

Parents' Perceptions of Food Availability: Implications for Childhood Obesity

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Childhood obesity is an epidemic in the United States, with children experiencing chronic adult diseases and poor health outcomes. Focus groups were held with parents of children between 6–12 years of age in three different communities in Brooklyn and the Bronx, New York, to explore their attitudes and practices regarding food availability. Poor food quality and discrimination were the key themes affecting parents' food choices and perceptions of food availability in their neighborhoods. Social workers are in a position to decrease obesity prevalence by supporting childhood obesity policy legislation, designing interventions to increase parental awareness of childhood obesity and the importance of making healthy food choices, and working with parents to improve food quality and availability in their neighborhoods.

KEYWORDS childhood obesity, diet, food environment, food availability, food choices, eating habits, weight management

INTRODUCTION

Background on Childhood Obesity

Over the past three decades, rates of childhood obesity have more than doubled, with the most dramatic increase being over the last 20 years (Ogden, Carroll, & Flegal, 2008). The Centers for Disease Control and Prevention

Received July 28, 2009; accepted November 20, 2009.

The author thanks Yi-Fen Tseng for her assistance in facilitating the focus groups and data analysis. This study was funded by a grant from the Fordham University, Faculty Research and Development Fund.

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(2009a) collects data on childhood obesity using the National Health and Nutrition Examination Survey (NHANES). Survey data for the periods of 1976–1980 and 2003–2006 showed an obesity prevalence increase for all age groups. Prevalence for children ages 2–5 years increased from 5.0% to 12.4%; from 6.5% to 17.0% for 6–11-year-olds; and from 5.0% to 17.6% for adolescents 12–19 years old (NHANES, 2009). The 2003–2006 data show that 31.9% of children and adolescents aged 2 through 19 years are at or above the 85th percentile of the 2000 Body Mass Index (BMI)-for-age growth charts, and 16.3% were at or above the 95th percentile (NHANES, 2009). An alarming number of children, 11.3%, were found to be at or above the 97th percentile of the 2000 BMI-for-age growth charts. Children at or above the 85th percentile are considered overweight. Those at or above the 95th percentile are obese; and severely morbidly obese at or above the 97th percentile.

African-American and Hispanic children are twice as likely to be obese as White and Asian children (Block, Scribner, & DeSalvo, 2004; Gordon-Larsen, Adair, & Popkin, 2003; Kumanyika & Grier, 2006; Singh, Kogan, Van Dyk, & Siahpush, 2008). Disparities in obesity prevalence continue to be found in NHANES data among racial and ethnic groups. Childhood obesity among African-American adolescent males, 12–19 years of age, increased from 10.7% to 22.9% across the NHANES survey periods 1988–1994 and 2003–2006. Likewise, data for Mexican-American adolescent males showed a 7.0% increase from 14.1% to 21.1% for the same period. A smaller increase (4.4%) was observed for White adolescent males, with prevalence increasing from 11.6% to 16.0%. Results were similar for adolescent girls ages 12–19, with African-American girls having the highest prevalence of obesity at 27.7%, followed by Mexican Americans at 19.9%, and White Americans at 14.5%. The percentage increases among White, Mexican-American, and African-American girls were 7.1%, 10.7%, and 14.5%, respectively.

Obese children are more likely to experience physical conditions such as hypertension, high cholesterol, type 2 diabetes, asthma, sleep apnea, and orthopedic problems than their normal weight peers (Cali & Caprio, 2008; CDC, 2009a). Childhood obesity has also been strongly associated with adult cardiovascular disease, heart attacks, stroke, and some cancers (Baker, Olsen, & Sorensen, 2007; Blacksher, 2008; Freedman, Dietz, Srinivasan, & Berenson, 2009). In addition, the psychological ramifications of obesity observed in children and adolescents include depression and anxiety, both of which can be as debilitating as the physical consequences of obesity (CDC, 2009a; Zametkin, Zoon, Klein, & Munson, 2004). Some studies also show the negative impact of obesity on educational attainment, where adolescents who were obese at age 18 had lower grades in earlier years than their normal weight peers (Karnehed, Rasmussen, Hemmingsson, & Tynelius, 2006).

