COMMENTARY: A SOCIAL-ECOLOGICAL PERSPECTIVE ON OBESITY AMONG LATINOS

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The Southeast United States has experienced rapid growth in the Latino population - mostly Mexican immigrants - with the number of Latinos in the region nearly quadrupling over the past decade. These states, known as new settlement areas, are not as well prepared to meet the health needs of Spanish-speaking immigrants compared to traditional settlement states like Florida, Texas, and California. Unfortunately for these families, immigration to the United States is often associated with becoming obese, or having children at a higher risk for obesity. Rates of obesity have risen dramatically among all racial and ethnic groups in the past few decades, however, Latinos of all ages have the highest rates of overweight and obesity compared to other racial and ethnic groups. One explanation is that although adjustment to a new environment and culture takes considerable time, the adoption of a more sedentary lifestyle and unhealthy diet occurs more rapidly, leading to significant increases in obesity between first and subsequent generations. Families are important referents in establishing health behaviors in children, and there are broader social and physical environmental factors that have strong associations with the development of obesity as well. Moreover, immigrant families must strive to be healthy while coping with acculturative stressors. Relationships between all of these factors are typically studied in isolation. This article explores obesity among new settlement Latino families and provides an integrated conceptual model anchored in the social ecological perspective. (*Ethn Dis*. 2011;21(4):467–472)

Key Words: Public Health, Social Environment, Health Behavior, Family, Obesity

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INTRODUCTION

Large numbers of Latinos have migrated to US communities where they were sparsely present just a decade or two ago. Between 2000 and 2010, the states with the largest percent growth in their Hispanic populations include Alabama, Arkansas, Kentucky, Mississippi, North Carolina, Tennessee and South Carolina.[1,2] Latino population growth in these states continues to outpace the national average.[3] With a 148% increase, South Carolina experienced the largest Latino population growth rate of those states.[2] These new settlement areas in the South are different from the traditional settlement areas, given that migrants to traditional settlements join well-established Latino communities.[4] Due largely to language and cultural barriers, new settlement areas are less adequately prepared to serve the health needs of Spanish-speaking immigrants, a highly vulnerable population.[5–7]

Similar to general US immigration trends, the majority (65.5%) of immigrants to the new settlement areas originate from Mexico.[8] As a group, Mexican immigrants are younger than either other immigrants or the US-born population. A higher percentage of them are male, compared to other groups, and they are more likely to be married. They are less likely to be US citizens than other immigrants, in part because they are more likely to be unauthorized. Mexicans have lower levels of education, lower incomes, larger households and higher poverty rates than other groups. They are slightly more likely to be in the labor force, where they are more likely to work in lower-skilled occupations; they currently have a higher unemployment rate than other immigrants or US-born workers.[2,9] Most Mexican immigrants are young males with low educational levels, a hallmark of Mexican labor migration.[6] Many of these males stay for jobs, marry and have children. As a result, the Latino school-age population (aged 5–17) in the six Southern states grew by 322% between 1990 and 2000.[3] Children of Mexican immigrants are healthy at birth, but their subsequent health and development are greatly influenced by parental social status, family income, neighborhood environment and access to health and social services.[10–15] South Carolina and other states in the Southeastern United States have experienced unprecedented growth in a population group with the greatest risk for developing obesity. This population shift, coupled with the language, cultural and health services deficits in the new settlements highlights the need for empirically-proven obesity prevention interventions with Latino families.

OBESITY AND LATINOS

During 2003–04, an estimated 17.1% of all US adolescents were overweight, and 33.6% were at risk for overweight.[16,17] The increasing trend in overweight among children was more evident among minority children; between 1986 and 1998, overweight prevalence among African Americans and Latinos increased 120%, as compared to a 50% increase among non-Latino Whites.[18] More recent data suggest that Mexican American youth aged 6–11 are the highest-risk child racial/ethnic group for obesity.[19] Unfortunately, disparities persist with Mexican American children and adolescents (37.0%) aged 2–19 having the highest prevalence of at-risk of overweight or

overweight, followed by non-Hispanic Black adolescents (35.1%) and non-Hispanic White adolescents (33.5%).[19] Consistent with other studies documenting a greater prevalence of overweight among Latino youth,[16,17] Kimbro and others recently showed that Latino children were 1.9 times more likely to be overweight or obese compared to White or Black children.[20] Overweight has been associated with an increasing prevalence of type 2 diabetes mellitus, high blood pressure, and high cholesterol among children and adolescents,[21–23] and these children face an even greater risk for developing weight-related chronic diseases during adulthood.[24] Because there is convincing evidence that child weight status tracks into adulthood,[25–30] the increasing prevalence of overweight in US children and adolescents is a major health threat to our society, especially for high-risk minority groups like Latinos.[19,31–33]

Latinos have the highest rates of overweight and obesity,[16,17] and children from Latino families face a greater risk for weight-related health problems such as diabetes, heart disease and cancer compared to their non-Hispanic White counterparts.[34] Factors from the broader physical, social, and cultural environments, and within the family home environment, influence weight status among children. The relationships among these factors are complex and not well understood in the general population. Moreover, there is an even greater gap in understanding these relationships for Latino immigrants. Before community health professionals can develop interventions to increase physical activity and healthy eating for preventing and controlling obesity among Latino children, a critical first step will involve understanding how families influence the weight-regulating behaviors of their children.

