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Using Photovoice to Explore Nigerian Immigrants' Eating and Physical Activity in the United States

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Abstract

Purpose: African immigrants are one of the fastest growing immigrant groups to the United States; there is a crucial need to learn about African immigrants' beliefs and lifestyle behaviors that may impact health. The purposes of this study were to (a) explore the perceptions and practices of Nigerian immigrants regarding healthy eating and physical activity in the United States; (b) assess the influence of cultural beliefs of Nigerian immigrants on eating and physical activity; (c) describe the role that healthcare providers can play in helping to promote healthy eating and physical activity; and (d) evaluate the feasibility and efficacy of using Photovoice to collect data on the perceptions and practices of Nigerian immigrants regarding healthy eating and physical activity.
Design: Qualitative visual ethnography using Photovoice.
Methods: Thirteen Nigerian immigrants were recruited. Data were collected using photography and focus group discussions at a church. Photovoice methodology and Leininger's four phases of qualitative analysis were used to analyze photographs, field notes, and focus group transcripts.
Findings: Four overarching themes emerged from the data: moderation is healthy, Nigerian ways of living are healthy, acquiring American ways is unhealthy, and cultural context is important to promote healthy behaviors.
Conclusions: Photovoice was a feasible, effective methodology for collecting data on the perceptions and practices of Nigerian immigrants. Nigerian participants believed that adherence to traditional dietary and activity practices are healthy. Nurses and other healthcare providers must make concerted efforts to communicate with and educate Nigerian immigrants about healthful eating and activity behaviors within their cultural context.
Clinical Relevance: The number of African immigrants to the United States has increased dramatically. Photovoice is a creative method to learn about the health beliefs and behaviors of the Nigerian immigrant population.

Immigration plays a major role in the growth of the population of the United States, and it is estimated that 82% of the population increase between 2005 and 2050 will be attributable to immigrants and their offspring (Passel & Cohn, 2008). The African-born population in the United States doubled in size from 881,300 in 2000 to 1.6 million in 2010, and one of the most common countries of origin for African immigrants is Nigeria (U.S. Census Bureau, 2010). Yet, to a large extent, the health and wellness of the African immigrant population remain unexplored (Venters & Gany, 2011). These demographic trends indicate a crucial need to learn about African immigrants' beliefs and lifestyle behaviors that may impact health.

While the African immigrant population has grown exponentially, few studies have examined the health

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of African-born residents in the United States (US), including the impact of acculturation on diet and physical activity. The majority of immigrant health research has focused on Hispanic and Asian populations and suggests that, generally, these immigrant groups are healthier than native-born Americans (Barrington, Baquero, & Borrell, 2010; Singh, Siahpush, & Hiatt, 2011). Limited evidence also shows that African immigrants tend to be healthier than US-born Whites and African Americans (Read, Emerson, & Tarlov, 2005; Singh & Hiatt, 2006; Singh & Miller, 2004). Studies on dietary patterns in groups of immigrant populations show that traditional diets are healthier than the nontraditional diets that have evolved with acculturation (Delisle, 2010; Desilets, Rivard, Shatenstein, & Delisle, 2007). Yet, immigrants may face barriers in maintaining healthy native diets or acquiring healthy physical activity habits in their new countries. Among 5,230 immigrants to the US, 79% reported being physically inactive (Koya & Egede, 2007), and only 38% of a sample of African immigrants to the Netherlands said they had engaged in physical activity in the previous month (Beune, Haafkens, Agyemang, & Bindels, 2010).

US national data systems used in monitoring health, mortality, and disease patterns do not identify Africans in the US as a separate ethnic group, and do not routinely report and analyze health data by immigrant status (Singh & Hiatt, 2006; Singh & Miller, 2004; Singh, Rodriguez-Lainz, & Kogan, 2013). Thus, data for African-born immigrants are often entangled with data for African Americans. An analysis of National Health Interview Survey data showed that 58.4% of African adult immigrants were either overweight or obese in 2002 after residing in the US for 15 or more years (Koya & Egede, 2007). Current statistics of Black US residents, including persons born in the US or elsewhere, indicate that 54% and 38% of Black female and male adults, respectively, are either overweight or obese compared to 33% and 34% of White female and male adults (American Heart Association Statistics Committee & Stroke Statistics Subcommittee, 2014). While diet and activity are key determinants of weight, an established contributor to health, little is known about African immigrants' perceptions and practices around healthy eating and physical activity as they relate to residing in the US.

