



Managing a Low-Sodium Lifestyle and Dietary Behaviors during COVID-19 for Black Women with Hypertension

Angela Groves, PhD, RN-BC, CNE¹, Asli McCullers, MPH², Emma Mathias², Yendelela Cuffee, PhD, MPH²

¹Western Michigan University, Bronson School of Nursing, Kalamazoo, MI.

²University of Delaware College of Health Sciences, Epidemiology Program, Newark, DE.

ORCID ID: Angela Groves: 0000-0002-4281-7022; Yendelela Cuffee: 0000-0001-7150-0086

Abstract

Purpose: The purpose of this study was to explore how the COVID-19 pandemic impacted Black women's ability to follow a low-sodium diet.

Methods: We conducted a qualitative study to examine how the COVID-19 pandemic impacted Black women's ability to follow a low-sodium diet. A purposive sample was composed of 30 Black women with a self-reported diagnosis of hypertension, aged 18 years and older, living in the Northeast region of the United States.

Results: Themes centered on five areas: (a) social support/social connectedness, (b) changes in salt intake due to the COVID-19 pandemic, (c) social isolation, (d) barriers and facilitators to accessing food, and (e) altered taste perception. Participants emphasized the variations in the social support and connectedness they experienced, along with increased salt and sodium intake, as two crucial factors in managing their diet during the COVID-19 pandemic.

Conclusion: These results indicate that multiple barriers to maintaining a low-sodium diet during the COVID-19 pandemic negatively impacted hypertension self-management among Black women. It is crucial to examine the lingering effects of the pandemic on hypertension management and adherence to a low-sodium diet in this population. As we move beyond the peak of the pandemic, promoting healthy eating habits—significantly reducing sodium and salt intake—remains essential for Black women

Keywords: Black/African American, Low Sodium Diet, Low-Salt, Hypertension, COVID-19, Pandemic

INTRODUCTION

Hypertension has held a longstanding grip on the health of Americans, with 46.7 percent of individuals living with hypertension nationwide. Hypertension is a leading risk factor for cardiovascular diseases such as stroke, heart failure, and coronary heart disease (Tsao et al., 2023). The consequences of structural racism, environmental factors, and disparate access to and quality of health care have contributed to a disproportionate burden of hypertension in the Black community (Virani et al., 2021). Among Blacks in the United States, the rate of hypertension is 55.8% among men and 56.9% among women. The prevalence of developing hypertension is higher among Black women (56.9.9%) compared to Whites (50.2%), Hispanics (51.5%), and Asians (49.7%) (Aggarwal et al., 2021a; Chobufo et al., 2020; Virani et al., 2021). Importantly, Black women are more likely to die from complications related to their blood pressure (37.5%) compared to non-Hispanic white women (19.6%), Hispanics (16.7%), and Asian women (14.9%). Blood pressure control rates are lower among Blacks compared to Whites, Hispanics, and Asians (Aggarwal et al., 2021b). Black men and women are more likely to experience increased risks of

cardiovascular disease resulting from hypertension; black adults have an increased risk of mortality related to stroke and are more likely to experience end-stage renal disease (Ogunniyi et al., 2021).

A known contributor to developing hypertension and poor blood pressure control is dietary salt intake. On average, women consume more than 3,000mg of dietary sodium, more than the USDA recommended daily amount of 2300 mg (U.S. Department of Agriculture and U.S. Department of Health and Human Service, 2020). Blacks consume significantly more salt than the general population (Zhang et al., 2020). Lifestyle changes, such as following a low-sodium diet, have positively affected blood pressure (B.P.). For example, the Dietary Approaches to Stop Hypertension (DASH) diet has been shown to prevent or lower blood pressure (U.S. Department of Health and Human Services; National Institutes of Health; National Heart, Lung and Blood Institute, 2006). Nevertheless, as a health outcome, sodium intake is significantly influenced by social determinants such as residential neighborhoods, food insecurity, and perceived stress. These factors impact the ability of Blacks to maintain lifestyle modifications, including adherence to a low-sodium

diet, which is crucial for managing blood pressure and reducing the risk of cardiovascular disease (Barber et al., 2016; Faye et al., 2021; U.S. Department of Health and Human Services; National Institutes of Health; National Heart, Lung and Blood Institute, 2006; Virani et al., 2021).

Significantly, the COVID-19 pandemic has disproportionately affected Blacks, especially women (Chandler et al., 2021). Socio-economic factors such as poverty, low-wage jobs, unemployment, crowded housing conditions, and lack of access to healthcare have increased the risk of Blacks developing COVID-19 pandemic and complications due to difficulty maintaining social distancing and lack of the ability to self-quarantine (Chandler et al., 2021; State of Michigan, 2020). In addition, the COVID-19 pandemic directly affected individuals' eating habits. For example, individuals report eating due to boredom or increasing eating in response to stress. Other individuals reported increased snacking after dinner (Zachary et al., 2020).