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A SOCIAL-ECOLOGICAL PERSPECTIVE ON OBESITY

Ecological models for health promotion recognize the existence of a dynamic inter-relationship between individuals and their environment.[35,36] Changes in the human genome cannot fully explain the speed and magnitude by which obesity has increased worldwide, during the past two decades;[16,37] the gene pool has not changed substantially over the last 35,000 years.[38] The environment, however, especially in industrialized countries, has changed dramatically. Some argue that our present-day obesity epidemic is more likely the result of changes in environmental conditions that promote a combination of increased consumption of unhealthy foods (eg, processed foods that are high in solid fats and added sugar) and decreased levels of physical activity, rather than changes in biological factors.[39]

CULTURE AND ENVIRONMENT

It is becoming increasingly clear that determinants of childhood obesity are complex and effective intervention must understand the interrelatedness of specific determinants. Recent research suggests that culture and environment may play a significant role in Latino childhood obesity. Cultural influences are not fixed variables that occur independently of the environmental contexts in which they are embedded and with which they interact. Focus on individual behavior change is unlikely to produce significant change in overall rates of Latino childhood obesity.[40] Community level efforts that involve influencing the overall environment are emerging as more comprehensive solutions to this complex issue. In one study, Latino immigrants indicated that the lack of familiarity with fruits and vegetables at stores served as a barrier to their purchase.[41] Although a large body of literature supports the importance of culturally-relevant and sensitive measures to accurately assess dietary intake at the individual level,[42,43] culture has received limited attention in studies measuring neighborhood food environments.[44]

ACCULTURATION, ACCULTURATIVE STRESS AND LATINO HEALTH

Acculturation refers to changes that groups and individuals undergo as a result of contact with a different culture.[45] Acculturation has been associated with obesity for Latinos; for instance, length of time in the United States as a proxy for acculturation, with those having lived in the United States longer taking on a more American diet and lifestyle.[46] Although acculturation may have a profound effect on a cultural group, the degree to which individuals within a group participate in and experience acculturation varies greatly.[47,48] Individual-level acculturation variation is what acculturation measures are intended to measure. The problem, however, is that there are two opposing paradigms for measuring acculturation.[47,48] One paradigm posits that acculturation is a uni-dimensional construct conceptualized along a single continuum. That is, an individual falls somewhere between total immersion in their culture of origin and total immersion in the

dominant, host culture. The opposing paradigm posits that acculturation is bi-dimensional, consisting of two distinct constructs reflecting both their culture of origin as well as the new dominant culture in which they live. Under this paradigm an individual can exhibit some degree of both constructs. According to Hunt et al, acculturation measures are especially common in US studies of Hispanic or Latino health.[49] These authors identified 69 articles whose primary variables included Hispanic/Latinos and acculturation, and found major inconsistencies in the definition of this construct. Only 33% of those studies provided a definition of acculturation and these definitions were consistently vague. Hunt et al suggest that culture is extremely complex and "cannot be reduced to a measurable variable." Other authors have suggested that a measure of acculturation could be composed of a theoretically unlimited set of elements.[50]

Berry has suggested that one of the crucial issues involved in the adaptation following cultural contact, is the extent to which individuals deal with cultural maintenance and participation in a new culture.[51] Berry also describes four strategies individuals use when faced with a new, dominant culture. First, individuals who are interested in maintaining their original culture while in daily interactions with other groups are said to integrate. Those who do not wish to maintain their cultural identity and seek daily interaction with other cultures assimilate. When an individual from the non-dominant group places high value on holding onto their original culture, and at the same time wishes to avoid interaction with others, they use separation strategy. When there is little possibility for, or interest in, cultural maintenance, marginalization occurs. These divergent paradigms add additional difficulty to our ability to measure and understand acculturation and its influence on health.

