Published in final edited form as:

Health Educ Behav. 2011 June ; 38(3): 282–292. doi:10.1177/1090198110372877.

“You have to hunt for the fruits, the vegetables”: Environmental Barriers and Adaptive Strategies to Acquire Food in a Low-Income African-American Neighborhood

Shannon N. Zenk, PhD, MPH, RN^a, Angela Odoms-Young, PhD, MS^b, Constance Dallas, PhD, RN^a, Elaine Hardy, MS, RN^a, April Watkins, MS^c, Jacqueline Hoskins-Wroten, MPH, RN^c, and Loys Holland^c

^aUniversity of Illinois at Chicago College of Nursing, Department of Health Systems Science, 845 South Damen Avenue, M/C 802, Chicago, IL 60612

^bUniversity of Illinois at Chicago College of Applied Health Sciences, Department of Kinesiology and Nutrition, 1919 West Taylor Street, M/C 517, Chicago, IL 60612

^cChicago Department of Public Health, Englewood Neighborhood Health Center, 641 West 63rd Street, Chicago, IL 60621

Abstract

This qualitative study sought to understand food acquisition behaviors and environmental factors that influence those behaviors among women in a low-income African American community with limited food resources. We drew upon in-depth interviews with 30 women ages 21 to 45 recruited from a community health center in Chicago, Illinois. Data were analyzed using qualitative content analysis. Emergent themes revealed that women identified multiple environmental barriers—material, economic, and social-interactional—to acquiring food in an acceptable setting. In response, they engaged in several adaptive strategies to manage or alter these challenges including optimizing, settling, being proactive, and advocating. These findings indicate that efforts to improve neighborhood food environments should address not only food availability and prices, but also the physical and social environments of stores as well.

Keywords

Neighborhood; Food environment; African Americans; Nutrition; Food shopping

Introduction

Over the past decade, with some exceptions, accumulating research has found that the neighborhood food environment, specifically the types of food outlets available and food products offered, is associated with dietary intake and obesity risk (Ball, Crawford, & Mishra, 2006; Franco et al., 2009; Moore, Diez Roux, Nettleton, & Jacobs, 2008; Morland, Wing, & Diez Roux, 2002; Pearce, Hiscock, Blakely, & Witten, 2008; Rose et al., 2009; Zenk et al., 2009). Research has shown that low-income and African-American neighborhoods have fewer supermarkets and more liquor stores and convenience stores than higher income and White neighborhoods, respectively (Beaulac, Kristjansson, & Cummins, 2009; Larson, Story, & Nelson, 2009). Fewer healthy food options and lower quality foods, even after accounting for store type, in low-income and African-American neighborhoods have also been documented (Andreyeva, Blumenthal, Schwartz, Long, & Brownell, 2008; Baker, Schootman, Barnidge, & Kelly, 2006; Cummins et al., 2009; Franco, Diez Roux, Glass, Caballero, & Brancati, 2008; Horowitz, Colson, Hebert, & Lancaster, 2004; Zenk et

al., 2006). Thus, residents of African-American and low-income neighborhoods tend to face more environmental barriers to healthy eating than residents of other neighborhoods.

While much of this research has been quantitative, qualitative studies on food shopping and influences on dietary behaviors have recently emerged that include perceptions of neighborhood food environments (Aylott & Mitchell, 1999; Boyington, Schoster, Shreffler, Martin, & Callahan, 2009; Clifton, 2004; Cummins et al., 2008; Dubowitz et al., 2007; Kegler, Escoffery, Alcantara, Ballard, & Glanz, 2008; Munoz-Plaza, Filomena, & Morland, 2008; Whelan, Wrigley, Warm, & Cannings, 2002; Withall, Jago, & Cross, In press; Yeh et al., 2007). Similar to quantitative studies, many of these studies have found that lack of physical access to supermarkets and high-quality, reasonably priced healthy foods are perceived barriers to healthy eating. However, few of these studies have explored environmental factors in depth or included substantial numbers of African-Americans, especially urban African-Americans (Boyington et al., 2009; Kegler et al., 2008; Munoz-Plaza et al., 2008; Yeh et al., 2007). Furthermore, little is known about food acquisition behaviors among individuals living in neighborhoods with restricted food environments (Lytle, 2009; Matthews, Moudon, & Daniel, 2009). Understanding perceived environmental influences on food acquisition in neighborhoods with few food resources is critical to inform environmental and policy interventions to expand access to healthy food and promote healthy eating.