In the current study, the social-ecological model (SEM) was employed to gain an understanding of the impact of COVID-19 on low-sodium dietary behaviors among Black women with hypertension. The SEM posits that health behaviors are influenced by a dynamic interplay of personal and environmental factors across multiple levels, including public policy, community, institutional, interpersonal, and intrapersonal factors (Boutin-Foster et al., 2013). By acknowledging the complexity of these interactions, the SEM provides a comprehensive framework for understanding how different layers of influence contribute to health behaviors (Boutin-Foster et al., 2013; Kris-Etherton et al., 2020).

This study focused on intrapersonal factors to understand what affected these women's ability to maintain a low-sodium diet during the COVID-19 pandemic. Intrapersonal factors, which are intrinsic to the individual, include knowledge, attitudes, beliefs, self-efficacy, and perceived barriers and facilitators (Boutin-Foster et al., 2013). During the COVID-19 pandemic, numerous challenges emerged that could have impacted these factors, such as increased stress levels, changes in routine, financial constraints, and limited access to healthy foods due to lockdowns and supply chain disruptions (Coats et al., 2022; Faye et al., 2021; Holder et al., 2021; Kalinowski et al., 2022; Larson et al., 2021).

Several quantitative and qualitative studies focused on dietary changes during the pandemic (Bernhart et al., 2023; Kibe et al., 2023; Park et al., 2022). However, few studies have explicitly focused on the impact of the COVID-19 pandemic on maintaining a low-sodium diet and the challenges faced by Black women in reducing their intake of dietary sodium during the pandemic. The objective of this study was to explore the impact of the COVID-19 pandemic on adherence to a low-sodium diet among black women with hypertension.

METHODS

Research Design

We conducted a qualitative study to examine how the COVID-19 pandemic impacted Black women's ability to follow a low-sodium diet. We conducted focus groups to explore and understand the women's experiences maintaining a low-sodium diet. The focus group design was the most appropriate method for collecting this data; the focus group provided an opportunity to explore this topic with several groups of women and gain insight into the challenges faced during the pandemic. Focus group conversations yield abundant qualitative data encompassing the intricacies and profound aspects of participants' encounters, convictions, and perspectives concerning hypertension. These discussions provide invaluable insights that surpass the reach of surveys or other quantitative methodologies (Creswell & Creswell, 2018; Krueger & Casey, 2015; Liamputtong, 2011). They enable in-depth explorations of the complex dimensions of hypertension and its ramifications on the lives of Black women. Within these sessions, participants can divulge insights into social, economic, environmental, and psychosocial factors shaping their health behaviors and treatment adherence (Creswell & Creswell, 2018; Krueger & Casey, 2015; Liamputtong, 2011).

Sample/Setting

A select 30 Black women residing in the Northeastern United States constituted the purposive sample. These individuals were recruited from various community outlets, including local food pantries, churches, homeless shelters, and community health centers. The researcher set up an information table at local food pantries and community centers to build rapport with potential participants. These locations were strategically chosen because they are places where community members regularly gather and feel comfortable. By being present in these spaces, the researcher was able to reach a diverse group of potential participants, including those who might not typically engage in research activities. At the information table, the researcher provided detailed information about the study, its purpose, and what participation would involve. This transparency was key in building trust. The researcher encouraged individuals to ask questions, clarify misunderstandings, demonstrate respect and value, and create a connection (Negrin et al., 2022).

Eligible participants were those who self-disclosed a diagnosis of hypertension and were aged 18 years or older. All participants reported being told by a healthcare professional to decrease their intake of foods high in sodium and their intake of salt at some point since being diagnosed with hypertension. Exclusions from the study included pregnant individuals and those with severe speech impairments, profound visual impairments, or profound deafness. Owing to the COVID-19 pandemic, all interviews were conducted exclusively via Zoom.

Procedures

A total of six 60-90-minute focus group sessions consisting of four to eight individuals in each group were utilized as the primary source of data collection in the study from January 2021 to March 2021. Upon completion of six focus group sessions, the researcher determined that no new themes emerged from the analysis of focus group session data. Participants were identified in the tape recordings and allowed to use a pseudonym. To protect confidentiality, identifying information was deleted from the transcript for participants who did not use a pseudonym.

Instruments

A 10-item demographic questionnaire developed by the researcher was completed by the participants prior to focus group sessions. In addition, the research developed an 11-item semi-structured interview guide to gain insight into the participants experiences. The content of the demographic questionnaire and the interview guide was validated by two experts on the subject matter. Both content experts had extensive knowledge and experience with the phenomenon of interest. Both content experts reviewed the demographic questionnaire and the semi-structured interview guide for relevancy and wording of the content in each question, as well as the adequacy of the number of questions. Once the subject matter experts reviewed the questions, the semi-structured interview guide was piloted in December 2020 using a purposive sample of two participants. Both participants met the inclusion criteria and participated in a focus group session. The final focus group interview guide consisted of a 12 questions to guide the main discussion.

