Cardiovascular Disease Risk Factors Among Rural Dwelling Older African American Women

Mudasir Andrabi, PhD, RN[1*]

Mercy Mumba, PhD, RN, CMSRN[2]

Betty Key, Ed.D, RN[3]

Kelvin Ovabor, MSc, BSc[4]

Chen Lin, MD[5]

Fatima Leghari, MEd[6]

Karleene Ball, PhD[7]

[1] Assistant Professor, Capstone College of Nursing, University of Alabama, mandrabi@ua.edu

[2] Associate Professor and Founding Director of the Center for Substance Use Research and Related Conditions, University of Alabama, mnmumba@ua.edu

[3] Director of Nursing Programs, Shelton State Community College, bkey@sheltonstate.edu

[4] Graduate Student, College of Engineering, University of Alabama, kovabor@crimson.ua.edu

[5] Associate Professor, Comprehensive Stroke Center, University of Alabama, clin@uabmc.edu

[6] Graduate Student, College of Education, University of Alabama, fleghari@crimson.ua.edu

[7] Professor, Schools of Arts and Sciences, University of Alabama, kball@uab.edu

[*]Correspondence: Mudasir Andrabi

Abstract

Background: Limited information is available about the perceptions of older African American (AA) females living in the rural "Black Belt" and their high-risk status for cardiovascular disease (CVD). Our study aims to understand this population's perceptions about their CVD risk factors,

needs, and preferences regarding health services that would be feasible and acceptable for this population.

Methods: This is a thematic analysis of the qualitative study. We interviewed 11 AA women above 65 years of age, residing in the community setting of rural Alabama, having at least two CVD-related risk factors. We excluded participants with impaired cognition and/or any suicidal ideation. The participants were interviewed to better understand their perceptions about the CVD-related risk factors prevalent among older AA women living in their communities and to better understand what acceptable strategies would be to improve the prevention of these risk factors in the future. The responses from participants were recorded, transcribed, reviewed, coded, and reduced into dominant themes based on concepts that emerged from the interviews. The member check process validated the findings. We shared a report of the findings and interpretations with the participants of this study to check the validity of the findings from the data analysis process.

Results: We recruited the individuals who met the study criteria and volunteered to participate in this qualitative study (N =11). The interviews were conducted till we reached data saturation. The interview data were coded, and these concepts were categorized under common themes that emerged from the data. The common themes were CVD risk factors, non-adherence to treatment, barriers to healthcare in the community, lack of community health programs, suggested strategies for intervention and community preferences, and available resources/facilitators for community-based heart health programs.

Conclusion: Our findings gave us greater insight into the perceptions of AA women residing in the rural areas of the Black Belt regarding common CVD risk factors among them, their barriers to heart health services, and facilitators for community-based heart health programs. These findings suggest conducting a large-scale study to collect objective data about this population's

heart risk factors and their needs to inform the development of heart health services for this underserved, at-risk population.

Keywords: rural, community, older adults, underserved.

Cardiovascular Disease Risk Factors Among Rural Dwelling Older African American Women

Cardiovascular disease (CVD) is the leading cause of mortality and morbidity in the US (Centers for Disease Control and Prevention [CDC], n. d). Every 33 seconds, one person dies of CVD in this country (CDC, n. d). In Alabama, CVD presents a major burden on healthcare infrastructure due to increased frailty, mortality, and morbidity in CVD-affected individuals. The death rate due to CVD in Alabama is 231 per 100,000 compared to the national average of 165, making it a priority issue (CDC, 2019). A recent review reports the highest burden of CVD among African American (AA) women than women of other ethnic groups (Ebong & Breathett, 2020) and related risk factors, including medical and lifestyle risk factors, compared to non-Hispanic whites and other ethnicities (Mensah, 2018; Carnethon et al., 2017). Aging is an essential factor in the deterioration of cardiovascular functionality, resulting in an increased risk for CVD in older adults (National Institute on Aging, n.d.). Across the country, AA women have a disproportionally higher risk for CVD and related mortality than non-Hispanic whites (Colantonio et al., 2019). The majority of AA women (25-60 years) living in the rural southwest of US were found to be at risk for developing CVD because of their multiple lifestyle risk factors, including physical inactivity, unhealthy diet, smoking, low socio-economic status, lack of education, and lack of access to health services (Der Ananian et al., 2018). In addition, these individuals living in economically disadvantaged areas of the black belt are disproportionately affected by CVD (Toscos et al., 2018) because of the limited access to preventive care (Stellefson et al., 2021; Smoak et al., 2022).

