Determining Nutritional Barriers to Access to Fresh Fruits, Vegetables, and Whole Grains in Older Americans

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ABSTRACT
The University of the District of Columbia is a partner of the Northeast Hatch Multistate Research Collaborative. This research project, known as the UDC NE 1439, was designed as a pilot study to determine the barriers that prevented the consumption of fresh fruits, vegetables, and whole grains among older adults in Wards 5, 7, and 8 in the District of Columbia (DC). The residents of these wards have been shown to have higher rates of chronic diseases. Data shows that Ward 7 has the highest rate of deaths due to diabetes. Furthermore, Wards 5, 7, and 8 have the highest percentage of hypertension and diabetes This project used a quantitative and qualitative survey instrument, which included 53 questions and/or statements using a Likert scale: demographics (8 questions); household information (2 questions); shopping habits (8 questions); eating habits, including the identity of the person who prepared meals in the home (21 questions); physical fitness (11 questions); and policy (3 questions). Ninety-six (96) older adults participated in the survey, with a gender distribution of 77% female (68 individuals), 22% male (24 individuals), and 1% not reported (1 individual). The racial distribution of the participants was 91% (87) African American, .01% (one) Asian American, .01% (one) Caucasian, .01% (one) Native American, and .03% (three) others/not reported. Additionally, according to the participants' residency results, Ward 5 accounted for 23% of the participants (24 participants), Ward 7 for 38% (33 participants), and Ward 8 for 38% (33 participants). The participants' average age was ≥ 56, (45 to 76 and over) and most were the primary financial supporters of their households and the primary grocery shoppers in their families. In conclusion, this project determined that access to fresh fruits and vegetables and travel time to a full-service grocer were less prominent barriers; this was an unexpected finding. Though the participants indicated sufficient access to fresh fruits, vegetables, and whole grains, they lacked nutrition-based knowledge. Many of them viewed unfitting food choices as healthy. An intervention centered on nutrition education using food demonstrations and grocer tours would improve nutrition knowledge in this population. This offered these nutrition and dietetics research assistants with an opportunity to provide nutrition education to the population in question. Moreover, it presents an opportunity to extend nutrition education to all seniors across the Washington, DC region.

KEYWORDS
Fruits; Vegetables; Whole Grains; Urban; Disease; African American; Health; Nutrition; Food Security; Food Desert, Senior Citizens

INTRODUCTION

Heart disease and stroke are the third and fourth leading causes of death in the United States, and African Americans bear a higher burden of heart disease and stroke than Caucasians.[1,2] Diabetes mortality rate in Wards 5 (38.2%), Ward 7 (44.6%), and Ward 8 (31.8%) as of 2008 and 2009.[3] The prevalence of End Stage Renal Disease (ESRD) for the District of Columbia in 2010 was 69.6 per 100,000 compared to the United States at 37.54 per 100,000.[4] In 2015, the prevalence and incident of ESRD were 2429 and 404 per million state residents respectively.[3] African Americans are likely to consume fewer fruits and vegetables than the United States Department of Agriculture (USDA) dietary recommendations.[1] The protective benefits of fruits and vegetables have been identified in other studies, which have shown them to reduce the mortality risk that heart disease and stroke pose in minority populations[2, 6]. The Sustainable DC plan is the District's vision for improving the health and well-being of its citizens, and it relies on two targeted health goals: Target #1 involves cutting the citywide obesity rate by 50% by 2032; Target #2 entails ensuring that, by 2032, 75% of DC residents live within a quarter mile of a community garden, farmers' market, or healthy corner store.[7] The aim of this research project was to identify the barriers that prevented the consumption of fruits and vegetables mainly among African American communities in Washington, DC, from January 2016 through August 2017. This was because African Americans in the District of Columbia showed a similar disease burden pattern to the national average in the United States where heart disease and stroke were concerned; heart disease and diabetes are the two leading causes of death in this region. The research question that drove this inquiry follows: *What are the barriers that prevent the consumption of fresh fruits and vegetables by older adults in Wards 5, 7, and 8 in the District of Columbia?*

Haynes-Maslow *et al.* identified lack of access to quality food (a shortage of full-service grocery stores), lack of financial resources to purchase high-quality fruits and vegetables, and lack of knowledge of the benefits of fruits and vegetables as barriers to healthy eating behaviors.[8] The District of Columbia Behavioral Risk Factor Surveillance System (BRFSS) Annual Health Report confirmed that fruit and vegetable consumption were low among African American citizens and were particularly low in Wards 5, 7, and 8 (Wards are administrative divisions within the District of Columbia; each ward represents approximately 75,000 persons).[3] Given that Wards 5, 7, and 8 have the highest rates of obesity and diabetes and the lowest rates of fruit and vegetable consumption, questions were posed to identify the barriers that prevented this group of mainly African Americans residents from consuming healthy diets of fruits and vegetables. Diets rich in fruits and vegetables are known to reduce the risk of stroke and high blood pressure.[2] Access to fruits and vegetables while participating in physical activities, has been demonstrated to improve the quality-of-life outcomes of older adults and to reduce risk factors associated with chronic diseases.[8]

