

## Addressing Disparities in the Obesity Epidemic

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### Disparities In Overweight and Obesity Rates

As with so many health problems in the United States today, individuals who have been the most marginalized by society and can least afford the consequences of poor health are often the most likely to be overweight or obese. Currently in the United States, with over 65% of the population affected, it is the norm to be overweight or obese.<sup>1</sup> Among some ethnic groups, this proportion rises to three quarters, with approximately 76% of Black and Mexican-American adults overweight or obese.<sup>2</sup> Disparities exist among youth as well, with 37% of Mexican-American and 35% of Black youth already overweight or at risk, compared to 33.5% of Caucasians.<sup>2</sup> Obesity rates are also rising in the young American Indian population, with an estimated obesity prevalence of 22% for boys and 18% for girls.<sup>3</sup>

### Disparities In Lifestyle Behavior and the Environment

Racial, ethnic, and income disparities are not limited to body weight. Low income and minority groups are more likely to be physically inactive, consume a less healthy diet, live in neighborhoods with limited healthier food options or exercise opportunities, and work in jobs that provide limited support for healthier lifestyle behaviors.<sup>4,5</sup> Minority adolescents engage in consistently higher levels of sedentary activities, such as television viewing and playing of video/computer games.<sup>6</sup>

### Food Access and Availability

In contrast to more affluent communities, those with a greater proportion of ethnic minority residents often have about 30% fewer supermarkets and grocery stores that carry high quality, fresh fruits and vegetables and affordable healthy foods such as whole grains, low-fat dairy, and meats.<sup>7,8</sup> Given limited access to supermarkets, families living in these communities are more likely to purchase food from local corner stores or bodegas

where the price of fruits and vegetables is generally higher and the quality lower than in standard supermarkets.<sup>9</sup> At the same time, fast food restaurants tend to be highly accessible in low-income and minority neighborhoods.<sup>5</sup> Among African Americans in North Carolina, higher fast food consumption has been associated with obesity, higher saturated fat intake, lower consumption of fruits and vegetables, and low self confidence in healthy meal preparation.<sup>10</sup>

### The Built Environment

Access to parks, gyms, and other opportunities for exercise has been shown to correlate with higher levels of physical activity.<sup>11,12</sup> Affordability as well as distance and transportation availability are factors that effect access and may put lower income individuals at a disadvantage in terms of opportunities to be active.<sup>13,14</sup> Heavy traffic, inadequate street lighting, unleashed dogs, and high crime rates are other factors in the built environment that may decrease physical activity for both adults and children.<sup>15-18</sup> Again, many of these factors are more likely to be a problem in lower income neighborhoods.

### Societal vs. Personal Responsibility and Adverse Psychosocial Impact of Obesity

Despite the many environmental obstacles to good nutrition and adequate physical activity, low income and minority individuals living in these environments are often blamed for making poor personal dietary choices and favoring sedentary behaviors. In fact, the debate rages about whether the obesity epidemic will be most effectively addressed through personal responsibility for nutrition and physical activity behaviors or through community-level change. While most would argue the answer lies in a combination of the two, there is increasing interest in environmental and policy level change as an approach that has potential to combat ethnic and income disparities related to access to healthy food and opportunities for physical activity. While not

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sufficient to reverse the rates of obesity, the easy availability of healthy, affordable food, and safe opportunities for exercise would make it easier for individuals who face many life challenges to make better choices regarding lifestyle behaviors.

Once overweight, children may be less likely to participate in sports or recreational activities and frequently experience problems with peer acceptance in school.<sup>19-21</sup> With obesity, the risk of experiencing psychosocial problems such as depression, poor self-esteem, and poor quality of life are also present, especially in a society that stigmatizes obesity.<sup>22,23</sup> These factors can serve to further marginalize the poor and persons of color, thereby helping to perpetuate the obesity cycle. Interventions to address obesity in minority and low-income communities must carefully avoid adding or exacerbating the stigma of obesity given an already long list of negative characterizations of these individuals and their communities. Kumanyika has stated this well, "Raising awareness and concern about obesity may render people in communities of color less satisfied with themselves and less able to cope with one more thing for which we cannot yet offer a good solution. This is a reason for serious reflection as we go forward."<sup>24</sup>

Cultural norms may serve to both buffer the adverse psychological impacts of obesity and perpetuate the health-related problems. There appears to be greater aesthetic tolerance among some minority groups for body types that are heavier than what is portrayed by the popular media as most fashionable.<sup>25</sup> The positive side of this is that women, in particular, are not held to an unrealistic and nearly unachievable standard that can create lifelong internal conflict between the pleasures and comfort of food and the desire to achieve a body image deemed flattering. On the other hand, the relative absence of such pressures may "give permission" to maintain a weight that contributes to long-term chronic disease and poor health outcomes.

