



ORIGINAL RESEARCH ARTICLE

Chronic Disease Management with Cultural Nutrition among African Immigrants in the USA

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Abstract

Aim: The project aimed to investigate the impact of dietary interventions, specifically the African heritage diet (AHD), on managing chronic conditions among African immigrants. It sought to reduce chronic diseases like hypertension, diabetes, and obesity and promote adherence to healthy dietary regulations by addressing ethnic food behaviors through culturally appropriate food guidelines.

Subject and Methods: Over 12 weeks, participants engaged in an intervention program emphasizing education on cooking techniques, salt intake, and the historical context of African meals. The project collaborated with dietitians to analyze the caloric content of indigenous African family diets and developed culturally relevant guidelines. Pre- and post-questionnaires were administered to evaluate knowledge, attitudes, and experience.

Results:

- Blood Pressure: 80% of participants experienced an average decrease of 20 mmHg in systolic blood pressure, and 100% saw a 5-mmHg reduction in diastolic blood pressure.
- Diabetes: Slight decreases were noted in fasting blood glucose, with 50% of participants showing an average 1% reduction in hemoglobin A1C levels.
- BMI: Improvements were recorded in BMI.
- Knowledge and Attitude: Pre- and post-questionnaires demonstrated enhanced knowledge, attitudes, and overall experience.

Conclusion: The dietary intervention effectively addressed health disparities and empowered individuals to self-manage, alleviating chronic disease burdens in underserved communities. However, the results suggest a more robust, longer-term intervention to sustain and enhance these outcomes.

Keywords

African immigrants, Lifestyle, Chronic disease, Cultural-Tailoring, Cultural-nutrition diet

Introduction

Background

Chronic diseases are conditions that require ongoing medical attention, that last a year or more and are not preventable by immunization or curable by medication. It is estimated that over 60% of Americans live with at least one chronic disease, while 40% have two or more chronic diseases like hypertension, stroke, heart disease, diabetes, or cancer. Ethnic minorities in the U.S. face disproportionate cardiovascular risks, especially African immigrants impacted by diabetes, hypertension, diabetes, hyperlipidemia, anemia, and obesity (Alloh, et al. 2019; Data, 2020; O'Connell, 2018) [1-3]. Over forty-six percent of non-Hispanic Black adults are obese compared with 37.9% of non-Hispanic white adults. Two in five black men (42%) and black women (43%) suffer from hypertension (CDC, 2021; Hales, et al. 2017; Kris-Etherton, et al. 2020; Office of Minority Health, 2021; Wadi, et al. 2021) [4-8]. The African immigrant population is rapidly growing in the U.S., while African Americans are the second-largest minority group, following Hispanics/Latinos. (Wadi, et al. 2021) [8]. Research shows that African immigrants in the United States face a higher risk of cardiovascular disease (CVD) than African American adults, with chronic diseases causing higher morbidity and mortality among racial and ethnic minorities (CDC, 2021; NIH, 2020; Omenka, 2020; Wadi, et al. 2021) [4,9,10,8]. Nutrition is crucial in managing chronic diseases, emphasizing the need for well-designed guidelines to facilitate healthy eating patterns (Dwyer, 2019) [11]. Culture significantly influences food choices and lifestyle decisions,

underscoring the importance of cultural considerations in effective dietary interventions among ethnic minorities (Fox, et al. 2017) [12]. Supporting individuals in self-management is a vital strategy to reduce the burden of chronic disease (Miller, et al. 2015) [13].

The project's primary objectives were to reduce biometric measurements (blood pressure, blood glucose, weight) and empower individuals in self-management through education on culturally appropriate diets. The higher risk of cardiovascular disease (CVD) among African immigrants in the U.S. and increased morbidity and mortality from chronic diseases in racial and ethnic minorities highlight the critical role of cultural competence in healthcare and the need to address healthcare disparities (CDC, 2021; NIH, 2020; Omenka, 2020) [4,9,10]. Lifestyle changes significantly contribute to the rising prevalence of chronic diseases. Immigrants experience higher obesity rates with acculturation, driven by reduced time for food shopping, meal preparation, and mindful eating, influenced by globalization and diverse food access (Gustavsen, et al. 2021; Kris-Etherton, et al. 2020; Osibogun, et al. 2021; Turkon-Ocran, 2020) [6,14,15,16]. Social determinants such as limited insurance coverage (Noonan, et al. 2016; Perreira & Pedroza, 2019; Turkon-Ocran, 2020) [16,17,18], unemployment, homelessness, inadequate housing, and limited food access (Fox, et al. 2017) [12] contribute significantly to these disparities. Additional challenges include unfamiliar dietary recommendations and cultural influences on nutrition (Beck, et al. 2020) [19]. These issues underscore the need for culturally competent healthcare tailored to these communities (Nair & Adetayo, 2019; Omenka, 2020) [20,10]. Significant gaps in healthcare, such as underutilization of supportive programs like structured telephone support, self-management support, and telemonitoring (Brunner-La Rocca, et al. 2016) [21], highlight the need for improved healthcare delivery. Effective chronic disease management requires patient-centered approaches, involving patients in personalized care plans and ensuring clear communication among care stakeholders (Chauhan, et al. 2020; Grilo, et al. 2017; Kourakos, et al. 2018) [22-24].