It is expected that the older adult population will reach approximately 71 million by the year 2030 and is considered one of the fastest segment of population growth in the United States according to Brewer *et al.*[9] Nicklett and Kadell noted that older adults are at a higher risk for chronic conditions such as diabetes, heart disease, and cancer.[10] Nicklett and Kadell examined the relationship between fruits and vegetable consumption and the subsequent health outcomes and found that older adults tend to eat more fruits and vegetables than younger adults.[10] Nicklett and Kadell found some of the predictors that influenced the consumption of fruits and vegetables in older adults were 1) health status, 2) geographic /physical environment, 3) demographics, 4)social support, 5)race/ethnicity, 6)socioeconomic status, and 7) dietary knowledge.[10] Brewer *et al.* conducted a quasi-experimental pilot study of 35 older adults attending senior centers with 19 in the intervention group and 16 in the control groups to determine actual fruit and vegetable intake.[9] Brewer et al. found that those in the intervention group significantly increased their fruit and vegetable intakes. This study concluded that a short nutritional educational program was linked to an increase in fruit and vegetable intake.[9]

Interestingly, a 2010 Gallup poll of 176,544 interviews nationwide revealed that access to fresh produce might not be the problem.[11] This report showed that 92% of Americans said they had access to fresh fruits and vegetables, yet only half of Americans consumed the recommended five servings of fruits and vegetables per day.[11] There has been increasing focus on ways of reducing obesity by improving fruit and vegetable intake in African Americans because African Americans are dying at higher rates from conditions that are preventable. Some studies show that the association of African American culture and food choices has become a barrier to understanding healthy food selection and the impact of food choices on the health and well-being of an individual. Understanding African Americans entails understanding their culture, which explains in part why many research programs involving African Americans are framed around faith-based organizations, particularly the African American church. Many research studies in African American communities are designed to shed light on the barriers and on the interventions that have been successful at increasing fruit and vegetable consumption.

Barriers

Research evidence has acknowledged the existence of many barriers that prevent the consumption of fruits and vegetables in older adults, particularly African Americans. Resnicow *et al.* noted two barriers that emerged from focus groups: One was that participants were not aware of the serving sizes of fruits and vegetables; the other was that they were unaware of the recommended 5 servings of fruits and vegetables.[12] In comparison, Lucan, Barg, and Long found that, in a low-income African American community, cost and the participant's ability to afford fruits and vegetables were barriers.[13] John and Ziebland conducted a 6-month randomized control study of 40 participants in a primary setting and found that children and male partners were barriers to eating fruits and vegetables; however, their research also noted that men with supportive partners increased their consumption of fruits and vegetables.[14]

In addition, John and Ziebland found that cost and travel time were identified as barriers.[14] Lastly, Stephen *et al.* conducted a time period study and measured barriers during two time periods.[15] They found that the rate of consumption of fruits and vegetables varied. The results suggested that buying fresh fruit every day led to too much waste.[9] These studies demonstrated that participants who lacked adequate resources and nutritional knowledge and had unsupportive households were more likely to not consume adequate amounts of fruits and vegetables. While these studies provided similar findings on barriers, other studies provided interventions that improved fruit and vegetable consumption.

Review of Previous Interventions

Pinsker *et al.* conducted a 12-week community engagement project called Body and Soul to demonstrate healthy recipes and peer counseling in 20 black churches.[16] The Body and Soul project was described as having four components: pastoral involvement, educational activities (cooking demonstration), a change in church policies (healthy food options at church events), and peer counseling.[17] While the researchers reported success in the implementation of this project, they also reported implementation challenges such as variations in peer counseling and low turnout at follow-up events. One of the main outcomes of Body and Soul

was that it proved to be an example of a simple intervention that could be implemented with minimum resources. Pinsker *et al.* reported an increase in the consumption of fruit and vegetables from baseline to follow-up.[16]

The GoodNews Trial was a community-based research study intended to reduce the risk of cardiovascular disease in the southernmost part of Dallas, Texas. It was a partnership between researchers and church pastors in 20 black churches to train 20 lay health promoters (LHP), who would recruit church members to participate in the study.[18] The GoodNews Trial administered a Dietary Health Questionnaire (DHQ), which determined that most of the African Americans in the study consumed less than the recommended daily requirement of fruits and vegetables and that the use of lay health promoters and church pastors was the best way to reach African Americans when promoting healthy lifestyle changes. These studies demonstrated that using black churches to reach their members had many advantages and resulted in some changes in dietary habits.

