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Perceived neighborhood-level drivers of food insecurity among aging women in the United States: A qualitative study

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Abstract

Background: Aging populations in the United States (US) exhibit high rates of food insecurity and chronic illness. Few studies have explored the neighborhood-level drivers of food insecurity among such populations, and how they intersect with experiences of aging.

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CONFLICT OF INTEREST

None.

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Objective: The aim of this study was to explore how aging women experience food insecurity in the US, and the neighborhood-level factors that influence these experiences.

Design: Semi-structured qualitative interviews were conducted to elicit participants' perceptions of how their neighborhood influenced their experiences with food security and aging.

Participants/setting: Thirty-eight food-insecure women 50 years and older were purposively sampled from the Northern California, Georgia, and North Carolina sites of the Women's Interagency Human Immunodeficiency Virus Study (WIHS). Interviews were conducted between November 2017 and July 2018 at the three WIHS sites.

Analysis: Three researchers thematically analyzed the data using an inductive-deductive approach.

Results: Participants described neighborhood-level drivers of food insecurity that centered around three themes: accessibility of food from traditional food stores, the role of food aid institutions, and the intersection of aging with the food environment. Participants explained that food insecurity was related to limited access to food stores largely due to long distances and poor public transportation in Georgia and North Carolina, and high food prices in Northern California. Most participants described being dependent on food aid programs, but found this difficult due to poor quality food and long wait times. Aging-related issues emerged as a cross-cutting theme, with fatigue, poor strength, and chronic illness amplifying barriers to accessing food.

Conclusions: Findings from this study reveal the structural barriers that aging women face in accessing healthy food within their neighborhoods, and how experiences with aging and chronic illnesses exacerbate these barriers. While future programs should address common neighborhood-level barriers such as the accessibility and affordability of healthy foods, they should also be tailored to aging women and the local context.

Keywords

Food environment; neighborhood factors; food insecurity; aging; qualitative research

INTRODUCTION

As the aging population in the United States (US) continues to grow,¹ so do their health concerns. Chronic illness and food insecurity are two such health concerns.^{1,2} As adults age, they are more likely to develop chronic diseases such as diabetes mellitus, cardiovascular disease, and arthritis, with 80% of older adults exhibiting at least one chronic condition.³ Aging populations also experience a high burden of food insecurity, defined as the limited or uncertain access to nutritious food to maintain a healthy life.⁴ In 2018, 14.9% of adults aged 50–59⁵ and 10% of seniors aged 60 and above² were food insecure. Food insecurity among older adults has been on the rise for the past two decades,² and has increased even further amid the COVID-19 pandemic due to financial shocks and fears of viral exposure.^{6,7} Food insecurity disproportionately affects low-income and Black households, and women living alone⁸—trends which are mirrored among aging populations. The rates of food insecurity for adults aged 50–59 identifying as Black or living below the poverty line were more than double and nearly ten times that of those identifying as White or living above the poverty

line, respectively.⁵ Food insecurity and chronic illness are likewise closely linked. Food insecurity is associated with poor outcomes in a range of chronic illnesses, including cardiovascular disease⁹ and diabetes mellitus.¹⁰ In turn, people living with chronic illnesses, particularly low-income, older adults,¹¹ are more likely to experience food insecurity.¹²

Prior research suggests that neighborhood-level factors such as food store proximity, transportation accessibility, and food prices may be important drivers of food insecurity.^{13,14} Limited food store options within neighborhoods and long distances to food stores outside of neighborhoods can prevent individuals from accessing food,¹⁵ especially when they are unable to access private vehicles or public transit systems.¹⁶ Furthermore, evidence suggests a correlation between high food prices and increased food insecurity among low-income households,¹⁷ likely due to the competing needs that low-income households face between food and other basic needs such as housing.^{18,19}

Neighborhood food environments can also contribute to disparities in healthy food access and food insecurity.^{14,15} People who live in areas sometimes referred to as “food deserts,” or neighborhoods with limited access to affordable and nutritious foods,¹⁵ and “food swamps,” or neighborhoods with high access to unhealthy foods,²⁰ are more likely to experience food insecurity.²¹ Supermarkets are often far away from households in food deserts, pressuring families in those areas to choose the convenience of nearby food sources, which often offer more processed and high-fat food options.^{14,15} Even in regions where healthy food options are accessible, families may only be able to afford the processed and high-fat food options available.²¹ Evidence suggests that such food environments may negatively influence dietary health, particularly fruit and vegetable consumption.²²