There is substantial evidence of the effectiveness of culturally relevant need-based interventions that are tailored to the needs and the culture of a population (Ndejjo et al., 2021). Research indicates culturally relevant interventions focusing on health behaviors to be well accepted and demonstrate substantial improvements in CVD-related risk factors (Cho et al., 2019; Der Ananian et al., 2018). Unfortunately, these intervention strategies are not widely tested and applied in rural community-based settings with underserved populations (Pelletier et al., 2020), such as older AA women living in rural Alabama.

Limited information is available about our priority population's perceived CVD risks prevalent among them, their perceived needs, preferences, and access barriers to health care services. Therefore, this study aimed to gather such information from AA older women of rural Alabama and the information about their need for the heart health program, preferences of the method of delivery, time and effort needed for the program, incentives, and preferences regarding recruitment and retention strategies. Based on the information gained in this study, we anticipate identifying the needs and cultural preferences related to heart health services among AA older women of rural Alabama.

Methods

Study Design, Settings, and Participants

The current paper presents the thematic analysis of a qualitative study in which we gathered data about the CVD risk factors and the needs and preferences of older AA women in rural Alabama with regard to their heart health. The study was conducted after obtaining the Institutional Review Board (IRB) approval from the University of Alabama (IRB# 21-04-4489). We interviewed 11 participants using a semi-structured interview guide. The sample was drawn from the Black belt Counties of Alabama. The Black Belt Region is named for its dark, fertile soil

located along central Alabama and has been designated as underserved counties. These counties include the Hale, Sumter, Greene, Choctaw, Maringo, Perry, Dallas, Wilcox, Butler, Pike, Montgomery, Barber, Russell, Macon and Lowndes (Aladuwaka et al., 2022). The individuals were selected from federally designated rural areas and Black Belt areas of Hale County and Sumter County of Alabama.

Both Hale and Sumter Counties are designated as rural by the United States Census Bureau (n.d.) because the populations are less than 50,000 individuals and they are designated as a Health Professional Shortage Area and a Medically Underserved Area (Rural Health Information Hub, n. d).

The study was advertised using flyers and word-of-mouth in the rural communities of Alabama. These communities include the individuals living in their residential housing and not in any assisted living facility, nursing home, or rehabilitation facility. Our main source of the participants was the referrals from the community leaders. The lead researchers met the interested individuals at the community centers near to their homes and screened them for their eligibility to participate in the study based on the inclusion/ exclusion criteria. After explaining the study details, informed consent was obtained from each participant for their recruitment.

Inclusion criteria were: (a) AA women above 65 years of age, (b) residing in the community setting of rural Alabama, (c) having a diagnosis of CVD or at least two CVD-related risk factors, (d) able to speak and understand English (e) physically inactive (engaging in no regular structured physical activity), (f) comprehend, and (g) participate in basic elements of the study. Exclusion criteria were: (a) presented with impaired cognition as measured by the mini-mental status examination (Agrell & Dehlin, 2000), and (b) any suicidal ideation (measured by the suicidal item from the Beck depression scale; Desseilles et al., 2012).

Procedures

We enrolled the individuals who met the inclusion criteria and volunteered to participate in the qualitative part of the study. All the participants consented for their participation. The participants were interviewed individually via telephonic calls. We continued to interview participants until we reached data saturation, as indicated by the emergence of similar codes and themes from the interview data. Therefore, we interview a total of 11 participants for this study.

This study collected data related to (a) the participants' perceived CVD-related risks present among AA older women in their communities, (b) their needs related to the prevention of CVD risk factors, (c) preferences about the components of interventions that could help to promote heart health in these communities; (d) the incentives and other behavioral strategies that would need to be included in the intervention for the successful recruitment and (e) retention of the participants in an intervention. The interviews gained information about these individuals' perceptions of barriers and facilitators of engagement in heart health interventions and any specific cultural needs that must be addressed in any heart health intervention.

Each interview session was approximately 45-60 minutes. A graduate research assistant (GRA) took additional notes, and all interviews were audio recorded. All audio-recorded interviews were transcribed verbatim within 72 hours of the interview. Interview notes from the previous interview were reviewed prior to the next interview, any new concepts evolved from the previous interviews were used to formulate new questions, if needed. These questions were added to the interview questionnaire to provide the additional guidance for the next interview. Individuals who participated in these interviews were compensated for their time.