Satia *et al.* surveyed 658 African Americans on nutrition label use and found that those who considered themselves healthier had a strong belief in the diet-cancer relationship, were trying to lose weight, and showed higher nutrition label use.[19] Lewis *et al.* conducted a study to assess dietary information use among persons with chronic diseases using a representative sample of the United States population.[20] They found that those with chronic diseases reported better nutrition awareness than those who did not have chronic diseases; however, this knowledge did not translate into better or improved dietary behaviors. [20]

Wright *et al.* demonstrated a correlation between diet quality and cognitive performance in the Healthy Aging in Neighborhoods of Diversity across the Lifespan (HANDLS) study.[21] These researchers found that African Americans and those living in poverty might be at a greater risk for poor cognitive performance than those who had higher-quality diets. Interestingly, the Sustained Attention to Response Task (SART) was linked to mindfulness meditation training and yoga exercises, which have been used in previous studies to correlate aging and loss of cognitive ability.[22] Sen suggested that SART was linked to mindfulness, meditation training, and yoga exercises, which have been shown to lower blood pressure and relieve stress--known risk factors for Alzheimer's disease and cardiovascular diseases.[23] Kicklighter *et al.* followed five African American grandparents who participated in a home-based nutrition and physical activity intervention called "Project Healthy Grandparent Program."[24] The goal of this program was to increase the grandparents' knowledge and ability to select nutritious foods for themselves and their grandchildren. The study showed that one of the most important concerns for these grandparents was how to cook more nutritiously. Higgins and Murray noted that grandparents and others presently caring for grandchildren were more health conscious than when they were first parents; however, most found that eating a healthy nutritious meal posed financial challenges.[25] This was particularly noted in Kansas, where the number of grandparents raising grandchildren increased to 43 percent from 1990 to 2000. This was a 13 percent increase over the national average.[25]

Higgins and Murray also pointed out that the presence of grandchildren in the home changed the eating habits of grandparents and grandchildren.[25] These authors noted that the presence of grandchildren might negatively influence grandparents' ability to make healthy dietary choices owing to the grandchildren's preferences and taste; they also noted that cultural influence might make it more difficult to move away from traditional foods.[18] Environmental factors, such as lack of accessible and affordable foods, failure to read nutritional labels, raising grandchildren, poor cognitive performance, and traditional foods could be barriers to an African American's consumption of a healthier diet. Finding ways to decrease the impact of these barriers would have health consequences, lowering the risk of heart disease, stroke, and diabetes.

METHODS

The research project piloted a nutrition barrier survey in Wards 5, 7, and 8 to determine the ease with which residents could access fresh fruits, vegetables, and whole grains. The University of the District of Columbia Institutional Review Board approved the study. The project recruited 96 predominantly African American individuals from Wards 5, 7, and 8 at congregational sites, including faith-based organizations and recreational centers. The participants were informed of the study's purpose and signed letters of consent to participate. The students conducting the surveys received training on conducting human subject research and demonstrated the ability to conduct the survey uniformly. Each of them was accompanied by the principal investigator on the first survey to confirm that the approach to administering the questions was uniform.

Survey Development

The student research assistants and the principal investigators participated in the design and testing of the survey instrument, which had both closed- and open-ended questions. Several questions used a four-point Likert scale (1: never; 2: seldom; 3: sometimes; and 4: often) to collect relevant data. The survey included 53 questions and/or statements in the following categories: demographics (8 questions); household information (2 questions); shopping habits (8 questions); eating habits, including the identity of the person who prepares meals in the home (21 questions); physical fitness (11 questions); and policy (3 questions). While the survey included 53 questions, quantitative analysis was provided regarding the following: demographics, household information, and shopping habits, which included access to fruits and vegetables.

Participants were selected via the convenience sampling method. Treadwell noted that convenience sampling was nonprobability sampling; as the name suggests, it was a matter of convenience for the student researchers to encounter older adults who were frequent visitors to meal sites or faith-based organizations within the wards.[26] Each of the students agreed to work in Ward 5, 7, or 8 and to contact faith-based organizations and churches that participated in providing meals to seniors there. Once approval was received, the principal investigator conducted an overview of the project and introduced the research assistants who would be conducting the surveys. The principal investigator provided training on how to administer the survey and each research assistant was required to complete human subject training on the National Institutes of Health Human Subject Training online web portal prior to the administration of the survey.

Quantitative Approach

This research had both quantitative and qualitative aspects. The survey instrument represented the quantitative component, and the student observations and discussions with the participants following the survey represented the qualitative component. Each participant who agreed to take the survey could complete it on his or her own or with minimum assistance from the relevant research assistant. The survey was administered in a paper format that required each participant to read each question and place a mark on the response that best represented his or her answer. Participants who experienced reading difficulties asked for assistance, which entailed having the questions read to them. While the questions may have been read to these participants, they could mark their answers independently. Each survey lasted 45 minutes on average, and small tokens of appreciation were distributed after all the surveys were completed.