Photovoice, in which participants use photographs to describe their health and life experiences, is one method that has been used as a health-promoting strategy (Wang & Burris, 1997; Wang & Redwood-Jones, 2001). Initially originated by Wang and Burris (1997) to document the everyday lives of women in rural villages of China, Photovoice is a grassroots approach of community-engaged research that assists people in identifying the strengths and issues of their community through photography. The Photovoice approach has been used previously with immigrant groups such as Latino, Chinese, Korean, and Vietnamese immigrants to learn about topics such as human immunodeficiency virus prevention, family planning, mental and cardiovascular health, and the influence of immigration (Fitzpatrick et al., 2009; Garcia & Saewye, 2007; Rhodes & Hergenrather, 2007; Schwartz, Sable, Dannerbeck, & Campbell, 2007; Streng et al., 2004). Photovoice can provide Nigerian African immigrants the opportunity to express their ideas about eating habits and physical activity within the context of their daily lives in the US.

Purpose

The purposes of this study were to (a) explore the beliefs, perceptions, and practices of Nigerian immigrants regarding healthy eating and physical activity behaviors while living in the US; (b) assess the influence of cultural beliefs of Nigerian immigrants on eating and physical activity behaviors after migration to the US; (c) describe the role that healthcare providers can play in helping to promote healthy eating and physical activity behaviors for Nigerian immigrants; and (d) evaluate the acceptability, feasibility, and efficacy of using Photovoice as a technique to collect data on the perceptions and practices of Nigerian immigrants.

Methods

Design

A qualitative visual ethnography design using Photovoice was employed for this study, and two of the goals of Photovoice identified by Wang and Burris (1997) were highlighted: (a) encouragement of individuals to record their community's strengths and concerns and (b) facilitation of critical dialogue through group discussions about photos taken by the participants. The Photovoice method includes a four-step process of discovery and engagement. The first step is community training regarding the process. Three additional steps include (a) selecting the photos that most accurately reflect the community and culture; (b) contextualizing the data, which is telling stories about what the photos mean; and (c) summarizing the data by identifying themes or emerging theories (Wang & Burris, 1997). Photos taken by the participants are the principal medium by which viewpoints, perceptions, and recommendations develop. Using the photos as the impetus for discussion via focus groups, this methodology allows for the collection of rich, in-depth

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data, possibly not attainable through observations or interview alone.

Setting

Two focus group meetings were held in October and November of 2013 at a Christian church attended primarily by Nigerian immigrants in an urban area of Western Pennsylvania. The focus groups were held immediately following the religious service in a private room in the church hall. A preliminary study conducted with a community advisory committee from the church to learn about the community's health issues, needs, and concerns revealed a concern about obesity among the immigrant group (unpublished data). Thus, we continued working with this community to learn about their views on healthy eating and activity in the US.

Participants

Individuals were eligible to participate if they were immigrants to the US from Nigeria, at least 18 years old, and able to read and write in English. Participants also needed to be able to use the digital camera we provided to take photos of what they perceived as unhealthy and healthy eating and activity. Recruitment was facilitated by a research team member of Nigerian descent who had established connections with community gatekeepers. We also utilized the snowball method, in which word of mouth is utilized, and participants referred to the study other individuals who might be interested (Munhall, 2011). We recruited 13 participants.

Procedures

Prior to any study activities, institutional review board approval was obtained from the university where the principal investigator is employed. During our first recruitment meeting at the church, the study was explained to interested individuals, and written informed consent was obtained. We returned to the church in 2 weeks to distribute the digital cameras, demonstrate how to use the cameras, and explain to the participants what they needed to photograph for the study. We also discussed potential issues related to using cameras, such as respecting privacy and asking for permission to take someone's picture. We instructed participants to take photos for the next 2 weeks of what they perceived as unhealthy eating and physical activity. In order to explore the total perspective of what was seen as healthy, we also gathered data about perceptions of what is unhealthy to provide contrasting ideas. Participants were told they could take as many photos as they liked, but they would need to select the top four photos that most accurately reflected their perceptions of what is unhealthy eating and activity. In order to facilitate the discussion of each participant's pictures at the focus group meetings, it was necessary that they only select their top four pictures to discuss. A brief demographic questionnaire was completed by all participants at this time.