DATA ANALYSIS

Audio recordings of the focus group sessions were transcribed verbatim to text by a professional transcription service for analysis. Once the data was transcribed, the

coders read the transcripts to gain familiarity with the information's overall meaning, tone, and depth (Creswell & Creswell, 2018; Denzin & Lincoln, 2005; Jackson & Furnham, 2000). Data was analyzed using content analysis. Through an iterative coding process, three coders read each transcript, highlighting keywords and phrases. After open-coding two transcripts, the researchers decided on preliminary codes. After all the transcripts were coded, the coders confirmed alignment and assigned labels to emerged codes. Codes were then sorted into categories and subcategories. Definitions of each category and subcategory were developed. At this point, the researchers assigned final names to themes and subthemes and wrote up a description of the themes and subthemes (Elo & Kyngäs, 2008; Vaismoradi et al., 2013).

Ethical Considerations

The study proceeded following approval from the Ursuline College Institutional Review Board, IRB # 20-29, whose task is to ensure that research participants are protected from harm. The researcher maintained neither influence nor authority over participants.

RESULTS

The participants' mean age was 56 years and older, accounting for 81.08% of the participants. 27.03% of participants had an Associate degree, 18.92% had a Bachelor's degree, and 8.11% had a Master's degree. 24.32% of the participants were married, and 48.14% were single. 29.73% of the participants had an average household income of \$10,000-\$19,000. A total of 67.57% of the participants lived in an urban area, and 29.73% of the participants were retired. A total of 32.43% of the participants were diagnosed with hypertension ten years or more, and the average self-reported blood pressure was 120/80. Participants reported having their last blood pressure checked in December 2020 (18.92%) and February 2021 (16.22%); see Table 1.

Table 1. Demographic characteristics

Characteristics	N (%)
Age	
26-40	1 (2.7)
41-55	6 (16.22)
≥ 56	30 (81.08)
Highest level of education	
Associate's degree	10 (27.03)
Bachelor's degree	7 (18.92)
Grammar school	1 (2.7)
High school or equivalent	5 (13.51)
Master's degree	3 (8.11)
Some college	9 (24.32)
Vocational	1 (2.7)
Vocational/Some college	1 (2.7)

Managing a Low-Sodium Lifestyle and Dietary Behaviors during COVID-19 for Black Women with Hypertension

Current marital status	
Divorced	7 (18.92)
Living with another	2 (5.41)
Married	9 (24.32)
Single	9 (48.14)
Separated	2 (5.41)
Widowed	4 (10.81)
Current household income (\$)	
10-19K	11 (29.73)
100-150K	1 (2.7)
20-29K	2 (5.41)
30-39K	5 (13.51)
40-49K	4 (10.81)
50-59K	5 (13.51)
70-79K	1 (2.7)
> 150K	1 (2.7)
< 10K	7 (18.92)
Area you live in	
Suburban	12 (32.43)
Urban	25 (67.57)
Health insurance?	
No	1 (2.7)
Yes	36 (97.3)
Primary work status	
Part-time and a Student	1 (2.7)
Retired	11 (29.73)
Full-time	10 (27.03)
Other	7 (18.92)
Part-time	3 (8.11)
Student	1 (2.7)
Unemployed	4 (10.81)
Self reported high B.P.	
2-5 years	8 (21.62)
6-10 years	9 (24.32)
7-12 months	6 (16.22)
> 10 years	12 (32.43)
< 1 month	2 (5.41)
Most current B.P.	
Systolic mean (std)	128.67 (32.89)
Diastolic mean (std)	80.7 (7.8)
Last time you had B.P. checked	
December 2020	7 (18.92)
February 2021	6 (16.22)

Participants recounted their experiences with adhering to a low-sodium diet amidst the COVID-19 pandemic that centered on five themes: (a) social support/social connectedness, (b) changes in salt intake due to COVID-19 pandemic, (c) social isolation, (d) barriers and facilitators to accessing food, (e) altered taste perception. See Table 2 for themes and illustrative quotes.

Table 2. Emergence of themes and illustrative quotes

Themes	Illustrative quotes
Theme I. Social support/Social connectedness	Participant 6 The fact that I live alone, I think it's affecting it too. Cause I did eat less and better when I lived around with people. Participant 22 And I do check-ins with them, leave messages with them. Sometimes they have to go on Facebook and, you know, depending on what type of mood I'm in or however I feel or what they're going through or whatever holiday,
Theme II. Changes in salt intake due to COVID-19 pandemic	Participant 12 but I do add things that have a little salt in it me because I get sick of not having salt at all.
Theme III. Social isolation	Participant 1 Especially when you're isolated, where you're on here by yourself for me. So I'm eating more, I'm spending more.
Theme IV. Barriers and facilitators to accessing food	Participant 11 Um, you know, start looking at different types of needs, um, in terms of prices of what I can afford a lot. I can't afford, I'm eating more, I'm buying more fresh vegetables and um, and so forth. And then utilizing the food bank at the end of the month.
Theme V. Altered taste perception	Participant 13 Been kind of difficult to follow a low salt diet, a low sodium diet. Um, one of the things that did happen while I had COVID is because my sense of taste was not there. I did recognize that I was adding more salt to my food in order to taste it.

