We examined the impact of two strategies commonly proposed for increasing walking: 1) improving people's attitudes towards walking (e.g., through health education campaigns) and 2) improving safety (e.g., through community policing efforts). We also explored whether the impact of these interventions is modified by mixed land use.

Implications

One advantage of computer models is that the model can be used to explore various "what-if" scenarios, and help us predict these scenarios' real-world consequences. Drawing reliable conclusions about the predicted impact of interventions in a particular setting would require refinements to the model, and incorporation of additional data. Future models could take into account, for example, incorporation of a public transportation system, or long-term influences of walking on the built and social environments. Together with other methods, including observational studies, experiments and trials, this type of computer model may contribute to an understanding of what types of interventions improve population levels of walking and reduce socioeconomic differences in walking behaviors, and eventually inform decisions that can benefit people's health.