Obesity is a generational problem affecting the entire family system (Gable & Lutz, 2000; Spear et al., 2007). Research conducted by Keller

and Stevens (1996) found that nearly 80% of children with two obese parents will become obese themselves, 40% with one obese parent will become obese, and only 7.0% with neither parent obese will become obese. Furthermore, the younger a child is when a weight problem develops, the more severe obesity and its associated health risks are during adulthood. A recent longitudinal study found that being obese at 18 years of age was a significant predictor of premature death in adulthood (Neovius, Sundström, & Rasmussen, 2009). When compared to normal weight youth, participants who were overweight or obese at 18 were, respectively, a third more likely and twice as likely to die prematurely. In this study (Neovius et al., 2009), the health risk associated with obesity was equated with those found in an individual smoking more than 10 cigarettes per day. As such, obesity poses a considerable financial cost to society. The multiple health problems of obese individuals often lead to physical disabilities and an inability to actively participate in the workforce. Obesity-attributable medical expenses in the United States reached \$75 billion in 2003 with half of these costs financed by the taxpayer-funded programs Medicaid and Medicare (Finkelstein, Fiebelkorn, & Wang, 2004).

Childhood Obesity and its Socioenvironmental Context

The problem of childhood obesity is usually narrowly viewed as a function of food choices and the eating habits of children and their parents (Harris, Gordon-Larsen, Chantala, & Udry, 2006; Hodges, 2003). Fewer studies view childhood obesity in a broader, environmental context. Bradley and Corwyn (2002), suggest that health outcomes and obesity are interwoven with such structural forces as income, economic conditions, education, geographic location, and access to resources. Others suggest that opulence or scarceness of a person's social and physical environment is directly correlated with health and well-being (Kroenke, 2008; Lidfeldt, Li, Hu, Manson, & Kawachi, 2007).

The current study uses a broader conceptualization of obesity that looks at parents and children in the context of their environment and applies the capability approach for understanding parents' decision-making practices and opportunities to provide healthy food for their families. The capability approach developed by Sen, a Nobel Prize-winning economist, advocates for the development of human rights that allow for individuals to actively shape their own life (1999). Capabilities focus on what a person is effectively able to do.

The capability to be healthy and carry out the function of providing a balanced diet differs across communities (Fisher & Strogatz, 1999; Zenk et al., 2005). Morland, Diez Roux, and Wing (2006) found that access to supermarkets was five times greater in predominantly White communities than in ethnic minority communities and people were more likely to eat

fruits and vegetables if they were readily available and affordable. BMI scores for adolescents were found to be lower in communities with access to supermarkets and higher in areas where residents had to rely on convenience stores (Powell, Auld, Chaloupka, O'Malley, & Johnston, 2007). In this study, the strongest relationship between the presence of supermarkets and higher BMI scores was found for African-American adolescents and students whose mothers worked full time. Horowitz, Colson, Hebert, and Lancaster (2004) found that fewer supermarkets and a higher prevalence of independently owned, small grocery stores known as "bodegas" with a limited stock of health-promoting foods, more processed foods, and prices beyond what items cost in supermarkets exist in low-income African-American and Hispanic communities compared to predominantly White neighborhoods. In addition, despite the availability of low-fat milk in inner-city communities, sales remained greater in higher income neighborhoods, since Hispanic consumers had a preference for whole milk. The marketing strategy of the local bodega is one where retailers use their limited shelf space to stock the foods that are preferred and show consistent sales. If consumers are not requesting or buying healthier food choices, carrying these items poses a loss to the retailer and they will not be motivated to maintain these offerings. The problem of limited availability of health-promoting food, however, is not solely environmental but is compounded by insufficient consumer knowledge of, preference and low demand for healthier products (Abarca & Ramachandran, 2005).

The high density of fast-food restaurants and ease of availability in low-income communities further contributes to childhood obesity prevalence (Austin et al., 2005; Campbell et al., 2002; Drewnowski, 2004; Reidpath, Garrard, Mahoney, & Townsend, 2002).

AIM OF THE STUDY

The goal of the study was to determine what African-American and Hispanic parents of school-age children perceived as the availability of food in their neighborhoods and the factors that influenced their food choices.