The purpose of this qualitative study was to describe perceptions of the food environment among low-income African-American women residing in an urban community with limited food resources, and strategies they use to acquire food. Given the disproportionate burden of obesity and diet-related diseases among African-American women (Flegal, Carroll, Ogden, & Curtin, 2010) and that the prevalence of obesity is highest among women in large Midwestern urban centers (National Center for Health Statistics, 2001), it is important to gain greater insights into the perspectives and experiences of urban African-American women in the Midwest.

Methods

Setting

The study took place in Greater Englewood, a low-income, African-American community in Chicago, Illinois. Greater Englewood is comprised of Englewood and West Englewood, two of the 77 officially designated Community Areas in the City of Chicago (Bocksay, Harper-Jemison, Gibbs, Weaver, & Thomas, 2007). In 2000, Englewood and West Englewood were almost exclusively African-American (>98%) and 32–44% of individuals had family incomes below the federal poverty line. Both communities experience a high burden of chronic diet-related diseases.

Prolonged economic disinvestment from Greater Englewood is evident in aspects of the physical and social environment, including the food environment. Based on a 2006 in-person audit of 398 food stores in southwest Chicago including 66 stores in Greater Englewood, Greater Englewood had no full-service chain supermarket and only seven small grocery stores (stores with both fresh produce and fresh meat sections) for over 85,000 residents (Grigsby-Touissant, Zenk, Odoms-Young, & Ruggerio, In press; Zenk, Grigsby-Touissant, Curry, Berbaum, & Schneider, 2010). Stores were much less likely to carry healthy food options as compared with less healthy food options, though no consistent pattern was found for food prices (Zenk et al., 2010). Likewise, suggesting dissatisfaction with neighborhood food options, a 2005 market analysis report indicated that an estimated \$10.74 million is annually spent outside the community on groceries by Greater Englewood residents (Teamwork Englewood, 2005).

Approach and Sample

This study drew upon semi-structured, in-depth interviews with 30 African-American women conducted in 2006–2007. Inclusion criteria were women who identified as African-American, between the ages of 21 and 45, had a child less than age 18 years, and resided in Englewood or West Englewood. Women were recruited from the Englewood Neighborhood Health Center, one of five comprehensive health clinics operated by the City of Chicago, through flyers and on-site by African-American research staff. Five women enrolled through snowball sampling. Table 1 shows demographic and other characteristics of the study sample. The research was conducted by a partnership of health center staff with knowledge of the population and academic researchers with substantive and methodological expertise. The team collaborated at each stage of the research: design, data collection, data analysis, and interpretation of findings.

Interviews

The semi-structured interview guide was based on the food environment literature and our prior work. Interview topics included perceptions of the neighborhood food environment, process used to obtain food, environmental barriers and facilitators to food acquisition, and retail food outlet preferences and concerns. The interview guide encouraged interviewer flexibility and enabled participants to raise issues, describe experiences, and share stories that were relevant to them. This included the use of standard probes to elicit more detail, such as “tell me about what happened,” “what happened next,” and “can you tell me more about that” (Charmaz, 2006; Hsieh & Shannon, 2005). Table 2 provides examples of major interview questions and content-related probes. To better understand where they acquired food, in one section of the interview guide, women were asked to identify the name and location (street address or closest street intersection and city) of each retail store where they normally shop for food.

Each person was individually interviewed once by an interviewer matched on race/ethnicity and conducted at a location of her choice, including her own home, the health center, or another community site. Consistent with semi-structured interviewing (Wengraf, 2001) the length of the interviews—including any interruptions—ranged (45 to 120 minutes), but the average interview lasted about an hour. The number and length of stories told by participants contributed to variation in interview length. Following the interview, participants were asked to complete a brief demographic questionnaire. Each woman received a \$25 gift certificate to a local discount grocery store to compensate them for their time. All interviews were audiotaped and transcribed verbatim; the transcripts checked against the audiotapes for accuracy. Institutional review boards at the University of Illinois at Chicago and Chicago Department of Public Health approved the research.

Data Analysis

Qualitative data analysis was guided by conventional qualitative content analysis (Hsieh & Shannon, 2005). An inductive approach, qualitative content analysis uses a systematic process of open coding, category creation, and abstraction to condense and interpret raw data. Specifically, in qualitative content analysis, codes are generated from the data; that is, data relevant to the research question are extracted and coded (Dey, 1993). Data are further reduced by combining similar codes into overarching themes.