Table 1

Semi-Structured Interview Guide

Questions	
1	What heart health issues do you think are in your community? Which of these health issues do you think are more common among older women in your community?
2	What resources or community-based heart health programs do you have available currently?
3	What stops you from participating in these heart health programs?
4	Do you think that there is a need for a community-based heart health program for older women in your community? What would you like to see in those programs?
5	What heart health behaviors of your community should be the focus of the heart health programs?
6	Do you have any suggestions for strategies that could be used in the recruitment and delivery of the heart health program?

Data Analysis

Descriptive statistics (numbers and percentages) were computed for the participants' characteristics. Qualitative analysis was done by the iterative inductive approach to thematic analysis adopted from Braun and Clarke (2006). The analyses started with listening to the audio recordings, transcribing them, and reviewing the interview notes. The two reviewers (MA and BK) did the deductive analysis by forming the codes from the transcription data. The two reviewers discussed and agreed on the codes. These codes were categorized into potential themes. The themes were reviewed constantly by visiting the interview data to ensure the representativeness of the data. The researchers compared and discussed codes and themes and examined if there were any discrepancies or biases between the researchers' opinions. Any such conflicts were resolved through discussion between the reviewers and by an independent third reviewer until a consensus was reached. Each potential theme was defined and finalized. The data was checked for validity by regularly contacting the participants throughout data collection and analysis to verify specific

interpretations and themes or see if anything was unclear. A report developed from the findings was shared with the participants to verify the findings.

Results

Demographics

The participants (N = 11) who met the criteria and volunteered to participate in the interviews were recruited for this study. The majority of these participants, 10 (90 %), were between the ages of 65-75, and 9 (81%) were living alone. The annual household income of 4 (36%) was below $10, 000 and 10 (41%) participants had an annual income between $10,000 and $29,999. The majority of participants reported no college education, 9 (81 %).

Table 2

Characteristics of Study Participants (N = 11)

Participant Characteristics	n (%)
Age	
65-75 years	10 (90)
75 and above	1 (10)
Marital status	
Married	2 (18)
Divorced/widow/single	9 (81)
Education*	
College level graduation	
Yes	2 (18)
No	9 (81)
High school graduation	
Yes	2 (18)
No	9 (81)
Income	
< $10,000	1 (10)
$10,000 - $30,000	10 (90)
$31,000 and above	0 (0)
Living Situation	
Living alone	9 (81)
Location of Residence	
Hale County	6 (54)

Participant Characteristics	n (%)
Sumter County	5 (46)

* Education Note: 2 people graduated from both high school and college.

Cardiovascular Risks

All of the participants who participated in these interviews were AA females, 65 and above, living in rural Alabama. These participants had at least two CVD-related risk factors or at least one CVD diagnosis, as described in the inclusion criteria. The majority of these participants (n=9) had high blood pressure, 10 (91%) were obese, and 1 (9%) participant was overweight. All of these participants had a low body balance as indicated by the five times sit-to-stand test, 11 (100%), and 9 (81%) had low endurance for exercises. None of these individuals were participating in regular physical activity.

Interview Findings

The responses from participants were recorded, transcribed, reviewed, and reduced into dominant themes based on concepts that emerged from the interviews. These concepts were categorized under common themes. The main themes that emerged from the data included the risks for heart health, non-adherence to treatment, barriers to healthcare in the community, lack of community health programs, suggested strategies for intervention and community preferences, and available resources/ facilitators.

Risk for Heart Disease

The theme risk factors for heart disease evolved commonly during the interviews. Participants listed overweight and obesity, lack of exercise, smoking, and stress as the most common risks among the older AA women residing in their communities. Most of the participants perceived obesity and being overweight as major health issues and thought that it was due to eating fatty food and not being conscious about the food. Some of them expressed that lack of money to

buy healthy food forced them into poor food choices, whereas the participants also expressed a lack of information related to healthy food that could be easily prepared and made available in their culture. They asked, "We prefer to buy seasonal fruits and try to buy cheaper food. If you can teach us what are the food dishes that we can make in our households and could be healthy."

The concept of being sedentary and lack of exercise was common. Participants mentioned lack of exercise as a major issue. They related being stationary to be the reason for diabetes, fatigue, and obesity. Participants said, "Most of us are sitting at home for long hours, not moving. This makes us grow fat in the body." The majority of the participants expressed smoking as a major problem in these communities. Some of them perceived it to be related to their sedentary lifestyle, and one participant expressed that "we keep sitting ad smoking most of the time." Smoking was thought to be due to the stress among these individuals. The participants perceived smoking to cause breathing problems; however, most were unsure about its effect on heart health.

