

## Reducing hypertension with adults experiencing food insecurity in low-income communities: Identifying intervention strategies and facilitators/barriers

M. Devyn Mullis,<sup>a</sup> Stephanie A. S. Staras<sup>b</sup>  
University of Florida

Antionette McFarlane<sup>c</sup>  
University of Florida and University of Virginia

Marta D. Hansen,<sup>d</sup> Caterina Alacevich<sup>e</sup>  
University of Florida

Gerard Duncan<sup>f</sup>  
Prayers by Faith Ministries

Karla P. Shelnutt,<sup>g</sup> Carma L. Bylund,<sup>h</sup>  
Grant Harrell,<sup>i</sup> Steven M. Smith,<sup>j</sup> and  
Carla L. Fisher<sup>k\*</sup>  
University of Florida

Submitted May 16, 2025 / Revised August 12 and September 4, 2025 / Accepted September 4, 2025 /  
Published online November 5, 2025

*Citation:* Mullis M. D., Staras, S. A. S., McFarlane, A., Hansen, M. D., Alacevich, C., Duncan, G., Shelnutt, K. P., Bylund, C. L., Harrell, G., Smith, S. M., & Fisher, C. L. (2025). Reducing hypertension with adults experiencing food insecurity in low-income communities: Identifying intervention strategies and facilitators/barriers. *Journal of Agriculture, Food Systems, and Community Development*, 15(1), 277–291.  
<https://doi.org/10.5304/jafscd.2025.151.003>

Copyright © 2025 by the Authors. Published by the Lyson Center for Civic Agriculture and Food Systems. Open access under CC BY license.

### Abstract

Uncontrolled blood pressure (BP) is a major risk factor of cardiovascular diseases, which is the leading cause of premature deaths in the U.S. Treat-

ment recommendations include increasing the consumption of fruits and vegetables. Individuals in impoverished areas encounter barriers to eating healthy including food insecurity, limited resources and access to fresh foods, and gaps in nutrition knowledge and skills. To improve cardiovascular health for individuals experiencing food insecurity,

<sup>a</sup> M. Devyn Mullis, Department of Health Outcomes & Biomedical Informatics, College of Medicine, University of Florida; 1889 Museum Road; Gainesville, Florida 32611 USA; [mullis.md@ufl.edu](mailto:mullis.md@ufl.edu);

 <https://orcid.org/0000-0002-4408-5005>

<sup>b</sup> Stephanie A. S. Staras, Department of Health Outcomes & Biomedical Informatics, College of Medicine, University of Florida; 1889 Museum Road, Room 7002; Gainesville, Florida 32611 USA; [sstaras@ufl.edu](mailto:sstaras@ufl.edu);

 <https://orcid.org/0000-0002-0726-1524>

<sup>c</sup> Antionette McFarlane, Department of Emergency Medicine, College of Medicine, University of Florida, Gainesville, Florida 32610 USA; Department of Public Health Sciences, School of Medicine, University of Virginia, Charlottesville, Virginia 22903 USA; [rkv4fp@virginia.edu](mailto:rkv4fp@virginia.edu);

 <https://orcid.org/0000-0003-1079-5313>

<sup>d</sup> Marta D. Hansen, Department of Health Outcomes & Biomedical Informatics, College of Medicine, University of Florida; 1889 Museum Road; Gainesville, Florida 32611 USA; [m.hansen1@ufl.edu](mailto:m.hansen1@ufl.edu)

<sup>e</sup> Caterina Alacevich, Department of Health Outcomes & Biomedical Informatics, College of Medicine, University of Florida; 1889 Museum Road, Ste. 7000; Gainesville, Florida 32611 USA; [calacevich@ufl.edu](mailto:calacevich@ufl.edu);

 <https://orcid.org/0000-0003-3931-3103>

<sup>f</sup> Gerard Duncan, Prayers by Faith Ministries; 429 NW 4th Street; Gainesville, Florida 32601 USA; [soil3@hotmail.com](mailto:soil3@hotmail.com);

 <https://orcid.org/0009-0001-9732-0355>

*Additional author bios are on the next page*

we sought a community's preferences for, and perceived facilitators/barriers to, two categories of evidenced-based implementation strategies that increase fruit/vegetable intake and decrease BP. Participants with hypertension and food insecurity ( $N = 32$ ) were recruited from Florida urban zip codes with higher rates of poverty and food insecurity than state and national averages. Five focus groups captured perceptions of three community health worker-led educational services (motivational education session, federal food benefits, local food pantries and events) and five personalized services (in-store education, online recipes, online cooking videos, online cooking classes, transportation). Thematic analyses captured preferences and uptake facilitators/barriers. Participants supported all educational services, particularly the motivational education, noting two facilitators to uptake: *opportunity to learn* and *quality of life improvement*. They also described *access* as a barrier to federal food benefits indicating a need for registration assistance. They noted two barriers to using food pantries and events: *lack of healthy food options* and an *increased feeling of vulnerability* (also a barrier to using in-store education). Regarding personalized services, they preferred recipes and cooking videos (perceived as *feasible opportunities to learn*) and transportation (*reduces burden*). Barriers to online personalized services included *technology* and *inconvenience*. Community input on implementation strategies among adults experiencing food insecurity demonstrated acceptability of educational and personalized services to increase fresh food access. Strate-


gies that promote learning opportunities and feasibility, while protecting social dignity, are preferred.


## Keywords


hypertension, food insecurity, community health workers, low-income communities, implementation strategies, educational services

## Introduction

Uncontrolled blood pressure (BP) is a major predictor of cardiovascular diseases, which is the leading cause of premature deaths in the U.S. (Centers for Disease Control and Prevention [CDC], 2022). Controlling high BP (130 to 179 mm Hg systolic or 80 to 119 mm Hg diastolic) can dramatically reduce the risk of stroke, heart attack, cardiovascular disease (CVD), and kidney damage (American Heart Association, n.d.; American Medical Association [AMA], 2023; CDC, 2025). However, while almost 50% of adults in the U.S. suffer from hypertension, only half of adults with hypertension have controlled blood pressure (BP) (CDC, 2025). In particular, Florida ranks relatively high in hypertension-related hospitalizations and deaths and is one of the worst states for hypertension prevalence (Smith et al., 2018). Compared to the U.S. and Florida, specific urban zip codes (32601, 32609, and 32624) in North Central Florida have higher

<sup>g</sup> Karla P. Shelnett, Department of Family Youth & Community Sciences, Institute of Food and Agricultural Sciences, University of Florida; 1020 McCarty Hall D; Gainesville, Florida 32611 USA; [kpagan@ufl.edu](mailto:kpagan@ufl.edu);  <https://orcid.org/0000-0002-3799-9212>