THEMES

Social Support/Social Connectedness

Many participants reported a lack of social support/social connectedness from their family and friends due to the need for shelter during the COVID-19 pandemic.

Participant 6: "Um, a lot of my social interactions have been curtailed. I like to get out of my community, attend church, attend political events. Um, just go to the park and I'm not able to do that in, um, you know, really anxious about the whole situation."

Participant 19: "But I just miss my kids. I'll sit in a house, looking at my four walls, trying to keep busy and almost a whole year."

However, a few participants reported maintaining social connections with family and friends through phone calls, texting, social media, and Zoom.

Participant 3: "I talked to people on the phone and on Zoom, Hey, that's company."

Participant 25: "Uh, I have eight siblings, I'm sorry, seven to eight, and we actually get on the phone and we do Zoom to make sure we're all okay. We do a monthly Zoom. And then of course we talk in between."

Other participants reported providing social support for individuals who were not able to access resources such as food.

Participant 23: "I still got my prayer partner and for food

sometime I go to the pantry and I gather girlfriend, they hardly can't get out. So I leave her step. And when I leave, she'll come out and get it that we are aware of no contact with her."

Participants also expressed an interest in forming support groups to assist in managing hypertension.

Participant 10: "Um, I wish that there were more things like this when it came to high blood pressure, more, we could start kind of brainstorming, even talk about it, you know, um, like maybe a support group or something and have a lot of other support groups."

Changes in Salt Intake due to the COVID-19 Pandemic

Participants reported a change in their salt intake due to the COVID-19 pandemic. Some participants ate more foods that were higher in fat and sodium and low in nutritional value.

Participant 29: " I'm like Ms. M and I mean, I'm eating chips and cookies and cakes and pop I'm, even drinking pop."

Participant 30: "Getting fast food and already prepared food instead, especially the last few months instead of making my own food. So of course all of that and processed food, that's all high in sodium, all of it."

Several participants grappling with hypertension were actively endeavoring to reduce their consumption of salt. These individuals were consciously making dietary modifications to limit their sodium intake.

Participant 12: “ And, um, um, something I thought of a little while ago, . . . is grilling my onions and garlic, um, on, so I’ll tell you, and that’s something that’s really helped cause I don’t use salt at all.”

Participant 7: “Not eating so much processed food cause I know it’s not good for me cause I’m diabetic. I’m not supposed to eat that. But, um, but when I cook food, I, I don’t put as much salt as I used to put in there.”

Participant 4: “I was eating, I was eating too much salt before then, but now I’m, um, calming down on the salt considerably.”

Social Isolation

Participants reported preparing more meals at home because they were less likely to go out to restaurants because they needed to socialize. Other participants ordered takeout food instead of eating in restaurants with family and friends.

Participant 28: “I’m home more, some eat more, like you said, food is comfort”

Two participants reported mindless eating or stress eating due to social isolation. Foods consumed were unhealthy and high in salt.

Participant 17: “Realized I put on 10 pounds to COVID, um, cause I’m, um, I’m in, I know I’m in a house a lot more and I’m eating more and I’m snacking more and everything.”

Participant 20: “Like potato chips and stuff that I’m not supposed to have, but when you’re home and you used to be an out, so I’m watching T.V., I’m on the computer and I’m snacking. I’m like Mike said, potato chips and making sandwiches, ordering pizza things.”

Barriers and facilitators to accessing food

Participants reported a need for more healthy and affordable food options during the pandemic and increased use of food pantries and food banks due to food insecurities.

Participant 9 I, um, had gotten to the point where I was, uh, going to the meat market to, to actually go and buy, uh, buy my meats because it had less sodium in it. And like that’s the flavor and in all of that, but because of, um, COVID and you know, so many people on the bus with mask or not wearing a mask, whatever I can occur, I stopped going back to do that as much. Um, and I went to Walmart, all these in the bus, um, or walk to Save A Lot or whatever.

Participants also highlighted the challenges of accessing foods through resources such as the food pantry and how the foods provided by the pantries and food banks may have a higher sodium content.

Participant 12: “ Um, something that would be helpful to me. Cause I do depend on the, um, the pantries a lot is that if they would give us food that was less full of sodium. I mean, that’s all of them, this is processed stuff.”

Altered Taste Perception

Three participants reported a loss of appetite and loss of taste as a symptom of contracting the COVID-19 pandemic and how loss of taste impacted their dietary behavior, such as adding additional salt to meals in an attempt to taste food.

Participant 25: “ Uh, it was kind of funny because I didn’t lose my sense of taste, but food tasted differently. And so the best thing that he fixed for me was a peanut butter and jelly sandwich. That sandwich was so good and it was just a simple peanut butter and jelly sandwich.”