Cultural and historical factors shape dietary practices among African Americans, leading to dietary changes that often result in weight gain and chronic diseases (Wadi, et al. 2021) [8]. However, these factors also present opportunities for positive change and improved health outcomes. For example, type 2 diabetes (T2DM) and its complications are rising among ethnic minorities, including African immigrants, who experience higher rates of these issues (Wadi, et al. 2021) [8]. Lifestyle modifications can delay T2DM in individuals with impaired glucose levels (Hall & Kahan, 2018; Leung & StannerLeun, 2011) [25,26]. Culturally competent care is crucial for equitable healthcare,

disease prevention, and individual behavior change (Horvat, et al. 2014) [27]. Personalized and culturally sensitive support strategies are essential for better health outcomes (Brunner-La Rocca, et al. 2016; Turkon-Ocran, 2020) [21,16]. Healthcare providers must understand patients' cultural practices, especially concerning eating patterns, as their advice may conflict with cultural beliefs (Brunner-La Rocca et al., 2016) [21]. Nutrition is vital for managing chronic diseases, requiring lifestyle changes like dietary adjustments. African immigrants might resist nutritional advice that conflicts with their cultural heritage. Fox's intervention study shows that culturally tailored approaches focusing on portion control, food choices, physical activity, and stress management can improve health outcomes (Fox, et al. 2017) [12]. Although the American Diabetes Association (ADA) has adopted programs for ethnic minorities with positive results (Beck, et al. 2020) [19], there is limited research on culturally tailored nutritional advice for African immigrants (Beck, et al. 2020) [19]. Addressing this gap is crucial for reducing health disparities. Despite the importance of culturally sensitive strategies, the nutrition field lacks diversity, with 78% of U.S. dietitians being white. Providers often recommend Western dietary options, potentially overlooking culturally significant African dishes, such as red soups, vegetable pepper stew, or bean patty, which may offer equal or more excellent value (Khare-Ranade, et al. 2022) [28]. Cultural distrust towards whites, stemming from slavery, research abuses, and institutional racism, exacerbates these issues (Noonan, et al. 2016) [17]. Historical mistreatment has led to decreased trust in healthcare providers among African Americans, affecting participation in preventive services like dietary counseling and contributing to disparities in chronic disease outcomes (Boundless, 2022; Noonan, et al. 2016; Turkon-Ocran, 2020) [29,17,16].

This project, conducted in Central Ohio, addresses immigrants' challenges with chronic conditions and aims to improve their health outcomes. Current interventions often lack family involvement and personalized care. Grilo, et al. (2017) [23] highlighted the need for patient-centered management that considers patients' preferences and needs. Engaging patients in personalized management is crucial but needs to be noticed. Studies suggest that cost-effective measures, such as targeted community or individual-based interventions, can manage and prevent chronic diseases (Wadi, et al. 2021; Wilson & Elogoghail, 2016) [8,30]. These population-based approaches focused on improving health beliefs, knowledge, attitudes, techniques, and behaviors, emphasizing weight reduction, increased physical activity, and better dietary choices. The potential impact of these interventions on the health behaviors of the African immigrant population is significant (Population-Based Public Health Nursing Practice). Further, Kuorakos et al. (2022) [24] submitted

that poor interactions among care stakeholders could lead to misunderstandings. Hence, effective chronic disease treatment requires comprehensive practices, caregiver follow-up, and emotional management, which may be perceived as complex and intrusive to daily life (Brunner-La Rocca, et al. 2016; Kourakos, et al. 2018) [21,24].

Theoretical framework

African Americans have cultural and historical factors influencing their dietary practices; "eating healthy" may mean sacrificing cultural heritage. The Sunrise Culture Care (SCC) framework connects theory concepts with clinical practices, offering a systemic approach to identifying values, beliefs, behaviors, and customs. It encompasses religious, financial, social, technological, educational, legal, political, and philosophical dimensions and relates anthropological and nursing beliefs (Albougami, et al. 2016; Petiprin, 2020) [31,32]. The transcultural nursing theory (TNT), proposed by Madeleine Leininger, addresses the challenges of providing care to diverse cultures. Rooted in philosophy and ethics, TNT emphasizes how cultural backgrounds shape caring behaviors and health-related values, influencing nurse-patient communication and decision-making. It stresses respecting patients' beliefs and customs, aiming to deliver holistic, culturally appropriate nursing interventions aligned with patients' values, beliefs, and lifeways. Leininger introduced the concepts of worldview, social structure, language, ethnohistory, and environmental context into care settings. TNT highlights the importance of culturally sensitive care in improving patient outcomes, urging nurses to understand cultural diversity in health promotion and disease prevention efforts (Khare-Ranade, 2013; McEwen & Wills, 2019) [28,33]. Challenges include difficulty with the exchange system, reluctance to adopt new foods and cooking practices, food expenses, lack of knowledge about measuring food, and the need to prepare food for others. Traditional meals often lack recipes. The SCC framework was adopted to provide culturally acceptable dietary advice and choices.