METHOD

Sample

Three focus groups were conducted at a large, not-for-profit organization in New York City providing primarily African-American and Hispanic youth between the ages of 6–18 years with recreation, education enhancement, guidance, and leadership development services. Parents had to speak English and have at least one 6–12-year-old child enrolled in the program to

TABLE 1 Characteristics of Focus Group Participants

Characteristic	Focus group sites			Totals
	Flatbush	Fort Greene	Morrisania	
Number of participants	9	10	15	34
Mothers	88.9%	70.0%	73.3%	76.5%
Fathers	11.1%	30.0%	26.7%	23.5%
Age (M)	33.8	35.3	39.8	36.9
Race/Ethnicity				
African American	22.2%	60.0%	60.0%	50.0%
Caribbean	77.8%	10.0%	13.0%	29.4%
Puerto Rican	0.0%	30.0%	26.7%	20.5%
Income				
\$0–\$15K	33.3%	0.0%	13.3%	14.7%
\$16–\$20K	0.0%	40.0%	13.3%	17.6%
\$21–\$35K	22.2%	30.0%	60.0%	41.2%
\$36–\$50K	44.4%	20.0%	13.3%	25.5%
>\$50K	0.0%	10.0%	0.0%	2.9%
Employment status				
Full-time	77.7%	70.0%	73.3%	73.5%
Part-time	11.1%	10.0%	13.3%	11.8%
Unemployed	11.1%	20.0%	13.3%	14.7%
Level of education				
No high school	0.0%	10.0%	20.0%	11.7%
High school	44.4%	50.0%	20.0%	35.3%
Some college	33.3%	10.0%	33.3%	26.5%
College graduate	22.2%	30.0%	26.7%	26.5%
Marital status				
Married	55.6%	40.0%	46.7%	47.1%
Single	33.3%	60.0%	53.3%	50.0%
Divorced	11.1%	0.0%	0.0%	2.9%

be included in the study. The weight status (e.g., overweight, obese or normal) of parents and their child was not a criterion for inclusion in the study since the study focused on parental perceptions regarding access to healthy and affordable food and the parent's food choices. Parents ($n = 34$) within each of the focus groups were similar with respect to marital and employment status, and higher education but differed in ethnicity and income (Table 1). The demographic characteristics of parents in the study were representative of their neighborhoods and the populations at large within the areas studied (U.S. Census Bureau, 2007).

Procedures

The convenience sample of parents was recruited from three different agency sites including the Morrisania section of the Bronx, the Fort Greene section of Brooklyn, and the Flatbush section of Brooklyn. Flyers were posted at the sites inviting parents to speak with the program director if they

were interested in participating in a focus group on children's health and nutrition. Directors at each site invited the first twelve parents who expressed interest and met the inclusion criteria. Thirty-four parents participated and they received \$15 for their participation in the 1.5-hour focus group. Written informed consent and demographic information were obtained at the beginning of each focus group that was held in the library of the agency site. Three questions guided the focus groups: (1) How would you describe the selection of places to shop for food or to get prepared food in your neighborhood? (2) How would you rate your neighborhood for food availability and choices? and (3) Would you like to see any differences in the kinds of food in your neighborhood—would you like to see more or less of any?

Data Analysis

Focus groups were recorded and transcribed for data analysis. The author and a trained research assistant worked independently to code text from the transcripts. Participant responses were clustered using an open coding system (Strauss & Corbin, 1998). Recurring themes that emerged were identified through content analysis until saturation had been reached (Padgett, 1998).

RESULTS

Two recurring themes emerged from the content analysis: poor food quality and discrimination. Parents' perceptions and practices are presented using their own words to illustrate the themes.

Food Quality

All parents expressed a connection between their neighborhood and the quality of food available in both the local supermarkets and smaller grocery stores; however, their perceptions differed by neighborhood. Whereas parents in the Morrisania and Fort Greene groups expressed negative views, parents in the Flatbush focus group did not.

Parents in the Morrisania and Fort Greene groups strongly believed they were purposely subjected to poor food quality in their local supermarkets. They spoke of well-known chain supermarkets and wholesale vendors in their areas not having fresh vegetables, fruits, or meats and described food in both their local midsize and large supermarkets as being "spoiled," "rotten," "outdated," "second-hand," and "overdue." They reported that they managed to accumulate small portions of fruit only after weeding through displays of badly blemished fruits. As one mother described this situation, "They might have two apples or something that are good, and then the rest are rotten, and that's what they feel they should serve in our community."

The parents also agreed that the neighborhood stores sold foods beyond their expiration date, by strategically placing stickers over recommended "sell-by" dates. According to one mother:

The food that you get is like second hand food. I shopped in different neighborhoods, and you go into certain neighborhoods, you could see the difference in the vegetables, and you can tell the difference of fresh food from stale food, especially the meats. You get a cheaper price to get it out of the store.