<sup>h</sup> Carma L. Bylund, Department of Health Outcomes & Biomedical Informatics, College of Medicine, University of Florida; 1889 Museum Road, Ste. 7000; Gainesville, Florida 32611 USA; [carma.bylund@ufl.edu](mailto:carma.bylund@ufl.edu);  <https://orcid.org/0000-0002-9335-1496>

<sup>i</sup> Grant Harrell, Department of Community Health and Family Medicine, College of Medicine, University of Florida; 1889 Museum Road; Gainesville, Florida 32611 USA; [gharrell@ufl.edu](mailto:gharrell@ufl.edu);  <https://orcid.org/0000-0001-9895-2373>

<sup>j</sup> Steven M. Smith, Department of Pharmaceutical Outcomes & Policy, College of Pharmacy, University of Florida; 1889 Museum Road, Suite 6300; Gainesville, Florida 32611 USA; [ssmithm@ufl.edu](mailto:ssmithm@ufl.edu);

 <https://orcid.org/0000-0002-0201-839X>

<sup>k\*</sup> *Corresponding author:* Carla L. Fisher, Department of Health Outcomes and Biomedical Informatics, College of Medicine, University of Florida; 1889 Museum Road, Room 7019; Gainesville, FL 32611 USA; [carlafisher@ufl.edu](mailto:carlafisher@ufl.edu);

 <https://orcid.org/0000-0003-3903-4278>

## Funding Disclosure

This work was supported by the University of Florida Clinical and Translational Science Institute, which is supported in part by the NIH National Center for Advancing Translational Sciences under award number UL1 TR0014274 (MPI Staras/Fisher).

## Disclosures

The authors report no conflicts of interest.

rates of CVD-related deaths and emergency care visits for hypertension (Kind & Buckingham, 2018; WellFlorida Council, 2020). Localized, community-based efforts are needed to educate and implement BP control strategies to reduce CVD risks and promote health.

Strategies to control BP include recommendations to consume diets rich in fruits and vegetables due to their effectiveness in reducing systolic and diastolic BP (Gay et al., 2016; Hu et al., 2020; Lichtenstein et al., 2021). However, patients living in underserved areas have limited opportunities to achieve dietary improvements due to barriers such as food insecurity (i.e., a lack of “access to enough food for an active, healthy life”) (Coleman-Jensen et al., 2022, p. iv), limited transportation to access fresh foods, and gaps in nutritional knowledge skills (e.g., reading food labels, preparing healthy meals, meal planning, stretching food dollars) (Egan et al., 2020; Hastings et al., 2021; Johnson et al., 2022). Specifically, areas of East Gainesville located within North Central Florida experience higher rates of people living below poverty (32601 = 46%, 32609 = 22%, and 32641 = 29%) compared to the state (12%) and nation (12%) (University of Florida Health, n.d). Regarding food insecurity, the census tract of zip codes located in Gainesville, Florida, are considered high vulnerability and rank 69<sup>th</sup> on the national vulnerability percentile (The U.S. Climate Vulnerability Index). The focus zip codes have an especially high need, with food insecurity index (range from 0 indicating low need to 100 indicating high need) of 88% for 32601, 89% for 32609, and 98% for 32641 (University of Florida Health, n.d.). This population also includes a greater percentage of households (11%) that do not have a vehicle compared to the national average (9%) (Maciag, 2014). While federal and local programs exist to reduce food insecurity and fill education gaps, localized tailoring and infrastructure support are needed to effectively reach disadvantaged populations.

Community-based programs to increase knowledge, skills, and participation in healthy food practices are more impactful when adapted to the people and culture the resource intends to serve (Kreuter et al., 2012). Implementation should be informed by the intended audience’s lived experi-

ences and insights to promote acceptability of the health information and promote intervention success (Kreuter & McClure, 2004). For example, participation in federal nutrition assistance programs aimed at improving food security, such as the Supplemental Nutrition Assistance Program (SNAP), can increase food access and decrease consumption of unhealthy foods (Todd & Ver Ploeg, 2014). However, SNAP alone has limited effectiveness because individuals may increase intake of less healthy foods if they (1) cannot reach stores with more healthy options, (2) are unable to reach stores that accept SNAP, (3) are unable to identify eligible healthy foods or lack skills needed to create culturally relevant and healthy meals, and (4) if unhealthy foods remain the most affordable option (Gregory et al., 2013; Hastings et al., 2021; Larson et al., 2009; McCarthy et al., 2012). Additionally, simply recommending healthy diets (e.g., eat more fruits and vegetables) without strategies aimed at reducing these barriers to improved dietary behaviors has resulted in only modest effects on cardiovascular health, as it ignores the specific needs and cultural priorities of socioeconomically vulnerable populations (Gregory et al., 2013; Hastings et al., 2021).

In our efforts to reduce BP rates among adults living with hypertension and food insecurity in rural East Gainesville, we developed an intervention using two categories of evidence-informed implementation strategies aimed to increase fruit and vegetable intake. The intervention would offer participants educational services (e.g., on how to enroll in SNAP) as well as personalized services (e.g., providing transportation to a grocery store). Additionally, the educational and personalized services would be implemented by a community health worker (CHW), modeled after previously successful programs to educate individuals on the utility of food resources like SNAP within the community in which they reside (Rodgers & Purnell, 2012). To further ensure the intervention is community-led, outreach for participation would be facilitated in partnership with a local church known for providing extensive food outreach services in East Gainesville.

Educational services are key to promoting intention. According to evidence informing the

integrated behavioral model, intention is the main predictor of behavioral change with knowledge and skills, salience, and environmental constraints influencing an individual's ability to act on their intentions (Glanz et al., 2008). Additionally, access to federal programs like SNAP is further inhibited by the administrative burden required to complete the forms, which further heightens the importance of educational support for enrollment (Barnes, 2023; Negoita et al., 2024). Thus, the first implementation strategy aims to increase participation in healthy food programs by influencing a participant's intention to increase fruit and vegetable intake by increasing their knowledge by educating them on federal and local food programs (like SNAP or local food pantries). To further promote intention, a motivational educational session about eating healthier to reduce BP would also be included given knowledge informs one's motivation and ability to act. While education services are commonly used in community-led programs, participants' insights on barriers inhibiting their use within the local community in which they live are key to promoting intervention success by culturally targeting the implementation of that service.