Methods

The intervention addressed dietary challenges that Alloh, et al. (2019) [1] and Beck, et al. (2020) [19] identified, such as cultural influences and unfamiliar diets recommended by healthcare professionals. The PICOT question asks: Will implementing a plan of culturally acceptable meals (I) reduce biometric measures, such as blood pressure, weight, and BMI (O), in African immigrants with chronic diseases (P) within twelve weeks (T)? Databases like CINAHL, Google Scholar, and the National Library of Medicine were searched to gather evidence. Keywords from the PICOT statement, such as "Immigrants," "African Americans," "cultural diet," and "chronic disease," were used, with "and"

as a connector. The initial search yielded 120 studies, narrowed to 20 relevant journals using advanced search features such as dates, 01/2017 and 07/2022, full-text articles, English language, human studies, and academic journals, reducing the results to 20 (twenty).

Participants

Adult participants were recruited from local churches and international grocery stores. The clinical site is a nonprofit, privately owned establishment with a team of one nurse practitioner, one office assistant, and a laboratory technologist. The clinic, embracing cultural diversity, integrates the project into its care schedules. The inclusive environment promotes diverse cultural perspectives, fosters creativity and innovation, and ensures respectful patient treatment. The DNP project drew insights from Alloh, et al. (2019) [1], which bridged the gap between clinical dietary recommendations and cultural practices. The intervention included education on healthy cooking techniques, reducing salt intake, and exploring the possibility of food exchange compared to the Western diet. This comprehensive approach aimed to reconnect participants with their culinary heritage while promoting health improvement.

Data collection

Data collection utilized Google Forms for participants and questionnaires stored securely on a laptop with Norton antivirus protection. Coordination, communication, and working together as a team are crucial for adequate care. A team improves care and doctors' and nurses' satisfaction, controls costs and reduces clinical errors and patient safety (Mahdizadeh, et al. 2015) [34]. Real-time communication via WhatsApp facilitated team coordination and participant engagement.

Data measures

Demographics collected included age, occupation, country of origin, and time of entry into the USA. Additional data encompassed gender, educational level, weight, height, blood pressure, and blood glucose level. Participants completed pre- and post-intervention questionnaires with a Likert scale for comparison. Educational sessions and personalized dietary guides addressed cultural influences and dietary challenges identified by previous research.

Data analysis

The Texas Wesleyan University's Institutional Review Board (IRB) Committee reviewed and approved the project. Data was analyzed using international business machines' statistical product and service solutions (IBM SPSS) and Microsoft Excel. Final comparisons between pre- and post-intervention data utilized measures of central tendency. Descriptive analysis methods were applied as appropriate, including means, standard deviation, frequency, and percentage. Advanced

statistical testing, such as a paired samples T-test, showed statistically significant reductions in biometric measures. Results were presented with tables and charts. Overall, 21 people expressed interest, 14 completed the pre-screening questionnaire, 11 started the first meeting, and nine (9) returned the post-screening questionnaire.

Results

The demographic characteristics of study participants are presented in [table 1](#). Over a third of participants, four (4) [36.4%], were 60 years and above. This was followed by those in the 30 - 39-year-old age group. There were more females, seven (7) [(63.4%], than males, four (4) [36%]. Most participants completed some education, and only three (3) [27.3%] had no schooling. Most participants were West African (90.9%), mainly from Nigeria (72.7%). The majority were employed full-time (63%).

[Table 2](#) shows the chronic diseases, co-morbidities, and their management among participants. Three participants (<27.3%) had hypertension, two (2) [18.2%] obese or overweight, two (2) [18.2%] had diabetes, and one (1) [9.1%] had prediabetes. Two of the participants

Table 2: Characteristics of study participants (N = 11).

Variables	Frequency	Percent
Diagnosis		
High Blood Pressure	3	27.3
Overweight/ Obese	2	18.2
Diabetes	2	18.2
Pre-Diabetes	1	9.1
Others	1	9.1
None	2	18.2
Other medical condition		
Blood pressure	1	9.1
Pre-Diabetes	1	9.1
None	9	81.8
Medication use (n = 9)		
Yes	4	44.4
No	5	55.6
Medication (n = 4)		
Metformin	2	50.0
Lisinopril / Aspirin	1	25.0
Lisinopril / Hydrochlorothiazide	1	25.0

indicated no diagnosis. Of those 9 (nine) participants with a diagnosis, four (4) [44.4%] were taking medication for high blood pressure and/or diabetes.