While a relatively large body of research has documented how aging-related factors at the individual level affect food insecurity, less research has examined how neighborhood-level factors intersect with aging-related outcomes to influence food insecurity. For example, prior studies have shown how individual-level, aging-related factors such as financial constraints (compounded by high healthcare costs),²³ functional decline,^{12,24} diminished health,²³ and compromised diets^{25,26} affect food insecurity. Evidence has also linked multiple chronic diseases¹¹ with food insecurity, elucidating challenges among older populations to obtain and prepare nutritious foods.^{26,27} The limited research examining neighborhood-level influences on food insecurity among aging populations has largely focused on transportation availability,^{23,28} grocery store accessibility,^{23,27} and food aid adequacy.^{27–29} However, few studies have explored how the broader food environments—such as the convenience and availability of unhealthy food options—may shape food insecurity among aging populations, warranting further examination. Additionally, much of the prior research has focused on the experiences of food-insecure seniors above 60 years old. Few studies have included pre-seniors (the “youngest” older adults aged 50–59 years old), despite recent evidence underscoring the high burden of food insecurity among this population.⁵ Therefore, we explored how aging women 50 years and above experience food insecurity in the US, and the neighborhood-level drivers of these experiences.

MATERIALS AND METHODS

Study design and setting

This study was a qualitative sub-study of the Women's Interagency Human Immunodeficiency Virus (HIV) Study (WIHS), a nationally representative prospective cohort study of women living with or at risk for HIV. The overall aim of this study was to explore experiences of food insecurity and aging, and how neighborhood-level factors affect these experiences, among older women from the San Francisco, California; Atlanta, Georgia; and Chapel Hill, North Carolina WIHS sites. Women enrolled at the San Francisco site live in the city or the urbanized Bay Area, while women enrolled at the Atlanta and Chapel Hill sites also live in the semi-urban and rural surrounding areas. To account for this geographic diversity, the sites will be referred to as Northern California, Georgia, and North Carolina for the remainder of the paper. These sites were chosen to capture experiences in geographically distinct areas with differences in social provision and social safety net eligibility. Compared to the national average, per capita welfare spending is above average in California and well below average in North Carolina, while welfare spending per low-income resident in Georgia is the lowest of any state.³⁰ Differences are also emphasized in Supplemental Nutrition Assistance Program (SNAP) adequacy (i.e. ability to cover the cost of a meal) per site. San Francisco has one of the largest gaps between average meal cost and SNAP benefits received.³¹ The average cost of a meal in San Francisco is 43% higher than the maximum SNAP benefit per meal, compared to the national average which is 27% higher.³¹

Recruitment and sampling

This study recruited women enrolled in the Northern California, Georgia, and North Carolina WIHS sites who met the inclusion criteria of being food insecure and aged 50 or older—the typical age threshold used to assess aging among people living with HIV, considering the premature aging that occurs in this population.³² Given the high rates of food insecurity among adults 50–59 years old⁵ this threshold also captures this highly affected group. Women enrolled in the WIHS participate in routine data collection every six months on various measures, including socio-demographic characteristics, HIV status, and food insecurity status. Food insecurity status is assessed using the US Department of Agriculture Household Food Security Survey Module (HFSSM).³³ Participants who reported food insecurity at their last WIHS visit were eligible to participate. Participants were purposively sampled so women resided in a variety of different neighborhoods within each site, and 2/3 were HIV positive. This allowed us to compare experiences of food insecurity and aging across different neighborhood contexts and HIV status. Participants were then recruited by WIHS staff over the telephone on a rolling basis between November 2017 and July 2018.

Data collection

A semi-structured interview guide was developed by four researchers (including AML, HJW, SDW) and consisted of broad, open-ended questions that explored domains informed by existing literature. Topics included participant perceptions of finances, experiences with and perceptions of government assistance programs, food quality and access, the

neighborhood food environment, and aging experiences. The guide also explored how aging experiences intersect with the neighborhood food environment to influence women's food access and health management. For example, participants were asked to describe if they noticed any differences in their ability to access food resources in their neighborhood as they aged, and if they perceived this to have influenced their diet or physical health in any way. Two pilot interviews were conducted (by AML) to test the interview guide, which was subsequently refined to incorporate feedback. Thirty-eight in-depth interviews were then conducted at the three WIHS sites between November 2017 and July 2018 using the refined semi-structured interview guide. Interviews were conducted by two female researchers (JAS and AML) in Northern California and Georgia, and another female researcher in North Carolina. All interviews were held in a private room in the WIHS offices, and each interview lasted between 60–120 minutes. Interviews were audio-recorded with consent from participants and transcribed verbatim by an outsourced group. Following each interview, interviewers wrote memos, which included thoughts on emerging themes and reflections on how the interviewers' identity and experiences may have influenced the data received. Transcripts were not returned to participants for comment and/or correction. All data were de-identified, and participants were assigned unique identification numbers and pseudonyms.