Utilizing this approach, academic members of the research team (SZ, AOY, CD) began data analysis by conducting a review of five transcripts to gain a better understanding of data content and develop a preliminary guide for coding. Using an iterative process of coding, review, and discussion, the transcripts were coded line by line, including breaking down transcripts into quotations and labeling these quotations according to their meaning. The

preliminary list of codes was expanded as new codes emerged. This process generated descriptive codes that were entered into ATLAS.ti (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany), a computer software qualitative data management program, and used to code remaining data. All transcripts were coded independently by two research team members (SZ, EH) who met at least once every five transcripts to compare coding, resolve discrepancies by consensus, and review code definitions. Summaries of themes were also presented to health center staff (AW, JW, LH) to contextualize and refine themes and to identify potential implications for practice and local community action.

In addition to identifying thematic codes in the data, we also identified each store identified by study participants including its precise street address, by using telephone directories and online searches. We then geocoded the stores along with the participants' homes using ArcGIS 9.1 and calculated the street network distances between each participant's home and the stores where she shopped using ArcGIS Network Analyst (ESRI, Redlands, CA). Based on these data, we generated descriptive statistics, such as mean number of stores and mean distance to the stores where shopped, using SPSS 14.0 (SPSS Inc., Chicago, IL).

Findings

Environmental Barriers

Data analysis revealed numerous environmental barriers to acquiring desired food in an acceptable setting. We classified emergent themes into three categories: material, economic, and social-interactional. Women discussed barriers that existed when shopping both inside and outside the neighborhood. Detailed findings for each are discussed below.

Material—Women described several material barriers to food acquisition. These material barriers were related to store availability and upkeep and food product availability and quality. First, with regard to store availability, several women indicated that lack of a full-service supermarket in the neighborhood was an obstacle in obtaining food; they wanted a supermarket that was convenient and within walking distance. This was particularly true for women without an automobile. When asked about the availability of grocery stores in the community, one woman replied:

Over here, just one and that's [Discount Grocery]. For me it is fine because it is closer but it is not like for other people that have to walk...in the community there could be about two or three more grocery stores where they wouldn't have to walk so far.

Poor upkeep was another material barrier to acquiring food. Women associated poor upkeep with poor quality food. Poor upkeep was particularly raised in reference to stores in the neighborhood and included lack of cleanliness, disorganized shelves and aisles, and poorly maintained shopping carts. With respect to cleanliness, women reported that foul odors; dirty, un-mopped floors; and cockroaches and rodents, turned them off. Besides these obvious signs, women also judged cleanliness based on whether they saw employees cleaning or attending to customer spills promptly. A couple of women explained that they determined store cleanliness based on bathroom sanitation:

If it's dirty I won't shop there. That's usually the first thing because I'm pregnant and so I've always got to go to the bathroom. So that's the first thing that I do is go to the bathroom and then I go grocery shopping. If it's dirty in there then I'm like 'I ain't going, not today.'

Next, related to food products, women expressed concerns about lack of availability and variety of some foods at neighborhood retailers. This included but was not limited to healthy foods. Fresh produce was commonly among the foods identified as missing from the

neighborhood, but finding baby food and food products that were low fat, low sodium, organic, and soy was also challenging. Many felt that food options were particularly limited when compared with other types of neighborhoods, even among stores of the same type, and expressed that they should have access to the same choices. When desired foods were stocked, women reported that stores often ran out or it was difficult to locate healthier options, due to their placement and marketing within stores. In contrast, one woman reported that at stores in other areas of the city:

You see the vegetables when you first go in. You see the fruit when you first go in. You're not looking at the Flaming Hots and all that stuff which I can't stand...I see myself just going into different grocery stores especially in the African American community that [the media] is the key. It's the cake, it's the chips, it's the soda... then you have to hunt for the fruits, the vegetables, the bottled water, and things like that.

Of the foods available in the neighborhood, poor quality was another material impediment to obtaining food, especially for fresh foods but sometimes packaged foods as well. Women described withered fresh fruits and vegetables, rotting "green" fresh meats, and expired canned and packaged foods. One woman reported:

Healthy foods are not really available [in neighborhood] like I would like them. Different vegetables they usually don't have it or they might have it for a day. I would definitely say it influences you...and the things that are healthy are sometimes old and outdated.