There is substantial evidence of an association between poverty and obesity.<sup>26-28</sup> It is a source of confusion to many, however, that someone of limited means could be overweight and simultaneously food insecure, or hungry.<sup>29</sup> This apparent paradox may stem from historical evidence that those who could afford adequate food were generally the wealthy and the more "portly." Harder to grasp is the current situation with the relatively low cost of high calorie, low nutrient dense food, such as foods containing high fructose corn syrup sweeteners and many forms of hydrogenated fats used in processed foods, compared to the high cost of whole grains, fruits and vegetables, and lean meats.<sup>28</sup> This leads to a form of malnutrition where overall the diet is "calorie dense," as opposed to what is recommended by nutritionists as "nutrient dense," referring to a higher ratio of vitamins and minerals to calories. A southern staple, collard greens, for example, are "nutrient dense", particularly when seasoned *without* fatback, as they are packed with nutrients, but have few calories.

## The Southern Diet and Agricultural Tradition

The often-maligned southern diet may be more associated with region and income than ethnicity. Though often referred to as "soul food," the traditions of fried chicken, corn bread, pinto beans, and greens are often shared across lower income whites, blacks, and even acculturated American Indians in North Carolina and the southeastern United States. Latino immigrants bring new healthier food options such as salsa, while sharing or adopting some of the less favorable southern dietary practices such as seasoning with meat fat and consumption of fast food. While often high in animal fat, the traditional southern diet has many health-promoting elements, including garden vegetables, pinto and other dried peas and beans (an

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excellent high fiber, lower fat protein source), and buttermilk (a low-fat cultured milk product that remains after the butter has been removed). Despite the tradition of large family meals and tables overflowing with a wide variety of food, southerners, like many others, are substituting convenience, take out, and fast food for home cooked meals. As a result, families prepare and eat fewer meals together. Some studies have shown that the children of families who eat home-prepared meals together are less likely to face problems with obesity and may experience other benefits such as enhanced school performance.<sup>30,31</sup> Rather than always finding fault with the traditional diet, southerners would be better served by slight refinements (e.g., seasoning collards and pinto beans with onions and garlic, instead of fat back) rather than abandoning it for processed and packaged foods consumed away from home and on the run.

Considering the calorie expenditure side of the obesity equation, North Carolina has traditionally been an agricultural state. In addition to the potential benefit of providing homegrown produce, an agricultural lifestyle involves hard physical labor. With the advent of more mechanized farming and agribusiness, and with fewer individuals tending their own crops or livestock, agricultural jobs can no longer be seen as a significant source of physical activity for North Carolinians. In fact, many rural North Carolinians spend significant time commuting to more urban areas for work but continue to live in communities with very limited access to opportunities for physical activity. Even walking for exercise is difficult with few parks and no sidewalks along high speed rural roads.

## Overcoming Disparities with Community-based Approaches

Not only are low-income and minority individuals more likely to suffer from the causes and consequences of obesity, interventions and policies designed to curb the obesity epidemic may differentially benefit those who suffer least from the problem. Individual-level interventions often require payment for health counseling, purchase of specialty foods, and access to exercise equipment or facilities. Blue collar worksites are less likely to have flexible scheduling or exercise equipment to facilitate increased physical activity while on the job. Similarly, vending machines and snack bars are probably more common than cafeterias with healthy food options.

Thus far, local policies and environmental change have primarily benefited those living in newer or wealthier communities. For example, ordinances requiring sidewalks are applied to new developments, and new parks, walking trails, and bike lanes are often added in more suburban communities. Likewise, environmental changes such as walking and biking trails are more likely to be effective when located in communities where personal safety concerns are limited.