Qualitative Approach

In the qualitative component of this research, participants would openly discuss their concerns about their food consumption. The words of the participants were documented in a journal, and what emerged from these discussions were themes that shaped an understanding of the participants' thoughts and beliefs in relation to food. Upon the completion of the surveys, each research assistant remained on site to answer the questions that the participants may have had. The participants were able to reflect on the survey and to articulate their views on what they believed were barriers to their consumption of fresh produce. These conversations came as a surprise to the research assistants as they were not expecting to collect such rich qualitative data. Because the participants were willing to share their thoughts, written notes were taken of these conversations. Typically, in qualitative research, these types of conversations would be considered focus groups and would ordinarily be taped; however, these conversations were not taped. The impromptu conversations were shared with the principal investigator, who required each research assistant to write them in a journal. This was because the conversations set the context for an understanding of how participants viewed their access to fresh produce and what they thought were barriers. The research assistants' advisor noted that these were unexpected jewels that researchers find when they least expect them.

RESULTS

Quantitative Data

There were approximately equal percentages of participants from Wards 5, 7, and 8. **Figure 1**, which presents descriptive data results, shows a total of 96 respondents, of whom 73 % were reported to be female (68) and 26 % were reported to be male (24); for 1 % (1), the gender was not reported. **Figure 2** shows the ethnicities of the participants: 87 were African American, one was Asian, one Caucasian, and one Native American; ethnicity was not reported for three others. **Figure 3** indicates the wards in which the participants resided. Ward 5 represented 23 % (26 participants), Ward 7 represented 38 % (33 participants), and Ward 8 represented 38 % (33 participants).

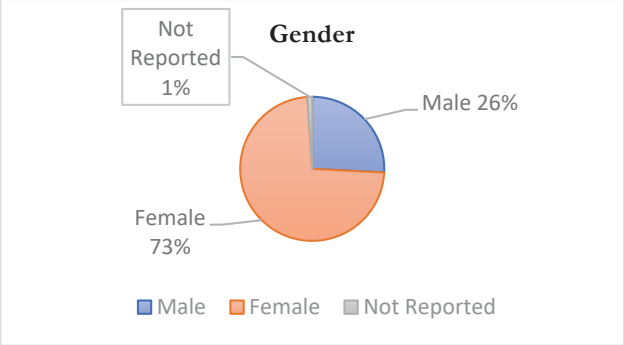

Figure 1. Participants' gender, male, female, and those not reporting.

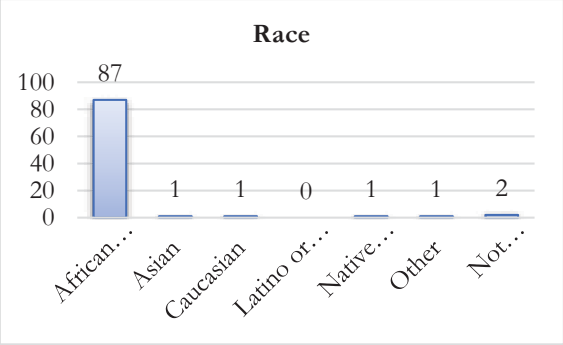

Figure 2. Participants' race for the targeted population for this project.

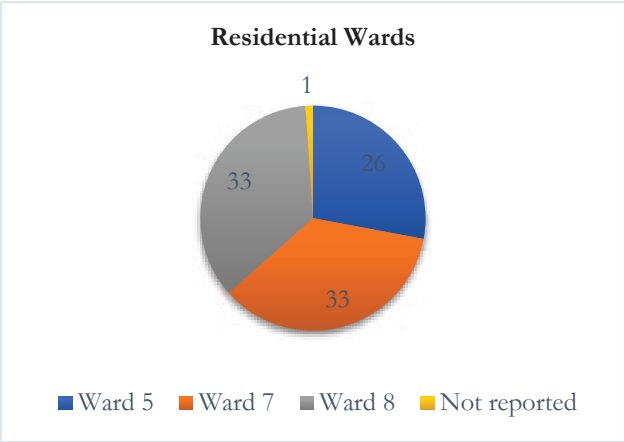

Figure 3. Participants' residential ward in Washington, DC.

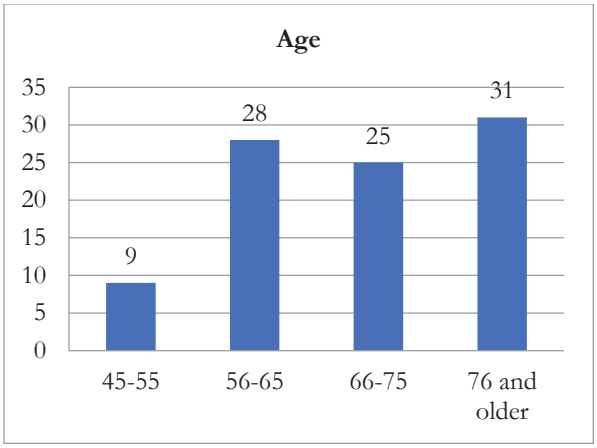

Figure 4. Participants' age for the targeted population for this project.