Economic—Another category of environmental barriers to obtaining food was economic, specifically high food prices at both small local stores and supermarkets. With respect to neighborhood corner and convenience stores, women proposed multiple explanations for what they perceived as inflated prices. Some recognized that high prices may be due to the inability of these stores to purchase foods in large enough quantities. Yet, others felt that local stores were taking advantage of local residents without transportation who depended on the stores. Explaining that these stores were owned by "Arabs" or "Caucasians," several women thought that these owners were "overcharging" and getting rich off the African-American clientele. A couple reported that stores "jacked up" prices because they knew customers receiving food assistance relied on their stores. When asked whether she could get the foods she wanted in the neighborhood, one participant explained:

No, you basically get the basic type of food and the only place you can get it cheap is [Discount Grocer] and everywhere else they jack it up a little bit because they know that a lot of customers are Link customers. They can't charge taxes. So, they jack-up the regular price of the food so that they can make their money that way.

While they generally were satisfied with food variety and quality, many women thought the prices at full-service supermarkets outside the neighborhood were too high, to the point of being "ridiculous."

Social-interactional—Women identified multiple social-interactional features of stores that hampered their ability to obtain desirable food in an acceptable environment, including safety concerns, poor customer service or treatment, crowding, and unsupportive sales practices. First, lack of safety was identified as a major social-interactional deterrent to food acquisition at local stores. Many safety concerns stemmed from problems with people hanging out in front of stores, panhandling, soliciting drugs, and harassing shoppers. One woman explained,

I don't really like going certain places...cause I just don't feel safe. But not only that, say if I go to a grocery store and say a guy try to talk to you...in front of the store, if you don't talk back to them they will spit on you.

The proximity of liquor stores and a strip club to some stores was seen as contributing to the problem.

Second, several women described poor customer service or treatment as another social-interactive barrier to food acquisition that was encountered both inside and outside the neighborhood. Among commonly reported grievances were employees' "surly" or "snotty" attitudes and lack of basic courtesy such as not asking if they may help you, saying "thank you," and counting back change. Women also identified inappropriate employee behaviors such as smoking at checkout, cursing, flirting with customers, and watching "like you're going to steal something." Some women attributed these problems to owners or employees being of a different race/ethnicity, from outside the neighborhood (when experienced at local stores), or young.

Crowding was a third social-interactive impediment to food acquisition. In addition to weekends and evenings when more people shopped, women reported that stores were particularly crowded at the times of the month when food assistance benefits are distributed. Women described long lines and aisles so congested it was difficult to pass.

Fourth, sales practices that women perceived as unsupportive were another barrier to obtaining food. Women objected to some local stores selling cigarettes and alcohol to minors and not accepting food assistance benefits. Failure of retailers to provide food on credit or accept food assistance benefits were also viewed by some women as a barrier to obtaining food. Women also described use of deceptive sales practices, specifically use of plastic wrap to hide spoilage of fresh meat and produce at local corner stores:

It [meat] was wrapped and rewrapped and rewrapped on top of that. It was like the wrapping was taking away from you getting a chance to see the clarity of the actual meat because there was so much wrapping on it.

Adaptive Strategies

Data analysis revealed that women adopted several strategies to manage or change these environmental barriers. We grouped emergent themes into four categories: optimizing, settling, being proactive, and advocating. We discuss each category below.

Optimizing—When resources such as time and transportation allowed, women optimized to get the foods they *wanted*, seeking the highest quality products at the lowest prices in desirable stores. Women engaged in two optimizing strategies: shopping at multiple retailers and "traveling for it." First, on average, women shopped at 4.3 different food retailers, ranging from 2 to 9 stores. In their use of multiple retailers, women employed one of two general approaches. In one approach, women described frequenting a different store on each shopping trip (e.g., weekly), with store selection dependent on which store had the lowest prices that week based on sales or other promotions. In a second approach, women routinely purchased some kinds of foods at one store and other kinds at a different store. A typical pattern was purchasing lower priced canned and packaged goods at discount grocers and buying fresh meat and produce at supermarkets or specialty stores, which were perceived as having better selection and quality. While some women traveled from store to store in a single shopping trip, others spread out visits to these distinct stores over a set period of time (e.g., month).

“Traveling for it” was a second optimizing strategy, with many women journeying to other neighborhoods, and sometimes to the suburbs, to obtain foods at the price or quality they wanted and in an acceptable environment. On average, stores frequented by the women in the sample were 2.3 miles from their home. Whereas half the women frequented at least one store within 0.5 mile of their home, one-third traveled more than five miles to reach at least one store where they shopped. Some observed that the variety and quality of foods was better in predominately White neighborhoods, even among stores of the same type:

You go all the way out to the suburbs where the white people live at and you find everything in the thrift stores out there. It’s even a better variety in [discount grocers] and [supermarkets] when you go to their stores. There’s a difference. So, I will go out farther to travel and get better quality and stuff, yes.