Population or community-level policy and environmental interventions take a more “upstream” approach and consider multiple factors, such as politics, economics, socio-cultural factors, and the built environment. Ethnically-inclusive interventions that have been shown effective often prioritize coalition building and extensive community input in the early phases of development and implementation. This approach increases buy-in and focuses on the mobilization of social networks, use of local resources such as lay health advisors and community health workers, and tailor-

ing of culturally-specific messages.<sup>32-34</sup> Some research suggests that minority populations and communities with strong histories of interdependence for survival purposes may respond better to interventions that build on social support and community norms rather than a focus on individual education and behavior change.<sup>32</sup>

## Future Research Directions and Public Health Priorities

Careful thought is needed regarding research priorities to address health disparities and the obesity epidemic. While not addressing all ethnic groups, AACORN (the African American Collaborative Obesity Research Network) was formed to “stimulate and support greater participation in framing and implementing the obesity research agenda by investigators who have both social and cultural grounding in African-American life experiences and obesity-related scientific expertise.”<sup>35</sup> This group has proposed a number of research priorities that have broad potential to address health disparities and obesity. Their suggestions range from determining the extent to which lifestyle behaviors associated with obesity are influenced by ethnically-targeted marketing, to understanding more about differential health effects of obesity across ethnic and racial groups.<sup>35</sup> Also important to consider in framing a research agenda is the history of exploitation and resulting distrust of the research and medical communities.<sup>32</sup> In order to successfully address the obesity epidemic, researchers and practitioners must continue to challenge themselves to think broadly and deeply about the causes and consequences of access, behavioral, environmental, policy, and health outcome disparities among low-income and minority populations. **NCMedJ**

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## REFERENCES

- 1 Hedley AA, Ogden CL, Johnson CL, Carroll MD, Curtin LR, Flegal KM. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. *JAMA* 2004; 291:2847-2850.
- 2 Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA* 2006; 295:1549-1555.
- 3 Zephier E, Himes JH, Story M. Prevalence of overweight and obesity in American Indian School children and adolescents in the Aberdeen area: a population study. *Int J Obes Relat Metab Disord* 1999; 23 (Suppl 2):S28-S30.
- 4 Liao Y, Tucker P, Okoro CA, Giles WH, Mokdad AH, Harris VB. REACH 2010 Surveillance for Health Status in Minority Communities—United States, 2001-2002. *MMWR Surveill Summ* 2004; 53:1-36.
- 5 Kumanyika S, Grier S. Targeting interventions for ethnic minority and low-income populations. *Future Child* 2006; 16:187-207.
- 6 Gordon-Larsen P, McMurray RG, Popkin BM. Adolescent physical activity and inactivity vary by ethnicity: The National Longitudinal Study of Adolescent Health. *J Pediatr* 1999; 135:301-306.
- 7 Morland K, Wing S, Diez Roux A, Poole C. Neighborhood characteristics associated with the location of food stores and food service places. *Am J Prev Med* 2002; 22:23-29.
- 8 Baker EA, Schootman M, Barnidge E, Kelly C. The role of race and poverty in access to foods that enable individuals to adhere to dietary guidelines. *Prev Chronic Dis* 2006; 3:A76.
- 9 Horowitz CR, Colson KA, Hebert PL, Lancaster K. Barriers to buying healthy foods for people with diabetes: evidence of environmental disparities. *Am J Public Health* 2004; 94:1549-1554.
- 10 Satia JA, Galanko JA, Siega-Riz AM. Eating at fast-food restaurants is associated with dietary intake, demographic, psychosocial and behavioural factors among African Americans in North Carolina. *Public Health Nutr* 2004; 7:1089-1096.
- 11 Duncan MJ, Spence JC, Mummery WK. Perceived environment and physical activity: a meta-analysis of selected environmental characteristics. *Int J Behav Nutr Phys Act* 2005; 2:11.
- 12 King WC, Belle SH, Brach JS, Simkin-Silverman LR, Soska T, Kriska AM. Objective measures of neighborhood environment and physical activity in older women. *Am J Prev Med* 2005; 28:461-469.