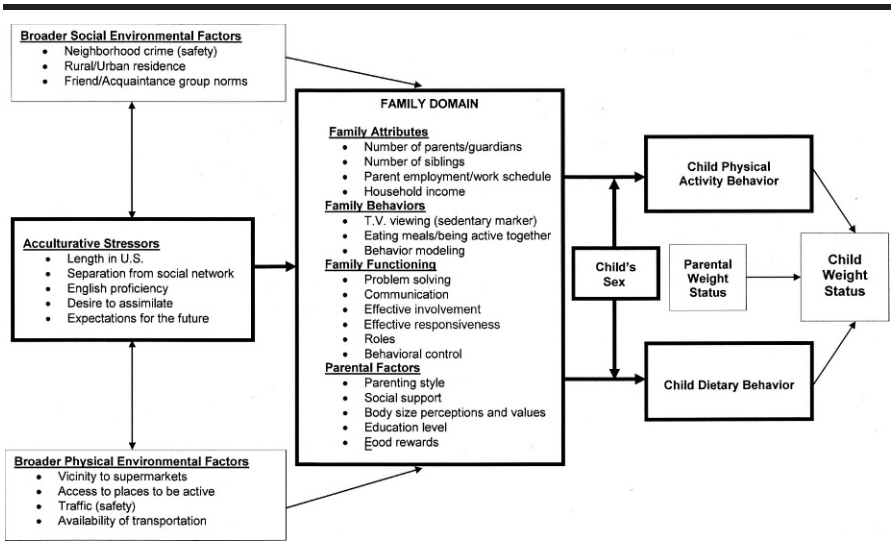

Fig 1. Hypothetical social-ecological model illustrating family and broader environmental influences on child obesity

A SOCIAL-ECOLOGICAL PERSPECTIVE ON OBESITY AMONG LATINOS

Ecological approaches aid researchers and practitioners in identifying leverage points for targeting health promotion interventions.[35,36,52] Several principles from the social-ecological paradigm for community health promotion, as outlined by Stokols, serve as useful guides for developing context-sensitive community-based interventions and programs.[52] For instance, environmental settings are complex and there are multiple dimensions of influence on person-environment interactions within settings. Effective programming considers that multiple environmental dimensions interact with the family and child behaviors. An ecological perspective also emphasizes the interconnectedness of systems; individuals are nested within multiple levels of external influences that can affect health. Research is needed to delineate the causal linkages between environmental levels and child weight-regulating behaviors. To guide effective programs, ecological analyses also emphasize the integration of multiple levels of analysis and diverse methodologies in research and program evaluation, taking into account the hierarchical nature of data collected. The relationships between stress, family functioning and parenting style, and child weight-regulating behaviors are also nested within other community and cultural layers. Figure 1 presents a hypothetical model of environmental factors that affect new settlement immigrant families.

Those involved in community health education typically have limited or no training or experience with incorporating acculturative strategies, compared to those who work daily with Latino immigrants. Further, no one has complete control over the process of acculturation and how it affects the lives of Latino immigrants. However, health educators, health care practitioners, and seasoned community advocates can help buffer stress induced by the process, known as acculturative stress, and facilitate strategies for coping with acculturation. The experience of stress due to being a member of an ethnic group dominated by a dissimilar culture has been extensively documented in empirical literature.[45,47,53–60] Accultur-

ative stress is a generalized physiological and psychological state resulting from environmental stressors experienced as a direct result of the process of adapting to a new culture and environment.[47] Specific stress responses that individuals often experience during the process of adapting to a new culture include: decreased mental health (eg, depression, confusion, anxiety), feelings of alienation, increased psychosomatic symptoms, and identity confusion.[47,54–58,60–64] Moreover, stress can cause family conflict and may negatively affect parenting.[65] The effect of acculturative stress as a factor from the physical and social environments on family functioning and downstream influences on child weight-regulating behavior is an additional environmental factor with unique and culturally-specific consequences for immigrants.

SUMMARY

Obesity is now a world-wide epidemic.[66] Weight status is strongly associated with the development of chronic disease, and the increased morbidity places a sizeable burden on society. Although genes play a significant role in etiology, environmental factors also impact weight status. Individual genetic therapies, even if available, would have little impact at the population level. In contrast, addressing environmental issues is feasible and will have wide-ranging effects, especially among Latinos who are disproportionately affected by the prevalence of obesity, poor diet, and sedentary behavior.[16–20] In order to develop effective interventions, research efforts must first focus on understanding the obesogenic (obesity promoting) factors and mechanisms at work within families and the social and physical environments in which they live. In addition, factors such as acculturative stress must be considered as an additional layer of environmental influences on health behavior among Latinos that program staff should consider in counseling and advocacy efforts.

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Interventions in the new settlement areas are greatly needed. However, it will take time for the public health system to be prepared to adequately meet the needs of Latino immigrant families. In the meantime, there are several potentially effective approaches health care providers and public health staff can do currently to address immigrant health vulnerability. Those working with immigrant families have little power over the process of acculturation or on acculturative strategies. However, they can use basic stress buffering techniques and acculturative learning approaches: link immigrant families to programs and interventions as soon as possible; assess individual and family stress levels; recruit and utilize lay educators (eg, promotoras) in the community; link families within the community so they can build a social network; capitalize on traditional Latino values of family and parental respect; and provide education and counseling regarding the mainstream culture. Lastly, those involved in community health promotion can recommend the following specific strategies (which have empirical associations with obesity prevention and control) to families: watch less television, limit computer and inactive video game use; spend more time outside; plan, prepare and eat meals together at home; increase role-modeling healthy behaviors (especially in the immediate family); reduce consumption of sweetened beverages; and avoid using unhealthy foods as reward.

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