Settling—When they lacked resources some women “settled” to get foods they *needed* (e.g., because they ran out or forgot an item during their last shopping trip). When they did not have transportation or time to reach preferred stores, some felt they had no choice but to shop at local convenience or corner stores. This often meant paying higher prices or selecting other foods, such as junk food, when healthy foods were preferred. One participant explained:

At that particular time it might be late and I don’t feel like cooking, so I might settle for what they [local stores] have at that particular point in time. Other than that, if I don’t have to [settle] I don’t...I have to travel out of my way to get certain kinds of foods that are healthy for me and my son.

When forced to shop at stores of questionable quality, another way women settled was to purchase packaged items. Women avoided purchasing fresh meat and produce and limited their shopping to canned goods, bottled drinks, and snacks. According to one participant, “If it ain’t canned up or bottled up I don’t want it.” Another described:

The shelves are dirty. The items that are on the shelves are dusty. I’ve had a situation onetime when I bought some of that instant oatmeal and there were worms in the package. That was some years ago...So, I don’t buy anything like that out of there. The most I will buy out of there is a pop, a juice, or something I don’t have to eat.

Being proactive—To avoid or minimize problems, participants engaged in several proactive strategies: changing the timing of shopping, modifying their demeanor while shopping, and leaving or refusing to shop at stores. As a first proactive tactic, some women adjusted their shopping timing. Some would only shop at local stores during daylight due to safety concerns:

Me, I wouldn’t go late at night. The latest I would go would be seven o’clock... There are weird people out and a lot of drunks and they’re babbling and people have to kick them out of the stores. Then I’ve got two kids and I would have to carry them with me.

Because her son was tempted by unhealthy food items placed in the front of the store, one woman limited shopping to times while her son was in school. Another shopped during the day when stores were staffed by older employees in order to get better customer service. Others timed their shopping to avoid busy times of the month when people received food assistance benefits.

Second, women modified their demeanor to avoid problems. When anticipating safety concerns, women got “in and out” of stores quickly, going straight to what they were looking for and not stopping to look around. Some described “staying alert” and paying

attention to their surroundings. Some women sought good customer service by being aware of how they “carried” themselves and purposefully “respecting” store employees.

Leaving or refusing to shop at stores if they had a bad experience was a third proactive strategy. This strategy was frequently in response to lack of cleanliness, long lines, rude service, and poor quality foods. Some women felt strongly that they would not spend their hard-earned money at “nasty” stores:

I walked in the store and it was just like nasty. It was cockroaches running on the floor and as soon as I saw that I called my mama on the phone like, ‘Look Ma, we’re not fixing to get nothing from up out of here because they’ve got roaches and the floor is filthy dirty. I’m gone.’

Advocating—Women also engaged in advocacy, seeking to bring about changes related to the store environment and food products. Women most commonly reported problems or concerns directly to store owners or employees, but some contacted regulatory agencies such as the local health department. With respect to the store environment, women advocated for enhanced upkeep and safety. With respect to food products, women advocated to increase availability of food products they wanted and especially to improve food quality or safety. One participant found the mere threat of contacting regulatory agencies brought about desired change related to food quality:

I ran into a problem where there was a fly in my ground beef...and then I had bought some turkey tails before and it had mold on it. So that was two different complaints he had from me and I said, ‘I’m going to call the health department,’ but because of me he had bought all new coolers and I was happy. He remodeled that store when he really was scared. He thought I was going to health department for real, which I actually did but I never got through to them.

Their advocacy efforts were not always successful in bringing about desired changes in the store environment or food products. According to one participant, in response to her complaints about safety, a store owner explained that he had tried to address safety issues around stores, but could not get the cooperation of the local police department.

Discussion

Our findings yield new insights into food acquisition practices among low-income African-American women residing in a community with few food resources. As found in prior quantitative and qualitative studies on the food environment, these low-income women desired a wide selection of reasonably priced foods, though not just healthy foods, in a pleasing environment. Yet, they perceived multiple environmental barriers to obtaining food, extending beyond the types of stores and food options nearby to the physical and social environments of stores. In the face of these challenges, women adopted multiple strategies to acquire food, sometimes adjusting their tactics depending on resources available at the time.