Participant 5: And I see my sense of smell and taste was gone for weeks, even after I got better. And so it’s sort of like, I kind of force myself to, to taste again. I mean, I couldn’t taste the coffee, nothing tastes the same. And so when it started coming back, it’s like, sort of like, seems like I’m just checking on my taste buds all the time with my sweet stuff, like stuff that I love to eat.

DISCUSSION

The objective of this study was to explore dietary changes and the ability to maintain a low-sodium diet among Black women with hypertension during the COVID-19 pandemic. Our analysis of participant interviews revealed five principal themes. (a) social support/social connectedness, (b) changes in salt intake due to the COVID-19 pandemic, (c) social isolation, (d) barriers and facilitators to accessing food, (e) altered taste perception.

Participants highlighted fluctuations in the levels of social support and connectedness they received, alongside noting an elevation in their sodium intake, as two pivotal factors in managing their diet amidst the COVID-19 pandemic. Few participants reported that having family and friends that delivered meals or prepared foods was beneficial during the COVID-19 pandemic. Additionally, some participants stated that they provided social support during the pandemic by preparing meals for others within their families and community.

Most participants in the current study reported feeling social isolation and lack of connection with family, friends, and community activities due to the shelter-in-place order. The present study’s findings are similar to the study by Kotwal et al.(2021), in which 54% of participants attributed worsened feelings of loneliness to the need to shelter in place. Some participants in the current study reported staying socially connected by talking with family and friends through phone calls and Zoom. This finding is similar to Kotwal et al.(2021), in which technology provided a means for sustaining social support and social connections with family, friends, and community activities.

Significantly, some participants in the current study increased their intake of foods high in sodium, fat, and calories during the pandemic. This dietary behavior change was attributed

to social isolation. Participants experienced loneliness due to social isolation and, therefore, often sought out unhealthy food items for comfort. However, a few participants reported attempting to lower their intake of sodium through alternative food practices, such as decreasing their intake of processed foods. Similar to our findings, the Zachary et al. (2020) study found that dietary behaviors during the COVID-19 pandemic contributed to increased weight gain, decreased physical activity, eating in response to stress, and eating because of the appearance and smell of the food.

Other participants in the current study pointed to the physical challenges experienced after being diagnosed with the COVID-19 pandemic. Specifically, individuals experienced challenges tasting food. For many, losing the ability to taste food was a common and lingering side effect of the COVID-19 pandemic. Individuals who lost their sense of taste may have experienced reduced appetite. The findings in the current study are similar to the study conducted by Burges et al. (2021). Participants in this study reported altered taste and smell due to contracting COVID-19. As a result, participants experienced a loss of appetite and weight loss as food became unappetizing or tasted bland, resulting in a decreased desire to eat or cook food.

Participants in the current study noted a scarcity of nutritious and reasonably priced food choices amid the pandemic, leading them to rely more on food pantries and banks to address their food insecurities. They also underscored the difficulties encountered in accessing food resources like pantries and expressed concerns over the potentially elevated sodium levels in the provisions supplied by these sources. Similarly, Larson et al. (2021) study found that participants facing food insecurity underwent shifts in their eating habits, including increased consumption of processed foods and irregular meal patterns. Furthermore, they encountered obstacles in accessing food assistance programs, such as finding food pantries, transportation limitations, and failing to meet eligibility requirements for aid.

Several participants were unable to recall their most recent blood pressure measurements. Among those who could, the self-reported measurements were average. This study occurred during the height of the pandemic when participants faced significant challenges such as stay-at-home orders, social isolation, limited access to healthcare providers, recent unemployment, and food insecurities, all of which could have affected their responses. Additionally, some participants might have been taking antihypertensive medications, contributing to the regular readings. Lastly, other participants may have been reluctant to disclose elevated blood pressure readings. These suggested findings contradict the study conducted by Chamberlain et al. (2023), in which participants experienced a significant decrease in blood pressure control during the COVID-19 pandemic.

STRENGTHS AND LIMITATIONS

This study employs a well-defined qualitative research process that ensures reproducibility, dependability, and clarity. Further, the qualitative methodology allows for a greater depth and richness of data: a very detailed understanding of the participants' experiences can be explored. To date, few studies have published the findings of qualitative research focused on low-sodium dietary behaviors during the COVID-19 pandemic in the U.S. However, our study provides novel insights into how the COVID-19 pandemic impacted the ability to follow a low-sodium diet among Black women with hypertension.