- 13 Gordon-Larsen P, Nelson MC, Page P, Popkin BM. Inequality in the built environment underlies key health disparities in physical activity and obesity. *Pediatrics* 2006; 117:417-424.
- 14 Estabrooks PA, Lee RE, Gyurcsik NC. Resources for physical activity participation: does availability and accessibility differ by neighborhood socioeconomic status? *Ann Behav Med* 2003; 25:100-4.
- 15 Richter DL, Wilcox S, Greaney ML, Henderson KA, Ainsworth BE. Environmental, policy, and cultural factors related to physical activity in African American women. *Women Health* 2002; 36:91-109.
- 16 Eyster AA, Vest JR. Environmental and policy factors related to physical activity in rural white women. *Women Health* 2002; 36:111-121.
- 17 Wilcox S, Castro C, King AC, Housemann R, Brownson RC. Determinants of leisure time physical activity in rural compared with urban older and ethnically diverse women in the United States. *J Epidemiol Community Health* 2000; 54:667-672.
- 18 Gomez JE, Johnson BA, Selva M, Sallis JF. Violent crime and outdoor physical activity among inner-city youth. *Prev Med* 2004; 39:876-881.
- 19 Strauss RS, Pollack HA. Social marginalization of overweight children. *Arch Pediatr Adolesc Med* 2003; 157:746-752.
- 20 Deforche BI, De Bourdeaudhuij IM, Tanghe AP. Attitude toward physical activity in normal-weight, overweight and obese adolescents. *J Adolesc Health* 2006; 38:560-568.
- 21 Trost SG, Kerr LM, Ward DS, Pate RR. Physical activity and determinants of physical activity in obese and non-obese children. *Int J Obes Relat Metab Disord* 2001; 25:822-829.
- 22 Dietz WH. Health consequences of obesity in youth: childhood predictors of adult disease. *Pediatrics* 1998; 101:518-525.
- 23 Schwimmer JB, Burwinkle TM, Varni JW. Health-related quality of life of severely obese children and adolescents. *JAMA* 2003; 289:1813-1819.
- 24 Kumanyika S. Obesity, health disparities, and prevention paradigms: hard questions and hard choices. *Prev Chronic Dis* 2005; 2:1-9.
- 25 Lovejoy M. Disturbances in the social body: differences in body image and eating problems among African American and white women. *Gender and Society* 2001; 2:239-261.
- 26 Molarius A, Seidell JC, Sans S, Tuomilehto J, Kuulasmaa K. Educational level, relative body weight, and changes in their association over 10 years: an international perspective from the WHO MONICA Project. *Am J Public Health* 2000; 90:1260-1268.
- 27 Zhang Q, Wang Y. Trends in the association between obesity and socioeconomic status in U.S. adults: 1971 to 2000. *Obes Res* 2004; 12:1622-1632.
- 28 Drewnowski A, Specter SE. Poverty and obesity: the role of energy density and energy costs. *Am J Clin Nutr* 2004; 79:6-16.
- 29 Holben DH, Pheley AM. Diabetes risk and obesity in food-insecure households in rural Appalachian Ohio. *Prev Chronic Dis* 2006; 3:A82.
- 30 Eisenberg ME, Olson RE, Neumark-Sztainer D, Story M, Bearinger LH. Correlations between family meals and psychosocial well-being among adolescents. *Arch Pediatr Adolesc Med* 2004; 158:792-796.
- 31 Gillman MW, Rifas-Shiman SL, Frazier AL, Rockett HR, Camargo CA Jr, Field AE, et al. Family dinner and diet quality among older children and adolescents. *Arch Fam Med* 2000; 9:235-240.
- 32 Yancey AK, Kumanyika SK, Ponce NA, McCarthy WJ, Fielding JE, Leslie JJ, et al. Population-based interventions engaging communities of color in healthy eating and active living: a review. *Prev Chronic Dis* 2004; 1:A09.
- 33 Rudd RE, Goldberg J, Dietz W. A five-stage model for sustaining a community campaign. *J Health Commun* 1999; 4:37-48.
- 34 Ramirez A, Villarreal R, Chalela P. Community-level diabetes control in a Texas barrio: a case study. In: Huff R, Kline M, editors. *Promoting Health in Multicultural Populations: A Handbook for Practitioners*. Thousand Oaks, CA: Sage Publications, 1999.
- 35 Kumanyika SK, Gary TL, Lancaster KJ, Samuel-Hodge CD, Banks-Wallace J, Beech BM, et al. Achieving healthy weight in African-American communities: research perspectives and priorities. *Obes Res* 2005; 13:2037-2047.