As per **Figure 4,** 89% of the population was over age 56. This was not surprising given the wards and the characteristics of the targeted population. To determine the level of access to fresh fruits, vegetables, and whole grains, the following information was documented: 1) the identity of the individual who was considered the primary financial supporter of the household and 2) the identity of the one who was considered the primary grocery buyer in the family. **Figures 5** and **6** show that many of the female respondents indicated they were the primary financial supporters (89%) and the primary grocery shoppers for their households (78%). When asked about access to fresh fruits, vegetables, and whole grains, 50 % and 32% of the participants respectively responded, "Often," or "Sometimes," as indicated in **Figure 7.** Most participants were women, who were primarily responsible for shopping, which meant that women made the primary decision to purchase fruits and vegetables. On the other hand, fewer male respondents indicated they were the primary grocery buyers.

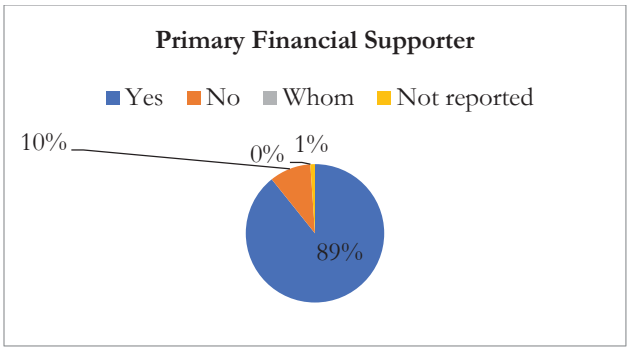

Figure 5. Primary financial supporter for groceries for the family.

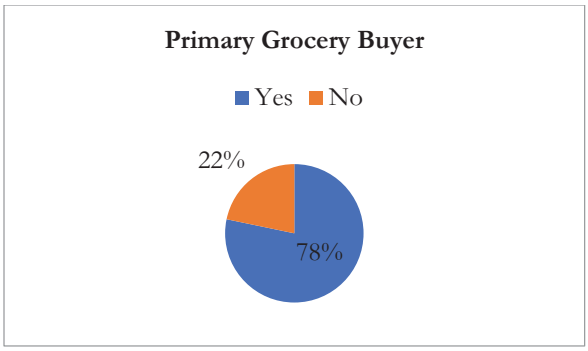

Figure 6. Participants who were the primary grocery buyer.

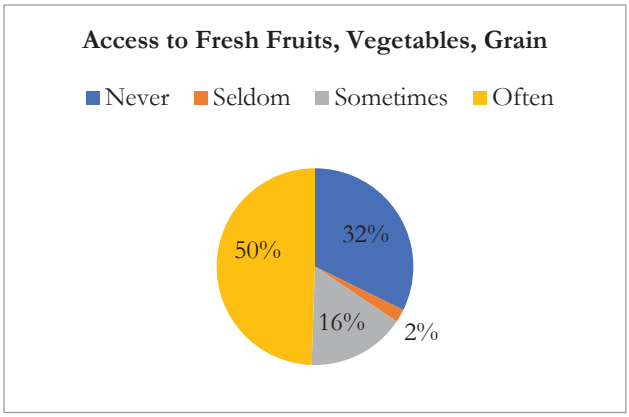

Figure 7. Access to fresh fruits/vegetables/whole grains.

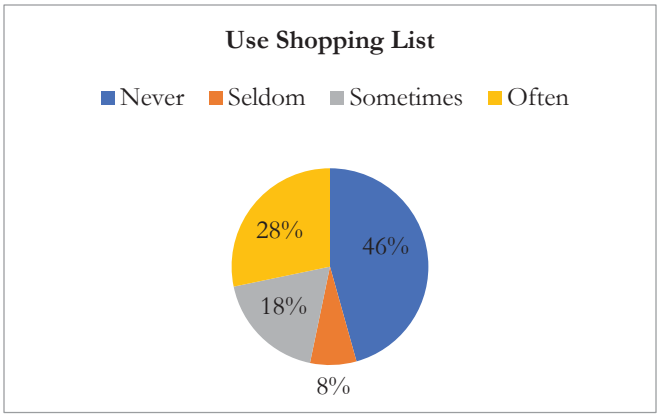

Figure 8. Participants who used a shopping list when buying groceries.

Finally, the participants were asked if they used a shopping list when purchasing food items: 28% indicated, "Often," 18% indicated, "Sometimes," and 46% and 8% responded "Never," and "Seldom," respectively, as **Figure 8** shows. The participants who used shopping lists and added fresh fruits and vegetables to their lists demonstrated more intentional action in buying and consuming fresh produce.