The parents also revealed that another way stores pass on poor-quality food was to offer such food at a reduced price under the guise of a "Manager's Special" sale. In addition, some parents mentioned coming across food that had evidence of being eaten by rodents yet remained on store shelves. As one participant noted: "I actually went to the supermarket last week to buy my daughter an Italian bread to make a sandwich with, and I kid you not, the rat ate half of the bread!"

One mother said that to compensate for the shortage of fresh food in her neighborhood: "I travel to get my food. I've even gone so far as to Shop Rite in Yonkers. I go to Mount Vernon, shopping." When one considers that Yonkers is about 11 miles away and Mount Vernon is about nine miles away from her neighborhood, this statement takes on even greater importance.

In contrast, when participants in the Flatbush group were asked to compare food availability in their neighborhood to what they knew of others areas, they rated their neighborhood a "10." As one father noted:

The area that we live in, we have access to a whole lot of different restaurants and health food stands, like she said. I think it's actually beneficial to live in this neighborhood, as opposed to quite some others, 'cause some other neighborhoods you can't find a 24-hour fruit stand, you know, so we benefit from that.

One mother stated: "We have the vegetable stores, where you could get the vegetables and you can cook it from scratch instead of getting them from the grocery and buying the frozen ones." Continuing in support of the quality of fresh foods in their neighborhood another mother stated: "You have big supermarkets too that you could pretty much get organic food, different ethnic foods and stuff like that. Some pretty good items." One mother living outside of the Flatbush area rated her neighborhood a "five." She, like parents from the Fort Greene and Morrisania groups, stated: "Yeah, because I moved up by Brooklyn College, there's not a supermarket around there, there's one fruit stand, there's the Chinese restaurant, one West Indian restaurant, McDonalds and then that's it."

Discrimination

The theme of discrimination was identified because many parents believed that supermarkets and stores in more affluent neighborhoods sell better quality food and have a greater variety of foods. Parents readily named surrounding neighborhoods and those in other boroughs of the city where residents were offered better food products. One mother commented:

I work right across the street from a Harlem Pathmark, and man, the quality of food they have there can't even touch this, okay? I do my shopping there because of the quality of the fruits, the vegetables, the meats. Even the Pathmark over here, it's not like the Pathmark if you go in other neighborhoods. In Sunset Park, Borough Park, the atmosphere is different, the food, everything is different.

Another mother said:

I work in Manhattan, and when I lived in Manhattan I had so much choices . . . variety. And sometimes when I come around here I get offended, 'cause they try to feed us crap. It's like only crap grows out of here, and I think that that's one of the biggest problems we have.

Parents observed more affordable prices for foods in other neighborhoods compared to the local places where they shopped for food. They expressed feelings of anger and frustration at this practice of higher prices in their neighborhood stores and viewed it as discrimination. As one mother from the Morrisania group said, reflecting her thoughts about buying higher-priced, healthier food:

See they want us to spend money that we don't have, but they're putting stuff that we cannot afford in our neighborhood, and then when it fails [the store] they take it out of our neighborhood and our neighborhood looks abandoned. It's not because we don't want to participate, we can't afford that.

Another mother, upset by the higher prices she had to pay for food in her neighborhood, said:

Nobody comes to my neighborhood and cares about what I eat. It's all economics. My corner man in the grocery store is charging me three times for a can of tomato sauce because he has to get rich.

Expressing her upset about discrimination regarding the food quality in her neighborhood, one mother said:

Yes, now when I go to buy fruits — I taught my son to read labels, we read labels — when I go to buy fruits, a lot of times the fruits are so mushed up, tacky looking, dirty, not washed that I go to the second alternative which is canned. Then you have the added sugar and salts, added water, added glucose, and whatever else I can't pronounce, and that's what I'm buying now.

Poor food quality and discrimination were not themes of participants in the Flatbush group.

One mother commented about the advantages of having several supermarkets nearby:

Actually the supermarkets are pretty close to each other, so you know I just get the sale sheets, I go to Stop n' Shop, and then maybe Associated right here. It's not too far, so when I get them home, I sit down and look for what I need . . . as to how much this store costs and that store costs; so whichever one is less is who I go to.