Non-adherence to the Treatment Plan

Non-adherence to doctors' advice or treatment plans came up very often during the conversations related to risk behaviors and co-morbidities that the participants thought were common among older AA women in these communities. Participants mentioned, "being stationary" is a common problem due to non-adherence to the doctor's advice. One of the participants mentioned that "even though the doctor will advise us to do exercise and be active, people do not listen to the doctor." Another participant mentioned, "we know exercise is important, but we are busy with households that do not want to exercise." Many of the participants expressed knee joint problems to be the reason for not doing the physical activity.

Participants mentioned blood pressure, diabetes, stroke, cancer, and high cholesterol as the main health conditions among older AA women residing in these communities. They perceived

the behavior of non-adherence to the treatment plan prevalent among the community members with these health issues. While some participants expressed a lack of knowledge about the preventable risk factors for heart disease, others thought that even if they knew the importance of health or had some knowledge about the heart disease risk factors, they did not follow the treatments. One participant said, "people do not listen to the doctors; they do not do what doctors ask them to do." Therefore, non-adherence was found to be an important issue in controlling the heart health risk factors and comorbidities like high cholesterol, stroke, diabetes, and hypertension.

Barriers to Health Care

Many concepts came up that showed the participants' perception of the barriers to availing health care services. The majority of the participants expressed laziness and unwillingness to receive information about healthcare as a barrier to health care. Concepts related to lack of resources, including lack of insurance and transportation, came up multiple times as the majority of the participants perceived these to be the obstacle in seeking healthcare services.

One of the participants mentioned "race" as a barrier to the availability of health care services. Upon in-depth interview and discussion about this concept, many participants expressed that AA race is associated with the lack of healthcare services. One participant mentioned, "being a black AA always means not having medical services such as lack of insurance, unaffordable medical services, lack of transportation to avail the medical services." These participants also expressed a lack of facilities like a health care center accessible to them near their homes.

Lack of Community-based Health Programs

Participants expressed a need for health care programs in their communities, especially educational programs and programs that would increase their adherence to healthy lifestyle. Participants also expressed a lack of medical services and perceived a need for the proper medical care and education programs that are accessible in their communities. The majority of participants emphasized the need for a multipronged intervention that includes the components of diet and exercise program. Participants emphasized the lack of any community heart health programs and suggested having programs that would involve conversations about important topics like heart health, diabetes, and hypertension, and the outdoor group exercise programs. A need for health care programs with a long-term follow-up with participants was emphasized.

Suggested Strategies for Intervention Delivery

Participants believed in the need for knowledge and the need for change in the behaviors related to healthy habits. Participants suggested health programs that would involve social groups. They suggested educational programs about hypertension, diabetes, healthy food items, and any instructions on how to make economical yet healthy AA cultural food that could be cost-effective too. They also suggested a component of outdoor physical exercise and suggested delivery of interventions in group sessions for the success of the program.

The participants expressed concern about their participation in a program if the study site was far from their homes, as they needed help to afford transportation. Therefore, a nearby site was suggested. Participants also showed motivation to change their behaviors and suggested incentives at different intervals to keep them motivated. The consideration of their preferences for time and day for intervention delivery was suggested to increase their engagement in heart-healthy programs. Many participants suggested that keeping their other socio-cultural events/ activities in

mind while planning for the heart health program would increase the engagement and retention in the intervention.

All participants indicated trust in the community leaders and suggested that they be involved in development and delivery of the intervention. They indicated that since community leaders know their cultural values and belief system, they would feel more comfortable about participating if community leaders were involved in the development of the health care program. Many participants mentioned that if any problem arises, they would reach out to these key leaders. One Participant mentioned,

> If I have any problems, I know where to go; I will call "xxxxxxx." They will help us and they always have solution for our problems. xxxxxx knows what we do and what we need. xxxxxx is always there to help us.

Facilitators for a Community-based Heart Health Program

The use of available infrastructure including community halls within these communities, and the phone devices for sending reminder texts and calls were suggested for use in the intervention. The participants showed readiness for the intervention if delivered within these geographical areas of their communities. The health programs delivered within these communities were considered affordable in terms of expenditure on transportation. The community residents' trust and the community leaders' willingness to participate in the health program were perceived as strong resources for its success.