Data analysis

A team of three researchers (JAS, AML, and HJW) coded and analyzed the data using the framework approach, in which the objectives of a study are established beforehand and the findings are intended to inform health interventions or policies.³⁴ In line with this approach, an initial codebook was created using *a priori* codes informed by previous literature and the study aims. The codebook was then iteratively revised through multiple readings of the transcripts to reflect emergent themes.³⁴ The new inductive codes were discussed and refined in conversations with the principal investigator (SDW), and then re-applied to the transcripts. Transcripts were independently coded in Dedoose,³⁵ a software program used to manage, code, and analyze qualitative data. First, the three analysts double-coded one quarter (n=9) of the transcripts, and uncertainties or differences in coding were discussed and revised to establish coding reliability. The remainder of the transcripts were single-coded. After all transcripts were coded, a framework matrix was created which included a chart for each theme and summaries of different perspectives/experiences and supporting quotes from several participants. Using this matrix, the analysts compared and contrasted themes, identified relationships between major ideas, and developed explanations for the findings.^{34,36} Participants did not provide feedback on the findings.

Quality assurance

Informed by a constructivist epistemology, this study was concerned with establishing credibility and auditability.^{37,38} To enhance credibility, researchers were trained to clarify unclear phrases or ideas with participants to ensure that the intended meaning was conveyed. Furthermore, investigators wrote memos to reflect on the ways in which their own experiences may have influenced how they received and interpreted data. These memos were used in the familiarization process of data analysis to ensure that the data were as representative of the participants' perceptions as possible. To ensure auditability, all steps

taken throughout the study were clearly described and justified and an interview guide, data analysis plan, codebook, memos, and debriefing notes were created.

Ethics statement

This study received human subjects research approval from the Institutional Review Boards (IRB) of the University of California, San Francisco (UCSF) and the University of North Carolina, Chapel Hill, the site leads for the San Francisco and Chapel Hill WIHS, respectively. The WIHS Executive Committee IRB also granted this study human subjects research approval. Emory University, the site lead for the Atlanta WIHS, waived approval since data from Georgia was collected by UCSF researchers. Prior to the start of each interview, informed written consent was obtained from all participants.

RESULTS

Participant demographics are broadly representative of the WIHS cohort (Table 1). The majority of women, regardless of HIV status, reported experiencing one or more non-communicable chronic diseases such as diabetes mellitus and cardiovascular disease. Most participants experienced financial insecurity and relied on Supplemental Security Income (SSI) and/or Social Security Disability Income (SSDI) as their primary source of income, and many were also enrolled in SNAP. Several women expressed the belief that the income they received from these social safety net programs was insufficient to meet their needs, and that their financial insecurity contributed to their food insecurity. Within this context of chronic illness, financial insecurity, and food insecurity, participants described neighborhood-level drivers of food insecurity that fell under three themes: accessibility of food from traditional food stores, the role of food aid institutions, and the intersection of aging with the food environment.

Neighborhood contributors to food store accessibility

Participants described numerous neighborhood-level factors affecting the accessibility of food stores, including long distances to food stores, difficulty accessing transportation, and unaffordable food prices. While this theme emerged across all three sites, the types of challenges that women at the different sites described experiencing varied. Women in Georgia and North Carolina reported facing more transportation and geographic challenges within their neighborhoods, whereas women in Northern California noted experiencing economic constraints related to gentrification.

Distance and transportation barriers to accessing food stores—Many women, particularly from Georgia and North Carolina, described challenges such as long distances from their houses to the bus stop, limited bus routes that went to the nearest grocery store, long travel times or numerous bus transfers, and inability to afford bus fares or private vehicles. Women explained how these barriers could have major consequences. When unable to access transportation, one participant from North Carolina with very low food security described how she had been “stuck a lot of times at home with no food or just barely trying to make it until [she could] get somebody [to give her a ride].” In contrast,

women in Northern California noted having more food store options nearby and being able to easily access, although not always afford, public transportation to get to food stores.