The second implementation strategy, personalized services, is less commonly used, yet shows promising improvements in consuming healthy foods, and aimed to engage participants in a more intense, personalized, and supported experience. These included a selection of options to address environmental constraints of food deserts, such as providing transportation weekly (for 1 month) to a grocery store and teaching new nutrition-focused cooking skills via online cooking classes or modified recipes of popular meals (Hasan et al., 2019; Izumi et al., 2023). Given the personalization and therefore expense of these services, prioritizing which services to use within a specific community and how to adapt them culturally must be led by the voices of the community stakeholders.

Both educational and personalized services may collectively help adults with hypertension and food insecurity living in low-income communities develop nutritional knowledge and skills central to engaging in healthier eating practices. The community should be the leading voice in identifying factors that promote/inhibit feasibility, acceptability,

and appropriateness of the CHW-led implementation strategies. To promote implementation success, we explored adults' acceptability of the implementation strategies within each category (education and personalized services) prior to implementation to identify facilitators/barriers that may impact the success of each strategy to adapt the intervention to target the distinct needs of the East Gainesville community.

### **Applied Research Methods**

To capture the unique perspectives and voices of the intended audience for the intervention, we used an interpretive design with a focus group interview method with thematic analysis. A focus group approach is ideal when participants share cultural knowledge. Shared language and connections can contribute to exchanges that further illustrate and reflect the lived social realities of that community, which is key to ensuring the implementation strategies are "anchored" in cultural knowledge (Hughes & DuMont, 2002).

### **Recruitment**

We recruited adults meeting the following inclusion criteria: (1) living in zip codes 32609, 32601, or 32641 (low-income East Gainesville communities); (2) identified as experiencing food insecurity (evaluated with self-report of eligibility for "the Supplemental Nutrition Assistance Program, a federal food purchase program also referred to as SNAP"); and (3) self-reported diagnosis with hypertension or high BP. To recruit individuals, we partnered with a local pastor and church [G.D.] and used a community-centered approach, which included attending multiple community events serving adults living in those zip codes as well as the church's food distribution events. To reduce burden, enhance comfort, and promote enrollment, participants at events (1) could complete a screening using an iPad, (2) immediately schedule for a focus group interview at a time convenient for them, and (3) later participate in the focus group interview at our community partner's church.

### **Procedures**

A health behavior scientist with qualitative expertise [C.F.] led the development of a semi-struct-

tured guide to capture perspectives on the two evidence-based implementation strategies that can promote fruit and vegetable intake and reduce BP. The guide was co-developed and reviewed by members of the multi-disciplinary team [C.B., A.M., M.H., S.S., K.S., G.D.] to ensure methodological congruence and cultural appropriateness. Focus group interviews were moderated by a sociologist with qualitative expertise interviewing culturally diverse populations [A.M.] with assistance from the lead research coordinator [M.H.] [A.M.]. Informed consent was conducted on site in a group setting at the beginning of the focus group. Participants had an opportunity to ask one-on-one questions about the consent. Participants were asked about their perspectives on both implementation strategies. For educational services, feedback was solicited on receiving information about (1) SNAP; (2) Fresh Access Bucks (a U.S. Department of Agriculture [USDA]-funded, statewide nutrition incentive program that gives SNAP users one dollar for fresh fruits and vegetables for every SNAP dollar spent); (3) local food pantries and distribution events; and (4) a motivational education session focused on healthier eating and BP reduction. For personalized services, we asked participants about their preferences for receiving (1) free private transportation to the grocery store, (2) modified recipes to popular meals, (3) access to online cooking videos, (4) attending online cooking classes, and (5) having instore education and support from a nutrition expert. The focus group moderator probed participants about their perspectives to better understand strategy preferences central to enhancing implementation. Participants were compensated US\$50 each. Focus group interviews lasted on average 57.85 minutes and ranged from 50 minutes to 1 hour, 5 minutes, 30 seconds. Audio recordings were professionally transcribed, resulting in 128 single-spaced pages of data.

### ***Data Analysis***

A qualitative scientist with expertise in thematic analysis [D.M.D.] led the analysis of data using a constant comparative method (CCM) approach (Corbin & Strauss, 2008; Glaser & Strauss, 2017) which was overseen by the team qualitative meth-

odology expert [C.F.]. A three-step systematic process was used: (1) identify concepts and assign codes in the text, (2) establish patterns and collapse codes to identify themes, and (3) axial code to identify patterns within each theme and further define themes (Corbin & Strauss, 2008). Consensus meetings were held throughout the analytic process to discuss findings while developing and modifying a codebook. Recurrence, repetition, and forcefulness were used as criteria to identify thematic saturation (Owen, 1984). In line with best practices in focus group methodology, the extent of thematic saturation was assessed both within and across focus groups (i.e., at the participant level and focus group level) (Morgan, 1996, 1997). Themes had to have emerged within at least 2 focus groups, and most were found in 3–5 focus groups. To promote rigor, findings were presented and discussed with the entire team of community members and researchers to allow for feedback and further refinement prior to dissemination (Morse et al., 2002). To present findings, rich data exemplars are included and identified by the focus group interview participated in (e.g., FG1) and participant number (e.g., P1) to demonstrate breadth of saturation in findings (Morse et al., 2002).

### **Results**

A total of 32 hypertensive, food-insecure adults living in East Gainesville, Florida, participated in one of five focus group interviews (4–9 participants in each group). The majority of participants identified as Black (84.3%). Participants' highest educational attainment varied: 31.3% had a high school diploma or general educational development (GED), 15.6% reported some high school education, 6.3% completed vocational trade or business school, 28.1% reported some college credit, and 6.3% had a bachelor's degree. Full demographics are in Table 1.

Participants' insights on each service within each category of services (educational or personalized) are reported below with exemplar quotes to illustrate findings. Factors (facilitators and barriers to utilization and/or implementation) are presented for each service and identified in italics (see also Table 2).

### *Educational Services*

Participants reported acceptance of all educational services. They viewed each service as learning opportunities that promote their ability to increase fruits and vegetables in their diet. However, they also identified multiple barriers for all but one service (motivational education session). These are reported below in italics for each service to illustrate key considerations in refining the intervention prior to implementation.

#### *SNAP and Fresh Access Bucks*

Participants reported the same two barriers to using SNAP and Fresh Access Bucks: *access* and *financial* constraints. Although they had a high awareness of SNAP and interest to learn more, participants described challenges with accessing the benefits of SNAP, including eligibility issues, getting denied from the program, and/or losing benefits due to life changes:

Some of the barriers [to get SNAP] is that your household income [is] over what they put on you qualify for ... because like I said, I get disability, but I work part-time. And once I got the job, I could not get any food stamps even though it's four [of us]. (FG1, P2)

They also shared that the SNAP application process inhibited their access to the benefit. This was related to several access barriers including a lack of technology to complete the application, difficulty filling out the entire application correctly, and privacy concerns with submitting the application.