Another mother in the Flatbush group added that she found the variety of food sellers in the neighborhood to be beneficial. "It's pretty much a wide variety of restaurants and supermarkets, and you know food stores too, to choose from. There is quantity, there are so many you don't know where to choose from." Other comments expressing contentment with the cost of food in the Flatbush neighborhood included: "There's a lot of good sales" and "I don't know how they make money, there's so many of them [fruit and vegetable markets]—sometimes there's two on a block—but people go to both cause the prices are good."

DISCUSSION

Parents in two of the three focus groups confirmed that there are indeed limited opportunities to purchase quality foods in low-income communities, which affects the capability of residents to be healthy and carry out the function of providing a balanced diet. Previously documented connections between poverty, low education, and related sociodemographic characteristics of disadvantaged communities (Blacksher, 2008; Cummins, 2003; Kroenke, 2008; Varness, Allen, Carrel, & Fost, 2009) were strongly recognized by the participants in two of the three neighborhoods where these focus groups were conducted. The frustration and anger felt by these parents about the practices of food stores in Fort Greene and Morrisania were readily expressed. Poor food quality, higher prices, and lack of choices—all were voiced. Parents in the Flatbush focus group expressed notably different and somewhat unique views on food quality in their neighborhood.

Unanimously, these parents felt they had ready access to health-promoting foods because of the locations of supermarkets, meat warehouses, fish markets, and vegetable stands in their area. When participants in this group compared food quality in their neighborhood to what they knew of other areas, they rated the neighborhood favorably. It should be noted that the Flatbush community demographics in comparison to Fort Greene and Morrisania include, on average, higher incomes, more years of formal education, and a larger percentage of two-parent families (U.S. Census Bureau, 2007). Their favorable views of local food stores are consistent with what is observed in more socioeconomically advantaged communities. Because many of the participants living in Fort Greene and Morrisania had seen what other neighborhoods offer, it is not surprising they believed they were deliberately taken advantage of and discriminated against. Although parent and child weight status was not measured in the study, associations have been observed among similar populations in which limited access to healthy foods, reliance on foods with low nutritional value, was associated with an increased likelihood for poor health outcomes, particularly overweight and obesity (Powell et al., 2007).

The concerns raised by participants suggest a number of practice implications for social workers working with families to achieve optimal health through improved nutrition. Social workers in health care and other community-based settings should routinely inquire about the client's most recent physical examination and encourage having annual check-ups with their health care provider. Next, while conducting the standard biopsychosocial assessment social workers should ask parents a series of questions about their family's general eating habits and local access to quality recommended foods. This information can then be shared with other members of the health care team (e.g., physicians and nurse practitioners) and be incorporated into any health interventions. These basic questions may include for example: Do you and your children regularly consume fruits, vegetables, low-fat milk, other dairy products, lean meats, fish, and whole grains? Could you tell me what types of food you and your children eat during the week for meals and snacks? What do you normally drink with your meals and snacks? Where do you get the food and beverages for most of your weekly meals and snacks? Where do you shop for food? Do you have any concerns about your ability to purchase healthy and affordable food in your neighborhood? In evaluating the parent's responses about family eating patterns, the health care team can determine the family's need for nutrition related interventions and make a referral to a registered dietitian or nutritionist as needed. In addition, social workers should have a direct knowledge of the food environment in communities where families live or at a minimum their agency's catchment areas since clients tend to patronize local services when available. In instances where access to quality food is restricted, social workers can provide resources to clients on where and how to access affordable healthy

foods. As a result, parents will have the opportunity to increase their awareness of healthy eating habits while being able to actively secure the foods and resources necessary to maintain optimal health for themselves and their children.

The challenge with developing suitable childhood obesity prevention and treatment policies is not a dearth of ideas. The National Conference of State Legislatures (2009) compiled legislative options that have either been proposed or enacted to promote healthy communities and reduce childhood obesity. In addition, the CDC (2009b) has developed a list of recommended community-based strategies. Social workers can address the policy implications raised in the study and make significant contributions to environmental and policy-level change by helping to raise awareness of the magnitude of this problem in low-income communities. An initial action may include conducting a community needs-assessment with a focus on nutrition. This intervention can be matched with data on obesity prevalence and other associated health conditions (i.e., type 2 diabetes) in the target community. The compiled information should then be used by social workers in collaboration with stakeholders (e.g., community residents, health care professionals, school officials, faith-based organizations, community leaders, and the local and state government) to advocate for policy initiatives to improve access to healthy and affordable foods. By organizing coalitions and partnerships with this focus, social workers can help stakeholders engage in community life and work to develop their own mechanisms for community empowerment (CDC, 2009b). Via public participation, these organized groups can advocate for targeted strategies like lowering prices on healthier foods and taxing less healthy foods. Supporting evidence for this approach to environmental change is documented in the literature on tobacco control and antismoking coalitions (Stillman et al., 2003). These organized groups can also lobby the local and state government through their Community Board to provide incentives (e.g., discount coupons, and vouchers) for purchasing healthier foods since inverse associations have been found between a reduction in the cost of fruits and vegetables and an increase in the purchase of such healthier foods (Seymour, Yaroch, Serdula, Blanck, & Khan, 2004).