Qualitative Data: Emerging Themes

Weekly research discussions highlighted themes that emerged from conversations with the participants. These were consistent across each of the wards, particularly the conversations with those who consumed lunch at congregant sites. While this population was guaranteed one balanced meal per day at the sites, it became apparent that its members might not eat other meals at all. Meals prepared and eaten at home often comprised frozen dinners that lacked adequate nutrition. Furthermore, the participants had varied views regarding what healthy and unhealthy food choices were **Figure 9 and 10**. There was surprising consistency among participants in the way they responded to whether the food selection was healthy versus unhealthy. Half of the participants in each group did not seem to find unhealthy food as being *unhealthy*. The themes were categorized as internal barriers, external barriers, and others as seen in **Table 1**. Many of the barriers that these participants identified were like those that emerged in many of the studies we reviewed in the literature.

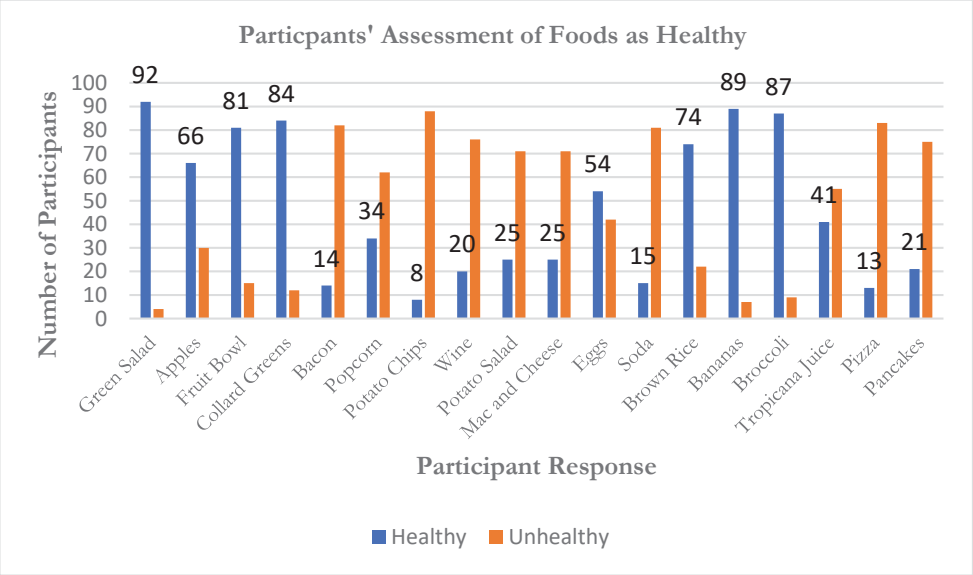

Figure 9. Participants' assessment of foods as healthy.

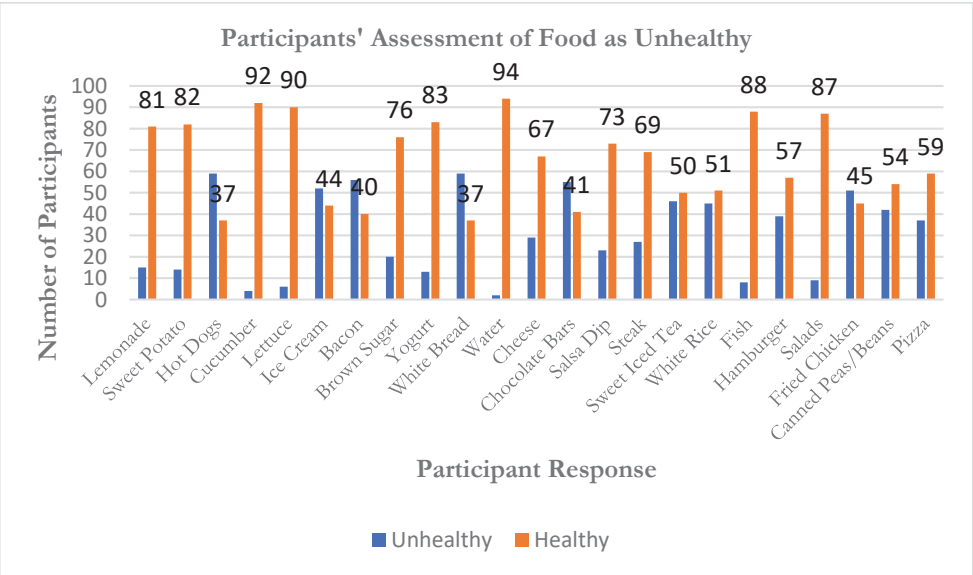

Figure 10. Participants' assessment of foods as unhealthy.