Environmental Barriers

Economic and material threats related to store availability and food product characteristics have been the most commonly reported environmental barriers in previous qualitative studies with African-Americans (Kegler et al., 2008; Munoz-Plaza et al., 2008; Yeh et al., 2007) as well as other populations (Boyington et al., 2009; Cummins et al., 2008; Dubowitz et al., 2007; Kegler et al., 2008; Sooman & Macintyre, 1995; Whelan et al., 2002). These factors are the focus of most quantitative studies (Larson et al., 2009) and the most common targets of environmental intervention efforts to date (Jetter & Cassady, In press; Song et al.,

2009). Our findings are consistent with prior qualitative studies in which participants identified lack of a supermarket, limited variety of foods, poor food quality, and high food prices, particularly at small neighborhood stores, as environmental barriers to food acquisition and healthy eating (Boyington et al., 2009; Cummins et al., 2008; Dubowitz et al., 2007; Kegler et al., 2008; Munoz-Plaza et al., 2008; Sooman & Macintyre, 1995; Whelan et al., 2002; Yeh et al., 2007). One striking similarity to a study with African-Americans in New York City was reports of deceptive food packaging to hide poor food quality (Munoz-Plaza et al., 2008).

Yet, much less commonly identified in previous studies, we found that the challenges women identified in the neighborhood food environment extended to the store physical and social environments. Like Cummins and colleagues in Scotland (Cummins et al., 2008), we found that poor upkeep (sanitation) was a material concern related to the physical environment of stores. Women also identified multiple negative social-interactional features of stores that hindered food acquisition. Of the social-interactional features we identified, crowding and poor customer service have been identified as concerns in prior studies on the food environment (Aylott & Mitchell, 1999; Clifton, 2004). However, less attention has focused on safety and unfair treatment in research on the food environment (Odoms-Young, Zenk, & Mason, 2009). Interestingly, in an Australian study (Coveney & O'Dwyer, 2009), participants mentioned traffic-related safety concerns when walking to stores, whereas crime-related safety concerns were described by participants in our study. Crime-related safety was a particular problem for our participants because children often accompanied them to the store. While a study on shopping experiences (not specific to food shopping) of African-Americans in New York City and Philadelphia found that participants were more likely to report poor treatment at stores in White neighborhoods than in African-American neighborhoods (Lee, 2000), women in our sample identified unfair treatment as a problem at stores owned by individuals of a different race/ethnicity both inside and outside their neighborhood. Both poor upkeep and social-interactional concerns were frequently discussed in connection with the race/ethnicity of the store owner or employees, highlighting previously documented tensions between White and immigrant owners and employees and local African-American clientele (Bailey, 2000; David, 2000). The implications of widespread ownership of food stores by non-African-Americans for food acquisition practices and health outcomes of African-Americans could be explored in more depth in future studies.

Overall, our findings underscore the relevance of not only economic and material obstacles that are frequently reported in previous qualitative and quantitative studies but also physical and social environmental impediments to food acquisition in low-income African American neighborhoods. Future observational and intervention research on the neighborhood food environment should consider these elements as well.

Adaptive Strategies

Confronted with a restricted food environment, women in our sample adopted several tactics to cope with unsupportive food environments. Our findings highlight the fluidity of their approach, depending on the resources available to them at the time. When they had sufficient resources, women optimized to obtain foods they wanted by shopping at multiple retailers and traveling outside the neighborhood. In two previous U.S. studies—one with an African-American sample in New York City and another with a majority Latino sample in Austin, Texas—participants mentioned similar strategies (Clifton, 2004; Munoz-Plaza et al., 2008). Nonetheless when resources were lacking, women in our sample settled for what they needed at local stores. In a qualitative study with a predominately Latina sample, women also described frequenting local stores only in “emergencies” and for everyday items (Dubowitz et al., 2007). Taken together, these findings challenge the assumption apparent in

most quantitative studies on that low-income racial/ethnic minority persons are confined to food sources in their residential neighborhood. Nonetheless, as illustrated in prior studies, especially among those without reliable transportation, additional and prolonged efforts to reach food sources outside the neighborhood comes with costs including time, money, limited flexibility in scheduling, compromised food choices, feelings of uncertainty and lack of control, and missed opportunities (Clifton, 2004; Coveney & O'Dwyer, 2009). Thus, ensuring that low-income African-American neighborhoods have supportive food environments could alleviate these burdens.

Women in the sample adopted proactive strategies to cope with environmental threats. In addition to changing the timing of their shopping to avoid particularly crowded times as also found by Clifton (Clifton, 2004), women also adjusted when they shopped to feel safe, enhance the likelihood of receiving good customer service, and minimize children's exposure to marketing of unhealthy food products and unsafe situations. Intense and targeted marketing of foods high in fat and sugar to children may negatively impact children's dietary quality and body weight and may be especially pronounced in African-American and low-income neighborhoods (Grier & Kumanyika, 2008; Harris, Schwartz, & Brownell, 2010; Story & French, 2004).