A lot of people ain't educated with SNAP. ... They don't read. ... It tells you everything that you need to put down, like you making \$2,000 a month, but your bill's \$4,000, you need to

**Table 1. Demographic of Participants**

	Number	Percent
<b>Age (Range: 39–75)</b>	39–75	
30-49	4	12.50%
50-64	12	37.50%
65+	14	43.75%
Unknown	2	6.25%
<b>Gender</b>		
Male	9	28.00%
Female	23	72.00%
<b>Race/Ethnicity</b>		
Non-Hispanic White	2	6.25%
Non-Hispanic Black	27	84.30%
Non-Hispanic Multiracial	2	6.25%
Other	1	3.20%
<b>Marital Status</b>		
Never married	10	31.25%
Married	4	12.50%
Separated	2	6.25%
Divorced	8	25%
Widowed	8	25%
<b>Highest Educational Attainment</b>		
9–12 grade, no diploma	5	15.63%
High school graduate or GED	10	31.25%
Vocational, trade, or business school program	2	6.25%
Some college credit, no degree	9	28.13%
Associate's degree	4	12.50%
Bachelor's degree	2	6.25%

put that on there. ... And that's how people mess up when they be applying for stamping .... 'cause a lot of people, they rush through it. (FG4, P3)

Additionally, while participants were interested in learning more, they described a low awareness of Fresh Access Bucks. They also noted multiple access barriers to being able to use the program. Access challenges were tied to not being able to get to and from local farmers markets due to unreliable transportation, time constraints (e.g., the markets are held certain days or hours), and that the locations were too far away: "But there's always trans-

**Table 2. Participants' Perspectives of Barriers and Facilitators to Implementation Strategies**

Implementation Strategies	Barriers	Facilitators
<b>Educational Services</b>		
SNAP and Fresh Access Bucks	Access Challenges* (e.g., eligibility being denied; complicated application to navigate)  Financial Constraints* (e.g., benefits not enough; farmer's market more expensive)	Learning Opportunity* (e.g., promote ability to increase fruits and vegetables)
Food Pantries and/or Distribution Events	Access Challenges* (e.g., lack of transportation or location too far)  Lack of Healthy Options (e.g., little or no healthy options at events)  Vulnerability* (e.g., not wanting to show need openly; concerns of stigma)	Learning Opportunity* (e.g., wanting to learn more about events or pantries available)
Motivational Education Session		Learning Opportunity* (e.g., promote skill development and quality of life)
<b>Personalized Services</b>		
Modified Recipes of Popular Meals	Access Challenges* (e.g., if only offered electronically would need technology)	Learning Opportunity* (e.g., needing knowledge on how to make cooking habit changes like food substitutions)  Feasible/Convenient* (e.g., do on own time at home)
Transportation Support		Feasible/Convenient* (e.g., lessened stress and burden of transportation barriers they coped with daily)  Lessens Financial Constraints (e.g., save money on gas or car repairs; buffered financial insecurity stress)
Access to Online Cooking Videos	Access Challenges* (e.g., needing internet)	Learning Opportunity* (e.g., gain new ideas and cooking habits)  Feasible/Convenient* (e.g., do on own time at home)  Family Engagement (e.g., more fun, multi-generational activity, and enhances acceptance of adopting food habit changes)
Online Cooking Class	Access Challenges* (e.g., needing computer, internet, Zoom knowledge)  Feasible/Convenient* (e.g., scheduling challenges)	Learning Opportunity* (e.g., learning skills like moderation or portion control )
In-store Nutrition Education	Vulnerability* (e.g., infringement on dignity and control)	Learning Opportunity* (e.g., helpful to learn about food from expert)

\* Barrier/facilitator described for multiple implementation strategies

portation [challenges] with me. I would love to do something like that, but I'm on foot half the time" (FG2, P6).

Participants also identified *financial* related constraints to using these federal and state food programs. Regarding SNAP, they explained how the benefits were not enough to really help them financially. They shared their difficulty in buying healthy foods because they were more expensive: "[ $\$23$ /month] don't carry you through a day. ... You go to the store, you buy coffee, bread and butter, you're done" (FG3, P1). Similarly, although Fresh Access Bucks was meant to increase the purchasing power of SNAP, healthy food options were even more expensive at farmers markets. As such, participants at times described avoiding farmers markets altogether:

I've seen it, but I've never participated with it. Because usually I don't spend my food stamps at the farmers market, because the farmers market is so high. Yes, you're getting mostly organic, fresh fruits, vegetables, but you're paying through the nose for them. (FG5 P2)

#### *Food Pantries and Distribution Events*

Participants also described having a high awareness and high interest to learn more about food pantries and events, but like SNAP and Fresh Access Bucks, they identified *access* as a barrier. Their access to these services were impeded because they had unreliable means of travel, and the food events were at times too far away or inconvenient:

On the news, it will tell you where it's gonna be, what the hours and stuff is. And sometimes, a lot of times, they're way out of the way. You gotta have transportation. You gotta have a way to haul it. If that's not convenient for you. (FG4, P1)

They also shared an additional barrier inhibiting their use of food events. They shared that the events and pantries *lack healthy options*: "A lot of times they don't have a lot of healthy food as well. But you get what you can get" (FG1, P2). As such, they were less willing or motivated to attend:

It doesn't look like your normal meat would look. It's brownish. ... That stresses me out because not only do we waste our time and their time and food, but what's the point of doing it if the food isn't edible? (FG3, P2)

Participants also disclosed an additional barrier to utilizing food pantries and events: *vulnerability*. Going to the events made them feel vulnerable or uncomfortable. They also shared that some individuals may not want to take anything for free or show their need so openly, possibly fearing stigma or judgement:

With a lot of people, they have too much pride. ... They don't want nobody to see them get in line, but they rather come knock on your door [and say], "Can I get a [food]?" because they know we are not going to say anything. (FG4, P4)

#### *Motivational Educational Session*

Participants were especially positive about motivational education as a service and did not report any perceived barriers to this service. Rather their positive perceptions centered on how this service promoted healthy nutrition changes by providing them with a *learning opportunity* interconnected with their internal motivations. They shared that this type of interaction with a CHW would concurrently promote skill development and quality of life:

We need motivation. Sometimes, I need motivation. It depends on what's going on in life, and you look strong, and then sometimes it's like, "Oh, I give up," and then, you need some[one] encouraging one thing that might spark you. (FG3, P5)

Some participants also identified an internal motivation of wanting a better quality of life that could be discussed in the motivational session. They reported wanting to make changes to lower their BP and lose weight because it would help them live a longer or higher quality of life: "I was tired of just feeling bad all the time and not knowing why. I know now it's high blood

pressure, but I just wanted more days of not feeling so bad” (FG3, P2).