[Figure 1](#) shows the results of a pre-and post-intervention (Pre, n = 11 and Post, n = 9) comparison of participants' exercise and dietary habits. As highlighted in the table, 45.5% of the participants exercised for less than 30 minutes daily at the start of the study, and this proportion reduced to 33.3% post-intervention. The proportion of participants who exercised for more than 45 minutes daily increased from 18.2% pre-intervention to 33.3% post-intervention. The rate of daily meat consumption reduced from 63.6% at baseline to 44.4% after intervention. A similar healthy pattern was also observed with daily fruit and vegetable consumption, which increased from 9.1% at baseline to 55.6% post-intervention for those having 5 or more servings per day. In addition, the proportion of the participants having fizzy or sugary drinks increased from 30.0% pre-intervention to 55.6% post-intervention.

A paired samples T-test was used to compare the participants' pre- and post-intervention biometric measures. The results are presented in [table 3](#), which shows a statistically significant post-intervention reduction in SBP by 5.6mmHg, DBP by 4.4mmHg, and body mass index (BMI) by 1.8 kg/m². There were also reductions in participants' FBG by 5.9 mg/dl and weight by 6.1 pounds, but these were not statistically different from the pre-intervention values.

[Table 4](#) shows the results of participants' pretest knowledge compared to their post-intervention. As highlighted, only 27.3% of them correctly answered the number of servings of vegetables to eat on the pretest, but this increased to 55.6%, which correctly identified

Table 1: Characteristics of study participants (N = 11).

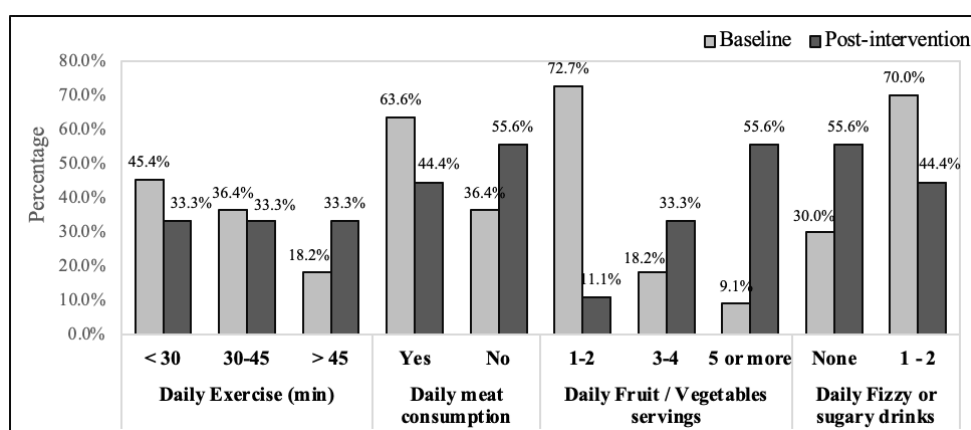
Variables	Frequency	Percent
Age group (years)		
20-29	2	18.2
30-39	3	27.3
40-49	1	9.1
50-59	1	9.1
60+	4	36.4
Sex		
Female	7	63.6
Male	4	36.4
Years in USA		
Less than 1	1	9.1
1-5	3	27.3
6-10	3	27.3
11-15	2	18.2
More than 15	2	18.2
Level of Education		
Graduate	2	18.2
Bachelor's	4	36.4
Diploma	1	9.1
Associate	1	9.1
No schooling completed	3	27.3
Employment status		
Full-time	7	63.6
Part-time	3	27.3
Unemployed	1	9.1
African country		
Ghana	1	9.1
Malawi	1	9.1
Nigeria	8	72.7
Sierra Leone	1	9.1

Table 3: Changes in respondents' biometric measures.

Variables	Mean $\pm$ SD		t	df	p value
	Baseline	Post-Intervention			
Systolic BP (mmHg)	125.4 $\pm$ 8.4	119.9 $\pm$ 7.4	3.77	6	0.009
Diastolic BP (mmHg)	81.1 $\pm$ 4.8	76.7 $\pm$ 4.3	3.916	6	0.008
Fasting Blood Glucose (mg/dl)	108.3 $\pm$ 23.0	102.4 $\pm$ 15.1	1.211	6	0.272
Weight (pounds)	184.2 $\pm$ 28.7	178.1 $\pm$ 31.1	1.682	8	0.131
Height (inches)	65.2 $\pm$ 4.8	66.0 $\pm$ 4.8	-1.793	8	0.111
Body mass index (Kg/m ²)	30.8 $\pm$ 6.5	29.0 $\pm$ 6.2	3.182	8	0.013

Table 4: Pre- and post-intervention nutrition knowledge.