Held 2 weeks later, the next meeting was a focus group to discuss the photos of unhealthy eating and activity. Participants were informed that the meeting would be audiotaped but that their responses would remain confidential. Each participant's four photos were projected onto the wall for everyone to view, and each person discussed their photos with the group. At the end of the first focus group, which lasted approximately 80 min, participants were told to take photos of healthy eating and activity, and select their top four pictures to discuss when they returned for another group meeting in 2 weeks.

The second focus group was focused on a discussion of what the participants perceived as healthy eating and physical activity and was facilitated as described in the preceding paragraph. This second focus group lasted approximately 90 min. Both focus group sessions were audiotaped and transcribed verbatim. Healthy snacks were provided at all meetings, and participants were permitted to keep the digital camera to compensate them for their time.

Data Collection

The day before each scheduled focus group meeting, participants selected four photos that most accurately reflected their perceptions of what is unhealthy and what is healthy, and emailed these photos to the principal investigator. The research assistant then compiled all the photos in a PowerPoint (Microsoft Corp., Redmond, WA, USA) presentation with a slide for each participant's photos for display at the meeting. The discussion during each focus group was facilitated by the authors using a semistructured interview guide following the pneumonic SHOWeD to encourage description about the photos, as is consistent with the Photovoice methodology (Wang & Burris, 1997). The interview guide included the following questions: (a) What do you See here? (b) What is really Happening here? (c) How does this relate to Our lives? (d) Why does this situation exist? (e) What can we Do about it? We also explored with the participants what made a food or activity healthy or unhealthy, whether there were ways to improve the healthiness of the food, and what healthcare providers might do to promote healthy eating and activity for Nigerian immigrants.

At least two researchers and a research assistant were present for each meeting. Two members of the research

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team who were of Nigerian descent were present for all meetings. In order to capture the dynamics of the setting, group, and discussion, the research assistant took observational field notes. The participants all discussed their photos individually, and additional input and description were provided by other group members for each person's photos. The photos were all of high quality, and only one male participant's photos were not viewable by the other participants at the focus group that focused on healthy eating and activity. He did, however, remember his photos and described them for the group. Open-ended questions and probes were also used to help participants express their ideas, attitudes, feelings, and perceptions about healthy and unhealthy eating and activity in the US.

Data Analysis

Transcribed interviews and photos were uploaded to the NVivo 10 qualitative data software management system (QSR International, 2013). Transcripts and field notes were read and re-read by two researchers, and the analysis followed Leininger's four phases of qualitative data analysis (Leininger, 1991): (a) collecting and documenting raw data, (b) identifying descriptors and categories, (c) identifying patterns and initiating contextual analysis, and (d) identifying themes and theoretical formulations. Phase one consisted of collecting the data, field notes, observations, and initial analysis. Phase two focused on the identification of categories; data were coded according to the domains of inquiry and specific aims, and 18 categories emerged. In the third phase, the researchers searched for common patterns via contextual analysis; data were scrutinized to discover saturation of ideas, and seven patterns emerged from the categories. During the final phase, the researchers looked for major themes and recommendations from the data, and four themes emerged. See Table 1 for the categories, patterns, and themes. Two investigators analyzed transcripts, field notes, and photos individually and then together, discussing their analysis and coding choices until consensus was reached. Analytic memos were maintained as an audit trail for data collection and analysis decisions.

Results

Thirteen Nigerian immigrants agreed to participate, and 11 participants were present at each focus group meeting. Participants ranged in age from 27 to 57 years, were mostly female (92%), and were employed outside of the home (62%). Everyone had some college education. The range of time participants had lived in the US was between 9 months and 30 years. Most participants considered English to be their primary language (77%); one participant each stated Yoruba, Igbo, or Kanuri was his or her primary language. Participants reported being part of the Yoruba, Bini, Igbo, or Kanuri ethnic groups. See Table 2 for the participant characteristics.

Eating and Activity Themes

Four overarching themes emerged from the data: Moderation is healthy, Nigerian ways of living are healthy, acquiring American ways is unhealthy, and cultural context is important to promote healthy behaviors. These themes captured the perceptions that the participants had about healthy and unhealthy eating habits and physical activity in the context of their daily lives within the US. Although we asked participants to photograph and discuss both eating behaviors and physical activity, the bulk of their photos and comments focused on eating habits and cooking practices.