### *Personalized Services*

Participants also shared how each personalized service could help or hinder (facilitators/barriers) their nutrition behavior changes to reduce hypertension. They also indicated which services they most preferred, which were (1) modified recipes of popular meals, (2) transportation support, and (3) access to online cooking videos. Participants’ perspectives of barriers and facilitators to their use of each service are reported below, beginning with the three most preferred services.

#### *Modified Recipes of Popular Meals*

Participants were especially fond of having modified recipes of meals they typically enjoy. They shared that this strategy was perceived to be a *learning opportunity* they needed to know how to implement the nutrition changes on their own. They described how this service would help them learn how to cook more nutritionally rich foods by learning about substitutions, like other seasonings for salt: “That would help me see what I’m doing now, as opposed to what I really should be doing, and I could make the adjustment” (FG4 P4). They also indicated that having this resource made nutritional changes easier as the resource was *feasible/convenient* because they could use the recipes on their own time. Related to this, participants identified a barrier that might counteract the convenience of the service: *access* related to technology. They wanted to make sure it was not just accessible electronically, as that would require a computer and internet access, which not everyone had. They stressed the importance of providing it in both electronic and hard copy form: “Everybody don’t have access to computers and all that type of stuff. That would be easier ... to get a handout” (FG2, P6). Interestingly, participants also identified how technology—specifically social media—may promote their willingness to use the recipes:

[Have a] Facebook group and a daily recipe. You get the choice to participate ... [and share] how it turned out or [share] reviews. [It] would be fun. ... That’s gonna make people

engage in it because then it turns fun! (FG3, P2)

#### *Transportation*

Like modified recipes, participants shared how a transportation service facilitated their adoption of healthier eating habits by making grocery shopping more *feasible/convenient*. This service helped mitigate transportation barriers they faced daily. They either had to walk to get groceries or utilize an unreliable vehicle. However, this service could be perceived as less feasible and convenient if they did not believe the driver was safe or logistics of using the service were not ideal. For instance, they wanted to be able to communicate directly with the driver in case someone was running late or needed to cancel, and they did not want to share rides:

[If] it’s more than you on there, they go all the way around the world and drop off different people. When you think, “Well, I’m on the way.” But they go drop off. ... It might be two or three hours before you get home. (FG5, P4)

Participants also described that a transportation service to the grocery store helped mitigate another barrier to healthy eating: it could buffer their *financial* constraints. They shared that having free transportation could save them money on gas and/or car repairs. It is noteworthy that participants associated both benefits of the service (feasibility/convenience and reduced financial constraints) as buffering them from stress, which they further linked to enhancing their well-being:

- P3: You [don’t] have to depend on nobody ’cause you know somebody coming and you know you got a way back. You don’t have to worry about no car. You don’t have to worry about its breaking down on you. ... You don’t have to worry about those things. And it’s less stress. Because when you’re stressed, guess what [your] blood pressure [gonna be].
- P2: Your blood pressure goes up.
- P4: Then too a lot of people—
- P2: Worry.
- P4: [And] Don’t do nothing for nothing no

more. You got to come out of your pocket to pay. “Give me five dollars, I’ll take you to the store.” People don’t have that.

P3: Those are stressors. (FG4, P3)

#### *Access to Online Cooking Videos*

Like transportation and modified recipes, participants perceived having access to online cooking videos as promoting the *feasibility/ convenience* of engaging in healthier eating. They liked the fact that they could utilize this resource on their own time in the comfort of their home, though they also acknowledged that *access* may be more restricted given technology barriers previously identified (needing internet and computer or electronics). Still, they viewed these videos as an important *learning opportunity* that could expand their “cooking horizons” with new and different ideas and promote sustained changes in their cooking habits:

Maybe you’ll learn portion sizes because if it tastes good, it’s gone. But there’s so many things we probably don’t realize if we just do a different portion or put different foods together that can help each other too because I don’t know anything about the—no offense, I just eat it. I don’t know the healthy parts of it. That’s so rude, kind of ignorant of me to say, but I don’t know the healthy aspects really. I just know it tastes good. We need it to survive. So, the healthy aspects of [the food item]. I could even educate my children. (FG3, P2)

Additionally, this was the only service participants aligned with promoting *family engagement*, which they described as promoting their behavior change by making it more fun for multiple generations. They also noted that the information on nutrition changes may be better received in that way:

I think with something like that for them to sit and watch would definitely benefit the kids as well. Those that are interested in seeing without Grandma having to tell them. Sometimes when they hear it from someplace else, it registers better. ... I’d love to sit down and watch

that with my great grand. (FG4, P4)

Some participants expressed hesitancy (“I like soul food—how I cook my own food” FG2, P1) and stressed that it was still important that quality of the meals cooked in the videos, which was also tied to their culture, not be sacrificed.

#### *Online Cooking Class*

Participants also viewed online synchronous cooking classes as a *learning opportunity* to learn new cooking skills like moderation and portion control. They also perceived that the classes would be fun and engaging and teach them critical skills in line with what was mentioned for online cooking videos, like substitutions or portion control: “Hopefully I could find something there that will teach me how to use spaghetti squash without using all the butter” (FG5, P3). However, they also mentioned multiple barriers that would inhibit their ability to utilize the service that were related to *access* and *feasibility/ convenience*. Access constraints included needing a computer and internet, and how to use Zoom: “The majority don’t have Zoom and don’t know how to use it. So, you might have to have a lesson and 101 classes with teaching them how to get into the Zoom and download” (FG2, P3). Participants also highlighted the lack of feasibility related to scheduling and time and questioned whether there was even a need to be cooking with someone: “We know how to cook” (FG4, P2).