Variables	Baseline (n = 11) n (%)	Post-intervention (n = 9)
How many servings of fruit and vegetables are recommended per day?		
1-4	8 (72.7)	4 (44.4)
5 or more	3 (27.3)	5 (55.6)
How many drinks are recommended for women per day?		
1	5 (45.5)	7 (77.8)
2 or more	6 (54.5)	2 (22.2)
Using a variety of spices, like garlic, onion, and pepper for seasoning, is good as these are low in salt.		
False	2 (18.2)	9 (100.0)
True	9 (81.8)	
The best meat is high in fat.		
False	8 (72.7)	9 (100.0)
True	3 (27.3)	
Fish and other seafood is a better choice for meat or protein.		
False	2 (18.2)	
True	9 (81.8)	9 (100.0)
Water is not needed in the adult diet.		
False	8 (72.7)	8 (72.7)
True	3 (27.3)	1 (9.1)
Red and orange vegetables are better than green leafy vegetables.		
False	9 (81.8)	4 (44.4)
True	2 (18.2)	5 (55.6)
Beans are a good example of a food high in fibre.		
False	3 (27.3)	3 (33.3)
True	8 (72.7)	6 (66.7)
How many drinks are recommended for men per day?		
2	8 (72.7)	8 (88.9)
3 or more	3 (27.3)	1 (11.1)
What cultural or religious beliefs affect the types of food your family eats?		
None / NA	10 (90.9)	4 (44.4)
Christianity	1 (9.1)	3 (33.3)
Fear		1 (11.1)
Our food is good		1 (11.1)

**Figure 1:** Clustered bar chart depicting intervention exercise and dietary habits.

the optimal five or more servings post-intervention. A similar pattern was also observed with the knowledge of recommended daily alcohol drinks for women, with the correct pretest proportion increasing from 45.5% to 77.8% post-intervention.

Table 5 presents changes in participants' beliefs about nutrition and food choices. As shown in the table, despite the high proportion of participants agreeing with the right nutritional practices and ideals at the pretest, this increased post-intervention.

The pretest and post-intervention knowledge, attitudes, and beliefs of participants with respect to culturally specific diets and dietary practices are shown in figure 2. Only 30.0% of participants had an elevated level of culturally specific diet pretest, but

this proportion increased to 66.7% post-intervention. Also, none of the participants received training on culturally specific diets at the pretest, whereas 77.8% indicated that they had been trained post-intervention. The pretest proportion of participants with a positive general attitude towards incorporating cultural dietary practices into their lifestyles increased from 70% to 100% post-intervention.

In conclusion, table 6 depicts the overall effectiveness of the intervention. The majority were satisfied or more with the intervention (> 80%); they met the participation goal (> 70%). 77% of the participants either verbalized a better attitude or made some positive dietary habit changes toward cultural diet. The proportion with positive attitudes towards cultural dietary practices rose from 70% to 100%.

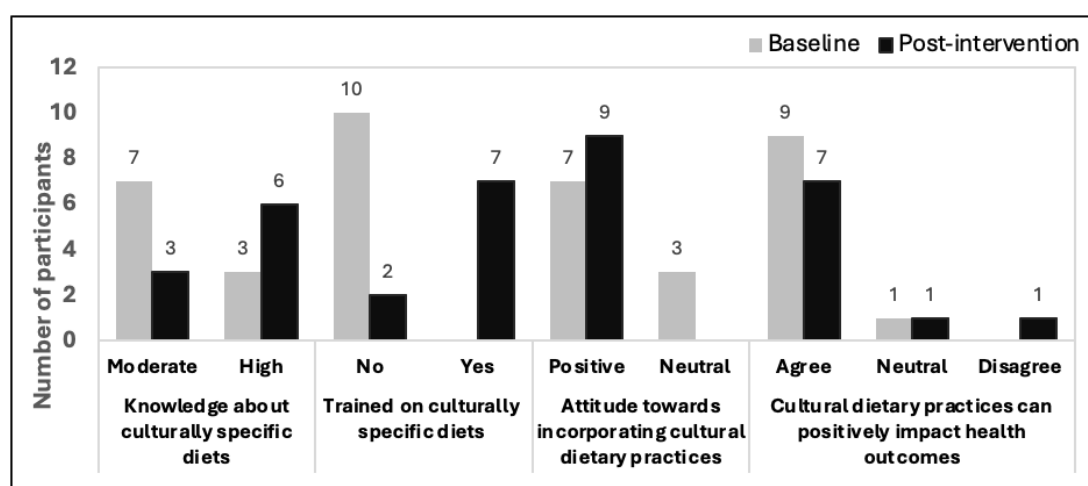


Figure 2: Clustered bar chart depicting knowledge, attitude, and beliefs about cultural dietary practices.