A limitation of this study is the small sample size. Additionally, the findings of this study may not be generalizable to a broader population due to the restriction of the sample to Black women with hypertension living in the Northeast United States. Notably, it is unknown whether participants had other medical conditions, such as cardiovascular symptoms related to long COVID-19, or whether or not participants were receiving hypertension treatment from a provider during the interviews. Knowing whether participants had other medical conditions, such as cardiovascular symptoms related to COVID-19, or whether they were receiving hypertension treatment from a healthcare provider could have provided crucial context for understanding the participant's experiences, behaviors, and perspectives related to their dietary management during the COVID-19 pandemic. For example, participants with cardiovascular symptoms or receiving hypertension treatment may have different dietary needs or challenges compared to those without these conditions. This information could help researchers better interpret and contextualize the themes and patterns identified in the study's findings. We are unaware of the participants' experiences with a low-sodium diet before the pandemic. As a result, we cannot determine if their dietary behaviors were similar prior to the pandemic, which would have provided more context about their dietary behaviors. Finally, questions were not asked about where participants last checked their blood pressure. This information may have provided insight into whether participants monitored their blood pressure at home or in a clinic.

Implications

The pandemic presented additional barriers to maintaining a low-sodium diet, such as limited access to healthy and nutritious foods, preparing foods for other family members based on their dietary needs and preferences, and increased behaviors such as increasing food consumption and snacking. The challenges in adhering to a low-sodium diet are not unique to just Black women but were a shared experience among individuals living through the pandemic; however, given the prevalence of hypertension among Black women, there is a need to explore the impact of the pandemic in the priority population. It is also essential to

examine the long-term effects of dietary changes on health and health behaviors, as well as the impact that these changes have on blood pressure and weight. There may also be opportunities to use the knowledge obtained from this study to develop interventions and programs that may re-engage individuals in managing hypertension and adhering to a low-sodium diet. Historical events like the COVID-19 pandemic can lead to unhealthy eating behaviors, such as consuming a diet high in sodium, for various reasons. These reasons include social isolation, altered taste perception, food scarcity, food insecurity, limited availability of quality foods, and unemployment. Recognizing these factors can help researchers understand that such events might cause shifts in dietary behaviors beyond individuals' control. Finally, during the COVID-19 pandemic, dietary sodium intake varied among participants, with most reporting increased consumption. As we move beyond the pandemic's peak, promoting healthy dietary habits, including reducing sodium intake in this population, is crucial.

CONCLUSION

The findings of this study highlight the impact that the COVID-19 pandemic had on diet and physical and mental health. For Black women managing hypertension, adhering to a low-sodium diet is essential for the management of hypertension. The findings of our study suggest multiple barriers to maintaining a low-sodium and healthy diet during the pandemic, such as social isolation and reliance on food banks and pantries that offer a limited amount of low-sodium products. We also found that the pandemic led to increased snacking and mindless eating, which may also contribute to increased sodium intake. There is a need to continue to explore individual experiences of adhering to a low-sodium diet after the height of the pandemic and to explore how dietary changes were connected with cardiovascular disease health outcomes.

This research received funding and support (R25HL105446) from Programs to Increase Diversity Among Individuals Engaged in Cardiovascular Health-Related Research (PRIDE-CVD).

REFERENCES

1. Aggarwal, R., Chiu, N., Wadhera, R. K., Moran, A. E., Raber, I., Shen, C., Yeh, R. W., & Kazi, D. S. (2021a). Racial/Ethnic Disparities in Hypertension Prevalence, Awareness, Treatment, and Control in the United States, 2013 to 2018. *Hypertension*, *78*(6), 1719–1726. <https://doi.org/10.1161/HYPERTENSIONAHA.121.17570>
2. Aggarwal, R., Chiu, N., Wadhera, R. K., Moran, A. E., Raber, I., Shen, C., Yeh, R. W., & Kazi, D. S. (2021b). Racial/Ethnic Disparities in Hypertension Prevalence, Awareness, Treatment, and Control in the United States, 2013 to 2018. *Hypertension*, *78*(6), 1719–1726. <https://doi.org/10.1161/HYPERTENSIONAHA.121.17570>
3. Barber, S., Hickson, D. A., Wang, X., Sims, M., Nelson, C., & Diez-Roux, A. V. (2016). Neighborhood Disadvantage, Poor Social Conditions, and Cardiovascular Disease Incidence Among African American Adults in the Jackson Heart Study. *American Journal of Public Health*, *106*(12), 2219–2226. <https://doi.org/10.2105/AJPH.2016.303471>
4. Bernhart, J. A., Quattlebaum, M., Eustis, S., Okpara, N., Wilson, M. J., Sentman, C., & Turner-McGrievy, G. M. (2023). “It’s Gonna Be Okay”—A Qualitative Exploration of the COVID-19 Pandemic’s Effects on African American Participants During a Dietary Intervention Study. *Journal of the Academy of Nutrition and Dietetics*, *123*(12), 1763–1771. <https://doi.org/10.1016/j.jand.2023.07.003>
5. Boutin-Foster, C., Scott, E., Melendez, J., Rodriguez, A., Ramos, R., Kanna, B., & Michelen, W. (2013). Ethical Considerations for Conducting Health Disparities Research in Community Health Centers: A Social-Ecological Perspective. *American Journal of Public Health*, *103*(12), 2179–2184. <https://doi.org/10.2105/AJPH.2013.301599>
6. Burges Watson, D. L., Campbell, M., Hopkins, C., Smith, B., Kelly, C., & Deary, V. (2021). Altered smell and taste: Anosmia, parosmia and the impact of long Covid-19. *PLOS ONE*, *16*(9), e0256998. <https://doi.org/10.1371/journal.pone.0256998>
7. Chamberlain, A. M., Cooper-DeHoff, R. M., Fontil, V., Nilles, E. K., Shaw, K. M., Smith, M., Lin, F., Vittinghoff, E., Maeztu, C., Todd, J. V., Carton, T., O’Brien, E. C., Faulkner Modrow, M., Wozniak, G., Rakotz, M., Sanchez, E., Smith, S. M., Polonsky, T. S., Ahmad, F. S., ... Pletcher, M. J. (2023). Disruption in Blood Pressure Control With the COVID-19 Pandemic: The PCORnet Blood Pressure Control Laboratory. *Mayo Clinic Proceedings*, *98*(5), 662–675. <https://doi.org/10.1016/j.mayocp.2022.12.024>
8. Chandler, R., Guillaume, D., Parker, A. G., Mack, A., Hamilton, J., Dorsey, J., & Hernandez, N. D. (2021). The impact of COVID-19 among Black women: Evaluating perspectives and sources of information. *Ethnicity and Health*, *26*(1), 80–93. <https://doi.org/10.1080/13557858.2020.1841120>
9. Chobufo, M. D., Gayam, V., Soluny, J., Rahman, E. U., Enoru, S., Foryoung, J. B., Agbor, V. N., Dufresne, A., & Nfor, T. (2020). Prevalence and control rates of hypertension in the USA: 2017–2018. *International Journal of Cardiology Hypertension*, *6*, 100044. <https://doi.org/10.1016/j.ijchy.2020.100044>
10. Coats, J. V., Humble, S., Johnson, K. J., Pedamallu, H., Drake, B. F., Geng, E., Goss, C. W., & Davis, K. L. (2022). Employment Loss and Food Insecurity—Race and Sex Disparities in the Context of COVID-19. *Preventing Chronic Disease*, *19*. <https://doi.org/10.5888/pcd19.220024>

11. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. (5th ed.). Sage Publications.
12. Denzin, N. K., & Lincoln, Y. S. (2005). *The Sage handbook of qualitative research*. (3rd ed.). Sage Publications.
13. Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. <https://doi.org/10.1111/j.1365-2648.2007.04569.x>
14. Faye, A. S., Rogers, A. M., Woo-Baidal, J. A., Ozanne, E. M., & Hur, C. (2021). Predictors of households at risk for food insecurity in the United States during the COVID-19 pandemic. *Public Health Nutrition*, 24(12), 3929–3936. <https://doi.org/10.1017/S1368980021000355>
15. Holder, M., Jones, J., & Masterson, T. (2021). The Early Impact of Covid-19 on Job Losses among Black Women in the United States. *Feminist Economics*, 27(1–2), 103–116. <https://doi.org/10.1080/13545701.2020.1849766>
16. Jackson, C. J., & Furnham, A. (2000). *Designing and analysing questionnaires and surveys: A manual for health professionals and administrators*. Whurr Publishers, LTD.
17. Kalinowski, J., Wurtz, H., Baird, M., & Willen, S. S. (2022). Shouldering the load yet again: Black women’s experiences of stress during COVID-19. *SSM - Mental Health*, 2, 100140–100140. <https://doi.org/10.1016/j.ssmmh.2022.100140>
18. Kibe, L. W., Bazargan, M., Bosah, A., Schrode, K. M., Kuo, Y., Andikrah, E., & Shaheen, M. (2023). Diet Quality of Older African Americans: Impact of Knowledge and Perceived Threat of COVID-19. *International Journal of Environmental Research and Public Health*, 20(7), 5274. <https://doi.org/10.3390/ijerph20075274>
19. Kotwal, A. A., Holt-Lunstad, J., Newmark, R. L., Cenzer, I., Smith, A. K., Covinsky, K. E., Escueta, D. P., Lee, J. M., & Perissinotto, C. M. (2021). Social Isolation and Loneliness Among San Francisco Bay Area Older Adults During the COVID -19 SHELTER-IN-PLACE Orders. *Journal of the American Geriatrics Society*, 69(1), 20–29. <https://doi.org/10.1111/jgs.16865>
20. Kris-Etherton, P. M., Petersen, K. S., Velarde, G., Barnard, N. D., Miller, M., Ros, E., O’Keefe, J. H., Williams, K., Horn, L. V., Na, M., Shay, C., Douglass, P., Katz, D. L., & Freeman, A. M. (2020). Barriers, Opportunities, and Challenges in Addressing Disparities in Diet-Related Cardiovascular Disease in the United States. *Journal of the American Heart Association*, 9(7), e014433. <https://doi.org/10.1161/JAHA.119.014433>
21. Krueger, R. A., & Casey, M. A. (2015). *Focus groups: A practical guide for applied research*. (5th ed.). Sage Publications.
22. Larson, N., Alexander, T., Slaughter-Acey, J. C., Berge, J., Widome, R., & Neumark-Sztainer, D. (2021). Barriers to Accessing Healthy Food and Food Assistance During the COVID-19 Pandemic and Racial Justice Uprisings: A Mixed-Methods Investigation of Emerging Adults’ Experiences. *Journal of the Academy of Nutrition and Dietetics*, 121(9), 1679–1694. <https://doi.org/10.1016/j.jand.2021.05.018>
23. Liamputtong, P. (2011). *Focus group methodology: Principle and practice*. Sage Publications.
24. Negrin, K. A., Slaughter, S. E., Dahlke, S., & Olson, J. (2022). Successful Recruitment to Qualitative Research: A Critical Reflection. *International Journal of Qualitative Methods*, 21, 160940692211195. <https://doi.org/10.1177/16094069221119576>
25. Ogunniyi, M. O., Commodore-Mensah, Y., & Ferdinand, K. C. (2021). Race, Ethnicity, Hypertension, and Heart Disease. *Journal of the American College of Cardiology*, 78(24), 2460–2470. <https://doi.org/10.1016/j.jacc.2021.06.017>
26. Park, S., Lee, S. H., Yaroch, A. L., & Blanck, H. M. (2022). Reported Changes in Eating Habits Related to Less Healthy Foods and Beverages during the COVID-19 Pandemic among U.S. Adults. *Nutrients*, 14(3), 526. <https://doi.org/10.3390/nu14030526>
27. State of Michigan. (2020, April). *COVID-19 response and mitigation strategies for racial and ethnic populations and marginalized communities*. https://www.michigan.gov/documents/mdhhs/OEMH_COVID-19_Response_Mitigation_Strategies_Targeting_Racial_Ethnic_Populations_Marginalized_Communities_FINAL_689586_7.pdf
28. Tsao, C. W., Aday, A. W., Almarzooq, Z. I., Anderson, C. A. M., Arora, P., Avery, C. L., Baker-Smith, C. M., Beaton, A. Z., Boehme, A. K., Buxton, A. E., Commodore-Mensah, Y., Elkind, M. S. V., Evenson, K. R., Eze-Nliam, C., Fugar, S., Generoso, G., Heard, D. G., Hiremath, S., Ho, J. E., ... on behalf of the American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Subcommittee. (2023). Heart Disease and Stroke Statistics—2023 Update: A Report From the American Heart Association. *Circulation*, 147(8). <https://doi.org/10.1161/CIR.0000000000001123>
29. U.S. Department of Agriculture and U.S. Department of Health and Human Services. (2020). *Dietary Guidelines for Americans, 2020-2025*. <https://www.DietaryGuidelines.gov>
30. U.S. Department of Health and Human Services; National Institutes of Health; National Heart, Lung and Blood Institute. (2006). *Your Guide to Lowering Your Blood Pressure with DASH*. 1–55. <http://www.nhlbi.nih.gov>

31. Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study: Qualitative descriptive study. *Nursing & Health Sciences*, *15*(3), 398–405. <https://doi.org/10.1111/nhs.12048>
32. Virani, S. S., Alonso, A., Aparicio, H. J., Benjamin, E. J., Bittencourt, M. S., Callaway, C. W., Carson, A. P., Chamberlain, A. M., Cheng, S., Delling, F. N., Elkind, M. S. V., Evenson, K. R., Ferguson, J. F., Gupta, D. K., Khan, S. S., Kissela, B. M., Knutson, K. L., Lee, C. D., Lewis, T. T., ... On behalf of the American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Subcommittee. (2021). Heart Disease and Stroke Statistics—2021 Update: A Report From the American Heart Association. *Circulation*, *143*(8). <https://doi.org/10.1161/CIR.0000000000000950>
33. Zachary, Z., Brianna, F., Brianna, L., Garrett, P., Jade, W., Alyssa, D., & Mikayla, K. (2020). Self-quarantine and weight gain-related risk factors during the COVID-19 pandemic. *Obesity Research & Clinical Practice*, *14*(3), 210–216. <https://doi.org/10.1016/j.orcp.2020.05.004>
34. Zhang, N., Leary, E., Teti, M., Stemmler, J., & Hampton, N. (2020). Examining the Factors That Influence African Americans in the Midwest to Reduce Salt Intake. *Health Equity*, *4*(1), 183–189. <https://doi.org/10.1089/heq.2019.0079>

Citation: Angela Groves, Asli McCullers, Emma Mathias, Yendelela Cuffee, “Managing a Low-Sodium Lifestyle and Dietary Behaviors during COVID-19 for Black Women with Hypertension”, *Universal Library of Medical and Health Sciences*, 2024; 2(3): 20-29. DOI: <https://doi.org/10.70315/uloap.ulmhs.2024.0203004>.

Copyright: © 2024 The Author(s). This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.