Discussion

This is the first study toward developing a foundation for a culturally relevant heart health program by exploring information related to the heart health risk factors, access barriers, heart health needs, and preferences of older AA women living in rural Alabama. The study findings

showed that older AA women living in rural Alabama areas perceive several heart health risk factors and comorbidities prevailing among these populations. They also expressed several behavioral issues and access barriers to health care services. These individuals emphasized the need for accessible and affordable comprehensive community health programs that would help them overcome their risk factors and prevent them from developing CVD.

The participants expressed concerns about the prevalence of CVD risk factors, including unhealthy dietary intake, sedentary lifestyle, stress, smoking, and medical conditions of diabetes and hypertension, which puts them at risk for CVD. Similar findings are reported by a study conducted on AA adult populations living in Southwest areas of the United States (Der Ananian et al., 2018). In this study, participants (25-60 years) expressed the prevalence of a sedentary lifestyle, inappropriate food choices, diabetes, stress, and hypertension. Our study also indicated a perception of the need for more information related to CVD risk factors and their relationship with heart health. Therefore, educational interventions that include a component on lifestyle choices are needed. Evidence-based interventions that are successful in addressing lifestyle issues and medical conditions like hypertension and diabetes must be adopted to address the healthcare issue for these individuals (Mensah, 2018).

The participants expressed the need for behavioral strategies to be incorporated into the lifestyle program to help them make healthy choices and adhere with the healthy lifestyle. The participants suggested incorporating the reward system and group sessions into the intervention to overcome these behavioral issues. Interventions that include social groups to improve participants' engagement in health programs have also been recommended by healthy people 2030 (HealthyPeople, n.d.).

The participants ' main barriers to accessing healthcare services were the lack of motivation, poor health conditions like fatigue, knee problems, lack of insurance, and transportation. These are the typical barriers reported by other older populations living in rural areas (Oluyede et al., 2022). These barriers can create a context for a lack of motivation toward learning new information and adherence to the interventions. Hence, there is a need for the development of health programs that are tailored toward the unique needs of this population and that addresses the access barriers existing among rural communities (Douthit et al., 2015). Given the age group and their health conditions, these individuals suggested providing them with simple physical activities and providing them with timely reminders for the intervention sessions. Intervention strategies such as providing cues for intervention and having the intervention easily accessible and affordable for the community dwelling have shown to increase the likelihood of adherence to the intervention among other rural community residents (Haldane et al., 2019).

The community leaders are seen as their problem solvers and as the main liaison between the participants and the researchers. Involving community leaders in health care programs is supported by several researchers and behavior theories, including the theory of health behavior, as they act as a "subjective norm" for the participants to change their behavior (Glanz & Bishop, 2010). Community leaders have an essential role in delivering the message to the participants with appropriate timing for delivery, wording, and tone; this is a critical factor in recruitment and retention success and acceptance of effective culturally relevant health programs (Martinez & Mahoney, 2022).

Several facilitators present in these communities (including belief in the improvement of health, willingness to participate in an accessible and affordable heart health program, some existing social groups, and participants' trust in the community leaders) are also emphasized by

the theory of socio-ecological models for the success of health behavior interventions (Glanz & Bishop, 2010). Therefore, utilizing these facilitators for a need-based intervention can make it a successful program and acceptable within these communities.

The study used a convenience sampling method and involved older AA women with at-least two CVD risk factors. Therefore, our findings have limitations and are applicable only to older AA women. These findings provide an important information about the needs and preferences of older AA women of Black Belt rural areas of Alabama and lay down a foundation for exploring the needs of this group of individuals using more reliable and valid methods of data collection with a large sample size. Studies with objective data collection methods are required to get accurate and comprehensive information about these communities' needs and preferences for heart health services.

Conclusion

Our findings provide data to better understand the CVD related risks and health behaviors prevalent in AA older women of Black Belt rural Alabama, their perceptions about the CVD risk factors, lack of accessible healthcare programs, and potential access barriers to healthcare services. AA older women are found to have risks for CVD including obesity, hypertension and sedentary lifestyle. These individuals perceive the risk for heart illness due to their unhealthy behaviors including non -adherence to a treatment plan, unhealthy dietary intake, lack of knowledge about cultural foods that are affordable yet healthy. These individuals also perceive the benefits of using already existing resources in their communities and engaging in the heart healthy behaviors. The information gained by this study informs about the need of a robust large-scale study to collect the objective data related to CVD risks and need for heart health services of AA older women of rural

blackbelt of Alabama. Therefore, studies are warranted to collect such data from these communities.

Conflicts of Interest

The authors declare no conflict of interest.

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