Affordability as a barrier to accessing food from food stores—Many women emphasized how their fixed incomes rendered many food stores unaffordable. Participants, particularly in Northern California, noted that this unaffordability was compounded by rising food costs due to changes in their neighborhood, such as gentrification. Many participants described how the affordability of food stores affected the number and amount of meals they could eat.

High food prices not only limited the quantity of food participants could eat, but also the quality of food participants accessed. Participants across the three sites emphasized that healthy food, which they defined as fresh fruits and vegetables and organic food options, was often expensive compared to unhealthy food (e.g., processed and high-fat foods). Many women reported being unable to afford nutritious food, despite wanting to eat such food. The impact of these financial constraints on healthy food purchasing was often tied to insufficient SNAP benefits:

The \$15 (from SNAP) is supposed to be my food. But if I pay all the bills and go to the grocery store with \$15, I'm not going to get much food. And I'm saying to myself, now if I get two packs of meat, two vegetables, \$15 is going to be gone. So, I compromise. I try to find something cheaper. I eat a lot of canned meat. (Helen, Georgia, 61 years old, Very low food security)

As illustrated in the following quote, some women described their frustrations with a food system where healthy food was expensive and unhealthy food was cheap.

[I]t's frustrating because I have this big poster that I read, and it says, eating healthy, it's really a form of self-respect. So, not [being] able to live the lifestyle of eating healthy, it's really frustrating because either you don't have enough money to buy the food, or you got to shorthand the food, make it stretch. It gets frustrating.... Why the healthy food has to be so expensive? And then the bad food, why is it so cheap? ... The system is a little backwards there. (Amy, Georgia, 52 years old, Very low food security)

Some participants explained how accessibility, affordability, and quality of food stores were also interrelated. Women described how the food stores that were nearby were primarily corner stores or gas stations, which sold poorer quality food at higher prices than the more distant grocery stores, which had healthier food options and more sales or bargain deals. However, because they had no means of transportation to access the more distant food stores, some women had to settle for the nearby corner stores.

Accessing food is really important. I know some places, you can't or the food's bad. You got the corner store with all the processed foods and what else can you do, right? Take a bus if you don't have a car? And carry groceries on the bus? And then that's hard. (Elizabeth, Northern California, 58 years old, Very low food security)

Additionally, women described how their neighborhoods had many fast-food restaurants but few grocery stores. Participants were reluctant to eat at fast-food restaurants because the food was expensive and not filling. As one participant explained:

There's so many businesses around that cater to people's immediate needs. But not necessarily their long-term needs. Like, there's five fast food restaurants within half a mile of my house. But the only market is Wal-Mart. But other than that, I have to go much further to get to [grocery stores] But gas stations, liquor stores [are nearby]. But some of the things that I would like to be able to have, are not close by. [Like] a farmer's market. That's one of the things But there's no place other than fast foods and Wal-Mart in my immediate area... There's no community garden. (Deb, Georgia, 60 years old, Low food security)

Neighborhood contributors to food aid accessibility

To overcome unmet food needs, women reported accessing institutional support from food aid organizations. Women in Northern California had access to multiple forms of institutional support for food, and described leveraging a combination of sources including food banks, food pantries, soup kitchens, and non-governmental organizations. In contrast, women in Georgia and North Carolina described fewer institutional resources, relying mostly on food support from community churches when available.

Participants described facing many of the same challenges to accessing food aid organizations as those for food stores, including long distances, limited hours of operation, and transportation issues. They also experienced limitations specific to food aid organizations including long wait times to access free food. Time spent accessing food aid was also described to detract from participants' ability to work, thereby perpetuating the cycle of poverty and food insecurity.

I figured out that one of the reasons that homeless people don't work and can't work is because if you're going to eat, you actually can eat three meals every day except Saturday and Sunday, but you can still get at least one meal on each of these days. But they're (food aid organizations) all in different directions. So, [do] you have the time to walk to these places, you know? And I have done it... You definitely can eat every day. (Patricia, Northern California, 63 years old, Very low food security)

Intersection of aging with the food environment

Participants across all three sites explained how their experiences getting older exacerbated their food struggles rooted in the first two themes. These aging-associated drivers of food insecurity were described even in neighborhoods where transportation was accessible, or food sources were within walking distance.