Moderation is healthy is the first theme that emerged. This theme encompasses the idea that eating and activity behaviors should not be done to excess in order to remain healthy. Several participants spoke about the importance of controlling portion sizes. One woman stated, "I mean, it's all about portion. I remember my mom, when she was alive, she was a nurse, and in the house we could have a small bowl, and no matter what you want to eat, it has to fit into that bowl." Another woman conveyed that while portion size is important, the taste of foods is important as well; she stated, "Proportion is everything. I'm not going to finish a whole bowl [of rice]. I'm just going to take a bit. But at the same time, I'm not going to not eat doughnuts if I feel like eating doughnuts." For her, eating foods like doughnuts could still be seen as healthy if the food was consumed in moderation. An excessive amount of watching television and sitting was identified as unhealthy by the statements, ". . . for unhealthy activity, TV, too much TV," and "sitting and studying is unhealthy activity . . . I'm sitting down."

Another aspect of the moderation is healthy theme referred to the timing of meals. Eating too late at night or eating foods that were considered "heavy" late in the evening was considered unhealthy. This notion was demonstrated by one woman's statement, "I know with our own food too, the time of the day, you can't eat pounded yam at 9:00 p.m., and go to bed . . . you're not doing anything. It's just going to sit in there." Another woman reinforced this idea with the comment, "We eat the solid food in the afternoon; we don't eat solid food at night." Eating heavier foods during the day and not eating at night was consistent with healthier eating habits.

Nigerian ways of living are healthy theme referred to the participants' perceptions that their traditional foods

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Table 1. Categories, Patterns, and Subsequent Themes That Emerged From the Data Analysis

Categories	Patterns	Themes
Children's preferences	Generational differences in food choices	Moderation is healthy
Choices	Becoming unhealthy in the United States	Nigerian ways of living are healthy
Cooking it healthy	Preference for Nigerian food as healthy	Acquiring American ways is unhealthy
Cultural influence	Seeing overweight/obesity as economic	Cultural context is important to promote healthy behaviors
Family eating	Role for health care in promoting health	
Fast food/convenience food	Viewing American food as unhealthy	
Food staples		
Good for children		
Healthcare provider input		
Healthy activity		
Healthy eating		
Moderation		
Nigerian food		
Substitutions for traditional ingredients		
Taste is important		
Timing of meals		
Unhealthy activity		
Unhealthy cooking		

and activities were healthy. The majority of the photos of healthy foods we received were Nigerian dishes, although some photos were of items such as fresh fruits, steamed vegetables, and water. In describing a Nigerian food, pounded yam, one woman stated, "It gives us carbohydrate because that gives us energy for our body building." One woman's photo of a bean dish was included in the healthy foods, and she stated, "That is actually cooked beans . . . what I do is I cut the plantains and I cook it with the beans so, I don't have to fry these. . . ." Everyday physical activity common in their native country was seen as healthy, for example, "In Nigeria, we get our activities mostly by walking. It's not like people have cabs like here." Although three participants discussed engaging in scheduled exercise, most participants described incorporating everyday activities as a means of getting enough physical activity; one woman noted,

> If I go to the mall, I don't park close to the store. I like parking far away to get exercise. I don't go to the gym, but I like to get my exercise, so I don't park too close.

Another woman indicated that her household chores were her physical activity. "I have the leaves and the tools to blow the leaves, and this is the only kind of exercise that I do."

While Nigerian ways of living were mainly seen as healthy, many participants still recognized that some Nigerian dishes were not as healthy as they could be and described healthier cooking adaptations. For example, plantains are commonly deep fried, and it was noted,

Table 2. Participant Characteristics ($N = 13$)

Demographic characteristic	*M (SD)*
Age (years)	34 (8.9)
Number of children	1.7 (1.7)
Number of people living in household	3.6 (1.6)
Years lived in the United States	10.1 (7.8)
	n (%)
Gender (women)	12 (93%)
Employed outside the home	8 (62%)
Level of education	
Some college or associate's degree	6 (46.2%)
Baccalaureate degree	3 (23.1%)
Master's or doctoral degree	4 (30.7%)
Marital status	
Married	12 (93%)
Widowed	1 (7%)
Annual household income[a]	
<$20,000/year	2 (15.3%)
$20,001–$50,000/year	4 (30.7%)
>$50,000/year	5 (38.4%)

[a]Two participants did not report income.

> There was one of the questions about plantains and how they're not exactly healthy to fry, so I put in an example of how I bake them . . . and it tastes very close to the fried ones, so that's nice.