Barriers	Themes	Participants' Conversation
Internal Barriers	Meals not appealing Institutional setting not appealing Lack of nutritional knowledge on the content of healthy vs. unhealthy foods Lack of knowledge regarding the link between chronic conditions and excess sodium and sugar intake Cost - fixed income	A Ward 5 participant who lived in a facility that was also a site that provided congregate meals--for which they were eligible—said, "Most chose not to receive those meals either because they did not choose to socialize with other residents, they did not feel that the meals were nutritionally sound, or the meals did not appeal to them."
External Barriers	Not enough supermarkets in the local neighborhood Established grocers offer poor food selection Produce is of poor quality Inadequate local transportation system	"I feel strongly the city government should do more to provide more supermarkets closer to where you live." "The further I go from the city, the better the quality of food" Some seniors commented they would like to have a Whole Foods store or Yes! Organic Market in their neighborhoods When asked to explain, respondents cited transportation as being an issue, as well as lack of choice and variety in grocery stores "I feel the traffic; closer stores are crowded"
Other Barriers	Other members of the community could use help; those older than 18 years but younger than 60 years.	A respondent who was visually impaired stated that she "had a friend in need of assistance, but there were no government programs that provided help or relief like the services that her friend receives."

Table 1. Barrier types.

DISCUSSION

The primary purpose of this project was to examine barriers that prevented residents of Wards 5, 7 and 8 from accessing fresh fruits, vegetables, and whole grains. Fresh fruits, vegetables, and grains play a protective role, mitigating chronic diseases. Wards 5, 7, and 8 in the District of Columbia reported the highest prevalence of hypertension at 39.3%, 41.5%, and 40.4% respectively.[27] The prevalence of diabetes was highest in Wards 5, 7 and 8, and death due to diabetes was highest in Ward 7. Diabetes mortality rate in Wards 5 (38.2%), Ward 7 (44.6%), and Ward 8 (31.8%) as of 2008 and 2009.[20] The research indicated that many of these chronic health conditions could be addressed with increasing African American compliance to the United States Department of Agriculture (USDA) recommendations for the daily consumption of fruits, vegetables, and whole grains. Sharma *et al.* stated that there was a need to reevaluate the dietary guidelines and that higher recommendation of fruits and vegetables might be necessary to reduce the risk of chronic diseases in high-risk populations.[2] In 2015, the USDA released the 2015-2020 Dietary Guidelines.

Interestingly, the results show a surprising number of participants who stated they had access to fresh fruits, vegetables, and whole grains. This suggests that access was less of a barrier for 35% of these residents given the grocery store distribution in their neighborhoods. It is possible that this convenience sample of participants was in neighborhoods undergoing gentrification and was likely to have seen significant population shifts and an economic boom. There is evidence of economic growth in Ward 5, where several full-service grocery stores have entered the community, offering more fresh food options. Compare this to Ward 7 and Ward 8: There remain two full-service grocery stores in Ward 7 and only one full-service grocery store in Ward 8.
DC Hunger Solution reported data on the number of full-service grocery stores within the eight wards in Washington, DC and compared it to the median income level for each ward as seen in **Table 2.** When the data on household income and the number of people in each of these wards was evaluated it was apparent there is a disparity in the number of grocery stores compared to the income level.[28] The District of Columbia recognized that the grocery store gap is linked to the issue of food security. To combat this problem, the DC government passed the Food, Environment, and Economic Development Act (FEED-DC) and the Supermarket Tax Exemption Act of 2000 to attract grocery stores to low-income areas in the District. While these regulatory efforts were designed to provide incentives for grocery stores to locate in these areas, these incentives have not been able to attract large grocery chains.[28]

Wards	# of Full Service Grocery Stores	Median Income
1	8	$80,794
2	7	$99,422
3	9	$109,909
4	5	$71,545
5	7	$55,063
6	10	$90,903
7	2	$39,828
8	1	$31,642

Table 2. Full-service grocery stores in each ward.

Perhaps this was the reason why full-service grocers did not consider Wards 7 and 8 to be a viable market to place grocery stores. Household income appears to be one of the driving factors motivating vendors to open full-service grocery stores in areas of the District of Columbia **Figure 11**. In addition, Wards 7 and 8 have an increased number of residents who receive some type of public assistance, as seen in **Figure 12**. In the District of Columbia, it is difficult to conclude a direct correlation between the number of grocery stores and the level of household income; what is clear is the inadequate number of full-service grocery stores in these wards. Moreover, there have been giant strides in efforts to bring more farmers markets to Wards 7 and Ward 8. Perhaps the positive response to the question of access to fruits, vegetables, and whole grains suggests that farmers markets have stepped in to fill the gap left by full-service grocers. However, it is worth noting that this survey study did not collect consumption data. Thus, it is uncertain what effect access has on overall food purchase selections. Research regarding actual consumption versus the items the respondents claimed they consumed would be a good point of departure in the future.