#### *In-Store Nutrition Education*

Similar to all the education-based personal services above, participants liked in-store education viewing it as *learning opportunity*. They discussed how it would be helpful to learn about healthy food options from someone with expertise:

You would want to hear something from someone that’s educated enough to direct you in that direction of bettering your health. (FG1, P2)

Well, I definitely need somebody, because I have high blood pressure. So, I got to definitely learn how to really kind of shop, because all I get is really like fast food and that’s really

not good for you when [you have] high blood pressure. You have to learn how to change your diet. I gotta learn how to shop, right? (FG1, P3)

However, participants also described hesitancy or resistance to utilizing this service, which was informed by a sense of *vulnerability*. They described a sense of infringement to their dignity and control. They described how having someone shop with them would “be intimidating a little bit...,” and they could feel “stuck in it” (FG3, P2):

If they’re telling me, “No, you can’t buy that” versus “Do you really think that’s a healthy choice?” It’s not necessarily what you say, it’s how you say it. If they’re there for you and that kind of stuff, great. But if you’re there to tell me what I can and cannot buy, even though it might be something I know is bad for me, I want it anyways [and] I’m gonna get it. When you reach my age, you don’t like to be told what you can and cannot do. (FG5, P2)

## Discussion

Our findings illustrate that adults living with hypertension amid food and economic insecurity are not only receptive to education and personalized community-led strategies to enhance their ability to eat more fruits and vegetables, but are also eager for support. Interventions informed by these findings are imperative to counteract the numerous barriers in their personal lives and community environment that consistently impede their ability to eat healthy—habits critical to controlling their hypertension, which in the long term can reduce hypertension-related mortality and morbidity. While these findings inform our ability to refine both education and personalized implementation strategies for the East Gainesville CHW-led intervention, the results also highlight patterns that likely point to several important factors for dissemination in similar communities living with food insecurity.

### *Valuing Feasible/Convenient Learning Opportunities*

Participants in our study consistently reported positive perceptions of multiple services because they

valued it as a learning opportunity. They recognized their need to develop new cooking skills, like portion control and substitutions. This education is key to promoting their intention to engage in the nutrition behavior changes (Glanz et al., 2008). While multiple educational and personalized services were received positively and valued as learning opportunities, participants identified noteworthy barriers to utilizing some of the services, which would inhibit their ability to develop nutrition knowledge and skills critical to promoting intention during the intervention. To ensure utility and promote uptake, participants reported that the learning opportunities had to also be perceived as accessible and feasible/convenient, which is in line with previous research on food insecurity across cultures (Andriessen & van der Velde, 2024; Dailey et al., 2015; Remley et al., 2010). Those services that were valued as accessible learning opportunities as well as being feasible and/or convenient included modified recipes, the motivational session, and online cooking videos.

Findings also help highlight key barriers that can inhibit access and feasibility/convenience. These factors must be addressed prior to implementation to reduce the burden adults experiencing food insecurity face in “accessing food [which] is a full-time job” (Booth et al., 2018). First, place is important. For instance, resources should be easily accessible at home and in both paper and electronic form. Additionally, food events should be within walking distance. Given this is also challenging, an innovative solution may be mobile markets, which can be parked within targeted neighborhoods. A recent randomized trial in a similar lower income population in North Carolina demonstrated mobile markets were successful in increasing fruit and vegetable intake (Leone et al., 2018). Second, time should be considered. For example, the resource should be accessible at any time, drivers supporting transportation should be punctual, and food events should be offered during convenient times.

Finally, economic factors are critical. Evidence informing the highly influential health impact pyramid framework for interventions demonstrates that economic factors warrant the most attention given changes at this level reach more of our population while alleviating burden on the individuals the

intervention is meant to support (Frieden, 2010). Moreover, opportunities to reduce financial constraints can also reduce personal distress that comes with financial insecurity. This may include (1) having support for gas or transportation services; (2) providing resources like online videos and recipes for free without requiring internet/computer access (e.g., having videos on a free app accessible via cell phone or providing videos on a DVD or CD; having a hard copy of recipes with visuals); and (3) offering recipes that do not require a lot of ingredients, and, thus, additional expense. Some of these considerations support previous research including having extended service hours, access to free transportation, and more online resources (Andriessen & van der Velde, 2024; Booth et al., 2018). Findings also indicate additional economic constraints that require attention at the local or federal policy level. For instance, “benefit cliffs” further impede access to resources needed to support adults’ ability to reduce hypertension through food and vegetable intake, which was reflected in the findings when adults lost SNAP benefits given an increase in the income in the midst of still needing this support (Walker, 2024).

### *Reducing Vulnerability by Promoting Dignity and Community*


In addition, our findings highlight the importance of promoting dignity and community through the services. A recent study showed that food insecure adults experience “eroded dignity,” which results in not having choices (e.g., pantries with unhealthy items) and having to receive food in public places such as food lines for distribution as opposed to culturally appropriate or social occasions (e.g., Sunday meals, neighborhood barbecues) (Booth et al., 2018). That study also showed that adults felt “grateful yet resigned” in that they were grateful for the service yet resigned to the poor quality or unmet food needs (Booth et al., 2018).

Adults in our study mirror these findings. They indicated resistance to at least two services (in-store education and food events/pantries) because it required a sense of vulnerability that is likely tied to concerns of their human dignity being threatened. For instance, adults were concerned about an in-

store educator infringing on their choices. In addition, they mentioned feeling resigned to food events because they provided something but also frustrated given items were unhealthy or spoiled. They also shared that some individuals don’t use the services potentially due to shame or stigma. It is also noteworthy that the majority of our population were Black (84.3%) and women (72%). Stigma-related concerns are especially heightened for Black women who historically have been stigmatized in the U.S. using epithets initially used by the government that continue to increase their vulnerability and persist in inhibiting Black women’s access to government resources and healthy food choices (de Souza, 2024; Mattingly et al., 2021).

Our findings support Booth et al.’s (2018) work, which was based in a notably different culture (inner city Perth, Australia). Collectively, this suggests the generalizability of the finding that services promote choice (e.g., healthy food options; options to still cook their favorite meals but with healthy substitutions), as well as a sense of community versus contributing to (although not intentional) shame. In our study, participants wanted more connection by having options to foster that togetherness within their family (e.g., through online cooking videos) as well as within their community (e.g., having social media to share cooking experiences and recipe reviews with other adults living with food insecurity and hypertension). Food events centered around social events or community gatherings can also further promote a sense of community connection as can having a CHW-led intervention, which can be an additional strategy to protect human dignity and promote connection and community.

### **Conclusions**

Our participants represent an urban, Southern, and predominantly Black community. While it is important that some of our findings map on to other studies of food insecurity in the U.S., our findings also align with evidence from cultures outside of the U.S. (e.g., Australia). Individuals want to learn how to eat healthier and are eager for educational resources. Access resources are also desired; however, caution in maintaining dignity and limiting vulnerability is needed. 