A male participant discussed preparing foods with little to no oil, such as, "I've learned to completely stay away from oil. I use a bottle of oil a year." Others discussed how Nigerian meat dishes are cooked and served in a broth but that care needed to be taken to remove additional fat, for example,

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> I was talking about the broth that is overnight in the fridge . . . a portion of this exposed will have fat on top of the broth. You just have to skim the broth. Some of this fat has to come off.

Yet, some participants were reluctant to choose healthier options for cooking, and one woman commented about a traditional vegetable stew, "You have to use a little bit of palm oil for taste. If you take out all the fat, what else do you have for taste?"

Acquiring American ways was the third theme that emerged from the data and incorporates perceptions that many foods, activities, and behaviors common in the US are unhealthy. Related to fast food, several photos were described, including, "This one is the pizza picture. We can see it dripping in oil." Another woman said, "I count everything fast food as unhealthy. I don't allow my children to eat it." Several participants stated that their children preferred unhealthy American food, but that they tried to balance what they served their children, for example, "I try to give them salad to eat. . . . So I make sure I give them a lot, so then for their main meal, they'll just eat less of the unhealthy meal." When asked about whether there were individuals in their Nigerian community in the US who were obese, most participants said that there were, and one woman noted, "When you go into a different country you throw your culture away. . . ." Another commented on the hectic lifestyle in the US: "When you're going to work and you can't cook, and you don't have time, it's a problem." One male participant described the Nigerian immigrant's lifestyle in the US by saying, "I realize that we work a lot, and it's a killer. I just feel that for Africans here in this country, they are working two jobs, three jobs, going to school, stress is killing people. . . ." Because of this busy lifestyle, participants talked of quiet time, meditation, and prayer as healthy activities in the context of their lives in the US. "I can see that physical activity can be something different, just keeping still for some cultures. . . ." "Quiet time is usually like the time that you meditate. . . . When I'm driving, I use that particular time to take a quick word of prayer. . . . So I think that helps with my sanity." Conscious efforts were needed to cope with the demands of their fast-paced lifestyle in the US.

Cultural context is important to promote healthy behaviors, the final theme, referred to what healthcare providers can do to encourage Nigerian immigrants to eat healthier and engage in healthy physical activity. Participants emphasized the importance of providers taking time to ask about and learn the foods that Nigerians eat. One woman stated,

> If I'm seeing a doctor here, the doctor doesn't understand what I'm eating in terms of the African dishes . . . if I come with what I eat, then you can advise me on portion control or maybe substitutions for some of the things.

This need for education from healthcare providers was expressed by others.

> Like teaching Africans how to make healthy meals . . . people are afraid to step out of their comfort zone . . . training that would not only teach how to make meals, but also teach how to get it healthy.

Participants talked about wanting educational activities within their community setting. "If you can suggest activities that we can do, and if you could give us some suggestions of healthy activities we can use for our [women's group] meetings. . . ." Others wanted to explore the possibility of including a gym in the church hall. "What I was thinking, was like if you can get like a gym here that would be a way of encouraging people to do the physical activity. For us, we can't go to the gym for free." Participants also thought that nurses and other healthcare providers "should encourage people to do more cooking at home instead of going to the restaurants."

Discussion

Never before utilized with Nigerian immigrants, Photovoice was a valuable method to explore the beliefs, perceptions, and practices of these participants regarding healthy eating and physical activity behaviors while living in the US. This methodology was well received and easily used by the Nigerians in this study. At the conclusion of the study, we talked with the participants about their experiences using the digital camera to capture their perceptions of unhealthy and healthy lifestyle behaviors since immigration to the US. All participants expressed that the camera was easy to use, and that they enjoyed taking photos and discussing their ideas. The photo-elicited discussions were rich with descriptions of healthy and unhealthy Nigerian and American foods and adaptations that could be applied to improve the healthiness of certain foods. The facilitated group dialogue covering each participant's photos ensured that everyone's voice was heard, and a diverse range of perspectives was put forth and considered. Ideas about healthy eating and activity within the context of their busy lives were revealed through the interactive dialogue fostered by the photos.

Little has been published about the health and lifestyle behaviors of African immigrants to the US. Evidence supports the idea that African immigrants are healthier,

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overall, than African Americans of a similar age (Venters & Gany, 2011), but acculturation, or adoption of the new country's lifestyle habits, may put African immigrants at risk for chronic conditions such as obesity (Kaplan, Huguet, Newsom, & McFarland, 2004). Traditional, native diets are often healthier than the dietary patterns that evolve with acculturation (Delisle, 2010; Desilets et al., 2007). However, immigrants may experience barriers in maintaining their native diet or learning about healthy cooking habits in the new country of residence. The participants in our study spoke of some of these barriers in their descriptions of their hectic lives in the US and difficulty finding time to cook proper meals. The fact that most Nigerian foods were seen as healthier than the food choices in the US was one of the major themes of our findings.