Aging bodies and the food environment—Many women explained how increasing frailty and fatigue, decreasing strength, and arthritis limited their ability to access food. As described in the following quote, anxiety around how to carry groceries home while

experiencing decreasing strength in old age restricted some participants' ability to access food:

There [were] a couple [of] times I said, well, let me get on the bus. But then I have to go from here all the way over there to get the bus, go all the way down the streets and then walk. Just thinking about that, that route I have to go, it's like, how am I going to carry it back? How am I going to carry this food back? How am I going to carry the milk back? (Betty, Northern California, 63 years old, Very low food security)

Some participants also noted limited walkability and/or accessibility issues within their neighborhoods that prevented them from accessing food stores. Women explained how their decreased strength and mobility made it especially challenging to walk long distances or up steep hills to get to food stores.

Furthermore, because of their experiences with aging, women had to ensure that grocery stores were handicap accessible. This is illustrated in the following quote:

As I've gotten older with the hip and stuff, you know, the availability of the mobility scooters in the stores [is important]. I have a handicap sticker, and I was driving my son's car, because something was wrong with mine and the handicap sticker wasn't in there, and I was going to go to the store, and I said, oh, well, handicap sticker ain't in here, I'm not walking from here to the store to where there was to park. So it matters. (Erica, North Carolina, 49 years old, High food security)

To overcome such aging-specific barriers to accessing food stores, some participants reported using para-transit services which provide door-to-door, reservation-based transportation services for older populations and those with disabilities. However, participants explained these services had challenges of their own, including unreliability, high costs, and time constraints. Some participants were also unaware that they could use para-transit services to get to grocery stores, as opposed to just clinics and doctor's appointments.

Age-related illnesses and the food environment—The chronic conditions that most participants reported facing required them to eat a diet rich in fruits and vegetables and low in processed sugars and fats. Many women described how the inability to access and afford high quality or healthy food could have serious health consequences in this context. One participant, for example, who had recently suffered from a stroke, described her difficulties managing her health because of her inability to afford healthy food.

Because it makes me think...when I'm cooking the [unhealthy] food I'm like, well, I just had this stroke, I'm eating this [unhealthy food] and ... I know I really shouldn't but that's all I have. Or I know I should be eating something different, I know I shouldn't be eating this 'cause I have some of that canned pork the other day that I got from the shelter.... and then I'm thinking I don't need this pork, you know? I just had this mini stroke and I don't need this pork, but that's all I got to prepare today. So I'm gonna have to eat that pork and take the consequences, you know? (Jasmine, North Carolina, 59 years old, Low food security)

Participants also explained how experiences with illness further diminished their ability to access food. This process happened more commonly as they aged, with illnesses becoming more frequent:

I've noticed a change [in my diet as I've gotten older] – I have arthritis now, and I must've had it before, but didn't notice it. If I sit long, then I can't stand. If I can't stand, I can't cook. So, my diet has turned from cooking to a lot of things that can boil, like, I said tuna fish; I can boil eggs; I can boil hot dogs and it's quick and it's filling. Well, I can make a peanut butter and jelly sandwich. I just can't stand long enough to prepare a meal, like spaghetti, lasagna. (Margaret, Northern California, 64 years old, Very low food security)

DISCUSSION AND IMPLICATIONS

This study explored neighborhood-level drivers of food insecurity among aging women across three distinct sites in the US. Findings reveal the multiple and intersecting structural barriers that older women face in accessing food within their neighborhoods, and how experiences with aging and chronic illnesses exacerbated these barriers. While past research has identified long distances to food stores, inaccessible public transit, and high food prices as key contributors to disparities in food access,^{14,15} findings from this study illuminate the particular vulnerability of aging individuals to this nexus of neighborhood-level factors. At the same time, the data highlight how different settings bring distinct challenges to the fore. In Northern California, economic constraints to accessing high-quality food were particularly salient. However, participants from Northern California also described a high availability of food aid services, which may be attributable to more progressive funding streams for public welfare in California compared to other states.³⁰ In contrast, women from North Carolina and Georgia described experiencing more geographic and transportation challenges, and had few food aid institutions other than faith-based organizations. The data therefore demonstrate how more distal economic forces get translated into local infrastructures and safety net systems, which then play a significant role in shaping the experience and distribution of food insecurity within a given location.