## References

- American Heart Association. (n.d.). *Understanding blood pressure readings*. Retrieved August 8, 2025, from <https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings>
- American Medical Association [AMA]. (2023). *Hypertension: What is high blood pressure?* Retrieved August 8, 2025, from <https://www.ama-assn.org/delivering-care/hypertension/what-high-blood-pressure>
- Andriessen, T., & van der Velde, L. A. (2024). How the social dignity of recipients is violated and protected across various forms of food aid in high-income countries: A scoping review. *Agriculture and Human Values*, 41, 363–379. <https://doi.org/10.1007/s10460-023-10476-w>
- Barnes, C. (2023). “I can’t get ahold of them”: Perceptions of administrative burden and administrative exclusion across SNAP, WIC, and Medicaid during the COVID-19 pandemic. *The ANNALS of the American Academy of Political and Social Science*, 706(1), 118–136. <https://doi.org/10.1177/00027162231201759>
- Booth, S., Begley, A., Mackintosh, B., Kerr, D. A., Jancey, J., Caraher, M., Whelan, J., & Pollard, C. M. (2018). Gratitude, resignation and the desire for dignity: Lived experience of food charity recipients and their recommendations for improvement, Perth, Western Australia. *Public Health Nutrition*, 21(15), 2831–2841. <https://doi.org/10.1017/s1368980018001428>
- Centers for Disease Control and Prevention [CDC]. (2022). *About multiple cause of death, 1999-2020*. CDC WONDER. Retrieved August 8, 2025, from <https://wonder.cdc.gov/mcd-icd10.html>
- CDC. (2025, January 28). *High blood pressure facts*. <https://www.cdc.gov/high-blood-pressure/data-research/facts-stats/index.html>
- Coleman-Jensen, A., Rabbitt, M. P., Gregory, C. A., & Singh, A. (2022). *Household food security in the United States in 2021* (Report ERR-309). U.S. Department of Agriculture, Economic Research Service. <https://www.ers.usda.gov/publications/pub-details?pubid=104655>
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research (3rd ed.): Techniques and procedures for developing grounded theory*. SAGE. <https://doi.org/10.4135/9781452230153>
- Dailey, A. B., Hess, A., Horton, C., Constantian, E., Monani, S., Wargo, B., Davidson, K., & Gaskin, K. (2015). Healthy Options: A community-based program to address food insecurity. *Journal of Prevention & Intervention in the Community*, 43(2), 83–94. <https://doi.org/10.1080/10852352.2015.973248>
- de Souza, R. (2024). Women in the margins: A culture-centered interrogation of hunger and “food apartheid” in the United States. *Health Communication*, 39(9), 1855–1865. <https://doi.org/10.1080/10410236.2023.2245206>
- Egan, B. M., Li, J., Sutherland, S. E., Jones, D. W., Ferdinand, K. C., Hong, Y., & Sanchez, E. (2020). Sociodemographic determinants of Life’s Simple 7: Implications for achieving cardiovascular health and health equity goals. *Ethnicity & Disease*, 30(4), 637–650. <https://ethndis.org/archive/files/ethndis-30-637.pdf>
- Frieden, T. R. (2010). A framework for public health action: The health impact pyramid. *American Journal of Public Health*, 100(4), 590–595. <https://doi.org/10.2105/AJPH.2009.185652>
- Gay, H. C., Rao, S. G., Vaccarino, V., & Ali, M. K. (2016). Effects of different dietary interventions on blood pressure: Systematic review and meta-analysis of randomized controlled trials. *Hypertension*, 67(4), 733–739. <https://doi.org/10.1161/hypertensionaha.115.06853>
- Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2008). *Health behavior and health education: Theory, research, and practice* (4th ed.). Jossey-Bass/Wiley. <https://psycnet.apa.org/record/2008-17146-000>
- Glaser, B. G., & Strauss, A. L. (2017). *Discovery of grounded theory: Strategies for qualitative research*. Taylor & Francis Group.
- Gregory, C., Ver Ploeg, M., Andrews, M., & Coleman-Jensen, A. (2013). *Supplemental Nutrition Assistance Program (SNAP) participation leads to modest changes in diet quality* (ERR-147). AgEcon Search. <https://doi.org/10.22004/ag.econ.262225>
- Hasan, B., Thompson, W. G., Almasri, J., Wang, Z., Lakis, S., Prokop, L. J., Hensrud, D. D., Frie, K. S., Wirtz, M. J., Murad, A. L., Ewoldt, J. S., & Murad, M. H. (2019). The effect of culinary interventions (cooking classes) on dietary intake and behavioral change: a systematic review and evidence map. *BMC Nutrition*, 5, Article 29. <https://doi.org/10.1186/s40795-019-0293-8>
- Hastings, J., Kessler, R., & Shapiro, J. M. (2021). The effect of SNAP on the composition of purchased foods: Evidence and implications. *American Economic Journal: Economic Policy*, 13(3), 277–315. <https://doi.org/10.1257/pol.20190350>