Table 5: Pre- and post-intervention nutritional beliefs.

	Baseline (n = 11) n (%)	Post-intervention (n = 9)
Food portion size can help my overall health.		
Agree	8 (80.0)	8 (88.9)
Neutral	0 (0.0)	1 (11.1)
Disagree	2 (20.0)	0 (0.0)
Understand the importance of balancing food choices		
Agree	7 (70.0)	8 (88.9)
Neutral	1 (10.0)	1 (11.1)
Disagree	2 (20.0)	0 (0.0)
Can eat native foods and still be healthy		
Agree	7 (70.0)	7 (77.8)
Neutral	1 (10.0)	2 (22.2)
Disagree	2 (20.0)	0 (0.0)
Understand food choices and how they affect health		
Agree	6 (60.0)	6 (66.7)
Neutral	3 (30.0)	3 (33.3)
Disagree	1 (10.0)	0 (0.0)
Food choices are an important part of my culture or religion		
Agree	4 (40.0)	5 (55.6)
Neutral	4 (40.0)	3 (33.3)
Disagree	2 (20.0)	1 (11.1)

Table 6: Post-intervention evaluation (N = 9).

Variables	Frequency	Percent
How satisfied were you with the intervention		
Most satisfied (5)	2	22.2
Satisfied (4)	6	66.7
Least satisfied (1)	1	11.1
Study participation goals		
Better educated on dieting and its impact on my health	1	25.0
Reducing my weight	2	50.0
Nothing	1	25.0
Most informative aspects of culturally specific diets		
A lot	2	33.3
How to better eyeball the quantity of what I eat	1	16.7
How to cook and be healthy; bake instead of frying, palm oil too much is not healthy	1	16.7
Mediterranean	1	16.7
Reedy and Local Amala	1	16.7
Post intervention attitude change towards culturally specific diets		
Increased	7	77.8
No Change	2	22.2
Post intervention dietary habits changes		
Yes	7	77.8
No	2	22.2
Changes made		
Baking instead of frying	1	16.7
Cooking more from home	1	16.7
Adding fruits / veggies into diet and attempt at portion control	1	16.7
Portion size, eat more vegetables and exercise	1	16.7
Taking my local food in right portions	1	16.7
Use less salt and oil. Cook vegetables in lesser time to prevent loss of nutrient	1	16.7
Most helpful aspects of intervention		
All	1	14.3
Most	1	14.3
Cultural healthy diet	1	14.3
Portioning my local food	1	14.3
Understanding me and work with me	2	28.6
Not applicable	1	14.3

Discussion

This intervention showed the effectiveness of incorporating traditional meals in healthcare advice given to patients with chronic diseases. A paired samples T-test was used to compare changes in biometric measures, which revealed statistically significant reductions in systolic and diastolic blood pressures, demonstrating positive health outcomes. One education area was reducing salt intake, a risk factor for the worsening of hypertension and cardiovascular diseases, the leading cause of death prevalent among African American communities with higher salt consumption (Zang, et al. 2020) [35]. Although reductions in fasting blood glucose and weight were not statistically significant ($P > 0.1$), a significant decrease in BMI suggested overall beneficial trends. Also, positive changes observed in participants' beliefs regarding nutrition and dietary habits, such as a reduction in meat consumption and increased fruit and vegetable intake (see Table 4), suggest the program's effectiveness. Further, the increased knowledge about healthy nutrition and positive shift in attitudes towards culturally specific diets emphasized the importance

of tailored education and behavior change. All the participants were eager to learn, and the fact that only 27.3% had no formal schooling indicates that higher levels of education positively influence health education outcomes. Most (80%) of participants indicated satisfaction with the support received, which aligns with previous research indicating that culturally tailored approaches enhance nutrition behaviors and health outcomes (Wadi, et al. 2021) [8]. This suggests that educational interventions tailored to cultural contexts can effectively improve nutritional practices in healthcare.