Other proactive strategies included being attentive to how they "carried" themselves and going out of their way to "respect" store employees to obtain good service. These strategies reflect those identified in a study of food shopping by Lee (2000). In a sample of urban African-Americans, Lee (2000) found that participants consciously "wore" their class, including dressing up, carrying expensive accessories, and using certain mannerisms and speech, to show that they belonged at stores and to avoid negative treatment. Similar to Lee (2000), we also found that some women avoided stores where they had bad experiences.

Finally, women advocated for improvements in the food environment. In a prior study (Munoz-Plaza et al., 2008), an African-American female participant described lobbying her local food store for organic products without success. In this study, women identified multiple targets of advocacy efforts, not only changes in product mix but also food quality and store sanitation and safety. As found by Munoz-Plaza (2008), women felt compelled to take these actions, incensed by what they perceived as a socially unjust food environment.

Implications for Health

Our findings suggest multiple pathways by which environmental barriers and adaptive strategies may affect the health of African-American women and their children living in low-income neighborhoods. First, drawing on empirical evidence in prior studies, lack of availability, high prices, and poor quality of healthy foods in the neighborhood may negatively impact dietary quality and increase obesity risk among women and their children (Franco et al., 2009; Moore et al., 2008; Morland et al., 2002; Powell, Auld, Chaloupka, O'Malley, & Johnston, 2007; Rose et al., 2009). Obesity is a public health crisis, with particularly high rates among African-American women and children (Flegal et al., 2010). Children who are obese are more likely to become obese adults (Lloyd, Langley-Evans, & McMullen, 2010). Poor diet and obesity are major risk factors for developing type 2 diabetes, cardiovascular disease, and some cancers (Hu, 2009; Pan & DesMeules, 2009; Steyn et al., 2007). Second, our findings highlight several sources of chronic psychosocial stress in the food environment, such as unfair treatment, deteriorated conditions, and lack of safety at stores. Chronic stress may contribute to obesity, especially viscerally, through alternations in the hypothalamic-pituitary-adrenal (HPA) axis functioning and triggering high-fat, high-sugar food intake (Torres & Nowson, 2007). Chronic stress also contributes to mental distress and depressive symptoms (Hammen, 2005). Third, confronted with multiple environmental barriers, many women engaged in prolonged and high-effort coping to obtain

food, which may lead to hypertension and generally more wear and tear on the body systems (Fernander, Duran, Sabb, & Schneiderman, 2004; James, 1994; McEwen, 1998). This may be particularly true for those with few socioeconomic resources. Fourth, safety concerns around stores may make it especially difficult for older children, who may be going to the store alone, to obtain food. Finally, because it can lead to business closures and further divestment, the extent to which barriers in the local food environment force women to shop outside the neighborhood further weakens economic conditions in the neighborhood, with negative repercussions for the social and physical environment (e.g., vacant buildings and lots).

Implications for Intervention

Our findings have several implications for interventions to support food acquisition among residents in under-resourced neighborhoods. First, the findings suggest the need to eliminate environmental barriers through environmental change such as attracting supermarkets, enhancing existing local stores, and supporting local food production (Mikkelsen, Chehimi, & Cohen, 2007). Attracting supermarkets and increasing healthy foods at existing stores in low-income communities is a strategy that is gaining traction in the U.S. through programs such as Fresh Food Financing Initiative. However, as illustrated by our findings, these strategies may not be successful in improving nutrition among residents of low-income neighborhoods if not accompanied by efforts to make foods more affordable. Further, promoting local ownership and employment at stores may be important to enhance local residents' treatment and comfort. Efforts aimed at transforming existing local stores should not only address food supply characteristics (e.g., availability, prices, quality) but also the broader store social and physical environment including upkeep, safety, and customer service. That few women primarily selected stores based on the availability of healthy food products substantiates the importance of addressing these other aspects of the food environment. Investment in local food production including urban agriculture and community gardens may also improve the food environment in under-resourced communities. Second, intervention efforts could facilitate adaptive strategies among local residents through economic development in low-income communities to increase income, economic subsidies for healthy food options to make them more affordable, and enhanced transportation options to help residents reach food sources outside the communities.

Implications for Future Research

The consistency of our findings on environmental barriers and adaptive strategies with constructs of stress and coping suggests that studying the food acquisition through a stress process lens may assist in advancing understanding of food acquisition practices in neighborhoods with restricted food resources, identifying health consequences, and pinpointing multiple points for intervention. As suggested earlier, psychosocial stress and high-effort coping are under-studied pathways by which the food environment may affect the health of residents in low-income neighborhoods. We recommend developing and testing stress process models for food acquisition.