- Hu, E. A., Steffen, L. M., Coresh, J., Appel, L. J., & Rebholz, C. M. (2020). Adherence to the Healthy Eating Index–2015 and other dietary patterns may reduce risk of cardiovascular disease, cardiovascular mortality, and all-cause mortality. *The Journal of Nutrition*, *150*(2), 312–321. <https://doi.org/10.1093/jn/nxz218>
- Hughes, D. L., & DuMont, K. (2002). Using focus groups to facilitate culturally anchored research. In T. A. Revenson, A. R. D’Augelli, S. E. French, D. L. Hughes, D. Livert, E. Seidman, M. Shinn, & H. Yoshikawa (Eds.), *Ecological research to promote social change: Methodological advances from community psychology* (pp. 257–289). Springer. [https://doi.org/10.1007/978-1-4615-0565-5\\_11](https://doi.org/10.1007/978-1-4615-0565-5_11)
- Izumi, B. T., Gonzalez, L. A., Ness, S., & Messer, L. C. (2023). Feasibility of using rideshare transportation to reduce barriers to participating in a clinic-based food insecurity intervention. *Progress in Community Health Partnerships: Research, Education, and Action*, *17*(2), 287–294. <https://doi.org/10.1353/cpr.2023.a900209>
- Johnson, A. E., Herbert, B. M., Stokes, N., Brooks, M. M., Needham, B. L., & Magnani, J. W. (2022). Educational attainment, race, and ethnicity as predictors for ideal cardiovascular health: From the National Health and Nutrition Examination Survey. *Journal of the American Heart Association*, *11*(2), Article e023438. <https://doi.org/10.1161/jaha.121.023438>
- Kind, A. J. H., & Buckingham, W. R. (2018). Making neighborhood-disadvantage metrics accessible—The Neighborhood Atlas. *New England Journal of Medicine*, *378*(26), 2456–2458. <https://doi.org/10.1056/NEJMp1802313>
- Kreuter, M. W., Fernandez, M. E., Brown, M., Cofta-Woerpel, L., Pfeiffer, D., Adams-Piphus, B., Krebill, H., Gonzalez, D. A., Campos, D. M., Kirklin, G. T., Betsworth, S., Casey, C., & Luke, D. (2012). Increasing information-seeking about human papillomavirus vaccination through community partnerships in African American and Hispanic communities. *Family and Community Health*, *35*(1), 15–30. <https://doi.org/10.1097/FCH.0b013e3182385d13>
- Kreuter, M. W., & McClure, S. M. (2004). The role of culture in health communication. *Annual Review of Public Health*, *25*, 439–455. <https://doi.org/10.1146/annurev.publhealth.25.101802.123000>
- Larson, N. I., Story, M. T., & Nelson, M. C. (2009). Neighborhood environments: Disparities in access to healthy foods in the U.S. *American Journal of Preventive Medicine*, *36*(1), 74–81. <https://doi.org/10.1016/j.amepre.2008.09.025>
- Leone, L. A., Tripicchio, G. L., Haynes-Maslow, L., McGuirt, J., Grady Smith, J. S., Armstrong-Brown, J., Gizlice, Z., & Ammerman, A. (2018). Cluster randomized controlled trial of a mobile market intervention to increase fruit and vegetable intake among adults in lower-income communities in North Carolina. *International Journal of Behavioral Nutrition and Physical Activity*, *15*, Article 2. <https://doi.org/10.1186/s12966-017-0637-1>
- Lichtenstein, A. H., Appel, L. J., Vadiveloo, M., Hu, F. B., Kris-Etherton, P. M., Rebholz, C. M., Sacks, F. M., Thorndike, A. N., Van Horn, L., & Wylie-Rosett, J., on behalf of the American Heart Association Council on Lifestyle and Cardiometabolic Health; Council on Arteriosclerosis, Thrombosis and Vascular Biology; Council on Cardiovascular Radiology and Intervention; Council on Clinical Cardiology; and Stroke Council (2021). 2021 dietary guidance to improve cardiovascular health: A scientific statement From the American Heart Association. *Circulation*, *144*(23), e472–e487. <https://doi.org/10.1161/cir.0000000000001031>
- Maciag, M. (2014, December 9). *Vehicle ownership in U.S. cities data and map*. <https://www.governing.com/archive/car-ownership-numbers-of-vehicles-by-city-map.html>
- Mattingly, M. J., Gutierrez, J., Ryder Perlmeter, E., & Wullert, K. E. (2021). It took a pandemic...: Expanded assistance, material hardship, and helping others during the Covid-19 crisis. <https://inequality.stanford.edu/sites/default/files/research/articles/covid-material-hardship.pdf>
- McCarthy, H. N., Cho, E., Jackson, J. K., Sauza, C., Martinez, L. E., & Calderon, L. L. (2012). Barriers to utilization of the Supplemental Nutrition Assistance Program (CalFresh) in Los Angeles County. *Journal of the Academy of Nutrition and Dietetics*, *112*(9, Suppl.), A91. <https://doi.org/10.1016/j.jand.2012.06.331>
- Morgan, D. L. (1997). *Focus groups as qualitative research* (2<sup>nd</sup> ed.). SAGE. <https://doi.org/10.4135/9781412984287>
- Morgan, D. L. (1996). Focus groups. *Annual Review of Sociology*, *22*, 129–152. <https://doi.org/10.1146/annurev.soc.22.1.129>
- Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, *1*(2), 13–22. <https://doi.org/10.1177/160940690200100202>

- Negoita, M., Levin, M., Paprocki, A., & Goger, A. (2024). Administrative burden in older adults: A look at SNAP. *International Journal of Social Welfare*, 33(4), 880–889. <https://doi.org/10.1111/ijsw.12665>
- Owen, W. F. (1984). Interpretive themes in relational communication. *Quarterly Journal of Speech*, 70(3), 274–287. <https://doi.org/10.1080/00335638409383697>
- Remley, D. T., Zubietta, A. C., Lamba, M. C., Quinonez, H. M., & Taylor, C. (2010). Spanish- and English-speaking client perceptions of choice food pantries. *Journal of Hunger & Environmental Nutrition*, 5(1), 120–128. <https://doi.org/10.1080/19320240903574387>
- Rodgers, J. T., & Purnell, J. Q. (2012). Healthcare navigation service in 2-1-1 San Diego: Guiding individuals to the care they need. *American Journal of Preventive Medicine*, 43(6, Suppl. 5), S450–S456. <https://doi.org/10.1016/j.amepre.2012.08.012>
- Smith, S. M., McAuliffe, K., Hall, J. M., McDonough, C. W., Gurka, M. J., Robinson, T. O., Sacco, R. L., Pepine, C., Shenkman, E., & Cooper-DeHoff, R. M. (2018). Hypertension in Florida: Data From the OneFlorida Clinical Data Research Network. *Preventing Chronic Disease*, 15, Article 170332. <https://doi.org/10.5888/pcd15.170332>
- Todd, J. E., & Ver Ploeg, M. (2014). Caloric beverage intake among adult Supplemental Nutrition Assistance Program participants. *American Journal of Public Health*, 104(9), e80–e85. <https://doi.org/10.2105/AJPH.2014.301970>
- U.S. Climate Vulnerability Index, The. (n.d.). *Tract 12001001908, Gainesville, FL*. Retrieved August 8, 2025, from [https://map.climatevulnerabilityindex.org/report/food\\_insecurity/tract-12001001908-gainesville-fl?mapBoundaries=Tract&mapFilter=0&reportBoundaries=Tract&geoContext=State](https://map.climatevulnerabilityindex.org/report/food_insecurity/tract-12001001908-gainesville-fl?mapBoundaries=Tract&mapFilter=0&reportBoundaries=Tract&geoContext=State)
- University of Florida Health. (n.d.). *Community Health Assessment*. Retrieved August 8, 2025, from <https://ufhealth.org/community-health-assessment>
- Walker, J. (2024, October 8). How the benefits cliff traps people in poverty. *Street Sense Media*. <https://streetsensemedia.org/article/how-the-benefits-cliff-traps-people-in-poverty/>
- WellFlorida Council. (2020). *Alachua County community health assessment technical appendix*. <https://www.wellflorida.org/wp-content/uploads/2022/01/Alachua-Technical-Appendix-Final-2020.pdf>