Although no previous evidence was found documenting Nigerian immigrants' perceptions of healthy eating and activity in the US, research with African and Asian immigrants to Norway (Garnweidner, Terragni, Pettersen, & Mosdol, 2012) and with Somali and Sudanese immigrants to the US (Wieland et al., 2013) is complementary to some of our findings. Female immigrants to Norway, asked about how they perceived Norwegian cuisine in relation to their native foods, reported that they had limited time to prepare their native foods when they were working, so they resorted to cooking the more readily prepared Norwegian food. These women also emphasized that maintaining their native cuisine was very important, as did the participants in our study. This finding is in line with previous literature documenting that native foods are an essential component of identity and ethnic belonging among immigrant groups (Linden & Nyberg, 2009; Tuomainen, 2009). While the participants in our study favored Nigerian food as healthy, they also saw a need to modify some dishes because of inherent unhealthiness when prepared according to Nigerian customs. Although most of the participants' photos and comments focused on eating and cooking practices, their talk of physical activity highlighted that household chores and normal daily activities, such as parking farther away from the store, encompassed healthy activity. They also described limited time and extended work hours as barriers to being physically active. Similarly, Wieland and colleagues (2013) reported that Somali and Sudanese immigrants to the US viewed activities like household work and walking to school as exercise; long work schedules and lack of time were also identified as barriers to physical activity among these two African immigrant groups.

Participants discussed the potential role that healthcare providers could play in helping to promote healthy eating and physical activity for Nigerian immigrants to the US. They described how providers are unaware of the African dishes they eat and suggested that Nigerian patients take this information with them to a scheduled healthcare visit. In a Norwegian study, Pakistani immigrants also voiced concerns about physicians' and healthcare workers' lack of understanding about cultural dietary practices and foods (Fagerli, Lien, & Wandel, 2005). The participants in our study were interested in having providers make recommendations on portion sizes and healthier methods for preparing their native foods. Nurses and other healthcare providers must take time to inquire about traditional meal preparation, and learn about immigrant patients' cultural foods. Once insight into these cultural dishes and cooking methods is obtained, providers could suggest more healthful substitute ingredients or cooking techniques that are consistent with cultural preferences in terms of taste and flavor. Effective communication about healthy eating during the patient encounter needs to incorporate culturally sensitive advice and messages that not only promote healthier alternatives, but are considerate of the person's culture.

Limitations and Lessons Learned

Because of the qualitative nature of this research, the findings cannot be generalized beyond the participants in this study. Our investigation helped to illuminate what healthy eating and activity in the US are for this group of fairly highly educated, mostly female, Nigerian immigrants. We also encountered some challenges in collecting the data. For the convenience of the participants, the focus group meetings took place immediately after the church service. As a result, some participants needed to bring their small children, who were occasionally disruptive, making it difficult to hear the discussion, and we would have been wise to offer child care during the meetings.

Conclusions

Photovoice was a feasible and effective methodology for collecting data on the perceptions and practices of Nigerian immigrants as they relate to eating and activity behaviors in the US. Our analysis of findings indicated four overarching themes: Moderation is healthy, Nigerian ways of living are healthy, acquiring American ways is unhealthy, and cultural context is important to promote healthy behaviors. Nurses and other healthcare providers must make concerted efforts to communicate with and educate Nigerian immigrants about healthful eating and activity behaviors within their cultural context.

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Additional research is needed to develop interventions for supporting healthy eating and physical activity among African immigrant groups. Photovoice may be an appropriate method to consider for use in intervention development with Nigerian immigrants.

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Clinical Resources

- Center for Disease Control and Prevention Immigrant and Refugee Health: http://www.cdc.gov/immigrantrefugeehealth/
- U.S. Department of Agriculture National Agricultural Library. Ethnic/cultural food pyramids: http://fnic.nal.usda.gov/dietary-guidance/past-food-pyramid-materials/ethniccultural-food-pyramids
- World Health Organization. Global recommendations on physical activity for health: http://www.who.int/dietphysicalactivity/factsheet_recommendations/en/

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