These findings also support and build upon prior research suggesting that unhealthy food environments can impact food choices.^{22,39-41} Specifically, limited access to affordable and healthy food options, whether due to unaffordable food/transport prices or a lack of transport options, may lead individuals to purchase overpriced and highly processed foods found at nearby corner stores and gas stations. Notably, while some evidence points to an association between fast-food restaurant availability and fast food consumption,^{42,43} the participants of this study seldom chose to eat fast-food due to perceptions that the food was expensive and not filling, despite acknowledging their widespread availability in comparison to food stores. These data show that individuals with chronic diseases are often highly aware of the food they need to eat to stay healthy, but have their choices constrained by multiple and variable socio-economic forces beyond their control.

Findings from this study also reveal the complex role food aid organizations play in addressing food insecurity. Although food aid was originally intended to temporarily supply

food during economic shocks,⁴⁴ most participants described being chronically dependent on such programs, supporting evidence of the shifting role of food aid from acute to chronic food provision.^{45–47} Several participants noted accessing food aid as a way to feed themselves when no other options exist, particularly for those with debilitating illness. This finding highlights that food aid is a vital component of the safety net, and also suggests that neighborhood food environments may contribute to vulnerable populations having to continuously rely on food aid. While results from this study support prior evidence that some food aid programs provide unhealthy and processed food,⁴⁷ other programs such as those focused on providing medically-tailored meals can improve access to healthier food options.

Finally, these findings provide further insights into the ways in which neighborhood-level drivers and aging-related chronic illness intersect to create a vicious cycle between aging and food insecurity. People living with HIV (the majority of this study population) are particularly vulnerable to such processes, being at increased risk of both food insecurity and developing chronic diseases as they age.^{48–50} While quantitative research suggests that neighborhood walkability⁵¹ and physical decline^{12,24,52,53} related to aging is negatively associated with older adults' food access, findings from this study elucidate some of the specific mechanisms that underlie these associations. Specifically, these results build on prior qualitative research which suggests that functional impairments and frailty prevent older individuals from accessing the amount and quality of food they require. For example, qualitative research has found that older individuals can restrict the amount of food they purchase at the grocery store and prioritize buying highly processed shelf-stable foods to carry lighter loads home and limit the number of trips to the store.²⁷ Findings from the present study build on this past research by suggesting that mobility and frailty issues also influenced the types of food stores women could access, which had implications for the quality of food they could buy. Several women described that their inability to travel to and carry groceries home from food stores with healthy food options meant having to resort to nearby corner stores with unhealthy food options. This is particularly concerning given that this population often has specific nutrition needs and increased multiple morbidity risk.^{24,28} Findings from this study also highlight how handicap inaccessibility within stores is an additional structural challenge to accessing food among this population.

Public Health Implications

This study highlights the need to target programs to aging, low-income women, given their vulnerability to exclusionary food environments where healthy food is unaffordable and difficult to access, with negative implications for their health. This can be done by addressing the neighborhood-level drivers of food insecurity through policies and interventions that ensure public transportation is affordable, public transit routes reach communities and supermarkets,¹⁶ and nutritious foods are available in corner stores and local grocery stores.^{54–56}

It is also important that policies and programs be tailored to the specific challenges faced by aging populations. More attention should be paid to the walkability and built environment concerns of aging women, such as sidewalks and walkways that are conducive to aging

bodies and mobility aids. Expanding para-transit services to not only reach healthcare facilities, but also food stores, can eliminate transportation barriers to accessing food. Leveraging the private sector—for example, by incentivizing ride sharing companies to provide senior rates for rides to food stores—may also be an effective way to fill public service gaps. The Stop & Shop Supermarket Company recently partnered with Uber Technologies to provide half-price rides for seniors to its grocery stores.⁵⁷

In addition to improving transportation accessibility for aging populations, interventions to bring food to these populations can also be helpful. With programs such as SNAP online purchasing being piloted,⁵⁸ digital grocery shopping and delivery services have the potential to break down aging-specific barriers to food store access. However, prior studies have shown how current service delivery programs such as Meals on Wheels are restricted to older populations (e.g. 60 years and above), potentially overlooking this programmatic need for younger seniors with a high burden of food insecurity and chronic illness.²⁸ Additionally, rather than incurring additional costs from online delivery and service fees (which are not covered by the SNAP online ordering pilot), seniors should be allotted discounts or fees should be eliminated altogether.