Limitations

This study has limitations. First, our sample was restricted to 30 participants. Enhancing the credibility of our findings, we did achieve saturation of our codes, reaching a point in the analysis in which no new codes or new information regarding our codes emerged (Charmaz, 2006). Nonetheless, it is possible that a larger sample may have yielded new concepts had we financial resources to increase our sample size beyond 30 participants. Second, we focused only on food procurement at stores. Though also important components of the food environment and food acquisition, we did not consider restaurants or purchase of prepared foods, respectively. Third, while embedded in some of our findings, our study may not

adequately reflect the complex interplay between person factors (e.g., car ownership) and environmental factors in shaping food acquisition due to our interview guide's environmental emphasis. Despite these limitations, this study provides important new insights into perceptions of the food environment and strategies used to obtain food among African-American women in a low-income community with restricted food resources. Engagement of health center partners who work with the population of interest during all phases of the research augments the credibility of our findings.

Conclusion

Although there is strong interest in identifying social inequities in neighborhood food environments and their implications for health disparities, few studies have focused on understanding the perspectives of persons who live in neighborhoods with few food resources. Our data from 30 urban low-income African-American women show that women faced with restricted neighborhood food environments identified multiple environmental barriers—material, economic, and social-interactional—to obtaining food. Yet they were resourceful and had developed a multitude of adaptive strategies to cope with these challenges. While environmental change as part of a multilevel approach is needed, to enhance the likelihood that these efforts are successful, it is important that we first gain a deeper appreciation of food acquisition practices and factors that influence it. In supporting women's food acquisition, our findings suggest that addressing stores' physical and social environments may be a necessary accompaniment to improvements in the food supply.

Acknowledgments

We thank other collaborators at the Chicago Department of Public Health and Englewood Neighborhood Health Center for their contributions to the study, especially Dr. Agatha Lowe and Angela Webb. We appreciate financial support from the National Cancer Institute's Cancer Education and Career Development Program at the University of Illinois at Chicago (R25 CA57699), University of Illinois at Chicago College of Nursing's internal research seed grant program, and the National Institute of Nursing Research (K01 NR010540).

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Table 1

Study sample characteristics, n=30

	Mean (standard deviation) or percent
Age (mean)	28.7 (6.2)
Length of residence in home, years (mean)	3.2 (1.9)
Length of residence in greater Englewood, years (mean)	4.2 (1.6)
Number of children (mean)	2.8 (2.0)
Married or lives with partner (%)	40.0
Education (%)	
High school or less	46.7
Some college	50.0
College degree	3.3
Currently employed (%)	33.3
Owens or leases auto (%)	33.3
Public assistance receipt (%)	
Women, Infant, and Children (WIC) Program	66.7
Supplemental Nutrition Assistance Program (SNAP)	88.9
Medicaid	85.2
Primary food shopper (%)	90.0
Primary food preparer (%)	83.3

Table 2

Sample of major questions from the semi-structured interview guide

<p>Neighborhood</p> <p>Can you tell me about some of the places where you can buy food in this community?</p> <p>What are some of the things that you like about the stores in this community?</p> <p>Probe: What do you think about:</p> <p><i>Food selection? Food quality? Food prices? Cleanliness? Safety? Service?</i></p> <p>What are some of the things you don't like?</p> <p>Probe: What do you think about:</p> <p><i>Food selection? Food quality? Food prices? Cleanliness? Safety? Service?</i></p> <p>Do you feel that you are able to get the types of food that you want in the community?</p> <p>Probe:</p> <ul style="list-style-type: none"> a. What types of foods do you want that you can't get around here? b. What thoughts do you have about: <p><i>Fruit and vegetables? Low-fat or light options?</i></p> <p>Do you think it's easy or difficult for people in this community to eat healthy?</p> <p>Probe: Why or why not?</p> <p>Places Where Shop</p> <p>What are some of the locations you commonly go to purchase food?</p> <p>Probe:</p> <ul style="list-style-type: none"> a. What makes you decide to shop at _____ ? b. Do you feel you are able to get the types of foods that you want at _____ ? <p>What do you think about the quality of foods at _____ ?</p> <ul style="list-style-type: none"> a. How do you decide if foods are of a good quality? b. How do you think the quality compares to other stores in your community? c. In other areas of the city? d. Does food quality affect where you shop?
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