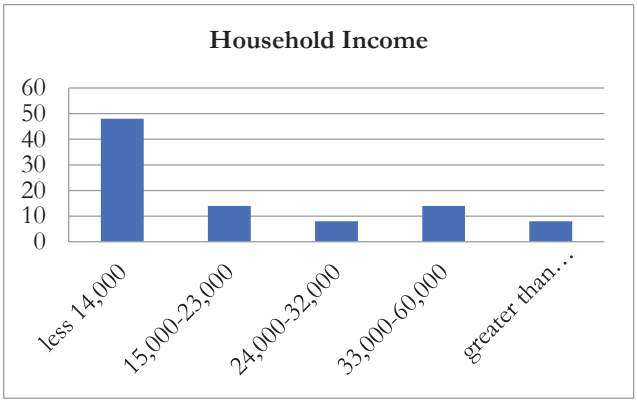

Figure 11. Household income.

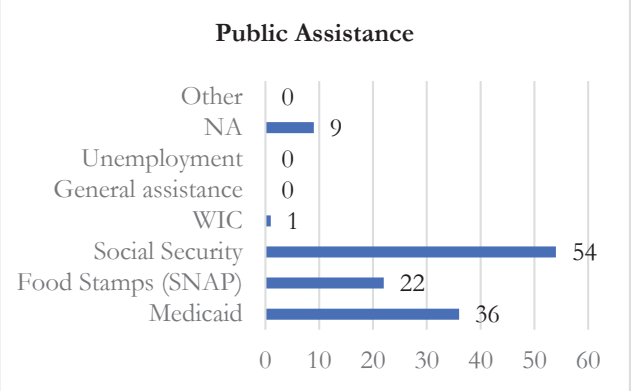

Figure 12. Participants receiving public assistance.

CONCLUSIONS

The findings from this research project answers our question: *What are the barriers that prevent the consumption of fresh fruits and vegetables by older adults in Wards 5, 7, and 8 in the District of Columbia?* While cost, access to local quality fresh produce, transportation, are undeniably stated barriers; lack of nutritional knowledge and the selection of foods considered unhealthy was a surprising finding. The present research study provided some interesting insights into existing barriers that prevented access to fresh fruits and vegetables in Wards 5, 7, and 8. While these findings mirrored similar findings from the research literature, it was striking to confront some of these issues firsthand. While administering the surveys to the participants, the true meaning of food insecurity became evident. Food security as defined by the United States Department of Agriculture as "meaning, they lacked access to enough food for an active, health life for all household members".[17] Fewer of the participants indicated that cost, transportation, or access was a barrier; however, it was revealed that most participants had differing views regarding foods they considered healthy. This became apparent when participants were asked to identify foods they considered healthy. The number of participants that chose unhealthy foods and marked them as healthy foods was startling. It is important to note that this project did not capture data on the length of time it took participants to travel to a full-service grocer; although, we believe, this data is relevant to further establish transportation as a barrier.

For nutrition and dietetics research assistants and budding nutrition and dietetics professionals, opportunities to provide nutritional education to this targeted population abound; moreover, the situation presents an opportunity to improve the nutritional knowledge of all seniors across the District of Columbia. Currently, there are 48,809 persons over the age of 55.[30] Health disparities continue to affect African Americans and people of color and as future nutrition and dietetic counselor one concrete strategy is to develop fact sheets aimed at increasing knowledge on diabetes and the linkage between an excess sugar and sodium intake. Another important educational strategy, particularly in each of these wards, is to develop posters that could be displayed at congregate meals sites that tell residents about the importance of eating the recommended servings of fruits and vegetables daily. The introduction of these two strategies perhaps will increase participants' knowledge of the importance of eating fruits and vegetables and will act as a catalyst to encourage a change in health behaviors.

These communities demonstrated a higher level of chronic disease such as diabetes than other communities in Washington, DC. Perhaps, one approach to address this would entail teaching residents how to prepare their traditional foods in a more healthful way. Finally, while the project did not discuss physical activity, encouraging physical activity among members of this target population must be part of the solution if the goal is to make Washington, DC, the greenest, healthiest city in the nation in accordance with the Sustainable DC Plan.[7]

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Aisha Moten holds a BA in Fine Arts and graduated in the class of 2017 of the University of the District of Columbia, earning a BS in Nutrition and Dietetics. She currently works full time for the District of Columbia Department of Parks and Recreation and worked as an undergraduate research assistant at the University of the District of Columbia on the NE-1439 Multi-State Research Project. She plans to become a Registered Dietitian and to work in pediatrics and become a diabetes educator.

PRESS SUMMARY

The UDC-1439 project designed a pilot study to determine the existing barriers that prevented the consumption of fresh fruits, vegetables, and whole grains among older adults in Wards 5, 7, and 8 of the District of Columbia. These wards have higher incidences of diet-related chronic diseases, such as diabetes and hypertension. Survey participants included those aged 45 and older, with African Americans being the majority ethnic group represented. The 96 participants provided quantitative and qualitative data regarding barriers to wellness, including educational barriers, access, and socioeconomic factors. The data captured the surprising notion that education was a greater barrier than access.