The impact of utilizing personalized, patient-centered care strategies, particularly those led by Doctor of Nursing Practice (DNP) professionals, is crucial in addressing the unique health disparities faced by African immigrants in the USA. Self-management, a cognitive process in chronic disease management (O'Connell, 2018) [3], was central to the DNP's intervention, which targeted dietary challenges such as cultural influences and unfamiliar diets identified by Alloh, et al. (2019) [1]. Initially lacking relevant education, 77.8%

of participants reported increased knowledge and a 30% rise in positive attitudes toward cultural dietary practices post-intervention. By integrating insights, the intervention clinical dietary recommendations with cultural practices, promoting sustainable health improvements within the immigrant community. The family-centered educational sessions fostered a reconnection with the participants' African cuisine, which could have contributed to health improvement. This patient-centered approach, often overlooked in interventions (Brunner-La Rocca, et al. 2016) [21], significantly enhanced care continuity and support within the immigrant community. The self-management intervention addressed their preferences and needs and effectively linked the nutritional changes to population dynamics (Grilo, et al. 2017) [23]. The patient's lifestyle must be central to their management system and involved in all coordinated actions, considering their wants, needs, and preferences (Grilo, et al. 2017) [23]. The results, consistent with several studies, support the idea that self-management is a helpful measure for linking nutritional changes to population dynamics. Pre- and post-intervention assessments showed that knowledge, attitudes, and beliefs regarding culturally specific dietary practices increased from 30% to 66.7%. At the pretest, none had prior training on culturally specific diets, whereas 77.8% reported being trained post-intervention. The proportion of participants with a positive general attitude towards incorporating cultural dietary practices into their lifestyles increased from 70% to 100% post-intervention. Effective communication between patients, their families, and healthcare providers is crucial for successful chronic disease management (Grilo, et al. 2017; Kourakos, et al. 2018; Miller, et al. 2015; O'Connell, 2018) [23,24,13,3].

New contribution to the literature

The findings of this project show some promising evidence for potential public health impact, as the literature review highlights the limited number of studies from research and practice. To effectively address unhealthy food choices and related nutrition problems, dietitians and policymakers must consider ethnic food behaviors in food assistance programs (Gustavsen, et al. 2021; O'Connell, 2018) [14,3]. Food availability, time, work schedules, taste, and cultural background influence eating habits (Osibogun, et al. 2021; Turkon-Ocran, 2020) [15,16]. Patients have essential responsibilities in managing their condition through lifestyle changes, treatment adherence, and self-monitoring, including following dietary guidelines, which can be challenging due to cultural and personal food preferences. Existing interventions often target separate treatment aspects rather than integrating them. Despite the need for culturally sensitive dietary interventions, they remain uncommon. Hence, there is a call to policyholders and educators for increased

diversity in nutrition fields (McQuaid & Landier, 2018) [36]. One significant barrier to adherence to dietary guidelines is the conflict between healthcare messages and cultural beliefs. For example, hospital management could incorporate familiar foods to add normalcy to patients' routines.

Future projects and suggestions for sustainability

Proper dietary guidelines help translate nutrient needs into healthy eating (Dwyer, 2019) [11]. Notably, fizzy/sugary drink consumption rose from 30.0% pre-intervention to 55.6% post-intervention, indicating an area that requires additional focus in future interventions. This increase in unhealthy drink consumption could be a result of cultural influences or a lack of awareness about the health risks associated with these drinks. The intervention showed modest improvements in fasting blood glucose, indicating better diabetes management, though the impact varied among participants. Extended intervention and more extensive studies could refine strategies to show the response of demographic variations to tailored intervention and affect outcomes.

Conclusion

This project provided insight into the participant demographics, emphasizing immigration status, age, and prevalent health conditions. Understanding the demographic profile is crucial for tailoring interventions to specific population groups. The findings show a positive attitude toward cultural dietary practices and moderate knowledge of culturally particular diets, which indicated a readiness for intervention and potential receptivity to a tailored health program. They will enhance cultural sensitivity and support tailored chronic disease management for African immigrants. Seek feedback and identify change champions to empower with information and resources for practice improvements.

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References

1. Alloh FT, Hemingway A, Turner-Wilson A (2019) Systematic review of diabetes management among black African immigrants, white and South Asian populations. *Journal of Global Health Reports* 3: e2019020.
2. (2020) Columbus, OH. Data USA.
3. O'Connell S, McCarthy VJC, Savage E (2018) Frameworks for self-management support for chronic disease: A cross-country comparative document analysis. *BMC Health Serv Res* 18: 583.
4. (2021) Health and economic costs of chronic diseases. CDC.