Furthermore, while nutrition education programs play a prominent role in the management of diabetes mellitus and cardiovascular disease among aging populations, participants highlighted how they are already aware of the food they need to manage their health, but are unable to access and afford such food. These findings underscore the importance of food security screening by health care providers. To be effective, nutrition programs and health care for aging populations need to be fully contextualized with nuanced knowledge of local socio-spatial barriers to food security, and augmented with material solutions where possible—such as financial support, transport vouchers, or food aid.

Strengthening both governmental and non-governmental food programs are also critical to ensuring food security. Prior studies have shown that raising SNAP benefits is linked to increased food security and decreased adverse health effects associated with food insecurity.⁵⁹ SNAP can also be strengthened to improve nutrition and health outcomes cost-effectively. A recent modeling study estimated that for SNAP beneficiaries, financial incentives for healthy food purchasing and disincentives for unhealthy food purchasing resulted in 56,056 quality-adjusted life years gained and \$5.28 billion saved.⁶⁰ Additionally, medically-tailored meal programs can provide a way for people with chronic illness to access the food they need to manage their health,⁶¹ lower medical spending, and reduce the number of emergency department visits⁶² and hospitalizations,⁶³ potentially increasing the amount of money they have to spend on other critical resources.

While the programs and policies put forth here may have important implications for neighborhood food security and health, it is also critical that these solutions are grounded in equity. Low-income, African-American aging populations (the majority of this study population) experience disproportionately high rates of food insecurity.^{2,5} Structural racism and the systemic denial of resources increases the risk of chronic food insecurity and disease, creating a viscous cycle.⁶⁴ Aligning any food security intervention with the dismantling of structural racism is therefore integral.^{64,65}

Strengths & Limitations

This study has a number of strengths. By including three distinct sites, this study was able to highlight the commonalities and differences in experiences across different regions. Furthermore, the use of three coders and extensive double coding during data analysis increase the reliability of the findings.

Despite these strengths, several limitations of this study exist. Because the study population was sampled from WIHS, these findings only reflect the experiences of women living with or at risk of HIV and may therefore not capture the relevant experiences of other populations experiencing food insecurity. The majority of the study sample identified as African American and as such, these findings do not represent other important groups that may experience food insecurity such as undocumented immigrants. Further research is needed to understand how the broader aging population, in terms of chronic illness, gender, income status, and race/ethnicity, experience the impact of neighborhood food environments on their food insecurity and health.

CONCLUSION

This study presents experiences with aging and food insecurity among low-income women in three distinct geographic settings of the US, highlighting the perceived neighborhood-level factors that affect such experiences. The findings of this study emphasize the need to address neighborhood-level drivers of food insecurity, particularly among aging women who face additional health-related challenges to food access. As the aging population continues to grow rapidly, it is imperative that public health practitioners and policymakers address such structural factors that affect their food security and health.

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RESEARCH SNAPSHOT

Research Question:

How do neighborhood-level factors shape the lived experience of food insecurity among aging women in the United States?

Key Findings:

In this qualitative study of 38 food-insecure, aging women from the Northern California, Georgia, and North Carolina sites of the Women's Interagency HIV Study (WIHS), participants described experiencing multiple neighborhood-level factors affecting food security, including limited accessibility of food stores, unhealthy and expensive food environments, and poor-quality food provided by food aid organizations. Aging-related issues such as chronic illness, fatigue, and poor strength exacerbated these challenges, affecting participants' food security and health.

Table 1:

Demographics of 38 food-insecure, aging women participating in semi-structured interview data collection on perceived neighborhood-level factors that affect food insecurity

| Demographic Characteristics | |
|---|------------|
| Age (years), mean (range) | 56 (50–64) |
| Race/Ethnicity, n(%) | |
| African-American | 25(66) |
| Hispanic | 5(13) |
| White | 6(16) |
| Other ^a | 2(5) |
| Food Security Status^b, n(%) | |
| Very Low | 19(50) |
| Low | 14(37) |
| Marginal | 5(13) |
| HIV Status, n(%) | |
| Positive | 26(68) |
| Negative | 12(32) |
| Location, n(%) | |
| Northern California | 14(37) |
| Georgia | 14(37) |
| North Carolina | 10(26) |

^aThe 'Other' category of Race/Ethnicity includes Native American, Asian, and Pacific Islander.

^bFood security status was measured using the US Department of Agriculture Household Food Security Survey Module³³