The Statewide Supermarket Commission, Healthy Bodegas, and Green Carts are Healthy Food Initiatives underway in the city where the study was conducted. They were enacted by the New York City Council in collaboration with the Department of Health and Mental Hygiene and the Food Policy Task Force. The Statewide Supermarket Commission was organized to spur new supermarket development and prevent closings of supermarkets currently located in inner-city neighborhoods. Petitioning the Commission, local Land Use, or Zoning and Franchises committees to make them aware of the plight created by limited access to supermarkets is another strategy for improving access to health-promoting foods. The Healthy Bodegas program

was designed to encourage bodega owners in selected economically disadvantaged neighborhoods to carry 1% milk; the program was later expanded to stock and promote fruit and vegetable consumption by residents of the local communities. The Green Carts program was designed to provide permits for street vendors to exclusively sell produce in communities like those in the study where consumption of fruits and vegetables is low. Funding for additional interventions (\$144 billion) has already been allocated under the American Recovery and Reinvestment Act of 2009 to state and local governments to support healthy communities (Robert Wood Johnson Foundation, 2009).

The initiatives highlighted here are examples of programs that social workers can individually and as a profession endorse to achieve necessary environmental changes that meet the nutritional needs of children and families. Overall, social workers must work in partnership with health care teams and organized coalitions to vigorously advocate for additional programs (e.g., nutrition education, financial assistance to purchase food, food banks, farmers' markets, community centers, and infrastructure to support physical activity) with sufficient funding, and actively participate in their promotion, expansion, and evaluation processes.

LIMITATIONS

The findings from this small sample of African-American and Hispanic parents are limited and cannot be generalized to all parents living in low-income communities or to those from other ethnic groups. However, the sample size was sufficient to explore the possible range of experiences parents have in selecting food for their families. Recording the weight status of the parents and children would have provided specific information on the prevalence of overweight and obesity in the study population. In addition, all parents volunteered to participate in the focus groups thus their responses could not be compared for similarity or differences to those who did not volunteer. Another limitation of this study is that fathers were underrepresented in the sample. The study flyer may have been viewed by more mothers since mothers typically pick up the children from the program and are primarily responsible for the shopping and food preparation in the home. Future research could include fathers, members of other ethnic groups, and parents whose children are not enrolled in structured recreational programming to explore additional themes not discovered in the current focus groups. Because the Flatbush parents and the parents living in Fort Green and Morrisania did not have the same perceptions about food quality, and apparently the same experiences, this suggests the need for additional research to assess the place of community in accounting for access to healthy and affordable foods.

CONCLUSION

Findings of the study reveal that limited access to healthy and affordable foods play a significant role in parents' being able to consistently provide a balanced diet for themselves and their children. Less favorable experiences with access to food was had by parents living in low-income neighborhoods versus the moderate income neighborhood where the focus groups were held. These experiences were accompanied by anger and frustration, and led to strong feelings about being discriminated against. Not all remained helpless; many expressed strategies for managing the problem. While not all were empowered to take action, they could be by community initiatives. Social work practitioners in health care and other community-based settings can address this disparity by initiating practice interventions such as community collaborations, designing, implementing or referring clients to nutrition education programs that reinforce the consumption of recommended foods, and advocating for policy initiatives that improve access to affordable healthy food in low-income communities. Such practice and policy involvement are necessary to ensure that momentum to reduce childhood obesity is maintained and accessible food resources burgeon throughout communities. Future research can evaluate healthy food consumption and the store patronage patterns in low-income neighborhood where food availability is sufficient. This will allow for the exploration of other factors associated with food choice and the high prevalence of childhood obesity.

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