5. Hales CM, Carroll MD, Fryar CD, Ogden CL (2017) Prevalence of obesity among adults and youth: United States, 2015-2016. *NCHS Data Brief* 1-8.
6. Kris-Etherton PM, Petersen KS, Velarde G, Barnard ND, Miller M, et al. (2020) Barriers, opportunities, and challenges in addressing disparities in diet-related cardiovascular disease in the United States. *J Am Heart Assoc* 9: e014433.
7. (2021) Obesity and African Americans. Office of Minority Health.
8. Wadi NM, Asantewa-Ampaduh S, Rivas C, Goff LM (2021) Culturally tailored lifestyle interventions for preventing and managing type 2 diabetes in adults of Black African ancestry: A systematic review of tailoring methods and their effectiveness. *Public Health Nutr* 25: 422-436.
9. (2020) Cultural respect. National Institutes of Health.
10. Omenka OI, Watson DP, Hendrie HC (2020) Understanding the healthcare experiences and needs of african immigrants in the United States: A scoping review. *BMC Public Health* 20: 27.
11. Dwyer JT (2019) The importance of dietary guidelines. Reference Module in Food Science.
12. Fox M, Thayer ZM, Wadhwa PD (2017) Acculturation and health: The moderating role of sociocultural context. *American Anthropologist* 119: 405-421.
13. Miller WR, Lasiter S, Ellis RB, Buelow JM (2015) Chronic disease self-management: A hybrid concept analysis. *Nursing Outlook* 63: 154-161.
14. Gustavsen GW, Dong D, Nayga RM, Rickertsen K (2021) Ethnic variation in immigrants' diets and food acculturation - United States 1999-2012. *Agricultural and Resource Economics Review* 50.
15. Osibogun O, Ogunmoroti O, Mathews L, Okunrintemi V, Tibuakuu M, et al. (2021) Greater acculturation is associated with poorer cardiovascular health in the multi-ethnic study of atherosclerosis. *J Am Heart Assoc* 10: e019828.
16. Turkon-Ocran RN, Nmezi NA, Botchway MO, Szanton SL, Golden SH, et al. (2020) Comparison of cardiovascular disease risk factors among African immigrants and African Americans: An analysis of 2010 to 2016 national health interview surveys. *J Am Heart Assoc* 9: e013220.
17. Noonan AS, Velasco-Mondragon HE, Wagner FA (2016) Improving the health of African Americans in the USA: An overdue opportunity for social justice. *Public Health Rev* 37: 12.
18. Perreira KM, Pedroza JM (2019) Policies of exclusion: Implications for the health of immigrants and their children. *Annual Review of Public Health* 40: 147-166.
19. Beck J, Greenwood DA, Blanton L, Bollinger ST, Butcher MK, et al. (2020) 2017 National standards for diabetes self-management education and support. *Diabetes Educ* 43: 449-464.
20. Nair L, Adetayo OA (2019) Cultural competence and ethnic diversity in healthcare. *Plast Reconstr Surg Glob Open* 7: e2219.
21. Brunner-La Rocca HP, Fleischhacker L, Golubnitschaja O, Heemskerk F, Helms T, et al. (2016) Challenges in personalized management of chronic diseases-heart failure as a prominent example of advancing the care process. *EPMA J* 7: 2.
22. Chauhan A, Walton M, Manias E, Walpole RL, Seale H, et al. (2020) The safety of health care for ethnic minority patients: A systematic review. *Int J Equity Health* 19: 118.
23. Grilo AM, dos Santos MC, Gomes AI, Rita JS (2017) Promoting patient-centered care in chronic disease. *Patient-Centered Medicine*.
24. Kourakos MI, Vlachou ED, Kelesi MN (2018) Empathy in the health professions: An ally in the care of patients with chronic diseases. *International Journal of Health Sciences & Research* 8: 233-240.
25. Hall KD, Kahan S (2018) Maintenance of lost weight and long-term management of obesity. *Med Clin North Am* 102: 183-197.
26. Leung G, Stanner S (2011) Diets of minority ethnic groups in the UK: Influence on chronic disease risk and implications for prevention. *Nutrition Bulletin* 36: 155-287.
27. Horvat I, Horey D, Romios P, Kis-Rigo J (2014) Cultural competence education for health professionals. *Cochrane Database Syst Rev* 2014: CD009405.
28. Khare-Ranade P, Myers EF, El Shikieri AB (2022) Development of quick guides for assessing food/nutrition and culture to enhance assessment of food and nutrition-related history in cross-cultural clients of nutrition and dietetics practitioners worldwide world. *Journal of the Academy of Nutrition and Dietetics* 122: 1233-1238.
29. (2022) Black immigrants in the United States: Status, challenges, and impacts. *Boundless*.
30. Wilson DR, Elogoghail N (2016) Bronx health education project for West African immigrants. *J Cult Divers* 23: 34-36.
31. Albougami AS, Pounds KS, Alotaibi JS (2016) Comparison of four cultural competence models in transcultural nursing: A discussion paper. *Int Arch Nurs Health Care* 2: 1-5.
32. Petiprin A (2020) Culture care theory.
33. McEwen M, Wills EM (2019) Theoretical basis for Nursing. (5th edn), Wolters Kluwer, Philadelphia.
34. Mahdizadeh M, Heydari A, Karimi-Moonaghi H (2015) Clinical interdisciplinary collaboration models and frameworks from similarities to differences: A systematic review. *Glob J Health Sci* 7: 170-180.
35. 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: 183-189.
36. McQuaid EL, Landier W (2018) Cultural issues in medication adherence: Disparities and directions. *J Gen Intern Med* 33: 200-206.